

**Item Sl. No. 1**

<b>Irradiance Meter</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>Clinical purpose</b>	used for checking irradiance of phototherapy units
1.2	<b>Used by clinical department/ward</b>	New born stabilisation unit, SNCU
1.3	<b>Overview of functional requirements</b>	
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1. Hand held, Band pass filter with max transmission 425-475 nm. 2. Light detector sensitivity range: 0-2000 $\mu\text{W}/\text{cm}^2/\text{nm}$ . 3. Measurement range: 0-100 $\mu\text{W}/\text{cm}^2/\text{nm}$ . 4. Minimal graduation: 1 $\mu\text{W}/\text{cm}^2/\text{nm}$ . 5. Accuracy: $\pm 10\%$ . 6. LED or LCD display. 7. Should be able to zero between measurements. 8. Fast measurement response- <5 sec. 9. Memory storage: required. 10. UV and IR should be blocked. 11. Hold function.
2.2	<b>Settings</b>	NA
2.4	<b>User's interface</b>	Digital display
2.5	<b>Software and/or standard of communication(where ever required)</b>	Built in software
2.6	<b>Others</b>	
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>noise (in dBa)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Mobile
<b>4. Energy Source (Electricity, UPS, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	220V/ 50 Hz
4.2	<b>Battery operated</b>	in built
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	Should be provided with fuse while using mains for charging.
4.5	<b>Power consumption</b>	30W max
4.6	<b>Other energy supplies</b>	NA
<b>5. Accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	Charger
5.2	<b>Spare parts (main ones)</b>	No spares
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
5.4	<b>Others</b>	

<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	NA
<b>7. Standards And Safety</b>		
7.1	<b>Certificates (pre-market, sanitary, ..);Performance and safety standards (specific to the device type);Local and/or international</b>	Shall meet CE/FDA/BIS/ISO 13485.
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>Requirements for sign-of</b>	Hand-over report with end user sign.
8.3	<b>training of staf (medical, paramedical, technicians)</b>	user training on complete operation should be provided
8.4	<b>Others</b>	
<b>9. Warranty And Maintenance</b>		
9.1	<b>Warranty</b>	3 yrs
9.2	<b>maintenance tasks</b>	Calibration to be done at least once a year.
9.3	<b>Service contract clauses, including prices</b>	Two Preventive Maintenance annually under the warranty period.
9.4	<b>Others</b>	
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Operator & service manual with circuit diagram should be provided with the machine.
10.2	<b>Other accompanying documents</b>	calibration certification to be attached with the installation report.
10.3	<b>Recommendations for maintenance</b>	NA
10.4	<b>Others</b>	
<b>11. Notes</b>		
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/ landline number)</b>	
11.2	<b>Recommendations or warnings</b>	

**Item Sl. No. 2****Suction Pump, Foot Operated**

Definition		A portable assembly of devices primarily intended to be used by emergency medical services (EMS) to aspirate fluids, secretions, or other foreign materials from a patient's airway by means of suction. It typically consists of a manually- powered (hand or foot-operated) mechanism to drive the suction pump, tubing, a collection container, a vacuum gauge and control knob, and a microbial filter. The pump creates a vacuum in the suction tubing, which is used for the removal of materials into the collection container. This system is typically used during patient transport or for emergency situations.
<b>General</b>		
<b>1. Use</b>		
1.1	<b>Clinical purpose</b>	to aspirate fluids, secretions, or other foreign materials from a patient's airway by means of suction.
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	0-700 mm Hg $\pm$ 10 mm regulable, lutter free vacuum control knob, 90 ltrs / min, tight itting jar cap.
2.2	<b>Settings</b>	Manual
2.3	<b>User's interface</b>	Manual
2.4	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	Max spec: 32 x 17 x 30 cms
3.2	<b>Weight (lbs, kg)</b>	2.5kg
3.3	<b>Configuration</b>	NA
3.4	<b>noise (in dBa)</b>	50 dB A $\pm$ 3
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	No
<b>4. Energy Source (Electricity, UPS, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>Battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>accessories &amp; spare parts</b>	Autoclavable collection bottles, tapering connector, a vacuum gauge, leak free non-return (NR) valve and control knob.
5.2	<b>Consumables / reagents (open, closed system)</b>	10 nos. polypropylene microbial filter (size: 0.45 micrometer particle size,90% filtration),air inlet: 8mm (outer diameter) 6mm(inner diameter), lubricant for foot paddle, Tubing:8 mm ID x 2 mtr (PVC), polycarbonate jar.
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	Operating condition: –Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances.

6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. Standards and Safety</b>		
7.1	<b>Certifications</b>	Should be FDA / CE approved product, ISO 13485:2003; ISO 10079-2-1999: Medical Suction unit - Part 2 : Manually powered suction equipment.
<b>8. Training and installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>training of staff (medical, paramedical, technicians) Optional (depending upon scope of work order)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. Warranty And Maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	maintenance manual detailing complete maintaining schedule.
9.3	<b>Service contract clauses, including prices</b>	Local clinical staff / authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, technical and maintenance manuals to be supplied in english language along with machine diagrams. List to be provided of equipment and procedures required for local calibration and routine maintenance.
10.2	<b>Other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Any Contract (AMC/MC/add-hoc) to be declared by the manufacturer.
11.2	<b>Recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

**Item Sl. No. 3****Suction Pump Portable**

Definition	A portable assembly of devices primarily intended to be used by emergency medical services (EMS) to aspirate fluids, secretions, or other foreign materials from a patient's airway by means of suction. It typically consists of a gas-powered mechanism driven by medical air or oxygen (O <sub>2</sub> ) from a gas cylinder to create the suction (e.g., a venture tube), tubing, a collection container, a vacuum gauge and control knob, and a microbial filter. The pump creates a vacuum in the suction tubing which is used for the removal of materials into the collection container. This system is typically used during patient transport or for emergency situations.	
<b>General</b>		
1	<b>Use</b>	
1.1	<b>Clinical purpose</b>	to aspirate fluids, secretions, or other foreign materials from a patient's airway by means of suction.
1.2	<b>Used by clinical department/ward</b>	All
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	0-700 mm Hg $\pm$ 10 reusable, flutter free vacuum control knob, 25 ltrs/min, tight fitting jar cap, vacuum capacity; 18 litres/min, maximum depression: -75 kPa (-563 mmHg).
2.2	<b>technical characteristics (continued)</b>	Wide mouthed 2 x 2 Ltrs. (Polycarbonate) with self-sealing bungs and mechanical over low safety device.
2.3	<b>Settings</b>	
2.4	<b>User's interface</b>	Manual
2.5	<b>Software and/or standard of communication (where ever required)</b>	NA
2.6	<b>Others</b>	
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	Max: 43 x 30 x 68 cms
3.2	<b>Weight (lbs, kg)</b>	Max: 27 Kg
3.3	<b>Configuration</b>	
3.4	<b>noise (in dBA)</b>	50 dB A $\pm$ 3
3.5	<b>heat dissipation</b>	Should maintain upto 36.5 deg temp and the heat disbursed through a exhaust fan.
3.6	<b>mobility, portability</b>	Yes
<b>4. Energy Source (Electricity, UPS, Solar, Gas, Water, CO<sub>2</sub> ...)</b>		
4.1	<b>Power Requirements</b>	230 V, 50 Hz, 2 $\pm$ 0.5 Amps, 200 watts.
4.2	<b>Battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	Voltage corrector / stabilizer to allow operation at $\pm$ 30% of local rated voltage. Use of SMPS to correct voltage.
4.4	<b>Protection</b>	Electrical protection by resettable over current breakers or replaceable fuses, fitted in both live and neutral lines.
4.5	<b>Power consumption</b>	200 W
4.6	<b>Other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		

5.1	<b>accessories (mandatory, standard, optional); Spare parts (main ones)</b>	Autoclavable collection bottles, tapering connector, collection container, a vacuum gauge, lubricant, leak free NR valve and control knob.
5.2	<b>Consumables / reagents (open, closed system)</b>	10 nos. polypropylene microbial filter(size: 0.45 micrometre particle size; 90% filtration), Tair inlet: 8mm(outer diameter 6mm (inner diameter), tubing:8 mm ID x 2 mtr (PVC), polycarbonate jar.
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	Operating condition: –Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. Standards and Safety</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); Performance and safety standards (specific to the device type)</b>	Should be FDA / CE approved product, ISO 13485:2003; ISO 10079-2-1999: Medical Suction equipment - Part 1 : Electrically powered suction equipment- Safety requirements.
<b>8. Training and Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Availability of 15 amp socket, Supplier to perform installation, safety and operation checks before handover.
8.2	<b>Requirements for sign-of</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>training of staf (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
8.4	<b>Others</b>	
<b>9. Warranty and Maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>Service contract clauses, including prices</b>	Local clinical staff to affirm completion of installation.
9.4	<b>Others</b>	
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, technical and maintenance manuals to be supplied in English language. List to be provided of equipment and procedures required for local calibration and routine maintenance.
10.2	<b>Other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/ landline number)</b>	Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer.
11.2	<b>Recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

**Item Sl. No. 4****Transport Incubator**

Name and Coding		
Definition	<p>An electrically-powered unit designed to provide an enclosed controlled environment to maintain appropriate temperature and humidity levels mainly for premature infants and other newborns who cannot effectively regulate their body temperature; it is typically on wheels and also designed for transporting infants either outside or within the healthcare facility.</p> <p>It typically consists of a clear removable plastic hood with a mattress and operates using mains electricity (AC-powered) when not in use for transportation. During transport, it is connected to an ambulance electrical outlet or is battery-powered from a battery pack.</p>	
General		
1. Use		
1.1	<b>Clinical purpose</b>	designed to provide an enclosed controlled environment to maintain appropriate temperature and humidity levels mainly for premature infants and other newborns who cannot effectively regulate their body temperature
1.2	<b>Used by clinical department/ward</b>	(Ex : Intensive care unit (ICU), radiology department, orthopaedics, emergencies, ...)
1.3	<b>Overview of functional requirements</b>	<p>Control of air temperature and infant skin temperature.</p> <p>Clear, hard cabinet for infant viewing Easy access control panel, with light touch operation switches.</p> <p>Facility to elevate base, adjustable range. Self-test functions are performed.</p> <p>Built for transport of infants between wards or health facilities, including by vehicle Must have skin temperature display</p>
Technical		
2. Technical Characteristics		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. Visual and audible alarms for:               <ol style="list-style-type: none"> <li>(i) Patient and air high/low temperature alarm.</li> <li>(ii) Air circulation / probe / system / power failure alarm.</li> </ol> </li> <li>2. Heater power indicator.</li> <li>3. Air velocity 0.35m/sec.</li> <li>4. Oxygen input low rate 5 to15 litres/min or oxygen concentration range 25 to 70%.</li> <li>5. Maximum CO2 concentration inside incubator 0.2%.</li> <li>6. Internal noise level &lt; 60 dB.</li> <li>7. Mode of operation should be properly displayed.</li> <li>8. Indicator light should be provided for its ready to be in normal use.</li> <li>9. Infants straps should be provided to restrict the baby movement.</li> </ol>

		<p>10. skin temperature probe should be small in size not more than 10mm diameter and 4mm in height to ix the probe firmly on the infant. Baby contact material should be biocompatible as per ISO 10993 standard requirement.</p> <p>11. Infant bed should be drawable. Mattress foam density should be minimum 25kg./cm<sup>3</sup> and infant bed mattress cover should be biocompatible material.</p> <p>12. Examination light should be provided for inspection.</p> <p>13. Should have heater power indicator.</p> <p>14. Warm-up time 30-40 minutes and shall not differ by more than 20%.</p> <p>15. Shall be equipped with a thermal cut-out. It shall be so arranged that the heater is disconnected and an auditory and visual warning is given at an incubator temperature which does not exceed 40 deg C.</p> <p>16. Should have elbow operateable ports and head access door.</p> <p>17. It should not topple over at 10 deg inclined plane.</p> <p>18. Patient skin temperature range: 35 deg C to 37.5 deg C. over ride upto 39 deg C.</p> <p>19. Air temperature range: 30 deg C to 39 deg C; Temperature resolution <math>\pm 0.1</math> deg C; Temperature accuracy less than <math>\pm 0.2</math> deg C.</p>
2.2	<b>Settings</b>	Patient skin temperature range: 35 deg C to 37.5 deg C. over ride upto 39 deg C Air temperature range: 30 deg C to 39 deg C. humidity: 40-80%.
2.3	<b>User's interface</b>	Display is to be backlit and allows easy viewing in all ambient light levels.
2.4	<b>Software and/or standard of communication</b>	In built
2.5	<b>Others</b>	<p>1. Patient leakage current should be less than 100 <math>\mu</math>A.</p> <p>2. Temperature on the baby mattress should not exceed 40 deg C and 43 deg for other materials.</p> <p>3. Uniformity of temperature on the horizontal mattress shall not exceed 1.5 deg C and in tilted mattress not exceed 2 deg C.</p> <p>4. The overshoot temperature shall not exceed 2 deg C.</p> <p>5. The stability of temperature during steady temperature shall not difer from the average temperature by more than 1 deg C.</p>
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	Baby bed should be atleast 60X30cm and the canopy should be atleast 80X40 cm.
3.2	<b>Weight (lbs, kg)</b>	not exceeding 40kg. (without cylinders).
3.3	<b>Configuration</b>	<p>Oxygen port with tubing, also mount for oxygen cylinder of 5 litre size. Accommodates shelves, suction unit and I/V poles.</p> <p>Double-walled cabinet with at least two hand ports. Should have collapsible trolley with lockable castors.</p> <p>Mounted on mobile base, lowest height setting of which is at least 80 cm high Minimum castor diameter 12cm At least two castors must be itted with brake facility Castors must be made of conductive material and rotate (swivel) freely around the vertical axis The canopy and infant bed should be crevice free for ease of cleaning.</p>
3.4	<b>noise (in dBa)</b>	<60dBa; Audible sound level should be atleast 65dBa at 3meter distance from the device; the alarm sound level in the compartment shall not exceed dBA.
3.5	<b>heat dissipation</b>	Should maintain upto 37 deg temp.
3.6	<b>mobility, portability</b>	Yes, on castors.
<b>4. Energy Source (electricity, UPS, Solar, Gas, Water, CO<sub>2</sub>....)</b>		

4.1	<b>Voltage (value, AC or DC, monophase or triphase)</b>	220 to 240V, 50 Hz
4.2	<b>Battery operated</b>	Battery charger to be integral to mains power supply, and to charge battery during mains power operation of unit. Electrical protection by resettable overcurrent breakers or replaceable fuses, fitted in both live and neutral lines. Battery backup of 2 hours for equipment operation. The battery should be protected from overcharging.
4.3	<b>tolerance (to variations, shutdowns)</b>	Voltage corrector / stabilizer to allow operation at $\pm 30\%$ of local rated voltage.
4.4	<b>Protection</b>	Internal, replaceable, rechargeable battery allows operation for at least two hours in the event of power failure.
4.5	<b>Power consumption</b>	
4.6	<b>Other energy supplies</b>	Mains cable to be at least 3m length.
<b>5 Accessories, Spare Parts, Consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	With washable and removable straps and binders.
5.2	<b>Spare parts (main ones)</b>	Two extra sets of all sensors.
5.3	<b>Consumables / reagents (open, closed system)</b>	Two extra sets of litters, two extra set of fuses (if replicable fuses used).
<b>6. Environmental and Departmental Considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances. – an ambient air velocity is less than 0.3 m/s.
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	Unit layout to enable easy cleaning and sterilization of all surfaces, with no unreachable fluid traps. The case is to be cleanable with alcohol or chlorine wipes.
6.3	<b>Others</b>	
<b>7. Standards and Safety</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); Performance and safety standards (specific to the device type); Local and/or international</b>	Should be FDA / CE approved product Manufacturer / supplier should have ISO 13485 certificate for quality standard. Electrical safety conforms to standards for electrical safety IEC-60601-1. Shall meet IEC-60601-1-2 (General requirements for safety - electromagnetic compatibility) Shall comply with IEC 60601-2-20 transport incubator standard requirement.
<b>8. Training and Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform installation, safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. Warranty and Maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	Advanced maintenance tasks required shall be documented.
9.3	<b>Service contract clauses, including prices</b>	Local clinical staff to affirm completion of installation.
<b>10. Documentation</b>		

10.1	<b>Operating manuals, service manuals, other manuals</b>	User, technical and maintenance manuals to be supplied in English language. Certificate of calibration and inspection to be provided. List to be provided of equipment and procedures required for local calibration and routine maintenance List to be provided of important spares and accessories, with their part numbers and cost.
10.2	<b>Other accompanying documents</b>	User/Technical/Maintenance manuals to be supplied in English
<b>11. Notes</b>		
11.1	<b>Other information</b>	Any Contract (AMC/MC/add-hoc) to be declared by the manufacturer
11.2	<b>Recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

**Item Sl. No. 5**

<b>BINOCULAR MICROSCOPE</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	Clinical purpose	Binocular microscope is simply a microscope that lets the viewer use both eyes. The microscope has 2 eye lenses. The development of the double eye piece microscope was adapted to reduce the eyestrain and muscular strain that typically results from traditional microscopes.
1.2	Used by clinical department/ward	Clinical labs.
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical Characteristics (Specific To This Type Of Device)</b>	<ol style="list-style-type: none"> <li>1. Body-Single mould sturdy stand, inclined Binocular body 30 °, 360° rotatable head.</li> <li>2. Eyepieces-Highest quality 10 X/18mm or higher wide angle anti fungus field eyepiece. One with pointer. Diopter adjustment must be present on both eye pieces.</li> <li>3. Objectives-Parfocal, antifungus coated 4x, 10x, 40x and 100x (oil immersion) with semi planner achromatic correction. Objective should be well centred even if their position on turret is changed.</li> <li>4. Optical system-Infinity corrected.</li> <li>5. Stage - Double plate rackless horizontal mechanical stage preferably 100 x 140 mm with fine vernier graduations designed with convenient coaxial adjustment for slide manipulation preferably through 30 x 70 mm double slide holder.</li> <li>6. Sub stage-Abbe condenser focusable, continuously variable iris diaphragm</li> <li>7. Illuminator-Built-in LED light source with white light with intensity control and LED life of more than 10, 000 Hrs.</li> <li>8. Finish-A durable textured acid resistant finish.</li> <li>9. Battery backup : minimum 1 Hour.</li> <li>10. Nose piece: Outward / Backward tilted revolving nose piece suitable to accommodate four objectives with click stop and rubber grip.</li> <li>11. Focussing: Coaxial coarse and fine focussing knob, capable</li> </ol>

		of smooth, fine focussing movement sensitivity; minimum: 300 micron; focussing stop for slide safety.
2.2	<b>User's Interface</b>	Manual
2.3	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Capacity</b>	NA
3.4	<b>Noise (in dBA)</b>	NA
3.5	<b>Heat dissipation</b>	NA
3.6	<b>Mobility, portability</b>	Portable
<b>4. ENERGY SOURCE (electricity, upS, solar, gas, water, Co2 ....)</b>		
4.1	<b>Power requirements</b>	Input voltage- single/3-phase.
4.2	<b>Battery operated</b>	No
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Pressure gauge</b>	NA
4.5	<b>Operating pressure</b>	NA
4.6	<b>Sterilizing pressure</b>	NA
4.7	<b>Protection</b>	Should have over-charging cut-off with visual symbol.
4.8	<b>Power consumption</b>	Less than 2 W.
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables/ reagents (open, closed system)</b>	Should provide with wooden storage box, dust cover, immersion oil.
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATONS</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	---
6.2	<b>User's Care, Cleaning, Disinfection &amp; Sterility Issues</b>	Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1. Should be FDA/CE/BIS approved product. 2. Manufacturer and Supplier should have ISO 13485 Certificates for quality standards. 3. Electrical safety conforms to the standards for electrical safety IEC 60601- GENERAL requirements (or equivalent BIS Standard) 4. Certified to be compliant with IEC 61010-1, IEC 61010-2-40 for safety.
7.2	<b>Local And / Or International</b>	Manufacturer/supplier should have ISO Certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	1) Availability of 5 amp socket; 2) Safety and operation check before handover;
8.2	<b>requirements for sign-of</b>	Certificate of calibration and inspection from the manufacturer
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance Tasks</b>	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	<b>Service contract clauses,</b>	The spare price list of all spares and accessories (including

	including prices	minor) required for maintenance and repairs in future after guarantee/warranty period should be attached;
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating Manuals, Service Manuals, Other Manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection
10.2	<b>Other Accompanying Documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations Or Warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 6**

<b>CAPILLARY BILIRUBINOMETER</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	The capillary bilirubinometer is used for a quick check of bilirubin, as to promptly act with appropriate therapy. It is used to analyse the bilirubin, on centrifuged whole blood drawn in a micro capillary tube. Sample is analyzed through a double beam photometric system.
1.2	<b>Used by clinical department/ ward</b>	Analytical laboratories
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical Characteristics (Specific To This Type Of Device)</b>	1) Sample centrifuged whole blood. 2) Sample volume less than 70µl. 3) Reading cuvette heparinized haematocrit capillary. 4) Unit of measure mg/dl. 5) Measurement range 0/30 mg/dl. 6) Measure system Photometric double beam. 7) Reading time approx. 5s even with samples with high interference value. 8) Reading inaccuracy < 7%. 9) Bichromatic as per standard Filters. 10) Programming by built-in keypad. 11) Results on LCD/LED display and printer.
2.2	<b>User's Interface</b>	Manual

2.3	Software and/or standard of communication (where ever required)	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	NA
3.2	Weight (lbs, kg)	Up to 3 kg.
3.4	Noise (in dBA)	<65 dB
3.5	Heat dissipation	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism.
3.6	Mobility, portability	Portable
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	Power Requirements	Recharging unit: Input voltage- 220 V-240 V AC, 50 Hz
4.2	Battery operated	Yes
4.3	Tolerance (to variations, shutdowns)	NA
4.4	Protection	Should have over-charging cut-off with visual symbol.
4.5	Power consumption	Less than 100 W.
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables/ reagents (open, closed system)	1. Lancettes. 2. Sealing plasticine. 3. Glass capillaries (100 mm). 4. Thermal paper.
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	Atmosphere/Ambiance (air conditioning, humidity, dust ...)	As standard
6.2	User's care, Cleaning, disinfection & Sterility issues	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. STANDARDS AND SAFETY</b>		
7.1	Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international	1. Should be FDA/CE/BIS approved product. 2. Manufacturer and Supplier should have ISO 13485/US(FDA)/EU(CE) Certificates for quality standards.
7.2	Local and/or international	----
<b>8. TRAINING AND INSTALLATION</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	1) Availability of 5 amp socket; 2) Safety and operation check before handover;
8.2	Requirements for sign-of	Certificate of calibration and inspection from the manufacturer.
8.3	Training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	Warranty	3 years

9.2	<b>Maintenance tasks</b>	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached;
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection
10.2	<b>Other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations or warnings</b>	Any warning signs would be adequately displayed.

### Item Sl. No. 7

<h1>Centrifuge</h1>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	Used in Biochemical and Analytical labs for Hematocrit, blood Corpusule percentage, Serum Analysis, Precipitate Seperation and Blood Group matching.
1.2	<b>Used by clinical department/ ward</b>	Analytical Laboratories.
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. Speed: Maximum Range 4000 to 6000 RPM.</li> <li>2. Reciprocating Centrifugal force (RCF): 3000 to 3500.</li> <li>3. Minimum Capacity: 240 ml.</li> <li>4. Digital Timer range: 0 to 59 minutes.</li> <li>5. Auto Lid interlock to prevent opening while running centrifuge with emergency lid lock release.</li> <li>6. Motor imbalance detector feature - desirable.</li> <li>7. Microprocessor with digital display.</li> <li>8. Dynamic break for quick declaration.</li> <li>9. Stainless steel Chamber easy to clean.</li> <li>10. Hinges to prevent door falling.</li> <li>11. Rotor Sizes: 16 x 15ml.</li> <li>12. Rotors should be autoclavable.</li> </ol>

2.2	User's interface	Manual
2.3	Software and/or standard of communication (where ever required)	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	NA
3.2	Weight (lbs, kg)	NA
3.3	Capacity	120 ml or above
3.4	Noise (in dBA)	NA
3.5	Heat dissipation	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism.
3.6	Mobility, portability	Portable
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	Power Requirements	220-240 V/50 Hz.
4.2	Battery operated	No
4.3	Protection	NA
4.4	Power consumption	400 to 500 Watts
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables/ reagents (open, closed system)	Rubber adapter should be provider for the use of vacutainer for 3ml and 5ml.
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	Atmosphere/Ambiance (air conditioning, humidity, dust ...)	-----
6.2	User's care, Cleaning, Disinfection & Sterility issues	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. STANDARDS AND SAFETY</b>		
7.1	Certificates (pre-market, sanitary, ..); Performance and safety standards (specific to the device type);Local and/or international	1. Should be FDA/CE/BIS approved product. 2. Manufacturer and Supplier should have ISO 13485 Certificates for quality standards.
7.2	Local and/or international	Manufacturer/supplier should have ISO Certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	1) Availability of 5 amp socket; 2) Safety and operation check before handover;
8.2	Requirements for sign-of	Certificate of calibration and inspection from the manufacturer.

8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance tasks</b>	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached;
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection
10.2	<b>Other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. Notes</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations or warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 8**

<b>COLORIMETER</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	It is used to determine the concentration of colored compounds in solution. A colorimeter is a device used to test the concentration of a solution by measuring its absorbance of a specific wavelength of light.
1.2	<b>Used by clinical department/ ward</b>	Clinical Laboratory
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. Should have 5 no of filters for standard wave length from 400 nm to 700 nm. 2. Should have up to 3 decimal calibrated directly in optical density. 3. Detector should be encased spill proof photocell. 4. Should have facilities for concentration, calculation, percentage transmission and optical density. 5. Should have DetectorSilicone photo-diode. 6. Filter: Optical filter (420 nm, 460 nm, 510 nm, 540 nm, 600 nm). 7. Light source: Bright Intensity LED/Halogen.

		8. Display: LCD/LED display. 9. 3 Red LEDs for selected function (T%/ABS/CONC). 10. Photometric Range 0-2.0. 11. Maximum reaction volume required 1 ml.
2.2	<b>User's interface</b>	Manual
2.3	<b>Software and/or standard of communication (where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	Less than 3 kg.
3.3	<b>Capacity</b>	NA
3.4	<b>Noise (in dBA)</b>	NA
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through a cooling mechanism.
3.6	<b>Mobility, portability</b>	Fixed Lab installation.
<b>4. ENERGY SOURCE (electricity, ups, solar, gas, water, Co2 ....)</b>		
4.1	<b>Power Requirements</b>	230 V, 50 Hz AC
4.2	<b>Battery operated</b>	No
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables/reagents (open, closed system)</b>	1) Filter case : 1 pc 2) Filter (420 nm, 460 nm, 510 nm, 540 nm, 600 nm) : 5 pcs; Lamp/Light source 3) Square cuvette : 4 pcs (glass) 4) Round cuvette : 4 pcs (glass) 5) Cuvette adaptor : 1 pc 6) Analog output cable : 1 pc 7) Open System
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	-----
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	1. Manufacturer and Supplier should have ISO 13485/US (FDA)/EU(CE) Certificates for quality standards.
7.2	<b>Local and/or international</b>	Manufacturer/supplier should have ISO Certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-Installation requirements: nature, values, quality, tolerance</b>	1) Availability of 5 amp socket; 2) Safety and operation check before handover;
8.2	<b>Requirements for sign-off</b>	Certificate of calibration and inspection from the manufacturer
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance tasks</b>	

9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached;
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets (hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection
10.2	<b>Other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. Notes</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations or warnings</b>	Any warning signs would be adequately displayed

### Item Sl. No. 9

<b>Semi-Automated Elisa Washer &amp; Reader</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	The enzyme-linked immunosorbent assay (ELISA) is a test that uses antibodies and color change to identify a substance. ELISA is a popular format of "wet-lab" type analytic biochemistry assay that uses a solid- phase enzyme immunoassay (EIA) to detect the presence of a substance, usually an antigen, in a liquid sample or wet sample. ELISA evaluates either the presence of antigen or the presence of antibody in a sample; it is a useful tool for determining serum antibody concentrations.
1.2	<b>Used by clinical department/ ward</b>	Analytical Laboratories
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	<b>Washer:</b> 1. The device should be fully automated and easy to operate with 8 and 12 channel manifold. 2. It should be capable to wash flat, round and V bottom plates and strips. 3. It should have large display along with more than 40- 50 program storage facility. 4. System should have calibration facility. 5. System should have warning/alarm for waste container full; wash bottle empty. 6. Residual volume after washing should be < 2ul. 7. It should have specially designed peristaltic pump to dispense 50 - 400 ul.

		<p>8. It should be supplied with waste bottle, wash bottle and rinse bottle of capacity 2 liters with tubing's.</p> <p>9. It should have option of washing cycles.</p> <p>10. Cross wise aspiration, over low washing, bottom washing. Automatic manifold detection.</p> <p>11. Equipment should be un-pressurized, capable of using any bottle or container for washing. It should be suitable for UV &amp; lat bottom micro plate.</p>
		<p><b>Microplate reader:</b></p> <p>1. Bichromatic/Optics with six wavelengths.</p> <p>2. Trichromatic Light source.</p>
		<p>3. Internal Printer with port for external printer.</p> <p>4. Should read ELISA Plate Horizontally A to Hand and vertically 1 to 12.</p> <p>5. Photometric Accuracy should be <math>\pm 3\%</math>.</p> <p>6. Print Out of whole plate in Matrix Format.</p> <p>7. Linear measurement range 0 to 4 Absorbance unit.</p> <p>8. Interference, filters.</p> <p>9. Filters of 405, 450, 492, 630 nm with two extra positions.</p>
2.3	<b>Software and/or standard of communication(wher ever required)</b>	Compatibility with external Printer.
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dBA)</b>	NA
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism.
3.6	<b>Mobility, portability</b>	Stationary lab Installation.
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	Operable at- Input voltage- 220V-240V AC, 50Hz.
4.2	<b>Battery operated</b>	No
4.3	<b>Tolerance (to variations, shutdowns)</b>	$\pm 10\%$
4.4	<b>Protection</b>	
4.5	<b>Power consumption</b>	
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables/ reagents (open, closed system)</b>	<p>1) External dot matrix printer.</p> <p>2) Light/Lamp source.</p> <p>3) Multichannel pipette with variable dispensing volume 50-200 ul.</p> <p>4) Paper rolls for internal printer- 10 nos.</p>
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	_____
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	<p>1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.</p> <p>2) Sterilization not required.</p>
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ...); performance and safety standards (specific to the device type); local and/or international</b>	1. Should be FDA/CE/BIS approved product.
7.2	<b>Local and/or international</b>	Manufacturer/supplier should have ISO Certificate for quality

		standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-Installation requirements: nature, values, quality, tolerance</b>	1) Should be operable at 220 -240 volts (50 - 60 Hz). 2) Safety and operation check before handover.
8.2	<b>Requirements for sign-of</b>	Certificate of calibration and inspection from the manufacturer.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance. 2) Advanced maintenance tasks required shall be documented.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance tasks</b>	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached;
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets (hardcopy and soft-copy) of: 1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection;
10.2	<b>Other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided;
11.2	<b>Recommendations or warnings</b>	Any warning signs would be adequately displayed.

### Item Sl. No. 10

<b>Non Invasive hemoglobinometer- Probe based</b>		
<b>GENERAL</b>		
<b>1</b>	<b>USE</b>	
1.1	<b>Clinical purpose</b>	To measure Total Haemoglobin (SpHb) Non-invasively
1.2	<b>Used by clinical department/ward</b>	Haematologist, Emergency, Mother and Child
<b>TECHNICAL</b>		
<b>2</b>	<b>TECHNICAL CHARACTERISTICS</b>	
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. Should measure haemoglobin non-invasively 2. Should display results instantaneously (spot check) 3. Should have enough memory to display previous results 4. It should have a reusable probe of adult and pediatric size. 5. It should have minimum resolution of 0.1g/dL with accuracy of +/- 1.0g/dL 6. It may have additional diagnostic features of sPO2, Pulse rate and etc.(non invasive only)

2.2	User's interface	Probe based
2.3	Software and/or standard of communication(where ever required)	<i>in built</i>
<b>3</b>	<b>PHYSICAL CHARACTERISTICS</b>	
3.1	Dimensions (metric)	20cm * 10cm * 5cm (maximum)
3.2	Weight (lbs, kg)	500 Grams (maximum)
3.3	Configuration	
3.4	Noise (in dBA)	<65dBA
3.5	Heat dissipation	
3.6	Mobility, portability	Yes
<b>4</b>	<b>ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>	
4.1	Power Requirements	AA Alkaline Batteries
4.2	Battery operated	Yes. Alkaline Batteries
4.3	Tolerance (to variations, shutdowns)	NA
4.4	Protection	Type of Protection (battery Power : Internally Powered, Type BF-applied part
4.5	Power consumption	
<b>5</b>	<b>ACCESSORIES, SPARE PARTS, CONSUMABLES</b>	
5.1	Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)	Sensor preloaded with definite number of tests. Alkaline battery, Boot Protection Cover
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6</b>	<b>ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>	
6.1	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	Operating condition: Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.2	User's care, Cleaning, Disinfection & Sterility issues	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7</b>	<b>STANDARDS AND SAFETY</b>	
7.1	Certificates (pre-market, sanitary, ..); Performance and safety standards (specific to the device type);Local and/or international	EMC Compliance: EN 60601-1-2, Class B, IEC 60601-1
<b>8</b>	<b>TRAINING AND INSTALLATION</b>	
8.1	Pre-installation requirements: nature, values, quality, tolerance	--
8.2	Requirements for sign-off	--
8.3	Training of staff (medical, paramedical, technicians)	user training manual required
<b>9</b>	<b>WARRANTY AND MAINTENANCE</b>	
9.1	Warranty	One year of device, Six Months of sensor
9.2	Maintenance tasks	maintenance manual detailing complete maintaining schedule
9.3	Service contract clauses, including prices	warranty of one year with free servicing ( min. 3) during warranty

10	DOCUMENTATION	
10.1	Operating manuals, service manuals, other manuals	[TO BE MENTIONED BY THE SUPPLIER]
10.2	Recommendations for maintenance	[TO BE MENTIONED BY THE SUPPLIER]
11	2	
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	[TO BE MENTIONED BY THE SUPPLIER]
11.2	Recommendations or warnings	[TO BE MENTIONED BY THE SUPPLIER]

### Item Sl. No. 11

Urine Analyser		
GENERAL		
1	USE	
1.1	Clinical purpose	Urine Strip Analysis
1.2	Used by clinical department/ward	General, Gynaecology, Diabetology, Internal Medicine, Nephrology
TECHNICAL		
2	TECHNICAL CHARACTERISTICS	
2.1	Technical characteristics (specific to this type of device)	(1) Semi-Automated urine strip analysis system with dual function of 10 parameter urine strip and ACR strip analysis (2) Semi-quantitative urine analysis system based on reflectance spectrometry using a CMOS image sensor (3) Should have cloud based real time data functionality (4) should provide monthly reports of testing for prevalence and epidemiology
2.2	User's interface	Atleast 3 inch screen, Software Should be available in Hindi/English languages
2.3	Software and/or standard of communication(where ever required)	Communicates via SMS, WiFi/GPRS
3	PHYSICAL CHARACTERISTICS	
3.1	Dimensions (metric)	NA
3.2	Weight (lbs, kg)	should not weigh more than 2 Kg
3.3	Configuration	Standalone, at least 30 tests/hour
3.4	Noise (in dBA)	NA
3.5	Heat dissipation	NA
3.6	Mobility, portability	Should be portable

<b>4</b>	<b>ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>	
<b>4.1</b>	<b>Power Requirements</b>	Should work without electricity for minimum 4 hours, Should work on electricity as well
<b>4.2</b>	<b>Battery operated</b>	Yes
<b>4.3</b>	<b>Tolerance (to variations, shutdowns)</b>	1% to variations.
<b>4.4</b>	<b>Protection</b>	Yes
<b>4.5</b>	<b>Power consumption</b>	NA
<b>5</b>	<b>ACCESSORIES, SPARE PARTS, CONSUMABLES</b>	
<b>5.1</b>	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)</b>	<b>As per supplier</b>

<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6</b>	<b>ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>	
<b>6.1</b>	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Can be used in field, Closed device can be operated in village settings as well,
<b>6.2</b>	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Cleaning of the strip tray required before first use of the day, As a standard practice use gloves for operating and while testing urine samples.
<b>7</b>	<b>STANDARDS AND SAFETY</b>	
<b>7.1</b>	<b>Certificates (pre-market, sanitary, ..); Performance and safety standards (specific to the device type); Local and/or international</b>	Should have manufacturer's Assurance certificate of quality, Should have calibration and internal testing certification with Standard Urine control samples.
<b>8</b>	<b>TRAINING AND INSTALLATION</b>	
<b>8.1</b>	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	1 hour of training should be sufficient
<b>8.2</b>	<b>Requirements for sign-off</b>	Registration of the device to backend server
<b>8.3</b>	<b>Training of staff (medical, paramedical, technicians)</b>	should be easy to use, Manual and Standard operating procedure documents provided, Can be used by semi-skilled health worker, ANM, GNM, Lab Technician and others after 60 Minutes of training

<b>9</b>	<b>WARRANTY AND MAINTENANCE</b>	
<b>9.1</b>	<b>Warranty</b>	One Year
<b>9.2</b>	<b>Maintenance tasks</b>	Cleaning of the strip tray required before first use of the day. Keep adequate charging (20% or above)
<b>9.3</b>	<b>Service contract clauses, including prices</b>	NA
<b>10</b>	<b>DOCUMENTATION</b>	
<b>10.1</b>	<b>Operating manuals, service manuals, other manuals</b>	Operating Manual along with the safety and support information and Troubleshooting Guide, all material should be available in English and Hindi
<b>10.2</b>	<b>Recommendations for maintenance</b>	Periodic cleaning should be enough; Should be easily maintainable by health worker
<b>11</b>	<b>NOTES</b>	
<b>11.1</b>	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Should have dedicated customer support person and telephone lines
<b>11.2</b>	<b>Recommendations or warnings</b>	Standard care guidelines handling and transport

### Item Sl. No. 12

<b>Non Invasive Hemoglobinometer- Conjunctiva based</b>		
<b>GENERAL</b>		
<b>1</b>	<b>USE</b>	
<b>1.1</b>	<b>Clinical purpose</b>	screening, diagnosis and monitoring of Anaemia
<b>1.2</b>	<b>Used by clinical department/ward</b>	Can Be used by trained health workers/volunteers, paramedical person, clinicians
<b>TECHNICAL</b>		
<b>2</b>	<b>TECHNICAL CHARACTERISTICS</b>	
<b>2.1</b>	<b>Technical characteristics (specific to this type of device)</b>	1. It Should display results in grams per decilitre with a minimum resolution of 0.5 gm/dl. 2. Minimum operating range should be 5 to 15 gm/dl. 3. Total time taken by a trained person to complete one test should not be more than a minute.
<b>2.2</b>	<b>User's interface</b>	Soft Keys or Touchscreen
<b>2.3</b>	<b>Software and/or standard of communication(where ever required)</b>	<i>It should communicate through mini-USB connector with a computer/laptop.</i>

<b>3</b>	<b>PHYSICAL CHARACTERISTICS</b>	
<b>3.1</b>	<b>Dimensions (metric)</b>	150mm X 75mm X 50 mm (maximum)
<b>3.2</b>	<b>Weight (lbs, kg)</b>	less than 500 grams
<b>3.3</b>	<b>Configuration</b>	NA
<b>3.4</b>	<b>Noise (in dBA)</b>	<65dBA
<b>3.5</b>	<b>Heat dissipation</b>	Minimum
<b>3.6</b>	<b>Mobility, portability</b>	Yes
<b>4</b>	<b>ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>	
<b>4.1</b>	<b>Power Requirements</b>	Non-rechargeable alkaline battery and/or Rechargeable-Lithium Ion battery
<b>4.2</b>	<b>Battery operated</b>	YES
<b>4.3</b>	<b>Tolerance (to variations, shutdowns)</b>	NA
<b>4.4</b>	<b>Protection</b>	In-built Voltage-Current regulation
<b>4.5</b>	<b>Power consumption</b>	Low powered
<b>5</b>	<b>ACCESSORIES, SPARE PARTS, CONSUMABLES</b>	
<b>5.1</b>	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)</b>	[TO BE MENTIONED BY THE SUPPLIER]
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6</b>	<b>ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATONS</b>	
<b>6.1</b>	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	_____
<b>6.2</b>	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7</b>	<b>STANDARDS AND SAFETY</b>	
<b>7.1</b>	<b>Certificates (pre-market, sanitary, ..); Performance and safety standards (specific to the device type); Local and/or international</b>	European CE or USFDA Certified or Certificate of Assured Quality along with Certificate of Calibration & Testing by manufacturer
<b>8</b>	<b>TRAINING AND INSTALLATION</b>	
<b>8.1</b>	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
<b>8.2</b>	<b>Requirements for sign-off</b>	NA

8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Trained company professional should assisting staff on training on using device.
<b>9</b>	<b>WARRANTY AND MAINTENANCE</b>	
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance tasks</b>	maintainance manual detailing complete maintaining schedule
9.3	<b>Service contract clauses, including prices</b>	[TO BE MENTIONED BY THE SUPPLIER]
<b>10</b>	<b>DOCUMENTATION</b>	
10.1	<b>Operating manuals, service manuals, other manuals</b>	[TO BE MENTIONED BY THE SUPPLIER]
10.2	<b>Recommendations for maintenance</b>	[TO BE MENTIONED BY THE SUPPLIER]
<b>11</b>	<b>NOTES</b>	
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/landline number)</b>	[TO BE MENTIONED BY THE SUPPLIER]
11.2	<b>Recommendations or warnings</b>	[TO BE MENTIONED BY THE SUPPLIER]

### Item Sl. No. 13

<b>PORTABLE COMPACT MOBILE LAB WITH ACCU KINE</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	It measures biochemical indexes by analyzing blood and other body fluid, then combines with other clinical information, to help diagnose disease, evaluate organs function.
1.2	<b>Used by clinical department/ ward</b>	Biochemistry & Diagnostic.
<b>TECHNICAL</b>		
<b>2.TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	PORTABLE COMPACT MOBILE LAB WITH BATTERY and SOLAR POWER BACK UP: LABORATORY IN SUITCASE ENCLOSING following items considered as 1 unit. ACCU-KIN - Blood Analyzer Parameters (37 investigations - LFT, KFT, Lipid, Electrolytes, Glucose, Haematology): Egfr, Glucose, Hb, Urea, Uric acid, SGOT, SGPT, Creatinine, Cholesterol, Total Bilirubin, Direct Bilirubin, Total Protein, Calcium, Chloride, Sodium, Potassium, LDL, HDL, ALP, Albumin, Triglyceride, Magnesium, Phosphorus, BUN UREA/RATIO, BUN, LDL Calculative, VLDL, HDL/LDL Ratio, Indirect Bilirubin, Globulin, Albumin/Globulin Ratio, RBC, PCV, MCV, MCH, MCHC, CK-MB.

		<p>a) Wave Length Range: 340 - 650 nm.  b) Calibration: Multi Point Calibration.  c) Measuring Modes: %Transmission, Absorbance.  d) Photometric Accuracy: Up to 3 decimal places.  e) Optical System (Photo Detector): Silicon Photodiode.  f) Display: Bright Green LCD display.  g) Keyboard: Soft push-membrane type.  h) Have measurement range from 0.001 to 2.300 Abs.  i) Light Source : Patented Solid State Chip based LED which has long life, no Lamps are used thus reduced running expenses and maintenance.  Very low power consumption. Requires less calibration Light source is much more stable against the lamp because fluctuation in voltage will not affect performance of the equipment.  j) Filters: No Filters are used.</p>
		<p>k) It is microprocessor based and above all based on virtual filter technology which makes it more reliable and maintenance free for future.  l) Sample System: 10 mm path length Cuvette based  m) Sample Volume Required: 5 µL  n) Printer Output Device: In built thermal printer available  o) Power Supply: 12 V DC ±10%, 50 Hz.  p) USB Port: Connectivity to Laptop  q) Weight:&lt; 1.5 kg  r) Dimensions (in mm):&lt; 280 X 130 X 100  s) No pump system required for low cell which reduces complexity and delicacy in sample reading and sample analysis.  t) ISO Certified, CE marked  u) US FDA Registered  v) Internal Memory of test storage: 3000 tests  <b>1) Centrifugation unit</b>  a) Fixed Angle Rotors: 6 x 1.5 ml  b) Adapter: Adapter for 0.2 ml &amp; 0.5 ml tubes  c) Speed: 6000 RPM  d) Safety Provision: Lid interlocking  e) Slots to keep centrifuge tubes: 8+ adapter of 16 f) Operation :Quick acceleration to full speed.  g) Power Supply: 230 V AC ±10%, 50 Hz.  h) Dimension (in mm) :Diameter- 131.5, Height -128  <b>2) Incubation unit</b>  a) Temperature Selection: Between 25°C (ambient temperature)to 45°C  b) Heating Material: Mica.  c) Heating Control: PID Controller  d) Sensor Calibration: Simple at the user end.  e) Power supply:230V AC ±10%, 50Hz.  f) Dimensions: Diameter-155.5, Height -80 mm  g) Capacity: 25 samples incubation at one time  <b>3) Cuvettes</b>  Sample Capacity : 2.5ml Quantity 100  <b>4) Cuvette Stand</b>  Carrying Capacity :25 X 4 cuvettes:4, made of plastic Quantity:4  <b>5) Micropipettes</b>  a) Measuring Volume Range :5-50ul  b) Measuring Volume Range :100-1000ul  <b>6) Micro Tips</b>  Microtips (sample capacity) :5-50ul Quantity:1000  Macrotips (sample capacity) :100-1000ul Quantity:500  <b>7) micro tip Box :2</b>  a) Micro Box :100 insertions</p>

		b) Macro Box :100 insertions
		<b>8) reagents Containers</b> Carrying capacity :10 Units <b>9) Blood Centrifuge tube</b> Sample capacity :1.5 ml Quantity:500 <b>10)Centrifuge tubes Stand fixed in the platform:15</b>
2.2	<b>User's interface</b>	
2.3	<b>Software and/or standard of communication(where ever required)</b>	PATIENT MANAGEMENT SOFTWARE Version II - Accurate All 10.0.1 Prerequisites USB Drive: Prolific USB Driver (PL-2303 USB-to-serial) Microsoft Office: XP, 2007 or above (licensed) Database :MS-Access 2007 Java Runtime Environment :1.6 or 1.7 Drop box For syncing purpose. Processor: Intel Core, Dual Core, Core2Duo, Atom, i3, i5. Internet Connection: At the time of Installation and syncing.
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Dimensions (in mm) : 685 X 470 X 285.
3.2	<b>Weight (lbs, kg)</b>	< 20 kg
3.4	<b>Noise (in dBA)</b>	
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism.
3.6	<b>Mobility, portability</b>	portable suitcase with omni directional wheels.
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	Power supply: 230V AC $\pm$ 10%, 50Hz. Solar Panel : Photonex/Tata BP/Power Tech/Equivalent brand Suitcase backside has 3 ports for AC, external battery(12 volt DC) and Solar. Panel connection Power circuit is powered by AC supply- 230/110 volt, DC/ battery supply - 12 volt and Solar panel (40-100 watt) as well. g) All the equipments (analyzer, centrifuge, incubator) working on different power sources are distinctively placed on single unbreakable platform in coordination with each other inside the suitcase.
4.2	<b>Battery operated</b>	Battery POWER BACK-UP of 4 hours provided via one inbuilt battery and one. External battery pack. External battery can be charged through any external dc power source like vehicle etc.
4.7	<b>Protection</b>	
4.8	<b>Power consumption</b>	Power to run all components: 40 - 100 watt.
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables/reagents (open, closed system)</b>	Open System List of deliverables Model: PCML-KIN Particulars QTY. Accuster Mobile Lab Portable Compact Mobile Lab comprising the following1. 1. Accukine Analyzer-USB port :1. 2. Centrifuge: 1. 3. Power Backup (Designed for at least 4 hrs. backup): 1. 4. Incubator: 1. 5. Case/Mobile Carrying Platform: 1. 6. Cover Bag/Rucksack bag:1. 7. Cuvettes: 100 pcs. 8. Centrifuge Tubes: 500pcs. 9. Cuvette Holder:4pcs. 10. Micropipette (5-50uL):1pc. 11. Micropipette (100-000uL):1pc. 12. Microtips: 1500pcs 13. Micro tip Holder:2pcs. 14. Patient Management Software :1. 15. USB port for data connectivity, data cable, charging cable :1. 16. Reagents Pack consisting of the following :

		<p>a) KFT (Kidney Function Test) includes Urea/Uric Acid/Creatinine:1.</p> <p>b) LFT (Liver Function Test) includes Albumin/Total Bilirubin :1.</p> <p>c) Lipid Profile includes Cholesterol, HDL/Triglyceride :1.</p> <p>d) Diabetes includes Glucose: 1.</p> <p>e) Anemia includes Hemoglobin :1.</p> <p>17. Mini Laptop/Data Recorder loaded with PMS Version II window based: 1.</p> <p>18. Solar Panel:1.</p>
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	—
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	<p>1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.</p> <p>2) Sterilization not required.</p>
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	ISO - 9001, ISO -13485:2003 CE Marked USFDA Registered.
7.2	<b>Local and/or international</b>	Manufacturer should have ISO 13485 Certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	<p>1) Availability of 5 amp socket;</p> <p>2) Safety and operation check before handover;</p>
8.2	<b>Requirements for sign-off</b>	Certificate of calibration and inspection from the manufacturer.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	<p>1) Training of users on operation and basic maintenance;</p> <p>2) Advanced maintenance tasks required shall be documented.</p>
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	As per DGS&D standard clause.
9.2	<b>Maintenance tasks</b>	
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached;
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	<p>Should provide 2 sets(hardcopy and soft-copy) of:-</p> <p>1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams;</p> <p>2) List of equipment and procedures required for local calibration and routine maintenance;</p> <p>3) Service and operation manuals (original and copy) to be provided;</p> <p>4) Advanced maintenance tasks documentation;</p> <p>5) Certificate of calibration and inspection</p>
10.2	<b>Other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations or warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 14****300 mA HF X-RAY MACHINE****GENERAL****1. USE**

1.1	<b>Clinical purpose</b>	Radiography of the bones and fractures and other arthropathies. X-Ray Chest for the supportive diagnosis of the Pulmonary Tuberculosis X-Ray Pelvis (KUB) for renal disorders and stones. Sinusitis, Fractures of the Skull Cardiac diseases and cardiac enlargement Silicosis and other respiratory conditions, like Pleual effusion, hydrothorax, Pneumothorax Peritonitis by X-Ray abdomen.
1.2	<b>Used by clinical department/ ward</b>	

**TECHNICAL****2. TECHNICAL CHARACTERISTICS**

2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>High Frequency X-Ray machine suitable for GENERAL Radiography.</p> <p><b>X-ray generator</b></p> <ul style="list-style-type: none"> <li>• High Frequency X-Ray generator having Frequency of 40 KHz more suitable for Radiography should be provided.</li> <li>• Power output of generator should be 25 KW or more.</li> <li>• Radiography KV range should be 40 to 110 KV or more.</li> <li>• Exposure time should be in range of 1 ms to 2 sec. with maximum numbers of steps.</li> </ul> <p><b>Control:</b></p> <ul style="list-style-type: none"> <li>• A very compact, Soft Touch Control Panel having following functions &amp; indications should be provided. The panel can be supplied in floor or wall mount with Spill Proof design Following features should be available on the control panel.</li> <li>• Machine ON/OFF switch • Digital Display of KV&amp; mAs. • K V &amp; mAs increase and decrease switches.</li> <li>• Tube focal spot selection switch. • Ready and x-ray on switch ith indicators.</li> <li>• Bucky Selection switch.</li> <li>• Self-diagnostic Programme with Indicators for Earth fault error, KV error, filament error &amp; Tube's Thermal Overload.</li> </ul> <p><b>X-ray tube</b></p> <ul style="list-style-type: none"> <li>• One No Dual focus Rotating Anode BEL/Toshiba/Imported X-ray tube thermally protected having focal spot:</li> <li>• <b>1.2 mm or less</b> for small focus, , 2mm or less large Focus.</li> </ul>
		<ul style="list-style-type: none"> <li>• Anode heat storage capacity of tube should be more than 140 KHU.</li> <li>• One no manual collimator with aluminium filter &amp; for adjustment of exposure area.</li> </ul> <p><b>Column Stand:</b></p> <ul style="list-style-type: none"> <li>• It should have floor to ceiling stand with vertical counter balanced travel.</li> <li>• It should have 360 deg. Rotation.</li> <li>• It should be provided one vertical Bucky stand with machine.</li> <li>• Table.</li> <li>• Five position manual tilt table having Bucky grid ration of 8:1 with 85 lines per inches should be provided.</li> <li>• The Bucky tray should accept cassette of 8"x10", 10"x12" and 14"x17" size.</li> </ul>

2.2	User's interface	Manual
2.3	Software and/or standard of communication (where ever required)	
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	NA
3.2	Weight (lbs, kg)	NA
3.3	Configuration	NA
3.4	Noise (in dba)	Noise-free system
3.5	Heat dissipation	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism
3.6	Mobility, portability	Certified Room Installation
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	Power requirements	Power unit: Input voltage- 400V-440V AC, 50Hz ;3 -phase
4.2	Battery operated	No
4.3	Tolerance (to variations, shutdowns)	NA
4.4	Protection	Stabilizer of appropriate capacity to be installed.
4.5	Power consumption	25 to 30 KW.
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	All Accessories (mandatory, standard); parts should be supplied with the machine:-	I. 2 No. lead aprons with thyroid <b>shield, gonad shield and all protection attachments.</b> II. One Pair of 8 meter H. V. Cable.
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	Atmosphere/Ambiance (air conditioning, humidity, dust ...)	-----
6.2	User's care, Cleaning, disinfection & Sterility issues	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. STANDARDS AND SAFETY</b>		
7.1	Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international	1. Should be FDA/European CE/BIS approved product. 2. 1 AERB type approved
7.2	Local and/or international	Manufacturer/supplier should have ISO 13485 Certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	1) Availability of three phase uniform power supply. 2) Safety and operation check before handover. 3) To be installed in a separate room. 4) Facility for dark room should be available.
8.2	Requirements for sign-of	Certificate of calibration and inspection of parts from the manufacturer.
8.3	Training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented;

9. WARRANTY AND MAINTENANCE		
9.1	Warranty	3 years
9.2	Maintenance tasks	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached;
10. Documentation		
10.1	Operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of: 1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection. 6) Satisfactory Certificate for any existing installation from government hospital.
10.2	Other accompanying documents	List of essential spares and accessories, with their part numbers and cost;
11. Notes		
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	Recommendations or warnings	Any warning signs would be adequately displayed.

### Item Sl. No. 15

<b>ULTRASOUND MACHINE</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	Clinical purpose	Diagnostic sonography (ultrasonography) is an ultrasound-based diagnostic imaging technique used for visualizing internal body structures including tendons, muscles, joints, vessels and internal organs for possible pathology or lesions. The practice of examining pregnant women using ultrasound is called obstetric sonography, and is widely used.
1.2	Used by clinical department/ward	Radiology laboratories
<b>Technical</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1		<b>Ultrasound scanner with integrated trolley with probe, soft touch alphanumeric key board with track ball:</b> 1. With panel switches & control's easily operable. 2. Integrated high resolution <b>Monitor (15") or more.</b> 3. Probes & Gel holder-conveniently placed (2 each). <b>following transducers are to be supplied:</b> 1. A-2.0-5.0 MHz Multi frequency Convex Transducer-One.

		<p>2. B-5.0-12.0 MHz Multi frequency Linear transducer-One.</p> <p>3. C-5.0-8.0 MHz or more Endo Cavity probe-One.</p> <p><b>(+/- 1 MHz to be allowed for each):</b></p> <p>a. All probes should be electronic transducers and multi-frequency preferably three frequencies and should give aperture &amp; depths of scanning.</p> <p>b. Controls for Depth, gain compensation, body markers with transducers position.</p> <p>c. Real-time continuous dynamic focus.</p> <p>d. Auto annotation facility anywhere on image.</p> <p>e. Image display in B, B/M&amp;M Model (2B&amp;2D).</p> <p>f. Zoom facility minimum five times or more.</p> <p>g. Shades of grey 256 h.Inbuilt cine memory.</p>
		<p>h. Unite should be capable of measuring BPD, CRL, FL &amp; AC and other GA parameters.</p> <p>i. Facility for image magnification, inversion, changing, scan, direction, freeze facility.</p> <p>j. 8 step STC/GTC should be available.</p> <p>k. Frame rate minimum 50 FPS, hard disk capacity of 200GB or more.</p> <p>l. Caliper with trackball for the measurement of distances circumferences, area volume etc. should be possible to make different measurement on single image.</p> <p>m. Alphanumeric key board,</p> <p>p.Panel Switches &amp; Foot Controls.</p> <p>n. Patient reports for Obs/Gynae including fetal growth trend, including Histogram facility for Tissue texture &amp; Trend graph for IUGR cases, Urology and orthopaedics.</p> <p>o. Give the gain adjustable/Range &amp; its steps.</p> <p>p. Calculations needed, Velocity, Heart rate, Volume addl. modes.</p> <p>q. Dicom 3.0 compatible.</p> <p>r. Review of stored images is desirable.</p> <p>s. Channels: 1000 or more.</p> <p>t. Depth: 25 to 30 cm.</p> <p>u. Dynamic range: 170dB &amp; above.</p> <p>v. Cine loop preview for minimum 60 secs or more.</p> <p>w. Minimum 2 active ports should be there.</p>
2.2	<b>User's interface</b>	Manual
2.3	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Max: 400mm (L) x 300mm (W) 160mm (H)
3.2	<b>Weight (lbs, kg)</b>	Max:17 lbs
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dBA)</b>	NA
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through a cooling mechanism.
3.6	<b>Mobility, portability</b>	Portable
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	Recharging unit: Input voltage- 220V-240V AC, 50Hz.
4.2	<b>Battery operated</b>	No
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	Should have over-charging cut-of with visual symbol.
4.5	<b>Power consumption</b>	-
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional); Spare</b>	The system should be supplied with the following accessories: 1. B & W thermal printer with 50 rolls.

	parts (main ones); Consumables/ reagents (open, closed system)	2. Two KVA online suitable UPS.
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	Atmosphere/Ambiance (air conditioning, humidity, dust ...)	-----
6.2	User's care, Cleaning, disinfection & Sterility issues	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. STANDARDS AND SAFETY</b>		
7.1	Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international	1. Should be FDA/CE/BIS approved product.
7.2	Local and/or international	Manufacturer/supplier should have ISO 13485 certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	1) Availability of 5 amp socket. 2) Safety and operation check before hand over. 3) Machine to be installed only when PNDT registration is obtained by health care facility.
8.2	Requirements for sign-off	Certificate of calibration and inspection from the manufacturer
8.3	Training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance atleast for two weeks. 2) Advanced maintenance tasks required shall be documented.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	Warranty	3 years
9.2	Maintenance tasks	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached;
<b>10. DOCUMENTATION</b>		
10.1	Operating manuals, service manuals, other manuals	Should provide 2 sets (hardcopy and soft-copy) of: 1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection. 6) Satisfactory certificate for any existing installation from government hospital.
10.2	Other accompanying documents	List of important spares and accessories, with their part numbers and cost;
<b>11. NOTES</b>		
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/landline number)	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	Recommendations or warnings	Any warning signs would be adequately displayed.

**Item Sl. No. 16****500 mA X-RAY MACHINE(HF)****GENERAL****1. use**

1.1	<b>Clinical purpose</b>	Radiography of the bones and fractures and other arthropathies. X- Ray Chest for the supportive diagnosis of the Pulmonary Tuberculosis. X - Ray Pelvis (KUB) for renal disorders and stones. Sinusitis, Fractures of the Skull. Cardiac diseases and cardiac enlargement. Silicosis and other respiratory conditions, like Pleual efusion,, hydrothorax, Pneumothorax. Peritonitis by X-Ray abdomen.
1.2	<b>Used by clinical department/ ward</b>	Radiology Department

**TECHNICAL****2. TECHNICAL CHARACTERISTICS**

2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>High frequency X-Ray machine suitable for GENERAL radiography.</p> <p><b>X-RAY GENERATOR:</b></p> <ul style="list-style-type: none"> <li>- High Frequency X-Ray Generator having frequency of 50KHz or more should be provided.</li> <li>- Power output of generator should be 45KW.</li> <li>- Radiographic KV Range should be 40 to 125KV.</li> <li>- mA Range (Rad.): 500mA or more.</li> <li>- Exposure time (Rad.): 1 ms to 3Sec.</li> <li>- mAs Range (Rad.): 1 to 200mAs.</li> </ul> <p><b>Control:</b></p> <p>A very compact, Soft Touch Control Panel having following functions &amp; indications should be provided. The panel can be supplied in Floor or Wall mount with Spill Proof design. Following features should be available on the control panel.</p> <ul style="list-style-type: none"> <li>• Machine ON/OFF Switch.</li> <li>• Digital Display of KV &amp; mAs.</li> <li>• KV &amp; mAs increase and decrease switches.</li> <li>• Tube focal spot selection Switch.</li> </ul>
		<ul style="list-style-type: none"> <li>• Ready and X-Ray on switch with Indicators</li> <li>• Bucky Selection Switch.</li> <li>• Self diagnostic Programme with Indicators for Earth fault error, KV error, Filament error &amp; Tube's Thermal Overload.</li> <li>• Anatomical Programming Radiography (i.e. APR) should have reprogrammed parameters of human Anatomy Up to 216 programs which helps the user to select exposure parameters based on bodypart, examination view and size of the patient.</li> </ul>

2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>A dual action hand switch with retractable cord should be provided for Radiation Protection of Operator. There should be provision for a cordless Exposure switch also. There should be provision of auto shut of Control if no key is pressed for 10Min.</p> <p><b>X-RAY TUBE:</b></p> <ul style="list-style-type: none"> <li>- Two Nos. Dual focus Rotating Anode X-Ray tube thermally protected</li> <li>- Anode heat storage capacity of tube should be more than 140KHU.</li> <li>- Two Pair of 8 meter H.V. Cable.</li> <li>- Two Nos. Collimator with auto shut of facility should be provided.</li> </ul> <p><b>HV TANK:</b></p> <p>A very compact H.V. Tank Filled with high dielectric transformer oil should be provided. The H.V. Tank should contain H.V. transformer, Filament Transformers, H.V. Rectifiers &amp; H.V. Cable receptacles.</p> <p><b>TUBE STAND:</b></p> <ul style="list-style-type: none"> <li>- Floor to Ceiling Stand with Counter Balanced Tube Head (Rotatable <math>\pm</math> 180 Degree), 360 Degree Rotatable; mounted on Floor Ceiling Rails for convenient movements should be provided.</li> </ul>
2.1	<b>Technical characteristics (specific to this type of device)</b>	<p><b>TABLE:</b></p> <ul style="list-style-type: none"> <li>- Motorized table should have motorized Bucky consisting of Bucky grid of size 17 ¼" x 18 7/8" ratio 8:1, 85 lines/inch. Spot Film Device (semi automatic) capable of doing all routine spot filming (4 on 1, 2 on 1, 1 on 1) for use with 8" x 10", 10" x 12", 14" x 14" cassettes. Grid size 15" x 15", 6:1 ratio, 103 lines per inch. Compression movement of spot Film device is motorized. The Fluoroscopic parameters (Fluoro KV, Fluoro mA and Fluoro time) should be digitally displayed on the SFD. Control of Fluoro KV should be available on SFD.</li> </ul> <p><b>VERTICAL BUCKY STAND:</b></p> <ul style="list-style-type: none"> <li>• Vertical Bucky Stand with oscillating Grid of Ratio 8:1, 85 lines/inch is provided.</li> <li>• The Bucky moves up &amp; down &amp; is equipped with a stainless steel cassette tray.</li> <li>• The stand is Floor-mounted type &amp; can accommodate cassettes up to 14" X 17". The Bucky is tilted in 6 steps of 15 degree Angle each for various Radiographs.</li> </ul>
2.2	<b>User's interface</b>	manual
2.3	<b>Software and/or standard of communication(where ever required)</b>	In built
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dBA)</b>	Noise-free system
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through a cooling mechanism
3.6	<b>Mobility, portability</b>	Stationary Installation
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		

4.1	<b>Power requirements</b>	Power supply: Power supply: <b>3-phase 440 or 230V, AC- 50Hz.</b>
4.2	<b>Battery operated</b>	no
4.3	<b>Tolerance (to variations, shutdowns)</b>	line regulation of $\pm 10\%$ .
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)</b>	All Accessories (mandatory, standard); Spare parts should be supplied with the machine:- 2 No. lead aprons with <b>thyroid shield, gonad shield and all protection attachments.</b>
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition: Capable of operating continuously in ambient temperature of 5 to 50 deg C and relative humidity of 15 to 80% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	1. Should be FDA/ European CE/BIS approved product. 2. Manufacturer and Supplier should have ISO 13485 certification for quality standards. 3. Electrical safety conforms to the standards for electrical safety IEC 60601- 1-GENERAL requirements (or equivalent BIS Standard) 5. Shall meet internationally recognized standard for Electromagnetic Compatibility (EMI/EMC) for electromedical equipment: 61326-1. 6. Certified to be compliant with IEC 61010-1-3, IEC 61010-1-2, IEC 61010-2- 54, IEC 61010-1-6 and IEC 62304 7. AERB type approved
7.2	<b>Local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Three phase stable power supply
8.2	<b>Requirements for sign-off</b>	Certificate of calibration and inspection of parts from the manufacturer
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years

9.2	<b>Maintenance tasks</b>	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English / Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection
10.2	<b>Other accompanying documents</b>	List of essential spares and accessories, with their part numbers and cost;
<b>11. Notes</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations or warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 17**

<b>CR System</b>		
<b>GENERAL</b>		
<b>1. uSe</b>		
1.1	<b>Clinical purpose</b>	Used for Digitization of the already existing Analog X-ray Systems giving advantage of image processing and increased speed Ideal for Medium workload facilities and Secondary care facilities.
1.2	<b>Used by clinical department/ ward</b>	Radiology Department
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. Digitizer (CR) system should have capacity to process more than 70 or more cassette/films per hour of 14 X 17" size. 2. Standard work station (Console) coupled with CR image storage capacity - at least 2000 images specify the numbers. It should have a resolution of 5 pixels/mm (Minimum) for standard resolution cassette & up to 20 pixels/mm or more. 3. Separate DICOM workstation in ultra-modality with all processing facilities in a centralized reporting. 4. Other feature of CR system. · Image post processing.

		<ul style="list-style-type: none"> <li>· Window leveling</li> <li>· Annotation</li> <li>· Area of interest Zoom</li> <li>· Magnification</li> <li>· Flipping &amp; panning</li> <li>· Automatic exposure correction</li> <li>· Pre view software</li> <li>· Edge enhancement stepwise</li> <li>· Contrast/Brightness adjustment</li> <li>· Shuttering / ROI Finder</li> <li>· Application related software like Paediatric should be available</li> <li>- The system should have software &amp; hardware to perform full leg/Full spine/ Long Body imaging/imaging stitching.</li> <li>· DICOM Print</li> <li>· DICOM image output to network workstation.</li> <li>· Grid Pattern removal software &amp; noise compression processing.</li> <li>· Gray Scale reversal</li> <li>· Rotation</li> <li>· Image preview time 25 to 60 Sec. (For large image)</li> </ul>
2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>System should be fully compliant with DICOM 3.</p> <ul style="list-style-type: none"> <li>· Automatic cassette identification through bar code reader.</li> </ul> <p>5. Laser camera with at-least three film size on line 14"X 17", 11"X 14"/ 10" X 14", 10" X 12", &amp; 8" X 10"</p> <p>6. · Contrast spatial / Reading resolution 10 pixel/ mm or more constant high resolution in all sizes. True size printing should be possible from reader console.</p> <p>Automatic exposure correction &amp; facility for manoeuvring reading sensitivity manually.</p> <p>Gamma curves for multiple object intensity processing.</p> <p>Registration &amp; cassette identification should be possible to be done before &amp; after the exposure (Pre/Post registration)</p> <p>7. Specification for Laser Camera</p> <ul style="list-style-type: none"> <li>· Mention Spatial resolution higher level preferable minimum 500 DPI/PPI.</li> <li>· Mention Gray Scale resolution: more than 12 bits preferable</li> <li>· Mention Processing capacity/hour for (14" X 17") films, It should be more than 70 films /Hour</li> </ul> <p>8. Acceptable film size: 14"X 17", 11"X 14"/ 10" X 14", 10" X 12", &amp; 8" X 10".</p> <ul style="list-style-type: none"> <li>· Online film size : at least three film size</li> <li>· DICOM compatible</li> </ul>
2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>9. CR workstation should have following feature</p> <ul style="list-style-type: none"> <li>· Multiple image printing with multiple format</li> <li>· Measurement of image, insert scale</li> <li>· Preloaded annotation</li> <li>· DICOM CD writing &amp; reading</li> <li>· Image inverse, image flipping, image magnification, zooming</li> <li>· Reporting format</li> <li>· Image preview</li> <li>· Image cropping</li> <li>· Printing multiple patient on one film</li> <li>· CD writing for multiple patient on one CD</li> <li>· Should have a hard disk of 80 GB or more for storing image.</li> </ul>
2.2	<b>User's interface</b>	manual
2.3	<b>Software and/or standard of communication(where ever required)</b>	In built
<b>3. PHYSICAL CHARACTERISTICS</b>		

3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dBA)</b>	Noise-free system
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through a cooling mechanism
3.6	<b>Mobility, portability</b>	Stationary installation
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	Power supply: 230V, AC, 50Hz.
4.2	<b>Battery operated</b>	no
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	??????
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)</b>	Machine should be supplied with following transducers:- I. 2 No. BARC Approved whole body lead aprons with all attachments. II. Please provide cassette for CR with PSP Plate (IP) 14" X 17" -2 No. 11" X 14" /10"X14"-2 No. 10"X12"-2 No. III. Suitable online pure sine wave UPs for 30 minute backup IV Closed System??? V Compatible computer System with 2 medical grade monitors
<b>Bidding / procurement terms / donation requirements</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition: Capable of operating continuously in ambient temperature of 5 to 50 deg C and relative humidity of 15 to 80% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	1. Should be FDA/ European CE/BIS approved product. 2. Manufacturer and Supplier should have ISO 13485 certification for quality standards. 3. Electrical safety conforms to the standards for electrical safety IEC 60601- 1-GENERAL requirements (or equivalent BIS Standard) 5. Shall meet internationally recognized standard for Electromagnetic Compatibility (EMI/EMC) for electromedical equipment: 61326-1. 6. Certified to be compliant with IEC 61010-1-3, IEC 61010-1-2, IEC 61010-2- 54, IEC 61010-1-6 and IEC 62304
7.2	<b>Local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8. training And installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Three phase stable power supply
8.2	<b>Requirements for sign-off</b>	Certificate of calibration and inspection of parts from the manufacturer
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented

9. Warranty And maintenance		
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance tasks</b>	CMC 5 years. 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
10. documentation		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection
10.2	<b>Other accompanying documents</b>	List of essential spares and accessories, with their part numbers and cost;
11. notes		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations or warnings</b>	Any warning signs would be adequately displayed

### Item Sl. No. 18

<b>Mobile X-ray machine(HF)</b>		
<b>GENERAL</b>		
<b>1. use</b>		
1.1	<b>Clinical purpose</b>	Used to get the radiographic images where patient mobility to stationary installation is compromised such as use of other life support equipment. Finds great utility in intensive care units.
1.2	<b>Used by clinical department/ward</b>	Intensive care units and radiology department
<b>technical</b>		
<b>2. technical Characteristics</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	Mobile X-Ray machine: - High Frequency generator of 40KHz or more. - Radiographic KV: 40 to 110KV. - Red mA: 100mA or more - Output power: 4.0 KW or more. - mAs range: 1 to 200mAs X-Ray tube head: - Monoblock version X-Ray Tube Head with Stationary Anode Single focus X-Ray Tube. The monoblock consists of Tube, H.V. transformer, filament transformer, H.V. Rectifiers & Capacitors, all immersed in High Grade, High dielectric oil. - One No. Manual Collimator should be provided, with auto of facility. Tube Stand: Mobile Stand with 4-wheel design, which ensures easy mobility

		and steering. The Spring Balance Stand should be very light in weight with tube arm. It should be very easy to maneuver & allows smooth movements of Tube Head in vertical Plane. Lead lined cassette storage box. Large wheels for easy mobility should be provided. The stand is designed for maximum maneuverability of the unit and is able to achieve tube focus to floor distance of minimum 75 inch and tube focus to tabletop distance of minimum 46 inches (Standard Radiography Table). The equipment should occupy minimum floor area & is capable to be taken through elevators with ease.
2.1	<b>Technical characteristics (specific to this type of device)</b>	Control Panel: <ul style="list-style-type: none"> <li>• KV Increase &amp; Decrease Switches.</li> <li>• mAs Increase &amp; Decrease Switches</li> <li>• Machine ON/OFF Switch.</li> </ul>
		<ul style="list-style-type: none"> <li>• Collimator Lamp 'ON' Switch.</li> <li>• Standby &amp; Exposure Switch.</li> <li>• Self diagnostic Programmed with indicators for:- <ul style="list-style-type: none"> <li>o Earth fault Error</li> <li>o KV Error</li> <li>o Filament Error</li> <li>o Tube head Thermal Error</li> </ul> </li> <li>• Stand by (Ready) &amp; X-Ray On Indicator.</li> <li>• Incoming Voltage Indicator. There should be provision for the machine to work from 190Volts Input supply to 250V input supply.</li> <li>• There should be a provision that the control should get of if no key is pressed for 10 Min.</li> </ul> <p>A Hand Switch with Dual action for exposure Release with Retractable Cord is provided for Radiation Protection to the Operator. There should be cordless remote for exposure along with corded exposure switch.</p>
2.2	<b>User's interface</b>	manual
2.3	<b>Software and/or standard of communication(where ever required)</b>	
<b>3. physical Characteristics</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dBA)</b>	Noise-free system
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through a cooling mechanism
3.6	<b>Mobility, portability</b>	mobile
<b>4. energy Source (electricity, upS, solar, gas, water, Co2 ....)</b>		
4.1	<b>Power requirements</b>	Power supply: 230V, AC, 50Hz. 15 Amps ,single phase, Line resistance < 0.4 ohms
4.2	<b>Battery operated</b>	no
4.3	<b>Tolerance (to variations, shutdowns)</b>	line regulation of $\pm 10\%$ .
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	??????
<b>5. Accessories, Spare parts, Consumables</b>		
5.1	All Accessories (mandatory, standard); Spare parts should be supplied with the machine:-	1.2 No. lead aprons with <b>thyroid shield, gonad shield and all protection attachments.</b>
<b>Bidding / procurement terms / donation requirements</b>		
<b>6. environmental And departmental Considerations</b>		
6.1	<b>Atmosphere / Ambiance (air</b>	1) Operating condition: Capable of operating continuously in

	<b>conditioning, humidity, dust ...)</b>	ambient temperature of 5 to 50 deg C and relative humidity of 15 to 80% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. Standards And Safety</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1. Should be FDA/ European CE/BIS approved product. 2. AERB type approved
7.2	<b>Local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8. training And installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>Requirements for sign-of</b>	Certificate of calibration and inspection of parts from the manufacturer
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9. Warranty And maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance tasks</b>	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10. documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection
10.2	<b>Other Accompanying Documents</b>	List of essential spares and accessories, with their part numbers and cost;
<b>11. notes</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations Or Warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 19**

<b>Mammography</b>		
<b>GENERAL</b>		
<b>1. use</b>		
1.1	<b>Clinical purpose</b>	A mammography is a screening tool used to detect and diagnose breast cancer
1.2	<b>Used by clinical department/ward</b>	Radiology/Oncology Department
<b>technical</b>		
<b>2. technical Characteristics</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>A) X-RAY GENERATOR</p> <ul style="list-style-type: none"> <li>- High Frequency 40KHz or more X-Ray Generator should be provided.</li> <li>- Power of generator should be more than 3 KW <b>or more.</b></li> <li>- Maximum mA output should be more than <b>130mA</b></li> <li>- KV Range should be 22 to 35KV in steps of increment of 0.5 KV each.</li> <li>- mAs Range for large filament should be from 1 mAs to <b>600 mAs or more..</b></li> <li>- 1 No. High Voltage Cable should be provided.</li> </ul> <p>B) X-RAY TUBE</p> <ul style="list-style-type: none"> <li>- Rotating Anode X-Ray Tube having dual focus, dual angle should be provided.</li> <li>- Focal Spots: Small Focus = 0.1 mm<sup>2</sup> Large Focus = 0.3 mm<sup>2</sup></li> <li>- Anode Heat Storage Capacity 300KHU</li> <li>- Tube Assembly Heat capacity should be at least 400 KUH or more</li> </ul> <p>C) CONTROL PANEL</p> <ul style="list-style-type: none"> <li>- Micro Processor controlled Feather Touch Control Panel with LCD display should be provided.</li> <li>- KV Range should be 22 to 35 KV in steps of increment of 0.5 KV each.</li> <li>- mAs Range should be from 1 mAs to <b>600 mAs or more.</b></li> <li>- Technique selection: Manual Two Point Technique (i.e. KV, mAs) should be possible.</li> <li>- Anatomic Program (APR) for small, medium &amp; Large breasts should be provided.</li> <li>- More than 2 Film Screen Combinations should be provided.</li> </ul>
2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>More than 2 Step Film Density Control should be provided</p> <ul style="list-style-type: none"> <li>- Multi chamber solid state Automatic Exposure Control (AEC) device should be provided</li> <li>- Automatic selection of filter as per the KV selected (Molybdenum Filter and <b>Rhodium Filter</b>) should be provided.</li> <li>- Following Digital display should be provided: <ul style="list-style-type: none"> <li>• LCD Display on Control Panel</li> <li>• KV</li> <li>• mAs</li> <li>• Focus</li> <li>• AEC/APR mode</li> <li>• Diagnostic Interlocks of the equipment</li> <li>• Filter Selected</li> <li>• Compression force in Kg</li> <li>• Compressed breast thickness</li> <li>• Gantry angle</li> </ul> </li> <li>- Following Switches and indicators should be provided: <ul style="list-style-type: none"> <li>• Focal Spot Selection Switch</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>• Machine ON/OFF Switch</li> <li>• Ready and X-Ray Switch.</li> <li>• AEC/APR selection switch</li> <li>• Film density and Film screen selection switch</li> <li>• Ready and x-ray exposure indicator.</li> </ul> <p>Breast Release mechanism in case of power failure:</p>
2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>Push to OFF type emergency switches should be available on both sides of gantry to release breast in case of power failure. This mechanism should operate from a battery inside the equipment.</p> <p>Below Safety features should be provided:</p> <ul style="list-style-type: none"> <li>• Microcontroller based embedded platform to ensure accurate delivery of exposure parameters.</li> <li>• Automatic compression locking after maximum compression of compression paddle.</li> <li>• Earthing interlock is provided in the machine for safety of user and machine. (Without proper earthing machine would show error).</li> <li>• Fast Compression release mechanism in case if patient is uncomfortable with compression.</li> <li>• Automatic breast release after x-ray exposure is completed.</li> </ul> <p>D) STAND ASSEMBLY</p> <ul style="list-style-type: none"> <li>- A compact Stand having Iso-Centric movement on which C-Arm containing X-Ray Tube &amp; Bucky Assembly is mounted should be provided.</li> <li>- Vertical Movement (Motor operated) should be 650mm or more.</li> <li>- Motorized rotation: +180degree - 165 degree</li> <li>- Source to image distance (SID) should be 600mm or more</li> </ul>
		<ul style="list-style-type: none"> <li>- Breast Compression: Automatic compression with digital display of compression force should be provided. (Provision should be given for the release of compression paddle on power failure) the Switch for activation &amp; release. Adjustable compression force should be available. Automatic Compression release after Exposure completion should be available.</li> <li>- Compression Paddles for Normal &amp; Magnification Mode (Spot Compression) should be provided</li> <li>- Magnification Device: 1.5X and 1.8 X should be provided.</li> </ul>
2.1	<b>Technical characteristics (specific to this type of device)</b>	<p>18 x 24 cm Bucky, Motor operated oscillating grid of size <b>18 x 24 cm.</b>, 5:1, 30 lines/cm focal distance 60 to 70 cm should be provided.</p> <ul style="list-style-type: none"> <li>- Molybdenum Filter &amp; Aluminum Filter Changer.</li> <li>- Light Beam collimator with Halogen Lamp with Auto shut of facility after 1 minute should be provided.</li> <li>- 18 X 24cm collimation plate should be provided.</li> <li>- Cone for Localization &amp; Radiation protection should be provided.</li> <li>- Switches for up/down movement of gantry, placed conveniently on both sides of gantry should be provided. Separate foot control for gantry movements should also be available for hands free operation.</li> <li>- Hand Switch with Retractable cord for initiation of exposure should be provided.</li> </ul>
2.2	<b>User's interface</b>	Manual
2.3	<b>Software and/or standard of communication(where ever required)</b>	In built
<b>3. PHYSICAL CHARACTERISTICS</b>		

3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dBA)</b>	Noise-free system
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through a cooling mechanism
3.6	<b>Mobility, portability</b>	Stationary Installation
<b>4. ENERGY SOURCE (electricity, upS, solar, gas, water, Co2 ...)</b>		
4.1	<b>Power requirements</b>	Power supply: 230V, AC, 50Hz. 15 Amps ,single phase, Line resistance < 0.4 ohms
4.2	<b>Battery operated</b>	no
4.3	<b>Tolerance (to variations, shutdowns)</b>	line regulation of $\pm 10\%$ .
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	??????
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>All Accessories (mandatory, standard); Spare parts (main ones); Consumables / reagents (open, closed system)</b>	Spare parts should be supplied with the machine:- I. 2 No. lead aprons with <b>thyroid shield, gonad shield and all protection attachments.</b> II. Free standing fully Transparent Lead Glass Screen for operator protection should be provided. III. - Film marking device & Alpha Numeric identification system should be provided.
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition: Capable of operating continuously in ambient temperature of 5 to 50 deg C and relative humidity of 15 to 80% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, disinfection &amp; Sterility issues</b>	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1. Should be FDA/ European CE/BIS approved product. 2. AERB type approved
7.2	<b>Local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Earthing
8.2	<b>Requirements for sign-of</b>	Certificate of calibration and inspection of parts from the manufacturer
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1)Training of users on operation and basic maintenance; 2)Advanced maintenance tasks required shall be documented
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance tasks</b>	CMC 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.

9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) Certificate of calibration and inspection
10.2	<b>Other accompanying documents</b>	List of essential spares and accessories, with their part numbers and cost;
<b>11. notes</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;
11.2	<b>Recommendations or warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 20**

<b>Flow meter With Humidifier Bottle</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	Clinical purpose	Flow meter unit is used for regulation and accurate measuring of low of gasses
1.2	<b>Used by clinical department/ward</b>	All
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	Flow meter: chromium plated brass body, metering tube and cover made of polycarbonate body, low adjustment by needle valve equipped with inlet litter -100 um, low rate 0-15 liters per minute, lush low 60 litres per minute, low read by the centre of the ball, inlet pressure 60psi; Humidifier bottle: lid made of ABS plastic, Jar made of unbreakable Poly carbonate, valve pressure brass chromium plated, it should be steam autoclaved/ gas sterilised
2.3	<b>Settings</b>	To manage low of oxygen through the knob from 0 to 15 LPM
2.4	<b>User's interface</b>	Manual
2.5	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	For 200ml
3.2	<b>Weight (lbs, kg)</b>	As per standard
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA

3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories &amp; Spares</b>	Stainless steel or brass chromium needle valve and outlet low control valve
5.3	<b>Consumables / reagents (open, closed system)</b>	Crack resistant transparent tube of 1.5 MT. length
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	NA
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certifications</b>	Complies with NFPA standard ; CE
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Availability of oxygen outlet points
8.2	<b>Requirements for sign-of</b>	NA
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	NA
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	One year
9.2	<b>Maintenance tasks</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
9.3	<b>Service contract clauses, including prices</b>	NA
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA

10.3	Recommendations for maintenance	NA
<b>11. NOTES</b>		
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)	NA
11.2	Recommendations or warnings	NA

### Item Sl. No. 21

<b>OXYGEN CYLINDER “B” TYPE</b>		
OXYGEN CYLINDER “B” TYPE	A container designed as a refillable cylinder used to hold compressed medical oxygen (O <sub>2</sub> ) under safe conditions at high pressure (e.g., 50 - 200 Bar). It is typically filled with O <sub>2</sub> when delivered from the gas supplier and includes a valve stem, an opening/closing valve, and will be graded according to size (capacity) and colour-coded to denote O <sub>2</sub> content. The cylinder may be made of steel, aluminium (Al) or other ferrous or non-ferrous materials and must be used together with a pressure regulator in order to release the O <sub>2</sub> at the correct working pressure. O <sub>2</sub> is used as an essential life support gas, for anaesthesia, and for therapeutic purposes.	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	Clinical purpose	A container designed as a refillable cylinder used to hold compressed medical oxygen (O <sub>2</sub> ) under safe conditions at high pressure; O <sub>2</sub> is used as an essential life support gas, for anaesthesia, and for therapeutic purposes.
1.2	Used by clinical department/ward	All
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	Technical characteristics (specific to this type of device)	1. Color coded, light weight. The cylinder may be made of steel, aluminium (Al) or other ferrous or non-ferrous materials oxygen cylinder for providing oxygen therapy Mounted with pressure reducer and low-meter provision of capacity upto 15 Liters per minutes and outlet for secretion aspiration. 4. Should have membrane pressure reducer with 5. should be seamless cylinder of water capacity 10 litres.
2.2	Settings	Flowmeter for controlling unlow of oxygen.
2.3	User's interface	Manual
2.4	Software and/ or standard of communication (where ever required)	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	--
3.2	Weight (lbs, kg)	NA
3.3	Configuration	NA
3.4	Noise (in dBA), heat dissipation	NA
3.5	Mobility, portability	yes; on its trolley; for Ambulances - to be supplied bare without trolley.

<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories &amp; Spares</b>	humidifier, key and low meter
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	NA
<b>7. CERTIFICATES (pre-market, sanitary, ..)</b>		
7.1	<b>Certifications</b>	Cylinder should have ISI mark and ISO certificate for quality standard or BIS equivalent; IS 3224. Cylinder should have explosive safety certificate and should be provided along with each cylinder during installation.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>Requirements for sign-of</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	10 years
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
<b>11. NOTES</b>		

11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	Color Codes to be displayed on the cylinders.

### Item Sl. No. 22

<b>OXYGEN CYLINDER “D” TYPE</b>		
OXYGEN CYLINDER “D” TYPE		A container designed as a refillable cylinder used to hold compressed medical oxygen (O <sub>2</sub> ) under safe conditions at high pressure (e.g., 50 - 200 Bar). It is typically filled with O <sub>2</sub> when delivered from the gas supplier and includes a valve stem, an opening/closing valve, and will be graded according to size (capacity) and colour-coded to denote O <sub>2</sub> content. The cylinder may be made of steel, aluminium (Al) or other ferrous or non-ferrous materials and must be used together with a pressure regulator in order to release the O <sub>2</sub> at the correct working pressure. O <sub>2</sub> is used as an essential life support gas, for anaesthesia, and for therapeutic purposes
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	A container designed as a refillable cylinder used to hold compressed medical oxygen (O <sub>2</sub> ) under safe conditions at high pressure; O <sub>2</sub> is used as an essential life support gas, for anaesthesia, and for therapeutic purposes.
1.2	<b>Used by clinical department/ward</b>	All
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. It should be a standard 'D' type molybdenum steel cylinder. 2. The capacity should be of approx. 7 cu mt. at pressure of 1800 – 2000lbs/square inch. 3. A pressure regulator/low meter capable of reducing the pressure to appropriate level to run either a ventilator or provide oxygen therapy. 4. should be seamless.
2.2	<b>Settings</b>	Flowmeter for controlling low of oxygen.
2.3	<b>User's interface</b>	Manual
2.4	<b>Software and/or standard of communication(when ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	The capacity should be of 5000 to 6000 Liters at pressure of 1800 - 2000lbs/square inch.
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes; on its trolley; for Ambulances - to be supplied bare without trolley.
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO<sub>2</sub> ....)</b>		
4.1	<b>Power Requirements</b>	NA

4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories &amp; Spares</b>	Humidifier, key and low meter.
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	NA
<b>7. CERTIFICATES (pre-market, sanitary)</b>		
7.1	<b>Certifications</b>	Cylinder should have ISI mark and ISO certificate for quality standard or BIS equivalent; IS 3224. Cylinder should have explosive safety certificate and should be provided along with each cylinder during installation
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>Requirements for sign-of</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	10 years
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	Color Codes to be displayed on the cylinders.

**Item Sl. No. 23**

<b>ARTIFICIAL MANUAL BREATHING UNIT (ADULT)</b>		
Resuscitators		A hand-operated device designed to provide or assist ventilation in patients who are apnoeic or exhibit inadequate respiration. It typically employs entrained ambient air and includes a large flexible chamber that is hand-ventilated, a gas reservoir, tubing, and a connector for attachment to a mask or endotracheal (ET) tube; oxygen (O2) from an O2 source may also be connected when necessary. It is used by emergency medical services (EMS) in ambulances, intensive care units (ICU), during internal patient transfer, accident and emergency (A&E), mass casualty incidents (MCI), and is generally placed strategically throughout a hospital. This is a reusable device.
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	to provide or assist ventilation in a patient who is apnoeic or exhibits inadequate respiration through manual pulmonary-driven pressure cycle functions.
1.2	<b>Used by clinical department/ward</b>	It is used in ambulances, intensive care units (ICU), during internal patient transfer, accident and emergency (A&E), and mass casualty incidents (MCI).
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics</b>	1. Easy Grip manual resuscitator with transparent face-mask; 2. Adult models (1500 to 2000 ml bag capacity); 3. Standard 15-22 mm Swivel connector allows connections to all common masks End tracheal Tubes; 4. Provision to give supplemented oxygen-by-oxygen reservoir providing 100% oxygen; 5. Non-re breathing valve enabling the patient to inspire oxygen from the reservoir bag.
2.2	<b>Settings</b>	Manual
2.3	<b>User's interface</b>	Manual
2.4	<b>Software and/or standard of communication(whenever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Handheld
3.2	<b>Weight (lbs, kg)</b>	Light enough to be operated by hand/palm for long duration.
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	Handheld
3.6	<b>Others</b>	
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories &amp; Spares</b>	Silicon bellow, Non Rebreathing Valve,
5.2	<b>Consumables / reagents (open, closed system)</b>	Adult Mask, 1 meter oxygen tube, Guedel Airway, Oxygen Reservoir bag.
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere /</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg

	<b>Ambiance (air conditioning, humidity, dust ...)</b>	C and relative humidity of 15 to 90%.Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certifications</b>	ISO 13485; CE Certified product.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>Requirements for sign-of</b>	NA
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 year
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	NA

### Item Sl. No. 24

<b>ARTIFICIAL MANUAL Breathing UNIT (CHILD &amp; NEONATAL)</b>		
Definition	<p>A hand-operated device designed to provide or assist ventilation in patients who are apnoeic or exhibit inadequate respiration. It typically employs entrained ambient air and includes a large flexible chamber that is hand-ventilated, a gas reservoir, tubing, and a connector for attachment to a mask or endotracheal (ET) tube; oxygen (O2) from an O2 source may also be connected when necessary.</p> <p>It is used by emergency medical services (EMS) in ambulances, intensive care units (ICU), during internal patient transfer, accident and emergency (A&amp;E), mass casualty incidents (MCI), and is generally placed strategically throughout a hospital. This is a reusable device.</p>	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	To provide or assist ventilation in a patient who is apnoeic or exhibits

		inadequate respiration through manual pulmonary -driven pressure cycle functions.
1.2	<b>Used by clinical department/ward</b>	It is used in ambulances, intensive care units (ICU), during internal patient transfer, accident and emergency (A&E), and mass casualty incidents (MCI).
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics</b>	1. Easy Grip manual resuscitator with transparent face-mask; 2. Child models (500 to 250 ml bag capacity); 3. Standard 15-22 mm Swivel connector allows connections to all common masks Endotracheal Tubes; 4. Provision to give supplemented oxygen-by-oxygen reservoir providing 100% oxygen; 5. Non-re breathing valve enabling the patient to inspire oxygen from the reservoir bag.
2.2	<b>Settings</b>	Manual
2.3	<b>User's interface</b>	Manual
2.4	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Handheld
3.2	<b>Weight (lbs, kg)</b>	Light enough to be operated by hand/palm for long duration.
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	Handheld
3.6	<b>Others</b>	
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories &amp; Spares</b>	Silicon bellow, Non Rebreathing Valve.
5.2	<b>Consumables / reagents (open, closed system)</b>	Adult Mask, Oxygen Reservoir bag, 1 meter oxygen tube, Guedel Airway.
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certifications</b>	ISO 13485; CE Certified product.

<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform installation, safety and operation checks before handover.
8.2	<b>Requirements for sign-of</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 year
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	NA

### Item Sl. No. 25

<b>Trolley Stretcher- With Back Tilt Facility And Collapsible Wheels For Uploading Into The Trolley</b>		
Definition	A manually-operated device consisting of a platform mounted on a wheeled frame designed for use by emergency medical services (EMS) primarily to facilitate easy transport of a recumbent patient to and from ambulance vehicles (e.g., automobiles, aero planes, helicopters, boats). It is typically constructed of lightweight materials and has an undercarriage that opens and folds when it is removed from or pushed into the ambulance; it also usually includes locking devices that match with the locking/docking devices in the ambulance.	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	It is designed for use by emergency medical services (EMS) primarily to facilitate easy transport of a recumbent patient to and from ambulance vehicles.
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. Automatic loading stretcher with capability to convert into wheelchair.</li> <li>2. Built with anodized aluminium lightweight / stainless steel.</li> <li>3. Adjustable back rest 0 dg -90 dg which allows to ix the back rest safety in any position.</li> <li>4. Side protections completely overturn able with easy locking safety</li> </ol>

		belts lap type. 5. Safety lever for the legs positioned near the unlocking device allowing thus the release operation for the loading, keeping the hands on the stretcher. 6. Vertical legs protected by nylon wedges. 7. Automatic centring device mounted on rotating wheels. This system automatically blocks the back wheels in the central position during the loading of the stretcher on the ambulance without having turn the wheels manually. 8. Stand for automatic loading stretcher with locking facility for quick fixing system with handle to mount the stand in very position on the stretcher. 9. One number of IV pole of adjustable height should be provided.
2.2	<b>Settings</b>	NA
2.3	<b>User's interface</b>	NA
2.4	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Length; 190-210 cm; Width: 50-60 cm; Height: 80-85 cm.
3.2	<b>Weight (lbs, kg)</b>	Weight 35-45 kg; Load bearing Capacity: up to 200 kgs.
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes on castors
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	Stand for loading stretcher
5.2	<b>Spare parts (main ones)</b>	Castors, Safety lever
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
5.4	<b>Others</b>	
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	NA
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary ) Performance and safety standards (specific to the device type);Local and/or international</b>	ISO 13485, CE/BIS/ FDA.
<b>8. TRAINING AND INSTALLATION</b>		

8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform safety and operation checks before handover.
8.2	<b>Requirements for sign-of</b>	Certificate of inspection from the factory.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years + 3 years CAMC
9.2	<b>Maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>Service contract clauses, including prices</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Required- along with diagrammatic maintenance manual.
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/ landline number)</b>	Should provide complete contact details of sales and service departments.
11.2	<b>Recommendations or warnings</b>	Any warning should be displayed.

### Item Sl. No. 26

<b>CANVAS STRETCHER FOLDING</b>		
Definition	NA	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	It is designed for use by emergency medical services (EMS) primarily to facilitate easy transport of a recumbent patient to and from ambulance vehicles.
1.2	<b>Used by clinical department/ward</b>	All
1.4	<b>Overview of functional requirements</b>	
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. Should be lightweight and made up of tubular aluminium alloy. 2. Should be easy to carry. 3. Should be rugged. 4. Should be compact & foldable. 5. Should have automatic locking, which does not fold in automatically.
2.2	<b>Settings</b>	NA
2.3	<b>User's interface</b>	NA
2.4	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Length: 190-210 cm; Width: 50-60 cm; Height: 13-20 cm from the base level.
3.2	<b>Weight (lbs, kg)</b>	5 kg. to 6 kg.
3.3	<b>Configuration</b>	NA

3.4	Noise (in dbA), heat dissipation	NA
3.5	Mobility, portability	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	Power Requirements	NA
4.2	battery operated	NA
4.3	Tolerance (to variations, shutdowns)	NA
4.4	Protection	NA
4.5	Power consumption	NA
4.6	Other energy supplies	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	Accessories (mandatory, standard, optional)	None
5.2	Spare parts (main ones)	None
5.3	Consumables / reagents (open, closed system)	None
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	Atmosphere / Ambiance (air conditioning, humidity, dust)	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	User's care, Cleaning, Disinfection & Sterility issues	NA
<b>7. STANDARDS AND SAFETY</b>		
7.1	Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international	ISO 13485/CE/US FDA/BIS
<b>8. TRAINING AND INSTALLATION</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	Supplier to perform safety and operation checks before handover.
8.2	Requirements for sign-of	Certificate of inspection from the factory.
8.3	Training of staff (medical, paramedical, technicians)	Training of users in operation and basic maintenance shall be provided.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	Warranty	1 years
9.2	Maintenance tasks	Maintenance manual detailing complete maintaining schedule.
9.3	Service contract clauses, including prices	
<b>10. DOCUMENTATION</b>		
10.1	Operating manuals, service manuals, other manuals	Advanced maintenance tasks required shall be documented. User, technical and maintenance manuals to be supplied in English language along with machine diagrams. List to be provided for procedures required for routine maintenance.
10.2	Other accompanying documents	
<b>11. NOTES</b>		
11.1	Service Support Contact details (Hierchy Wise; including a toll free/ landline number)	NA

11.2	<b>Recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.
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### Item Sl. No. 27

<b>STRETCHER SCOOP</b>		
Definition		NA
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	It is most frequently used to lift supine patients from the ground, either due to unconsciousness or in order to maintain stability in the case of trauma, especially spinal injury, where it is used as an intermediate step between the ground and a restraining device such as a long spine board or vacuum mattress.
1.2	<b>Used by clinical department/ward</b>	Emergency.
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. The equipment shall be lightweight aluminium/Polymer stretcher, which folds into two and separates for application and removal, locking adjustable length with latches-with nylon-straps 2. Narrow foot end frame for handling in confined areas. 3. Should be X-ray and MRI Compatible.
2.3	<b>Settings</b>	NA
2.4	<b>User's interface</b>	Manual
2.5	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Length: 160 to 200 cms; Width: 42 cm (Minimum);
3.2	<b>Weight (lbs, kg)</b>	Weight: < 11 kg; Load bearing capacity - upto 150 kg.
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	NA
5.2	<b>Spare parts (main ones)</b>	NA
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		

6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust)</b>	NA
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	NA
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certifications</b>	ISO 13485; FDA/CE
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform safety and operation checks before handover.
8.2	<b>Requirements for sign-of</b>	Certificate of inspection from the factory.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	5 years
9.2	<b>Maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>Service contract clauses, including prices</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented. User, technical and maintenance manuals to be supplied in English language along with machine diagrams. List to be provided for procedures required for routine maintenance.
10.2	<b>Other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost.
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

### **Item Sl. No. 28**

## **BP INSTRUMENT ANEROID**

Definition	A device designed to measure blood pressure consisting of an inflatable cuff that its around a limb (arm or thigh), an inflation bulb for controlling the air pressure within the cuff, an aneroid manometer, and tubing. The aneroid manometer consists of a metal bellows, which expands as the pressure in the cuff increases, and a mechanical amplifier that transmits this expansion
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		through a lever to an indicator needle, which rotates around a circular, calibrated scale. The manometer may be mounted to a wall, placed on a table, or hand held (portable); blood pressure measurement is taken in conjunction with a stethoscope.
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	To measure non-invasive blood pressure.
1.2	<b>Used by clinical department/ward</b>	All
1.4	<b>Overview of functional requirements</b>	
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	Scale 0-300 mm hg. Air release at closed lap with maximum 4 mmHg/Minute. Manual setting of deletion possible upto 2/3 mm Hg/sec. From 260 mmHg. To 15 mm Hg in a maximum deletions time of 10 seconds. Gauge's background in white colour. Graduated scale for ever/ 2 mmhg, every 10 units and every 20 units. Nylon straps cuff with pouch, latex bulb with completely chromium plated valve with regulation of vent-hole air by screw valve.
2.2	<b>Settings</b>	The cuff is inflated just to it in the limb for which an inflation bulb is used to control the air pressure within the cuff.
2.3	<b>User's interface</b>	Manual
2.4	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	The rubber tubes used should have an internal diameter of $3 \pm 0.5$ mm and the external diameter should not be less than 8 mm; The dial manometer with minimum diameter of 160 mm.
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	Adult arm cuffs of size medium & large and paediatrics size, inflation bulb, tubing.
5.2	<b>Spare parts (main ones)</b>	Dial manometer.
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	NA
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market,</b>	ISO 13485;

	sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international	
<b>8. TRAINING AND INSTALLATION</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	Supplier to perform safety and operation checks before handover.
8.2	Requirements for sign-of	Certificate of inspection from the factory.
8.3	Training of staff (medical, paramedical, technicians)	Training of users in operation and basic maintenance shall be provided.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	Warranty	1 years
9.2	Maintenance tasks	Maintenance manual detailing complete maintaining schedule.
9.3	Service contract clauses, including prices	
<b>10. DOCUMENTATION</b>		
10.1	Operating manuals, service manuals, other manuals	User, technical and maintenance manuals to be supplied in english language along with machine diagrams. List to be provided for procedures required for routine maintenance.
10.2	Other accompanying documents	
<b>11. NOTES</b>		
11.1	Service Support Contact details (Hierchy Wise; including a toll free/ landline number)	NA
11.2	Recommendations or warnings	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 29

<b>STETHOSCOPE</b>		
Definition	A mechanical listening device designed for listening to sounds from the heart, lungs, and/or gastrointestinal tract. It typically comprises a membrane at the listening head connected by a split "y" tube to the headgear with ear olives that are placed into the users ears. Mechanical stethoscopes are typically found in two variants 1) a general-purpose stethoscope used for clinical/ward activities; or 2) a reinforced stethoscope used by cardiologists.	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	Clinical purpose	Listening to sounds from the heart, lungs, and/or gastrointestinal tract.
1.2	Used by clinical department/ward	All
1.3	Overview of functional requirements	
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	Technical characteristics (specific to this type of device)	Stethoscope of standard size, chromium plated metal binaural, V rubber tube in one piece. Rotating piper fitting for both lip functions.
2.2	Settings	NA
2.3	User's interface	Manual
2.4	Software and/or standard of communication(wher ever	NA

	required)	
2.5	Others	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	Diaphragm approx.: 45-55 mm.
3.2	Weight (lbs, kg)	NA
3.3	Configuration	NA
3.4	Noise (in dbA)	NA
3.5	heat dissipation	NA
3.6	Mobility, portability	Portable
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	Power Requirements	NA
4.2	battery operated	NA
4.3	Tolerance (to variations, shutdowns)	NA
4.4	Protection	NA
4.5	Power consumption	NA
4.6	Other energy supplies	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	Accessories& Spares	1 x spare set of earpiece, 1 x spare diaphragm.
5.2	Consumables / reagents (open, closed system)	NA
5.3	Others	NA
<b>PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	User's care, Cleaning, Disinfection & Sterility issues	NA
6.3	Others	NA
<b>7. STANDARDS AND SAFETY</b>		
7.1	Certifications	By ISO 9001 certified manufacturer.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	NA
8.2	Requirements for sign-of	NA
8.3	Training of staff (medical, paramedical, technicians)	NA
8.4	Others	NA
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	Warranty	1 year
9.2	Maintenance tasks	NA
9.3	Service contract clauses, including prices	NA
9.4	Others	NA
<b>10. DOCUMENTATION</b>		
10.1	Operating manuals, service manuals, other manuals	NA
10.2	Other accompanying documents	NA
10.3	Recommendations for maintenance	NA
10.4	Others	NA
<b>11. NOTES</b>		
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/	NA

	landline number)	
11.2	Recommendations or warnings	NA

### Item Sl. No. 30

<b>PNEUMATIC SPLINTS</b>		
GMDN definition		A non-sterile sleeve intended to be placed around an arm or leg and inflated to immobilize and protect the limb. It is typically used by Emergency Medical Services (EMS) as a temporary measure in emergencies, e.g., accidents and motor vehicle crashes, to stabilize the limb for transport to a hospital. This is a reusable device.
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	To Immobilize the limb for transport to a hospital.
1.2	<b>Used by clinical department/ward</b>	Emergency Services.
1.3	<b>Overview of functional requirements</b>	
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. X-ray should be possible through the splints (Radio-transparency); 2. Inflator tubes' extension with dosing damp makes dosing easy and quick after inflation; 3. Fixing of splint is by zipper or belt; 4. Distal end left open to expose toes; 5. Should be washable and reusable;
2.3	<b>Settings</b>	Fixing of splint is by zipper or belt.
2.4	<b>User's interface</b>	Manual
2.5	<b>Software and/or standard of communication(whenever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Set of 6 adult sizes with carrying case: 1. Hand & Wrist. 2. Half arm. 3. Full arm. 4. Foot and ankle. 5. Half leg. 6. Full leg.
3.2	<b>Weight (lbs, kg)</b>	Light
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA

4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	Inflatory tubes' extension and hand pump for inflation of splint
5.2	<b>Spare parts (main ones)</b>	NA
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
5.4	<b>Others</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Should be washable and reusable
6.3	<b>Others</b>	Should be washable and reusable.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international</b>	ISO 9001
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>Requirements for sign-off</b>	NA
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	NA
8.4	<b>Others</b>	NA
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 year
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	NA
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA

10.2	Other accompanying documents	NA
10.3	Recommendations for maintenance	NA
10.4	Others	NA
<b>11. NOTES</b>		
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)	NA
11.2	Recommendations or warnings	NA

### Item Sl. No. 31

<b>GAUZE CUTTER</b>		
Definition	NA	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	Clinical purpose	To cut gauze lengths for preparing bandages.
1.2	Used by clinical department/ward	All
1.4	Overview of functional requirements	
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	Technical characteristics (specific to this type of device)	Scissors with thermoplastic handle and steel blade to cut clothes like materials; should be corrosion free.
2.3	Settings	NA
2.4	User's interface	Manual
2.5	Software and/or standard of communication (where ever required)	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	Length: 18 cm.
3.2	Weight (lbs, kg)	NA
3.3	Configuration	NA
3.4	Noise (in dbA), heat dissipation	NA
3.5	Mobility, portability	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	Power Requirements	NA
4.2	battery operated	NA

4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	NA
5.2	<b>Spare parts (main ones)</b>	NA
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	NA
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international</b>	ISO 9001
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 years
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA

10.2	Other accompanying documents	NA
10.3	Recommendations for maintenance	NA
10.4	Others	
<b>11. NOTES</b>		
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)	NA
11.2	Recommendations or warnings	NA

### Item Sl. No. 32

<b>ARTERY FORCEPS</b>		
Definition	NA	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	Clinical purpose	These are a handheld, hinged instrument used for grasping and holding objects.
1.2	Used by clinical department/ward	All
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	Technical characteristics (specific to this type of device)	Standard instrument in stainless steel length 14 cm; corrosion free.
2.2	Settings	NA
2.3	User's interface	NA
2.4	Software and/or standard of communication (where ever required)	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	Length 14 cm.
3.2	Weight (lbs, kg)	NA
3.3	Configuration	NA
3.4	Noise (in dbA), heat dissipation	NA
3.5	Mobility, portability	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	Power Requirements	NA
4.2	battery operated	NA

4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	NA
5.2	<b>Spare parts (main ones)</b>	NA
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	NA
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international</b>	ISO 9001
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 years
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	
<b>10. DOCUMENTATION</b>		

10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
10.4	<b>Others</b>	
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	NA

### Item Sl. No. 33

<b>MAGILL'S FORCEP</b>		
Definition	A hand-held instrument used for grasping a tube [e.g., a catheter or an endotracheal (ET) tube] for its insertion and/or extraction into/from the airways, or for grasping obstructive objects for their removal from the airways. Commonly known as a Magill's forceps, it typically has a scissors-like design with ring handles and is made of high-grade stainless steel. It is available in various sizes and the working end will typically have grasping blades that have small ringed loops or S-shaped distal working ends. The blades are serrated to provide extra grip. It is typically used by emergency medical services (EMS). This is a reusable device.	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	Angled forceps used to guide a tracheal tube into the larynx or a nasogastric tube into the oesophagus under direct vision. It is also used to place pharyngeal packs and remove foreign bodies.
1.2	<b>Used by clinical department/ward</b>	All
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	Standard instrument in stainless steel; corrosion free.
2.2	<b>Settings</b>	NA
2.3	<b>User's interface</b>	NA
2.4	<b>Software and/or standard of communication (where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	

3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>Battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	NA
5.2	<b>Spare parts (main ones)</b>	NA
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	NA
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international</b>	ISO 9001
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	
<b>9. WARRANTY AND MAINTENANCE</b>		

9.1	<b>Warranty</b>	1 year
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
10.4	<b>Others</b>	
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	NA

### Item Sl. No. 34

<b>CERVICAL COLLAR</b>		
Definition	A padded device that is worn around the neck and used to support or immobilize the cervical spine to treat deformities, fractures, sprains, or strains (often to treat whiplash resulting from an automobile accident). This device will provide support to the head while limiting movement of the cervical vertebrae. It is available in a variety of sizes. This is a reusable device.	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	Used to support or immobilize the cervical spine to treat deformities, fractures, sprains, or strains
1.2	<b>Used by clinical department/ward</b>	Trauma care; muscular-skeletal support
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. Should be adjustable to 4 different sizes. Should be rigid and not padded.</li> <li>2. Should be pre-molded chin support, locking dials and rear ventilation panel, enlarged trachea opening.</li> <li>3. Should be high-density polyethylene and foam padding with one piece design enables efficient storage where space is limited.</li> <li>4. Should be X-ray lucent and easy to clean and disinfect.</li> </ol>
2.3	<b>Settings</b>	Size adjustment.

2.4	User's interface	Manual
2.5	Software and/or standard of communication(where ever required)	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	NA
3.2	Weight (lbs, kg)	As light as possible.
3.3	Configuration	NA
3.4	Noise (in dbA), heat dissipation	NA
3.5	Mobility, portability	NA
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	Power Requirements	NA
4.2	battery operated	NA
4.3	Tolerance (to variations, shutdowns)	NA
4.4	Protection	NA
4.5	Power consumption	NA
4.6	Other energy supplies	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	Accessories (mandatory, standard, optional)	NA
5.2	Spare parts (main ones)	NA
5.3	Consumables / reagents (open, closed system)	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	NA
6.2	User's care, Cleaning, Disinfection & Sterility issues	NA
<b>7. STANDARDS AND SAFETY</b>		
7.1	Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international	ISO 9001
<b>8. TRAINING AND INSTALLATION</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	Supplier to perform safety and operation checks before handover.
8.2	Requirements for sign-of	
8.3	Training of staff	

	(medical, paramedical, technicians)	
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 years
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
10.4	<b>Others</b>	
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	NA

### **Item Sl. No. 35**

<b>FIRST AID BAG</b>		
Definition	A portable, strong, hand-held container of plastic, fabric, or leather designed for transportation of small medical devices, instruments, and/or supplies. It typically includes attachments for easy handling and mechanisms for closure and/or locking; it may have the internal space appropriately configured according to the intended contents (e.g., stethoscopes, sphygmomanometers, drugs). It may be dedicated for a variety of purposes and/or users, including specialization for physicians, nurses, first aid providers, or paramedics. This is a reusable device.	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	Used for transportation of small medical devices, instruments, and/or supplies.
1.2	<b>Used by clinical department/ward</b>	Emergency / First Aid.
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		

2.1	<b>Technical characteristics (specific to this type of device)</b>	Bag with partitions for vials transport. Indispensable implement to protect and identify any kind of vials. Made with nylon, it should be provided with 2 compartments, of which one sub-divided in to 3 partitions and one divided in 2. Inside elastic band to ix the vials and accommodation for identification labels. Dimensions: 30x18 x 15 cm or Pre-packed kits as convenient as long as it contains the specified first aid items.
2.3	<b>Settings</b>	NA
2.4	<b>User's interface</b>	NA
2.5	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Dimensions: 30x18 x 15 cm or Pre-packed kits as convenient as long as it contains the specified first aid items.
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	NA
5.2	<b>Spare parts (main ones)</b>	NA
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	NA
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	NA
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international</b>	ISO 9001:2008 supplier.
<b>8. TRAINING AND INSTALLATION</b>		

8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	NA
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	NA

### Item Sl. No. 36

<b>SPINAL BOARD</b>		
Definition	A flat, stiff device intended to be placed under a patient (the patient is usually strapped to this device) to ensure spinal immobilization when a spinal injury is suspected. This device is often used in combination with a head/neck immobilizing device that is also typically fixed or strapped to it. It is typically used after serious accidents and for transport of the patient on a stretcher. It is typically made of x-ray translucent/non-ferromagnetically active materials that allow x-ray and magnetic resonance imaging (MRI) and comes in various sizes. This is a reusable device.	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	It is placed under a patient to ensure spinal immobilization when a spinal injury is suspected.
1.2	<b>Used by clinical department/ward</b>	Emergency/Trauma Care

<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. Should be in plastic material of high strength and waterproof. 2. It should be supplied with 3 belts with rapid unhooking buckle in all three belts. 3. Should have radio transparency to make radiologic examinations/x-rays without removing the patient from the board.
2.3	<b>Settings</b>	NA
2.4	<b>User's interface</b>	Manual
2.5	<b>Software and/or standard of communication (where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Length: 180 – 190 cm; Breadth: 40 – 48 cm ; Height: 5 to 7 cm.
3.2	<b>Weight (lbs, kg)</b>	Weight: <6 kg; load bearing capacity: upto 150 kgs.
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	NA
5.2	<b>Spare parts (main ones)</b>	NA
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	NA
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	NA
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international</b>	ISO 9001; FDA/CE
<b>8. TRAINING AND INSTALLATION</b>		

8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 year
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
10.4	<b>Others</b>	
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	NA

### Item Sl. No. 37

## **DOUBLE HEAD IMMOBILIZERS**

Definition	A rigid or non-rigid device, usually made of fabric and/or plastic materials, used to temporarily render the head/neck of a patient immovable to ensure immobilization when a head and/or spinal injury is suspected. It is used in conjunction with serious accidents and for transport of the patient on a stretcher and possibly in conjunction with a spinal board to which this device and the patient are strapped. It is typically made of x-ray translucent/non-ferromagnetic alloy active materials that allow x-ray and magnetic resonance imaging (MRI) and comes in various sizes. This is a reusable device after appropriate cleaning.
<b>GENERAL</b>	
<b>1. USE</b>	
1.1	<b>Clinical purpose</b>
	Used to temporarily render the head/neck of a patient immovable to ensure immobilization when a head and/or spinal injury is suspected.

1.2	Used by clinical department/ward	Emergency
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	1. Head Immobilizer should be mountable and separable from the scoop stretcher. 2. Should be of standard size. 3. Should be with padded belts for the fixing. 4. It should be covered by a liquid proof and bacterial proof material.
2.2	<b>Settings</b>	NA
2.3	<b>User's interface</b>	Manual
2.4	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Standard
3.2	<b>Weight (lbs, kg)</b>	Standard
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>Tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	NA
5.2	<b>Spare parts (main ones)</b>	NA
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	NA
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	NA
<b>7. STANDARDS AND SAFETY</b>		

7.1	<b>Certificates (pre-market, sanitary, ...); Performance and safety standards (specific to the device type); Local and/or international</b>	ISO 9001; FDA/CE
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 year
9.2	<b>Maintenance tasks</b>	NA
9.3	<b>Service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	NA
10.2	<b>Other accompanying documents</b>	NA
10.3	<b>Recommendations for maintenance</b>	NA
10.4	<b>Others</b>	
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	NA
11.2	<b>Recommendations or warnings</b>	NA

### **Item Sl. No. 38**

<b>FOETAL DOPPLER</b>	
definition	A portable, hand-held, battery-powered device assembly consisting of a measuring and display unit and an attached probe or interchangeable probes designed to noninvasively detect foetal heart beats using ultrasound/Doppler technology. The heart beats are typically conveyed audibly via the measuring/ display unit and attached probe which is applied to the surface of the pregnant woman's abdomen. The device aids in determining foetal viability.

<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	To noninvasively detect foetal heart beats from the surface of the pregnant women's abdomen.
1.2	<b>Used by clinical department/ward</b>	Emergency/gynae dept.
1.3	<b>Overview of functional requirements</b>	
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	Water proof probes of 2MHz-3MHz frequency, Ultra sound Intensity <10mw/cm <sup>2</sup> , Auto Shut Of Facility to save Battery Power, Built-in Speaker, Volume Control Facility and Audio Output for Ear Phone, Heart Rate Range should be from 50 to 180 bpm with accuracy of + /-2%, Should be Water Proof Body, Should have Facility for FHR Data transfer to PC.
2.2	<b>Settings</b>	Setting of ultrasound intensity.
2.3	<b>User's interface</b>	LCD display
2.4	<b>Software and/or standard of communication(where ever required)</b>	Inbuilt
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Handheld
3.2	<b>Weight (lbs, kg)</b>	500 gm
3.3	<b>Configuration</b>	
3.4	<b>Noise (in dbA),</b>	Noise: <60 dbA
3.5	<b>heat dissipation</b>	
3.6	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	AA batteries
4.2	<b>battery operated</b>	AA battery type; Minimum Battery Time of 300 minutes.
4.3	<b>Tolerance (to variations, shutdowns)</b>	± 10% of input AC.
4.4	<b>Protection</b>	Electrical protection by resettable overcurrent breakers or replaceable fuses, fitted in both live and neutral lines.
4.5	<b>Power consumption</b>	
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories (mandatory, standard, optional)</b>	Doppler probe, battery charger.
5.2	<b>Spare parts (main ones)</b>	
5.3	<b>Consumables / reagents (open, closed system)</b>	AA battery,
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		

6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary, ..)</b>	FDA or CE or UL approved product. Type B or BF,
7.2	<b>Performance and safety standards (specific to the device type)</b>	Shall meet IEC-60601-1-2:2007 Medical electrical equipment -- Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests (Or Equivalent BIS).
7.3	<b>Local and/or international</b>	Manufacturer should be ISO 13485 certified
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform installation, safety and operation checks before handover.
8.2	<b>Requirements for sign-of</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	Three years
9.2	<b>Maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>Service contract clauses, including prices</b>	Local clinical staff to affirm completion of installation.
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented. User, technical and maintenance manuals to be supplied in English language. List to be provided of equipment and procedures required for local calibration and routine maintenance.
10.2	<b>Other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	AMC/CAMC Details to be provided
11.2	<b>Recommendations or warnings</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.

**Item Sl. No. 39**

<b>NEBULIZER (ELECTRIC)</b>		
Definition	An assembly of devices designed to generate warmed aerosolized medication/ fluids (finely dispersed airborne droplets in a liquid phase) intended to be inhaled by a patient with a respiratory disorder [e.g., chronic obstructive pulmonary disease (COPD), cystic fibrosis (CF)]. It will typically consist of an electrically-powered generator, a reservoir, a heating element, and a hand-held nebulizing chamber where the nebulization of the medicine usually takes place.	
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	Designed to generate warmed aerosolized medication/fluids (finely dispersed airborne droplets in a liquid phase) intended to be inhaled by a patient with a respiratory disorder.
1.2	<b>Used by clinical department/ward</b>	All
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	Medicine cup capacity of minimum 5 ml.
2.2	<b>Settings</b>	Manual
2.3	<b>User's interface</b>	Manual
2.4	<b>Software and/or standard of communication(whenever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Should be compact.
3.2	<b>Weight (lbs, kg)</b>	<2kg.
3.3	<b>Configuration</b>	
3.4	<b>Noise (in dbA), heat dissipation</b>	<60 dbA
3.5	<b>Mobility, portability</b>	yes
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	220 V AC + 10%, 50 Hz power supply.
4.2	<b>battery operated</b>	Rechargeable battery (4.8 V nominal output).
4.3	<b>Tolerance (to variations, shutdowns)</b>	± 10% of input AC.
4.4	<b>Protection</b>	Electrical protection by resettable over current breakers or replaceable fuses, fitted in both live and neutral lines
4.5	<b>Power consumption</b>	2 Watt (nebulizing); 6.5 Watt (charging)
4.6	<b>Other energy supplies</b>	NA
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>Accessories &amp; Spares</b>	With necessary accessories- nebulization mask, tubing for nebulizer; cable cord
5.3	<b>Consumables / reagents (open, closed system)</b>	Aerosol/medicinal solutions
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		

6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certificates (pre-market, sanitary,)</b>	FDA/CE/ISO 13485
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform installation, safety and operation checks before handover.
8.2	<b>Requirements for sign-off</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>Maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule
9.3	<b>Service contract clauses, including prices</b>	Local clinical staff to affirm completion of installation
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, technical and maintenance manuals to be supplied in English language. List to be provided of equipment and procedures required for local calibration and routine maintenance
10.2	<b>Other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided.
11.2	<b>Recommendations or warnings</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.

**Item Sl. No. 40**

<b>BABY HYPOTHERMIA WRAP KIT</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>Clinical purpose</b>	Low-birth-weight (LBW) premature infants are born without the adaptive mechanisms needed for survival outside of the womb. These fragile infants require thermo-protective interventions which is usually provided by hypothermia wrap kit.
1.2	<b>Used by clinical department/ward</b>	NICU/SNCU/Emergency
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>Technical characteristics (specific to this type of device)</b>	Light weight, AC/DC power driven heat generating kit with straps for holding the baby in position. Includes necessary protection in design for avoiding overheating. Should have temperature regulator.
2.3	<b>Settings</b>	Temperature range: from 35 to 38° C, accuracy +/- 0.5° C
2.4	<b>User's interface</b>	Safety alarms for high and low temperature DESIRABLE non-mandatory.
2.5	<b>Software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Just as to wrap the baby.
3.2	<b>Weight (lbs, kg)</b>	Minimum possible.
3.3	<b>Configuration</b>	NA
3.4	<b>Noise (in dbA), heat dissipation</b>	NA
3.5	<b>Mobility, portability</b>	yes
3.6	<b>Others</b>	
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power Requirements</b>	220 to 240 V, 50 Hz.
4.2	<b>battery operated</b>	1 set of batteries (9 V type 6SR61) if DC compatible.
4.3	<b>Tolerance (to variations, shutdowns)</b>	± 10% of input AC.
4.4	<b>Protection</b>	Electrical protection by resettable overcurrent breakers or replaceable fuses fitted in both live and neutral lines.
4.5	<b>Power consumption</b>	50 W
4.6	<b>Other energy supplies</b>	Can run on 12 - 24 volt battery or 110 - 240 volt AC.
<b>5. ACCESSORIES, SPARE PARTS, Consumables</b>		
5.1	<b>Accessories &amp; Spares</b>	1 heating pad; 1 power cord main supply of length approximately 1 m.
5.3	<b>Consumables / reagents (open, closed system)</b>	NA
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.

6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Washable; could be cleaned using alcohol based disinfectant.
6.3	<b>Others</b>	
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>Certifications</b>	FDA/CE/IEC 60601-1-2-2011 Part 1-2: General requirements for basic safety and essential performance.
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform installation, safety and operation checks before handover.
8.2	<b>Requirements for sign-of</b>	Certificate of inspection from the factory.
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	1 years
9.2	<b>Maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>Service contract clauses, including prices</b>	Local clinical staff to affirm completion of installation.
9.4	<b>Others</b>	
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented. User, technical and maintenance manuals to be supplied in English language. List to be provided of equipment and procedures required for local calibration and routine maintenance.
10.2	<b>Other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. NOTES</b>		
11.1	<b>Service Support Contact details (Hierchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided.
11.2	<b>Recommendations or warnings</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.

**Item Sl. No. 41**

<b>Drug Vending Machine</b>		
<b>GENERAL</b>		
<b>1</b>	<b>USE</b>	
<b>1.1</b>	<b>Clinical purpose</b>	Drug Vending Machine is drug storage and dispensing cabinet installed at the point of care
<b>1.2</b>	<b>Used by clinical department/ward</b>	Outpatient Department of Public Health facilities (sub-centres in rural areas) where there is no or limited internet connectivity

<b>TECHNICAL</b>		
<b>2</b>	<b>TECHNICAL CHARACTERISTICS</b>	
<b>2.1</b>	<b>Technical characteristics (specific to this type of device)</b>	1. Energy saving setting 2. Intelligent device based on internet/GPRS for vending drugs from a remote location 3. MDB protocol compliant 4. Powder coated MS body. 5. Double pane glass door 6. Compatible with GSM/GPRS/web based secured back end portal/secured web pages. 7. Dispensing coil width suitable for dispensing drug strips/plasti syrup bottles 8. Capacity adequate for a minimum of 30 strips per coil for tablets and minimum of 10 plastic bottles per coil tablets and minimum of 10 plastic bottles per coil for syrups 9. Trays as 6 nos per machine. 10. Minimum 5 coils per tray for 10 - 20 ml plastic syrup bottles x 1 tray 11. Vend sensor 12. Interlock door construction 13. Motor tested for error free performance 14. MS steel trays. 15. Sliding and tilting trays for easy refiling of products (Medicine) 16. Multiple size helix coils 17 Compatible with GSM/GPRS based transmission. 18. Non-dependent on internet
<b>2.2</b>	<b>User's interface</b>	Automatic
<b>2.3</b>	<b>Software and/or standard of communication(whenever required)</b>	<i>In built software</i>
<b>3</b>	<b>PHYSICAL CHARACTERISTICS</b>	
<b>3.1</b>	<b>Dimensions (metric)</b>	NA
<b>3.2</b>	<b>Weight (lbs, kg)</b>	Maximum 200 cms
<b>3.3</b>	<b>Configuration</b>	Maximum 100 cms
<b>3.4</b>	<b>Noise (in dBA)</b>	Maximum 100 cms
<b>3.5</b>	<b>Heat dissipation</b>	NA
<b>3.6</b>	<b>Mobility, portability</b>	NA
<b>4</b>	<b>ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>	
<b>4.1</b>	<b>Power Requirements</b>	Input voltage 220VAC, 50Hz
<b>4.2</b>	<b>Battery operated</b>	Operational on battery 12V (Inverter)
<b>4.3</b>	<b>Tolerance (to variations, shutdowns)</b>	NA
<b>4.4</b>	<b>Protection</b>	Voltage corrector/stabiliser to allow operation at 10%
<b>4.5</b>	<b>Power consumption</b>	Maximum 2 amp, 250 Watts
<b>5</b>	<b>ACCESSORIES, SPARE PARTS, CONSUMABLES</b>	
<b>5.1</b>	<b>Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)</b>	NA
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6</b>	<b>ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>	
<b>6.1</b>	<b>Atmosphere / Ambiance (air conditioning, humidity, dust ...)</b>	1. Operating Condition: Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances. 2. Storage condition: Capable of being stored continuously in ambient

		temperature of 0 to 50 deg C and relative humidity of 15 to 90%
6.2	<b>User's care, Cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable using alcohol and chlorine wipes
<b>7</b>	<b>STANDARDS AND SAFETY</b>	
7.1	<b>Certificates (pre-market, sanitary, ..); Performance and safety standards (specific to the device type); Local and/or international</b>	Manufacturers/ suppliers should have experience of supplying and installing vending machine for atleast 3 years with more than 100 machines/years
<b>8</b>	<b>TRAINING AND INSTALLATION</b>	
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	Availability of 5amp/15amp electrical sockets
8.2	<b>Requirements for sign-off</b>	Supplier to perform installation safety and operation checks before handover
8.3	<b>Training of staff (medical, paramedical, technicians)</b>	1. Training of users in operation and basic maintenance should be provided 2. Advanced maintenance tasks required shall be documented
<b>9</b>	<b>WARRANTY AND MAINTENANCE</b>	
9.1	<b>Warranty</b>	NA
9.2	<b>Maintenance tasks</b>	1. Maintenance and manual detailing 2. Complete maintenance schedule
9.3	<b>Service contract clauses, including prices</b>	1. The spare, accessories & consumables price list required for maintenance and repairs in future after guarantee/ warranty period should be attached 2. Free servicing during warranty period
<b>10</b>	<b>DOCUMENTATION</b>	
10	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets (hardcopy) of: 1. User, technical, maintenance and service manuals to be supplied along with machine diagrams 2. List of equipment and procedures required for routine maintenance 3. Certificate of calibration from the manufacturer
<b>11</b>	<b>NOTES</b>	
11	<b>Service Support Contact details (Hierarchy Wise; including a toll free/landline number)</b>	1. contact details of manufacturer, supplier and local service agent to be provided 2. Any contract (AMC/CMC/add hoc) to be declared by the manufacturer
11	<b>Recommendations or warnings</b>	All precautions to be adequately displayed

### Item Sl. No. 42

<b>DIRECT OPHTHALMOSCOPE</b>		
<b>GENERAL</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	Direct ophthalmoscope is a hand-held and battery powered device containing illumination and viewing optics to examine the cornea, aqueous, lens, vitreous, and the retina of the eye.

1.2	Used by clinical department/ ward	NICU & PICU
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	technical characteristics (specific to this type of device)	1) Should have on/of button for illumination and battery operated; 2) Should have rotating knob to control the intensity of the ophthalmoscope and should be used with filters that eliminate UV radiation (<400 nm) and, whenever possible, filters that eliminate short- wavelength blue light (<420 nm); 3) Should have the range of +20 to -20 in single deposite steps to ensure easy examination of all ocular structures; 4) Should have apertures shape: Large spot, small spot, slit, central net, and red free;
2.2	User's interface	Manual
2.3	software and/or standard of communication (where ever required)	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	Dimensions (metric)	Max: 50 mm x 50 mm x 250 mm (Approx.)
3.2	Weight (lbs, kg)	NA
3.3	configuration	NA
3.4	Noise (in dBa)	NA
3.5	heat dissipation	NA
3.6	mobility, portability	Handheld device
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	power requirements	NA
4.2	Battery operated	Yes
4.3	tolerance (to variations, shutdowns)	NA
4.4	protection	NA
4.5	power consumption	NA
Technical Specification NEONATAL & PAEDIATRIC CARE ICUs 1		
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	accessories (mandatory, standard, optional); spare parts (main ones); consumables/reagents (open, closed system)	1) Replacement bulb/illumination source -2 Nos. 2) Storage case (rigid and steady).
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	Atmosphere/ambiance (air conditioning, humidity, dust...)	1) Operating condition: Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	User's care, cleaning, Disinfection & sterility issues	Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
<b>7. STANDARDS AND SAFETY</b>		

7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	1) Manufacturer/supplier should have ISO 13485 certificate for quality standard;
<b>8. Training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Certificate of calibration and inspection from the manufacturer.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years including bulb.
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	<b>service contract clauses, including prices</b>	1) The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached; 2) Free servicing (min. 2/year) during warranty period;
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets (hardcopy) of: 1) User, technical, maintenance and service manuals to be supplied along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance;
10.2	<b>Other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. NOTES</b>		
11.1	<b>service support contact details (hierarchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	

### Item Sl. No. 43

<b>MOBILE X-RAY</b>		
<b>GENERAL</b>		
<b>1 USE</b>		
1.1	<b>clinical purpose</b>	General-purpose mobile diagnostic x-ray system used in a variety of routine x-ray imaging applications.
1.2	<b>Used by clinical department/ward</b>	Radiology services in NICU & PICU
<b>TECHNICAL</b>		
<b>2 TECHNICAL CHARACTERISTICS</b>		

2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1) High Frequency generator of 40KHz or more compatible with conventional and computerized radiography.</li> <li>2) Must have a digital display of mAs and kV, and an electronic timer.</li> <li>3) Ergonomically designed unit with total soft touch switches for various operations.</li> <li>4) Self Diagnostic Program with indicators for earthing fault error, KV error or filament error.</li> <li>5) kV range at least 40 kV to 125 kV, digitally displayed mAs range at least 0.5 to 125 mAs or more.</li> <li>6) Exposure time range at least 1 ms to 5s.</li> <li>7) Adjustable multileaf collimator, rotatable <math>\pm 90</math> deg with patient centring light.</li> <li>8) Must be supplied with protective dust cover at least for control panel.</li> <li>9) Should be compatible with various basinet size in NICU &amp; PICU.</li> <li>10) The generator should have microprocessor/micro-controller based electric overload system.</li> </ol>
2.2	<b>settings</b>	<ol style="list-style-type: none"> <li>1) KV increase &amp; decrease switches.</li> <li>2) mAs increase &amp; decrease switches.</li> <li>3) Machine On/Off Switch.</li> <li>4) Collimator lamp On/Off switch.</li> <li>5) X-rays ON indicator should available.</li> <li>6) Hand switch with exposure from 1 metre or more or Foot switch should available for trigger X-rays or should be able to trigger from at least one meter away from control panel</li> </ol>
2.3	<b>User's interface</b>	The exposure release switch should be detachable, with a cord of at least 5 meters long.
2.4	<b>software and/or standard of communication</b>	in built;
<b>3 PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	-
3.2	<b>Weight (lbs, kg)</b>	Maximum 250 Kg.
3.3	<b>configuration</b>	<ol style="list-style-type: none"> <li>1) The unit must have an effective braking system for parking, transport and emergency braking.</li> <li>2) The tube stand must be fully counterbalanced for rotation in all directions.</li> <li>3) It must have an articulated arm for imaging with any patient position.</li> <li>4) All cables should be concealed in the arm system.</li> </ol>
3.4	<b>Noise (in Dba)</b>	<60 dB;
3.5	<b>heat dissipation</b>	Should maintain normal temp and the heat disbursed through a exhaust fan.
3.6	<b>mobility, portability</b>	<ol style="list-style-type: none"> <li>1) When motor or battery is non-functional, free movement by pushing must be possible with 360 degree rotation and manual locking for various movements.</li> <li>2) The unit must have cassette storage facility.</li> <li>3) Motorized movement capable of ascending slope of up to 7 deg from horizontal.</li> <li>4) Unit base wheels must be easily accessible for cleaning.</li> <li>5) Whole unit moved by battery powered motor or pushed by operator to required department.</li> </ol>
<b>4 ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Voltage (value, ac or Dc, monophase or triphase)</b>	Input: 220 VAC $\pm$ 10%, 50 Hz.
4.2	<b>Battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	Resettable over-current breaker to be fitted on both live and neutral supply lines.

4.4	<b>protection</b>	NA
4.5	<b>power consumption</b>	Voltage corrector / stabilizer to allow operation at $\pm 10\%$ of local rated voltage.
4.6	<b>Other energy supplies</b>	NA
<b>5 ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	To be supplied with 2 Nos. adult size protective lead apron and 1 No. child/ neonate size protective lead shield.
5.2	<b>spare parts (main ones)</b>	Control cable, transformer, and exposure switch.
5.3	<b>consumables / reagents (open, closed system)</b>	X-ray films dealt in different tender.
5.4	<b>Others</b>	Radiation hazard warning signs to be supplied with unit.
<b>6 ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition: Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
<b>7 STANDARDS AND SAFETY</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	1) Electrical safety conforms to standards for electrical safety IEC-60601, Class I. 2) Radiation safety to be certified to IAEA standards and AERB type approval (national standards). (X-ray Tube) standard requirement. 4) Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8 TRAINING AND INSTALLATION</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	1) Dosimeter should be available with the operator. 2) Lead gown to be supplied for the operator.
8.2	<b>requirements for sign-off</b>	1) Supplier to perform installation, safety and operation checks before handover. 2) Local clinical staff to affirm completion of installation
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users in operation and basic maintenance shall be provided. 2) Training of users in radiation safety shall be provided.
8.4	<b>Others</b>	Advanced maintenance tasks required shall be documented.
<b>9 WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years;
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Free servicing (min. 3/year) during warranty period.
9.4	<b>Others</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached.
<b>10 DOCUMENTATION</b>		

10	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy) of:- 1) User, technical, maintenance and service manuals along with machine diagrams. 2) Advanced maintenance tasks documentation.
10	<b>Other accompanying documents</b>	1) Certificate of calibration and inspection to be provided. 2) List to be provided of important spares and accessories, with their part numbers and cost.
10	<b>recommendations for maintenance</b>	List to be provided of equipment and procedures required for local calibration and routine maintenance.
10	<b>Others</b>	Contact details of manufacturer, supplier and local service agent to be provided.
<b>11 NOTES</b>		
11	<b>Other information</b>	Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer.
11	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

**Item Sl. No. 44**

<b>BILIRUBINOMETER</b>		
<b>GENERAL</b>		
<b>1 USE</b>		
1.1	<b>clinical purpose</b>	Determining the concentration of bilirubin in the blood or other clinical specimen, most commonly to rapidly assess hyperbilirubinemia in neonates.
1.2	<b>Used by clinical department/ward</b>	NICU/PICU
<b>TECHNICAL</b>		
<b>2 TECHNICAL CHARACTERISTICS</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Sample volume of < 100 µL required, automatic calibration facility. 2) Total bilirubin concentration measurable (at least) in range of 0 to 30 mg/dl. 3) Time for total concentration measurement: ≤ 5 seconds. 4) Should have filters: 455 and 575 nm (± 2%). 5) Should have error rate less than 5%. 6) Should have resolution- 0.1 mg/dl. 7) Automatic correction for Haemoglobin. 8) Measuring cell: Direct Haematocrit capillary readings. 9) Heparinized haematocrit glass capillary.
2.2	<b>settings</b>	Method to recalibrate / save current calibration, set sample size.
2.3	<b>User's interface</b>	Manual interface. Backlit display with easy viewing in all ambient light levels.
2.4	<b>software and/or standard of communication(where ever required)</b>	Inbuilt software. Convenient and quick USB interface.
<b>3 PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	Approx. 110 x 150 x 200 mm(Approx).
3.2	<b>Weight (lbs, kg)</b>	5 kg - 15 kgs
3.3	<b>configuration</b>	(Ex: Compact, modular, to be fixed to walls, ceiling, etc.).

3.4	<b>Noise (in dBa)</b>	<60 dB
3.5	<b>heat dissipation</b>	Should maintain nominal temp and the heat should be disbursed through an cooling mechanism.
3.6	<b>mobility, portability</b>	Easy and safe transport to be possible by hand, stable when table-top mounted;
<b>4 ENERGY SOURCE (electricity, UPS, solar, Gas, Water, CO2 ....)</b>		
4.1	<b>power requirements</b>	220 VAC $\pm$ 10%, 50 Hz;
4.2	<b>Battery operated</b>	Yes (optional)
4.3	<b>tolerance (to variations, shutdowns)</b>	Voltage corrector / stabilizer to allow operation at $\pm$ 10% of local rated voltage.
4.4	<b>protection</b>	NA
4.5	<b>power consumption</b>	NA
4.6	<b>Other energy supplies</b>	Length of mains power cable should be at least 3 meters.
<b>5 ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	Hard and splash-proof case to be supplied.
5.2	<b>spare parts (main ones)</b>	1) Spare/replaceable fuses - 2 sets. 2) Reagents and capillary tubes sufficient for minimum 100 tests. 3) Reagents and consumables per test should be declared.
5.3	<b>consumables / reagents (open, closed system)</b>	1) Capillary tubes, haemoluorometric reagents (e.g., aqueous cyanide salt with stabilizers, if applicable). 2) Price of all Consumables to be mentioned.
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6 ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition:
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
<b>7 STANDARDS AND SAFETY</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1) Should be CE (EU)/FDA (US)/ ISO 13485 approved product.
<b>8 TRAINING AND INSTALLATION</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Availability of 5 Amps electrical socket.
8.2	<b>requirements for sign-of</b>	1) Supplier to perform installation, safety and operation checks before handover. 2) Local clinical staff to affirm completion of installation.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance. 2) Advanced maintenance tasks required shall be documented.
<b>9 WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years

9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing. 2) Complete maintenance schedule.
9.3	<b>service contract clauses, including prices</b>	1) The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached. 2) Free servicing (min. 2/year) during warranty period.
<b>10 DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets (hardcopy) of:- 1) User, technical and maintenance manuals to be supplied in English/Hindi language along with machine diagrams. 2) List of equipment and procedures required for local calibration and routine maintenance. 3) Certificate of calibration and inspection.
10.2	<b>Other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost.
<b>11 NOTES</b>		
11.1	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided. Any Contract (AMC/CMC/ad -hoc) to be declared by the manufacturer.

**Item Sl. No. 45**

<b>ECG UNIT</b>		
<b>GENERAL</b>		
<b>1. USE</b>		
1.1	<b>clinical purpose</b>	Continuously detect, measure, and display a patient's electrocardiogram (ECG) through leads and sensors attached to the patient.
1.2	<b>Used by clinical department/ ward</b>	All
1.3	<b>Overview of functional requirements</b>	Continuous display of patient ECG and heart rate on screen. Allows display of single, 5 lead ECG or simultaneous display of at least 5 waves selected from up to 12 points. Operator can set audiovisual alarm levels for low or high heart rate. Operates from mains voltage or from internal rechargeable battery. Patient connectors that are sterilisable and reusable are preferred, though reusable cables that attach to disposable connection patches are also acceptable. Hard copy printout of traces will be required.
<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		

2.1	<b>technical characteristics (specific to this type of device)</b>	1. Heart rate measurement range to be at least 30 to 250 bpm, with accuracy better than $\pm 5$ bpm. 2. Heart rate trend display of at least previous 24 hours. 3. Arrhythmia detection facility required; minimum gradation of 1 bpm. 4. Heart rate measurement range to be at least 30 to 250 bpm, with accuracy better than $\pm 5$ bpm.
2.2	<b>settings</b>	Audiovisual alarms required: high and low heart rate (operator variable settings), cardiac arrhythmia, sensor/wire disconnected, low battery.
2.3	<b>User's interface</b>	Manual
2.4	<b>software and/or standard of communication</b>	In built
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	less than 5 kgs
3.3	<b>configuration</b>	Case is to be hard and splash proof. Display must allow easy viewing in all ambient light levels. Supplied in protective case for clean storage and safe transport.
3.4	<b>Noise (in dBA)</b>	<50 dB
3.5	<b>heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through a exhaust cooling fan.
3.6	<b>mobility, portability</b>	Supplied in protective case for clean storage and safe transport.
<b>4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Voltage (value, ac or Dc, monophas or triphase)</b>	220 to 240V, 50 Hz
4.2	<b>Battery operated</b>	Battery powered, silence able alarm for power failure. Battery charger to be integral to mains power supply, and to charge battery during mains power operation of unit. Internal, replaceable, rechargeable battery allows operation for at least one hour in the event of power failure.
4.3	<b>tolerance (to variations, shutdowns)</b>	Voltage corrector/stabilizer to allow operation at $\pm 30\%$ of local rated voltage.
4.4	<b>protection</b>	Electrical protection provided by fuses in both live and neutral supply lines.
4.5	<b>power consumption</b>	
4.6	<b>Other energy supplies</b>	Mains cable to be at least 3m length.
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	12 lead ECG cable. 5 lead ECG cable (if option offered). 100 sets of ECG connection electrodes (if disposable type). 5 sets of ECG connection electrodes (if reusable type). Minimum 3 channel required in ECG machine.
5.2	<b>spare parts (main ones)</b>	Two sets of spare fuses (if non-resettable fuses used)
5.3	<b>consumables/reagents (open, closed system)</b>	5 tubes electrode gel (if required)
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATONS</b>		
6.1	<b>atmosphere/ambiance (air conditioning, humidity, dust ...)</b>	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	The case is to be cleanable with alcohol or chlorine wipes.
<b>7. STANDARDS AND SAFETY</b>		

7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	Should be FDA/CE approved product; Manufacturer/supplier should have ISO 13485 certificate for quality standard. Electrical safety conforms to standards for electrical safety IEC-60601-1. Shall meet IEC-60601-1-2 (General requirements for safety - electromagnetic compatibility) and IEC 60601-2-25 (essential performance of electrocardiographs).
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Availability of 5 amp/15 amp. Electrical socket.
8.2	<b>requirements for sign-off</b>	Supplier to perform installation, safety and operation checks before handover. Local clinical staff to affirm completion of installation.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided. Advanced maintenance tasks required shall be documented.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 year
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Warranty of one year with free servicing (min. 3) during warranty.
9.4	<b>Others</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached.
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	User, technical and maintenance manuals to be supplied in English language. Certificate of calibration and inspection to be provided. List to be provided of equipment and procedures required for local calibration and routine maintenance. List to be provided of important spares and accessories, with their part numbers and cost. Contact details of manufacturer, supplier and local service agent to be provided.
10.2	<b>Other accompanying documents</b>	User/Technical/Maintenance manuals to be supplied in English.
<b>11. NOTES</b>		
11.1	<b>Other information</b>	Any Contract (AMC/MC/add-hoc) to be declared by the manufacturer.
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

**Item Sl. No. 46**

<b>TRANS ILLUMINATOR COLD LIGHT SOURCE</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	Clod light source is used for accessing tiny arteries and veins of the babies.
1.2	<b>Used by clinical department/ward</b>	NICU and PICU

<b>TECHNICAL</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Should have light intensity controlled with smooth rotary potentiometer/ pressing button. 2) Should have output power 250 Watts (24 Volts)/ 150 Watts (12 Volts). 3) Should have minimum dual control having 2 halogen/xenon/led lamps. 4) Should have SMPS based design ensures smooth working of light source within the voltage variation. 5) Should have fibre optic light cable 4.5 mm – 10 mm in diameter, 250 cm- 300 cm in length.
2.2	<b>User's interface</b>	NA
2.3	<b>software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	30 cm H x 30 cm W x 50 cm $\pm$ 20 %
3.2	<b>Weight (lbs, kg)</b>	Upto 5 kg
3.3	<b>configuration</b>	NA
3.4	<b>Noise (in dBa)</b>	<60 db
3.5	<b>heat dissipation</b>	Heat disbursed through an exhaust fan (if applicable).
3.6	<b>mobility, portability</b>	Hand held device
<b>4. ENERGY SOURCE (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>power requirements</b>	220 VAC $\pm$ 10%, 50 Hz
4.2	<b>Battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	Voltage corrector / stabilizer to allow operation at $\pm$ 10% of local rated voltage, Electrical protection by resettable over-current breakers or replaceable fuses fitted in both live and neutral lines.
4.4	<b>protection</b>	
4.5	<b>power consumption</b>	Max. 250 W
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>accessories (mandatory, standard, optional); spare parts (main ones); consumables / reagents (open, closed system)</b>	1) Mains 3 m power cord 1 No. 2) Illumination spare lamp 2 nos. 3) Consumables if any (proprietary/open) should be mentioned along with rates
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition: Capable of operating continuously in ambient temperature of -10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	The case is to be cleanable with alcohol or chlorine wipes.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1) Should be CE approved product. 2) Manufacturer/supplier should have ISO 13485 certificate for quality standard.
<b>8. TRAINING AND INSTALLATION</b>		

8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Availability of 15 Amps. Electrical socket.
8.2	<b>requirements for sign-off</b>	1) Supplier to perform installation, safety and operation checks before handover. 2) Local clinical staff to affirm completion of installation.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance. 2) Advanced maintenance tasks required shall be documented.
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years;
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing. 2) Complete maintenance schedule.
9.3	<b>service contract clauses, including prices</b>	1) The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached. 2) Free servicing (min. 2/year) during warranty period.
<b>10. Documentation</b>		
10	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets (hardcopy) of:- 1) User, technical and maintenance manuals to be supplied in English/Hindi language along with machine diagrams. 2) List of equipment and procedures required for local calibration and routine maintenance. 3) Certificate of calibration and inspection.
10	<b>recommendations for maintenance</b>	List of important spares and accessories, with their part numbers and cost.
<b>11. NOTES</b>		
11	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided. Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer.
11	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

**Item Sl. No. 47**

<b>CPAP</b>		
<b>GENERAL</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	Non-invasive resp. support (CPAP) for New-born infant
1.2	<b>Used by clinical department/ward</b>	NICU and PICU
<b>technical</b>		
<b>2. TECHNICAL CHARACTERISTICS</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Device should able to deliver CPAP of 1 to 10 cm H2O increments of 1 cm, using a underwater bubble system. 2) The device should have a in-built air oxygen blender to deliver FiO2 21% to 100% (+/- 2 %) with an adjustable low in the range of 0 -15 L/min (+/- 0.5 L/min); 3) Should have a heated wire servo controlled humidifier with display temp. near patient end of the circuit; to be supplied with 2 reusable

		<p>infant water chamber;</p> <p>4) Should be supplied with 2 reusable heated wire silicone tubing circuit for infant/new-born;</p> <p>5) Should be able to deliver CPAP using available patient interfaces nasal prongs/nasopharyngeal prongs;</p> <p>6) For devices based on underwater bubble systems the water chamber should be reusable; to be supplied with 2 reusable water chamber;</p> <p>7) Should be provided pressure release valve at 15 cm H<sub>2</sub>O to 17 cm H<sub>2</sub>O;</p>
2.2	<b>User's interface</b>	For a low driving system a pressure display is required Audio visual alarm for low pressure, high pressure, power failure, low O <sub>2</sub> ,
2.3	<b>software and/or standard of communication(where ever required)</b>	NA
<b>3. PHYSICAL CHARACTERISTICS</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	<8 kgs
3.3	<b>configuration</b>	NA
3.4	<b>Noise (in dBa)</b>	<60 dB; Alarm > 65 dB
3.5	<b>heat dissipation</b>	Yes
3.6	<b>mobility, portability</b>	Portable
<b>4. ENERGY SOURCE (electricity, Ups, solar, gas, water, CO<sub>2</sub> ....)</b>		
4.1	<b>power requirements</b>	220 VAC, 50 Hz
4.2	<b>Battery operated</b>	with at-least 1 hours battery backup
4.3	<b>tolerance (to variations, shutdowns)</b>	± 10% of input
4.4	<b>protection</b>	OVP, earth leakage protection
4.5	<b>power consumption</b>	<140 Watt
4.6	<b>Other energy supplies</b>	electric/battery driven
<b>5. ACCESSORIES, SPARE PARTS, CONSUMABLES</b>		
5.1	<b>accessories (mandatory, standard, optional); spare parts (main ones); consumables / reagents (open, closed system)</b>	<p>1) Each device should be provided with 30 nasal prongs (At least three sizes suitable for neonates weighing &lt;1000 grms, 1000-1500 grms &amp; &gt;1500 grms)</p> <p>2) Air and O<sub>2</sub> hose of 3 m length each along with the appropriate socket;</p>
<b>BIDDING / PROCUREMENT TERMS / DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	<p>1) Operating condition: Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances.</p> <p>2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.</p>
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1) CE(EU) and BIS/ISO 13485:2003;
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	electrical sockets; Oxygen supply
8.2	<b>requirements for sign-of</b>	Supplier to perform installation, safety and operation checks before handover Local clinical staff to affirm completion of installation

8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided Advanced maintenance tasks required shall be documented
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years;
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	<b>service contract clauses, including prices</b>	1) The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached; 2) warranty of three years with free servicing ( min. 6) during warranty;
<b>10. Documentation</b>		
10	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy) of:- 1) User, technical, maintenance and service manuals to be supplied along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Certificate of calibration and inspection;
10	<b>recommendations for maintenance</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. NOTES</b>		
11	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed

### Item Sl. No. 48

<b>Transport Ventilator (Neonatal &amp; paediatrics)</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	To provide automated, alveolar ventilator support for patients during inter hospital or intra hospital transport, and in emergency situations.
1.2	<b>Used by clinical department/ ward</b>	Emergency /Critical Care
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. Mountable transport ventilator (Neonate/Pediatric).</li> <li>2. Invasive Modes (CMV and SIMV) and Non-invasive Mode (CPAP) with pressure support.</li> <li>3. Pressure controlled - Pressure upto 15 mm Hg.</li> <li>4. Respiration Rate upto 40.</li> <li>5. There should be two FiO2 setting range between 21% and 100%. Setting 100% FiO2 should be mandatory.</li> <li>6. PEEP 0-20 cm of water.</li> <li>7. Trigger sensitivity - Pressure.</li> <li>8. The associated cylinder (to be supplied along with the machines) should be such that it could be locally filled.</li> <li>9. Oxygen Cylinder connector (to be supplied along with the machines) should be compatible with ventilator.</li> <li>10. Audio and visual alarm for disconnection and high pressure.</li> </ol>

2.3	<b>User's interface</b>	Should be able to set parameters Automatic (predefined) and Manually.
2.4	<b>software and/or standard of communication(where ever required)</b>	inbuilt
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	<8 kg
3.3	<b>configuration</b>	NA
3.4	<b>Noise (in dBa), heat dissipation</b>	Should have audio visual alarm for disconnection and high pressure.
3.5	<b>mobility, portability</b>	Yes
<b>4. energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>power requirements</b>	220 to 240 V, 50 Hz; electricity and battery driven; should be compatible with ambulance power supply system with other lifesaving equipments running parallel in the ambulance.
4.2	<b>Battery operated</b>	with at least 6 hours battery backup
4.3	<b>tolerance (to variations, shutdowns)</b>	± 10% of input
4.4	<b>protection</b>	OVP, earth leakage protection.
4.5	<b>power consumption</b>	<140 Watt
<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories &amp; spares</b>	Battery
5.3	<b>consumables / reagents (open, closed system)</b>	full face mask, 4 reusable breathing circuit of silicone material(2 for pediatric and 2 for neonates), carry bag, ventilator connecting tubes - one set.
<b>6. environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	The unit should be cleanable with alcohol and/or other chemical agents.
<b>7. standards and safety</b>		
7.1	<b>certifications</b>	FDA (US) /CE (EU) and BIS/ISO 13485:2003; IEC-60601-1-2; ISO 15001-2010 (Anesthetic & respiratory equipment- compatibility with oxygen). Certificate of approval for transport ventilator.
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Electrical sockets; Oxygen supply.
8.2	<b>requirements for sign-of</b>	Supplier to perform installation, safety and operation checks before handover. Local clinical staff to affirm completion of installation.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided. Advanced maintenance tasks required shall be documented.
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.

9.3	<b>service contract clauses, including prices</b>	Warranty of three year with free servicing (min. 3) during warranty.
9.4	<b>Others</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached.
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	User and maintenance manuals to be supplied in English language. Certificate of calibration and inspection to be provided. List to be provided of equipment and procedures required for local calibration and routine maintenance.
		List to be provided of important spares and accessories, with their part numbers and cost. Contact details of manufacturer, supplier and local service agent to be provided.
10.2	<b>Other accompanying documents</b>	User/Technical/Maintenance manuals to be supplied in English.
<b>11. Notes</b>		
11.1	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided.
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed.

### Item Sl. No. 49

<b>Infusion Pump (Volumetric)</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	An infusion pump infuses fluids, medication or nutrients into a patient's circulatory system. It is generally used intravenously, although subcutaneous, arterial and epidural infusions are occasionally used.
1.2	<b>Used by clinical department/ ward</b>	NICU and PICU
1.3	<b>Overview of functional requirements</b>	Alarms indicate if any error situations occur. The drive arm infuses the medication at a steady, programmed rate.
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>clinical performances</b>	Should accept all internationally produced/ marketed bottle and should be able to detect it automatically, Should support the Bolus supply of drug on press of single button, as per need and should be able to preset different range of Bolus supply. Preferably the unit should be of Bottom/side loaded to avoid accidental spilling of drugs and damage to the machine.
2.2	<b>technical characteristics (specific to this type of device)</b>	1. Flow rate programmable range at least from 0.1 to 200 ml/hr, in steps of 0.1 ml/hr; and at least from 100 to 1200 ml/hr in steps of 1 ml/hr. 2. Saves last infusion rate even when the AC power is switched off. 3. Bolus rate should be programmable to approx. 500 ml, with infused volume display. 4. Selectable occlusion pressure trigger levels selectable from 300, 500 and 900 mmHg. 5. Accuracy of $\pm 2\%$ or better for set parameters. 6. Maximum pressure generated 20 psi.

		7. Pause infusion facility required. 8. Self-check carried out on powering on. 9. Comprehensive alarm package required including: occlusion alarm, near end of infusion alarm, volume limit alarm, low battery alarm, AC power failure. 10. It should be open system.
2.3	<b>settings</b>	-
2.4	<b>User's interface</b>	Should be able to set parameters manual and automatic (pre-defined).
2.5	<b>software and/or standard of communication</b>	Inbuilt
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	Tamper-resistant case made of impact resistant material. Securely mountable on table-top, IV stand or bed fitting.
3.4	<b>Noise (in dBa)</b>	Noise free
3.5	<b>heat dissipation</b>	
3.6	<b>mobility, portability</b>	Yes
<b>4. energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>Voltage (value, ac or Dc, monophasic or triphase)</b>	220 V $\pm$ 10%, 50 Hz
4.2	<b>Battery operated</b>	Internal rechargeable battery having a minimum of 2 hours backup
4.3	<b>tolerance (to variations, shutdowns)</b>	$\pm$ 10%
4.4	<b>protection</b>	Battery powered alarm for power failure or disconnection
4.5	<b>power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	Clamp for mounting pump on IV stand
5.2	<b>spare parts (main ones)</b>	NA
5.3	<b>consumables/reagents (open, closed system)</b>	NA
5.4	<b>Others</b>	
<b>Bidding/procurement terms/Donation requirements</b>		
<b>6. environmental and Departmental considerations</b>		
6.1	<b>Atmosphere/ambiance (air conditioning, humidity, dust...)</b>	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Capable of cleaning with alcohol or chlorine wipes
<b>7. standards and safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type)</b>	1) FDA (US)/CE (EU) from authorized third party and BIS/ISO 13485. 2) Relevant IEC-60601-Part 1 & 2, certificates by a notified agency.
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform installation, safety and operation checks before handover.
8.2	<b>requirements for sign-of</b>	As per requirement
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
8.4	<b>Others</b>	
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	Advanced maintenance and calibration tasks required shall be documented
9.3	<b>service contract clauses, including prices</b>	1) The spare, accessories & consumables price list required for maintenance and repairs in future after guarantee/warranty period

		should be attached; 2) Free servicing during warranty period;
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets (hardcopy) of:- 1) User, technical, maintenance and service manuals to be supplied along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Certificate of calibration to be provided by the manufacture;
10.2	<b>Other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11. Notes</b>		
11.1	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	1) Contact details of manufacturer, supplier and local service agent to be provided; 2) Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed.

### Item Sl. No. 50

<b>Self-Inflating Reservoir Bag</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	To provide or assist ventilation in a patient who is apnoeic or exhibits inadequate respiration through manual pulmonary-driven pressure cycle functions.
1.2	<b>Used by clinical department/ ward</b>	It is used in ambulances, intensive care units (ICU), during internal patient transfer, accident and emergency (A&E), and mass casualty incidents (MCI).
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics</b>	<ol style="list-style-type: none"> <li>1. Manual resuscitator with transparent face-mask.</li> <li>2. Child models (750 ml, 500 ml and 260 ml bag capacity).</li> <li>3. Standard 15/22 mm Swivel connector allows connections to all common masks Endotracheal Tubes both for adults and infants.</li> <li>4. Provision to give supplemented oxygen-by-oxygen reservoir providing 100% oxygen.</li> <li>5. Non-re breathing valve enabling the patient to inspire oxygen from the reservoir bag.</li> <li>6. Should be suitable for single hand operate.</li> <li>7. Should be easy to dissemble for cleaning and disinfection.</li> <li>8. Should have pressure release valve at 40 cm H2O.</li> <li>9. Should have silicone oxygen tube 2 m length.</li> <li>10 It should be up-to 40 times autoclavable including bag and washers.</li> <li>11. The bag should be of silicone material.</li> <li>12. Self-Inflating Resuscitator bag should be of medical grade silicone rubber.</li> <li>13. The reservoir should be a PVC bag of 600 ml capacity for 260 ml &amp; 500ml bag capacity and 1000 ml for 750 ml bag capacity.</li> </ol>
2.2	<b>settings</b>	NA
2.3	<b>User's interface</b>	manual

2.4	software and/or standard of communication(where ever required)	NA
<b>3. physical characteristics</b>		
3.1	Dimensions (metric)	handheld
3.2	Weight (lbs, kg)	Light enough to be operated by hand/palm for long duration.
3.3	configuration	NA
3.4	Noise (in dBa), heat dissipation	NA
3.5	mobility, portability	handheld
3.6	Others	
<b>4. Energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	power requirements	NA
4.2	Battery operated	NA
4.3	tolerance (to variations, shutdowns)	NA
4.4	protection	NA
4.5	power consumption	NA
4.6	Other energy supplies	NA
<b>5. accessories, spare parts, consumables</b>		
5.1	accessories (mandatory, standard, optional)	Silicon bellow, Non Rebreathing Valve, 2 meter oxygen tube, Guedel Airway,
5.2	spare parts (main ones)	Oxygen Reservoir bag
5.3	consumables / reagents (open, closed system)	Neonatal Mask of 3 sizes viz 0, 1 and 2
<b>6. environmental and Departmental considerations</b>		
6.1	atmosphere / ambiance (air conditioning, humidity, dust ...)	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances. – an ambient air velocity is less than 0.3 m/s.
6.2	User's care, cleaning, Disinfection & sterility issues	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. standards and safety</b>		
7.1	certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international	ISO 13485; Manufacturer / supplier should have ISO certificate for quality standard.
<b>8. training and installation</b>		
8.1	pre-installation requirements: nature, values, quality, tolerance	Supplier to perform installation, safety and operation checks before handover.
8.2	requirements for sign-of	Certificate of Calibration and inspection from the factory.
8.3	training of staff (medical, paramedical, technicians)	Training of users in operation and basic maintenance shall be provided
<b>9. Warranty and maintenance</b>		
9.1	Warranty	1 year.
9.2	maintenance tasks	maintenance manual detailing complete maintaining schedule
9.3	service contract clauses, including prices	

9.4	Others	
<b>10. Documentation</b>		
10.1	Operating manuals, service manuals, other manuals	Required
10.2	Other accompanying documents	Demonstration CDs
10.3	recommendations for maintenance	NA
<b>11. Notes</b>		
11.1	service support contact details (hierchy Wise; including a toll free/landline number)	NA
11.2	recommendations or warnings	NA

### Item Sl. No. 51

<b>Laryngoscope</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	clinical purpose	For viewing vocal folds and glottis. Surgical and mechanical ventilation/intubation
1.2	Used by clinical department/ ward	PICU/NICU
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	technical characteristics (specific to this type of device)	Fibre optic Laryngoscope - preferably should be single patient use to ensure no infection to the patients, should comprise of disposable handle and reusable light source using the latest LED technology. The main body of the handle should incorporate an excellent grip & should feel even wearing a glove. There should be a freely moving light intensifier of light from the light source through to the tip of the fibre optic blade to prevent any possibility of cross contamination. The unit should allow the blade to be inserted easily & should provide a positive locking mechanism when moved in to the closed position. The patient contact material should be biocompatible.
2.2	settings	NA
2.3	User's interface	Manual
2.4	software and/or standard of communication (where ever required)	NA
<b>3. physical characteristics</b>		
3.1	Dimensions (metric)	NA
3.2	Weight (lbs, kg)	Light weight

3.3	<b>configuration</b>	1. Handheld unit, single piece when in use. 2. On/off switch to be robust and easy to use. 3. External material to be non-ferrous. 4. Blades to be surgical grade stainless steel. 5. Supplied in protective, enclosable container.
3.4	<b>Noise (in dBa), heat dissipation</b>	NA
3.5	<b>mobility, portability</b>	Yes
3.6	<b>Others</b>	storage box should be provided
<b>4. energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>power requirements</b>	independent of external source
4.2	<b>Battery operated</b>	Internal batteries, rechargeable preferred/Penlight battery AA size, Battery charger (if rechargeable), Battery compartment (if reusable) to be sealed against liquid ingress, yet easily opened.
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>protection</b>	NA
4.5	<b>power consumption</b>	3 V lithium battery
4.6	<b>Other energy supplies</b>	
<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	Batteries, light source, blades of various neonatal sizes
5.2	<b>spare parts (main ones)</b>	Handle
5.3	<b>consumables/reagents (open, closed system)</b>	5 LED should be given as spare
<b>6. environmental and Departmental considerations</b>		
6.1	<b>Atmosphere/ambiance (air conditioning, humidity, dust...)</b>	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances. -- Liquid splash resistant Blades should be autoclavable
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Should be autoclavable
<b>7. standards and safety</b>		
7.2	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/ or international</b>	The device should meet IEC 60601-1, IEC 60601-2 standard requirements. Should be FDA/CE approved product.
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	NA
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years; LED upto 6 months

9.2	<b>maintenance tasks</b>	Autoclave
9.3	<b>service contract clauses, including prices</b>	NA
<b>10. Documentation</b>		
10	<b>Operating manuals, service manuals, other manuals</b>	User, technical and maintenance manuals to be supplied in English language. Certificate of calibration and inspection to be provided. List to be provided of equipment and procedures required for local calibration and routine maintenance List to be provided of important spares and accessories, with their part numbers and cost. Contact details of manufacturer, supplier and local service agent to be provided
10	<b>Other accompanying documents</b>	service manuals
<b>11. Notes</b>		
11	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Any Contract (AMC/MC/ad-hoc) to be declared by the manufacturer
11	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

### Item Sl. No. 52

<b>Oxygen hood</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	To provide an enriched environment of oxygen (O <sub>2</sub> ) to increase the patient's O <sub>2</sub> uptake.
1.2	<b>Used by clinical department/ ward</b>	SNCU/NICU
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	Transparent Polycarbonate unbreakable single moulded. Silicon rubber Neck Port adjustment enabled to minimize the wastage of oxygen. Silicon rubber Neck port adjustment to ensures use in Neonate/Infant/ Paediatric patients. Oxygen inlet Port.
2.3	<b>settings</b>	N.A.
2.4	<b>User's interface</b>	N.A.
2.5	<b>software and/or standard of communication(where ever required)</b>	N.A.
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	Appropriate to comfortably fit all size babies up to 5 years of age.
3.2	<b>Weight (lbs, kg)</b>	extremely light weight
3.3	<b>configuration</b>	NA

3.4	Noise (in dBa)	N.A.
3.5	heat dissipation	NA
3.6	mobility, portability	portable
<b>4. energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	power requirements	N.A.
4.2	Battery operated	N.A.
4.3	tolerance (to variations, shutdowns)	N.A.
4.4	protection	N.A.
4.5	power consumption	N.A.
4.6	Other energy supplies	N.A.
<b>5. accessories, spare parts, consumables</b>		
5.1	accessories (mandatory, standard, optional)	NA
5.2	spare parts (main ones)	NA
5.3	consumables / reagents (open, closed system)	tubing
5.4	Others	
<b>6. environmental and Departmental considerations</b>		
6.1	atmosphere / ambiance (air conditioning, humidity, dust ...)	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.2	User's care, cleaning, Disinfection & sterility issues	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. standards and safety</b>		
7.1	certificates (pre-market, sanitary, ...)	ISO 15001-2010 Should be CE or FDA approved The company should be ISO 13485 certified
7.2	performance and safety standards (specific to the device type)	NA
<b>8. training and installation</b>		
8.1	pre-installation requirements: nature, values, quality, tolerance	NA
8.2	requirements for sign-of	Confirmation in no crack, no leak in hood structure
8.3	training of staff (medical, paramedical, technicians)	NA
8.4	Others	NA
<b>9. Warranty and maintenance</b>		
9.1	Warranty	1 year
9.2	maintenance tasks	NA
9.3	service contract clauses, including prices	NA
9.4	Others	NA
<b>10. Documentation</b>		

10.1	<b>Operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented. User, technical and maintenance manuals to be supplied in English language. List to be provided of equipment and procedures required for local calibration and routine maintenance.
10.2	<b>Other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	NA

### Item Sl. No. 53

<b>Phototherapy</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	Emits in the main radiation spectrum in the range between 400 nm and 550 nm for reducing the concentration of Bilirubin
1.2	<b>Used by clinical department/ ward</b>	New born stabilization unit, SNCU
1.3	<b>Overview of functional requirements</b>	a) Provides filtered light using radiant electric lights, not fibre optics. b) Infant supported securely in bassinette below bulbs. c) Monitors hours of radiant light exposure.
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. Phototherapy should be based on LED technology, which after filtering should provide, a light of wavelength approximately 450 to 470 nm with peak wavelength of 450-460 nm range.</li> <li>2. Irradiance to be minimum 35 <math>\mu\text{W}/\text{cm}^2/\text{nm}</math> at 35 cm or more height and UV should not exceed 10-4 W/m<sup>2</sup> in 180 nm to 400 nm.</li> <li>3. Digital Hour meter showing total exposure time for current patient to be clearly visible by operator.</li> <li>4. Effective light field &gt;700 cm<sup>2</sup>.</li> <li>5. Lamp life should be minimum 20000 hours for LED and should have timer to indicate its usage.</li> <li>6. Over temperature safety cut out to be included.</li> <li>7. Up, down and tilting of head should be possible.</li> <li>8. The unit should be mounted with castor wheels with brakes.</li> <li>9. Variation in intensity over 5-6 hours &lt; 10%.</li> <li>10. The irradiance ratio (min to max) shall be greater than 40 % on mattress.</li> <li>11. Indicator light shall be provided to indicate that equipment is ready for normal use.</li> <li>12. Interruption and a restoration of the power supply do not change pre-set values. LED heat can be reduced by natural cooling.</li> <li>13. LED should be protected from free fall.</li> <li>14. It should not topple on 10 deg inclined angle.</li> <li>15. The temperature of baby bed and metal surfaces should not exceed 40 deg C and 43 deg C for other accessible surfaces.</li> </ol>

		16. Alarm or indicator should be provided in case the light surface is too close to skin. 17. Mobile stand with movable castors and height adjustment facility along with easy swivelling of source box. Unit can be used along with Infant care trolley, Radiant Warmer and Incubator.
2.2	<b>settings</b>	UP/DOWN adjustment of Over Head Unit; The phototherapy unit should be able to provide effective treatment for beds and incubators of varying heights (generally 1.0 to 1.6 m). Adjustment of light intensity may be provided.
2.3	<b>User's interface</b>	Manual
2.4	<b>software and/or standard of communication(where ever required)</b>	LED Display and inbuilt software
2.5	<b>Others</b>	
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	minimum spec: 1650 mm Height X 500 mm Width X 500 mm Length or above
3.2	<b>Weight (lbs, kg)</b>	<20 kg
3.3	<b>configuration</b>	Clear cabinet for observation of infant. Infant bassinette to be an integral unit which should be detachable. Unit to provide shielding of infant in the event of bulb breakage. Bulb mounts to have angle adjustment of at least 30 degrees. All surfaces to be made of corrosion resistant materials. Light unit tilting facility and height adjustment facility.
3.4	<b>Noise (in dBa)</b>	<60 dBA
3.5	<b>heat dissipation</b>	The temperature of baby bed and metal surfaces should not exceed 40 deg C and 43 deg C for other accessible surfaces.
3.6	<b>mobility, portability</b>	Minimum 3 castors and at least 2 with brakes
<b>4. Energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>power requirements</b>	220 to 240 V, 50 Hz
4.2	<b>Battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	± 10% of input AC
4.4	<b>protection</b>	Electrical protection by resettable over current breakers or replaceable fuses, fitted in both live and neutral lines.
4.5	<b>power consumption</b>	Should not be more than 160 W
4.6	<b>Other energy supplies</b>	Mains cable to be at least 2.5 m length
<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	One complete set of replacement light source for continuous operation, Two replacement sets of fuses, if replaceable type used.
5.2	<b>spare parts (main ones)</b>	No spares required
5.3	<b>consumables / reagents (open, closed system)</b>	Total 500 nos. Infant eye masks of both available sizes (term and pre term babies).
<b>6. environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. standards and safety</b>		

7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	Should be FDA / CE approved product Manufacturer should be ISO 13485 certified
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform installation, safety and operation checks before handover.
8.2	<b>requirements for sign-off</b>	Certificate of Calibration and inspection from the factory.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided
8.4	<b>Others</b>	
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years for the machine and 20,000 hours for LEDs
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule
9.3	<b>service contract clauses, including prices</b>	Local clinical staff to affirm completion of installation
9.4	<b>Others</b>	
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, technical and maintenance manuals to be supplied in English language. List to be provided of equipment and procedures required for local calibration and routine maintenance
10.2	<b>Other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided
11.2	<b>recommendations or warnings</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.

**Item Sl. No. 54**

<b>Thermometer; Digital</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	to measure body temperature
1.2	<b>Used by clinical department/ ward</b>	All
<b>Technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1. Range of temperature measurement 320C-420 (89.60F-109.40F). 2. Can be calibrated in both centigrade and Fahrenheit, but if only one option is available, then Fahrenheit is preferable. 3. Buzzer signal function.

		4. Takes 60-90 seconds to measure temperature. 5. Can be used in the armpit/axilla, orally and rectally. 6. Accuracy of temperature $\pm 0.1$ degC and $\pm 0.2$ F.
2.2	<b>User's interface</b>	LCD display
2.3	<b>software and/or standard of communication(where ever required)</b>	inbuilt
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>Noise (in dBa)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Portable
<b>4. energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>power requirements</b>	As per device
4.2	<b>Battery operated</b>	yes
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>protection</b>	NA
4.5	<b>power consumption</b>	As per device
<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	NA
5.2	<b>spare parts (main ones)</b>	NA
5.3	<b>consumables / reagents (open, closed system)</b>	Batteries
<b>Bidding / procurement terms / Donation requirements</b>		
<b>6. environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90 % Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Complete unit to be easily washable and sterilizable using both alcohol and chlorine agents.
<b>7. standards and safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	ISO:13485 Manufacturer
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform operation checks before handover.
8.2	<b>requirements for sign-of</b>	Certificate of inspection from the factory.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	NA
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	One year
9.2	<b>maintenance tasks</b>	NA
9.3	<b>service contract clauses, including prices</b>	NA
<b>10. Documentation</b>		
10	<b>Operating manuals, service manuals, other manuals</b>	Required
<b>11. Notes</b>		
11	<b>service support contact details (hierchy Wise; including a toll free/landline</b>	

	number)	
11	recommendations or warnings	NA

### Item Sl. No. 55

<b>PULSE OXYMETER, LINE POWERED</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	Measurement and display of haemoglobin oxygen saturation (SpO <sub>2</sub> ).
1.2	<b>Used by clinical department/ ward</b>	All
1.3	<b>Overview of functional requirements</b>	Continuously displays patient oxygen saturation in real time using an external probe on the skin. Contains adjustable alarms to alert when either saturation or heart rate is low. Reusable, sterilisable probes are robust and easily connected and disconnected. Operates from mains voltage or from internal rechargeable battery.
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	a) SpO <sub>2</sub> measurement range at least 40-70 and 70 to 99 %, minimum gradation 1%. b) Accuracy of SpO <sub>2</sub> better than $\pm 1\%$ for range 40-70 and better than $\pm 3\%$ for range 70-99. c) Pulse rate range at least 30 to 240 bpm, minimum gradation 1 bpm. d) Accuracy of pulse rate better than $\pm 5$ bpm. e) Signal strength or quality to be visually displayed. f) Audio-visual alarms required: high and low SpO <sub>2</sub> and pulse rate (operator variable settings), sensor disconnected, sensor failure, low battery. g) TFT Screen. h) Plethysmograph (may be in form of bar) display is mandatory.
2.2	<b>settings</b>	Should have minimum 24 hrs trend memory for SpO <sub>2</sub> & PR.
2.3	<b>User's interface</b>	Easily accessible touch button to operate the machine.
2.4	<b>software and/or standard of communication</b>	In-built.
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	should be less than 5 kg
3.3	<b>configuration</b>	Case is to be hard and splash proof. Display must allow easy viewing in all ambient light levels. Supplied in protective case for clean storage and safe transport.
3.4	<b>Noise (in dBa)</b>	<50 dBa
3.5	<b>heat dissipation</b>	Dispersed through exhaust.
3.6	<b>mobility, portability</b>	Mobile
<b>4. Energy source (electricity, Ups, solar, gas, water, CO<sub>2</sub> ....)</b>		
4.1	<b>Voltage (value, ac or Dc, monophasic or triphase)</b>	220 to 240 V, 50 Hz

4.2	<b>Battery operated</b>	Internal, replaceable, rechargeable battery allows operation for at least four hours in the event of power failure. Battery charger to be integral to mains power supply, and to charge battery during mains power operation of unit.
4.3	<b>tolerance (to variations, shutdowns)</b>	Voltage corrector/stabilizer/UPS to allow operation at $\pm 30\%$ of local rated voltage.
4.4	<b>protection</b>	Electrical protection by resettable circuit breakers in both live and neutral supply lines, Alarms should include Power failure.
4.5	<b>power consumption</b>	50-100 W.
4.6	<b>Other energy supplies</b>	Mains supply cable to be at least 3 m in length.
<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	Two reusable probes each for adult, paediatric and infant use, Y Probes with clips for infant use and Forehead SpO2 sensors for detection of low saturation levels (less than 70%)/ lex probe with provision of fixation.
5.2	<b>spare parts (main ones)</b>	Two sets of spare fuses (if non-resettable fuses used).
5.3	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. environmental and Departmental considerations</b>		
6.1	<b>atmosphere/ambiance (air conditioning, humidity, dust ...)</b>	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Cleanable with alcohol or chlorine wipes
<b>7. standards and safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..), performance and safety standards (specific to the device type);local and/or international</b>	Should be FDA/CE approved product ISO 80601-2-61-2011: Medical Electrical equipment- part 2-61: Particular requirements for the basic safety and essential performance of pulse ox meter. Electrical safety conforms to standards for electrical safety IEC-60601-1, EMC safety confirms to IEC 60601-1-2 standard requirement. Manufacturer/supplier should have ISO 13485 certificate for quality standard.
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Electrical sockets
8.2	<b>requirements for sign-of</b>	Supplier to perform installation, safety and operation checks before handover. Local clinical staff to affirm completion of installation.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided Advanced maintenance tasks required shall be documented.
8.4	<b>Others</b>	
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Warranty of three year with free servicing (min. 3) during warranty.
9.4	<b>Others</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached.
<b>10. Documentation</b>		

10.1	<b>Operating manuals, service manuals, other manuals</b>	User and maintenance manuals to be supplied in English language. Certificate of calibration and inspection to be provided. List to be provided of equipment and procedures required for local calibration and routine maintenance List to be provided of important spares and accessories, with their part numbers and cost. Contact details of manufacturer, supplier and local service agent to be provided.
10.2	<b>Other accompanying documents</b>	User/Technical/Maintenance manuals to be supplied in English.
<b>11. Notes</b>		
11.1	<b>Other information</b>	Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 56

<b>Baby Weighing Scale</b>		
General		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	To measure body mass of the neonate
1.2	<b>Used by clinical department/ ward</b>	NICU/SNCU
1.3	<b>Overview of functional requirements</b>	
technical		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1. Table top, light and portable. 2. Built in rechargeable battery. 3. Easy to clean baby tray (acrylic). 4. Zero weight adjustment facility. 5. Quick, clear digital read outs. 6. Measurement does not change with position of baby on the pan. 7. Provision to measure the height of the baby in its laying position. 8. Graduation: 5 g, Accuracy +/- 2%, Weighing range: 10 gm to 20 kg.
2.2	<b>settings</b>	Auto setting to 0.00 once the machine is switched on or when no external weight has been put on.
2.3	<b>User's interface</b>	LCD/LED display
2.4	<b>software and/or standard of communication(where ever required)</b>	in built
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	Base: 300 mm x 265 mm x 85 mm ± 20%, Pan: 510 mm x 300 mm x 85mm (minimum).
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	N.A.
3.4	<b>Noise (in dBa)</b>	N.A.
3.5	<b>heat dissipation</b>	NA

3.6	<b>mobility, portability</b>	portable
<b>4. Energy source (electricity, Ups, solar, gas, water, cO2 ....)</b>		
4.1	<b>power requirements</b>	230 V AC,
4.2	<b>Battery operated</b>	Battery operated: rechargeable battery with at-least 1 hour battery backup.
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>protection</b>	NA
4.5	<b>power consumption</b>	NA
4.6	<b>Other energy supplies</b>	NA
<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	NA
5.2	<b>spare parts (main ones)</b>	NA
5.3	<b>consumables / reagents (open, closed system)</b>	NA
<b>6. environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances. – An ambient air velocity less than 0.3 m/s.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Complete unit to be easily washed and disinfected using both alcohol and chlorine agents.
<b>7. standards and safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	The Scale should be as per BIS specifications. The scale should have ISI mark ie IS: 2489 Or CE/FDA certified. Should have model approval from Legal Metrology Dept., Govt. of India.
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	NA
8.3	<b>training of staff (medical, paramedical, technicians)</b>	NA
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	one year
9.2	<b>maintenance tasks</b>	Cal liberation schedule to be provided.
9.3	<b>service contract clauses, including prices</b>	Any Contract (AMC/MC/ad-hoc) to be declared by the manufacturer.
<b>10. Documentation</b>		
10	<b>Operating manuals, service manuals, other manuals</b>	NA
10	<b>Other accompanying documents</b>	NA
10	<b>recommendations for maintenance</b>	Cautionary Note: Do not press the weighing pan with your hand. It could damage the load cell system in the weighing machine
10	<b>Others</b>	
<b>11. Notes</b>		

11	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Any Contract (AMC/MC/ad-hoc) to be declared by the manufacturer
11	Recommendations or warnings	Any Contract (AMC/MC/ad-hoc) to be declared by the manufacturer

### Item Sl. No. 57

<b>Breast Pump</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	A breast pump is a mechanical device that extracts milk from the breasts of a lactating individual. Breast pumps is an electrical devices powered by electricity or batteries.
1.2	<b>Used by clinical department/ ward</b>	NICU and PICU
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Pumping frequency 30 to 80 Cpm and user adjustable. 2) Cushion inserted inside the breast cup so that it does not hurt the mother. 3) Suction Pressure 100 to 250 mm hg; user adjustable. 4) Able to express milk from both breasts simultaneously. 5) Collection bottles can be used for storage of milk should be autoclavable and biocompatible. 6) Double alternating pumps/double cycling pumps. 7) Should be motorized breast pump units. 8) Should be hospital grade and heavy duty.
2.2	<b>User's interface</b>	Manual
2.3	<b>software and/or standard of communication(where ever required)</b>	NA
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	Portable
3.2	<b>Weight (lbs, kg)</b>	Compact unit (weight less than 4 kg)
3.3	<b>configuration</b>	LCD/LED display suction timing
3.4	<b>Noise (in dBa)</b>	<60 db
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes
<b>4. energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>power requirements</b>	220 V AC + 10%, 50 Hz power supply; 5A plug.
4.2	<b>Battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	± 10% of input AC
4.4	<b>protection</b>	Electrical protection by resettable over current breakers or replaceable fuses.
4.5	<b>power consumption</b>	Should be compatible with other lifesaving equipments running parallel.

<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional); spare parts (main ones); consumables / reagents (open, closed system)</b>	1) Reusable collection bottles along-with breast cups - 10 sets. 2) All kinds of tubes - 12 sets (If applicable). 3) Diaphragm – 100 Nos. 4) Other accessories required for optimum functioning of the equipment.
<b>Bidding / procurement terms / Donation requirements</b>		
<b>6. environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition: Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
<b>7. standards and safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1) Should be CE (EU)/FDA (US) approved product. 2) Manufacturer / supplier should have ISO 13485 certificate for quality standard. 3) Electrical safety conforms to standards for electrical safety IEC-60601-1.
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Supplier to perform installation, safety and operation checks before handover.
8.2	<b>requirements for sign-of</b>	Certificate of calibration and inspection from the factory.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided.
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Warranty of three year with free servicing (min. 3) during warranty.
<b>10. Documentation</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	User and maintenance manuals to be supplied in English language. Certificate of calibration and inspection to be provided. List to be provided of equipment and procedures required for local calibration and routine maintenance. List to be provided of important spares and accessories, with their part numbers and cost. Contact details of manufacturer, supplier and local service agent to be provided.
10.2	<b>recommendations for maintenance</b>	User/Technical/Maintenance manuals to be supplied in English.
<b>11. Notes</b>		
11.1	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided.

11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed.
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### Item Sl. No. 58

<b>Examination Treatment Light</b>		
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	Provides light to illuminate the site of examination and/or treatment of the patient.
1.2	<b>Used by clinical department/ ward</b>	NICU and PICU
1.3	<b>Overview of functional requirements</b>	Provides clear and cool light to operating area Minimizes shadows and distortion of colour Mounted on mobile base Single head must be easily moved by operator to direct light to required area Integral rechargeable battery for operation without mains electricity.
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. Colour temperature to be between 3, 000 and 5, 000 K; shadow less.</li> <li>2. Maximum illumination level at 1 m distance to be at least 60, 000 lux.</li> <li>3. Colour rendering index to be 93 or greater.</li> <li>4. Minimum bulb life required 1, 000 hours (incandescent type) or 20, 000 hrs (LED type).</li> <li>5. Field diameter required ' 16 cm, field depth required ' 50 cm.</li> <li>6. Focal length required '65 cm.</li> <li>7. Heat to light ratio to be <math>\leq 6 \text{ mW/m}^2.\text{lx}</math></li> <li>8. Brightness control to allow full adjustment from zero to maximum illumination.</li> <li>9. Bulb voltage and type to be clearly labeled on external body.</li> <li>10. Replacement bulbs to be locally available.</li> <li>11. Front panel to include power switch and battery state indicator.</li> <li>12. Automatic switching to battery power in the event of power failure.</li> </ol>
2.2	<b>settings</b>	Manual
2.3	<b>User's interface</b>	Manual
2.4	<b>software and/or standard of communication</b>	NA
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	Less than 30 kgs
3.3	<b>configuration</b>	Case is to be hard, splash-proof and corrosion resistant Movement must be easily achieved by operator of height 1.5 m Light head mounting to allow vertical and rotational movement, capable of illuminating at least 1 m high table Handle for movement must be easy to grasp and clean Light must remain steady on position and balanced once moved Base to have at least four fully 360 degree swivel castors, minimum diameter 75 mm Whole system to be stable for all positions of light head All power supply and battery location to be within access for ease in replacement.
3.4	<b>Noise (in dBa)</b>	NA
3.5	<b>heat dissipation</b>	Should maintain cool temp and the heat disbursed through a exhaust

		fan.
3.6	<b>mobility, portability</b>	Portable on castors.
<b>4. energy source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>Voltage (value, ac or Dc, monophasic or triphase)</b>	220 VAC $\pm$ 10%, 50 Hz
4.2	<b>Battery operated</b>	Internal, replaceable, rechargeable battery allows operation for at least eight hours in the event of power failure Battery charger to be integral to mains power supply, and to charge battery during mains power operation of unit.
4.3	<b>tolerance (to variations, shutdowns)</b>	Voltage corrector/stabilizer to allow operation at $\pm$ 30% of local rated voltage.
4.4	<b>protection</b>	Electrical protection by resettable over current breakers or replaceable fuses, fitted in both live and neutral lines
4.5	<b>power consumption</b>	100 W or below
4.6	<b>Other energy supplies</b>	Mains cable to be at least 3 m length
<b>5. accessories, spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	NA
5.2	<b>spare parts (main ones)</b>	NA
5.3	<b>consumables/reagents (open, closed system)</b>	Two sets of spare fuses (if replaceable fuses used). Ten sets of replacement bulbs (if incandescent).
5.4	<b>Others</b>	NA
<b>6. environmental and Departmental considerations</b>		
6.1	<b>atmosphere/ambiance (air conditioning, humidity, dust ...)</b>	Operating condition: – Capable of operating continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Unit layout to enable easy cleaning and sterilization of all surfaces.
<b>7. standards and safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	Should be FDA (US)/CE (EU) approved product Manufacturer/supplier should have ISO 13485 certificate for quality standard.
<b>8. training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-off</b>	Supplier to perform installation, safety and operation checks before handover Local clinical staff to affirm completion of installation.
8.3	<b>training of staff (medical, paramedical, technicians)</b>	Training of users in operation and basic maintenance shall be provided Advanced maintenance tasks required shall be documented.
8.4	<b>Others</b>	
<b>9. Warranty and maintenance</b>		
9.1	<b>Warranty</b>	One year;
9.2	<b>maintenance tasks</b>	NA
9.3	<b>service contract clauses, including prices</b>	NA
9.4	<b>Others</b>	NA

10. Documentation		
10.1	<b>Operating manuals, service manuals, other manuals</b>	User, technical and maintenance manuals to be supplied in English language. Certificate of calibration and inspection to be provided. List to be provided of equipment and procedures required for local calibration and routine maintenance List to be provided of important spares and accessories, with their part numbers and cost. Contact details of manufacturer, supplier and local service agent to be provided
11. Notes		
11.1	<b>Other information</b>	Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

### Item Sl. No. 59

EEG-ELECTROENCEPHALOGRAPHY		
General		
1. Use		
1.1	<b>clinical purpose</b>	To record the variations of the electrical potential caused by the electrical activity of the brain
1.2	<b>Used by clinical department/ ward</b>	NICU/PICU
technical		
2. technical characteristics		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1) Should be a 32 Channel digital EEG Machine, where 24 Channels for acquisition and storage, 5 Polygraph Channels and 3 DC Channels.</li> <li>2) Frequency response should be 0.05 Hz to 70 Hz.</li> <li>3) Should have facility to view all channels in different montages during acquisition and review.</li> <li>4) Should have split screen facility to study and even carefully during acquisition, where data storage should be on going in hard disk.</li> <li>5) Should have split screen facility in analysis to compare the data of same time or different times with individual selection of filters, sensitivity, montages etc.</li> <li>6) Should have the facility for simultaneous acquisition and review of same record.</li> <li>7) Should have the facility to mark pages/important events for printing in review.</li> <li>8) Should have programmable photic stimulator with display of photic marks on screen using LED</li> <li>9) Should have unlimited Montage Reformatting.</li> <li>10) Should have HLF (15, 35, 70 Hz) and LLF (0.1, 0.3, 1.5, 3, 5 Hz) filters for each channel as well as for all channels for display.</li> <li>11) Should have the facility for sweep speed selection.</li> <li>12) Should have the facility to display traces with limit trace.</li> <li>13) Should mark and annotate standards events such as Eyes open, Eyes closed, Hyperventilation on, Hyperventilation of, Artifact, and other user defined events of max. 50.</li> </ol>

		<p>14) Should have separate sensitivity control for each channels as well as for all channels.</p> <p>15) Should have the facility to enter patient details such as ID, Name, Referred By, Sex, Age, Patient History, Address, Doctor Name etc.</p> <p>16) Should have the facility to review of selected patient form list, to sort data according to patient name, sex, age, test date etc, review another patient while acquisition and to edit the patient details.</p> <p>17) Should have the facility to browse page by page, Scroll in forward and reverse direction and the speed of scrolling can be different speed levels such as same acquisition speed, 2 times, 3 times , 4 times the acquisition speed.</p> <p>18) Should have user deinable protocols for acquisition.</p> <p>19) Band Spectrom analysis should be possible.</p> <p>20) EEG Data Share facility should be possible through USB &amp; DVD/CD to view EEG Data on another PC/Laptop</p> <p>21) Should have the facility for spike detection with amplitude greater than or equal to the specified amplitude and within specified duration. (<b>Price offere saperate</b>)</p> <p>22) Should have the facility to print all marked EEG pages/Brain map pages in queue.</p> <p>23) Should have Acquisition Hot keys for Sensitivity for all traces, Eyes open, Eyes close, Hyperventilation ON, Hyperventilation OFF, Mark page, Artifact, Annotated event, Toggle pause/Release pause, Snap shot mode, photic stimulation etc.</p> <p>24) Should have Review Hot Keys for page mode, scroll mode, lip mode, next page, increase speed, mark page for printing, forward direction, reverse direction, previous page, decrease speed etc.</p> <p>25) Photic frequency should be 1-30 Hz, Stimulating time 1-16 sec and pause time 1-16 sec.</p> <p>26) CMRR should be greater than 100 db and input impedance should be greater than 10 M Ohms.</p> <p>27) Should have a high resolution low light video camera.</p> <p>28) Should have infra red camera for night VEEG recording facilities.</p> <p>29) Should be supplied all necessary accessories including EEG Disc Electrode, (02 Sets of 32 electrode) Conductivity Pase(10box) and Skin Prep Gel(2Nos)</p>
2.2	<b>User's interface</b>	Manual
2.3	<b>software and/or standard of communication(where ever required)</b>	<p>1) Convenient and quick USB/LAN interface.</p> <p>2) Should have an efficient data base management including Hospital details, Reference doctors list, standard comments for summary report etc.</p> <p>3) Should have the facility to edit and print summary report, EEG page and Brain map page.</p>
<b>3. physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	---
3.2	<b>Weight (lbs, kg)</b>	---
3.3	<b>configuration</b>	
3.4	<b>Noise (in dBa)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	---
<b>4. Energy Source (electricity, Ups, solar, gas, water, CO2 ....)</b>		
4.1	<b>power requirements</b>	Input voltage 220 VAC $\pm$ 10%, 50Hz;

4.2	<b>Battery operated</b>	---
4.3	<b>tolerance (to variations, shutdowns)</b>	Voltage corrector/stabilizer to allow operation at $\pm 10\%$ of local rated voltage. Use of SMPS to correct voltage.
4.4	<b>protection</b>	Electrical protection, resettable over current breakers or replaceable fuses (fitted in both live and neutral lines).
4.5	<b>power consumption</b>	Should run with other lifesaving equipments running parallels in the NICU/ PICU.
4.6	<b>Other energy supplies</b>	Mains power cable to be at least 3 m length
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>accessories (mandatory, standard, optional)</b>	2 Two sets of electrodes;
5.2	<b>spare parts (main ones)</b>	Two sets of spare fuses (if non-resettable fuses used).
5.3	<b>consumables/reagents (open, closed system)</b>	Conductivity Pase(10box) and Skin Prep Gel(2Nos)
<b>BIDDING/PROCUREMENT TERMS/DONATION REQUIREMENTS</b>		
<b>6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS</b>		
6.1	<b>atmosphere/ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition: Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances. 2) Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
6.2	<b>User's care, cleaning, Disinfection &amp; sterility issues</b>	Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
<b>7. STANDARDS AND SAFETY</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1) Should be CE (EU)/FDA (US) approved product; 2) Manufacturer/supplier should have ISO 13485 certificate for quality standard;
<b>8. TRAINING AND INSTALLATION</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	1) Availability of 5 Amps. electrical socket;
8.2	<b>requirements for sign-of</b>	1) Supplier to perform installation, safety and operation checks before handover; 2) Local clinical staff to airm completion of installation;
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented;
<b>9. WARRANTY AND MAINTENANCE</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;

9.3	<b>service contract clauses, including prices</b>	1) The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee/warranty period should be attached; 2) Free servicing (min. 2/year) during warranty period;
<b>10. DOCUMENTATION</b>		
10.1	<b>Operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy) of:- 1) User, technical and maintenance manuals to be supplied in English/hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Certificate of calibration and inspection;
10.2	<b>Other accompanying documents</b>	
<b>11. Notes</b>		
11.1	<b>service support contact details (hierchy Wise; including a toll free/landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed.

**Item Sl. No. 60**

<b>Abdominal Palpation Mannequin For Leopold Maneuvers During Pregnancy</b>		
Definition		Lower adult female torso with anatomical features capable of demonstrating various stages of pregnancy (5th, 7th and term)
<b>General</b>		
<b>1. use</b>		
1.1	Clinical purpose	To demonstrate Leopold maneuvers during pregnancy
1.2	Used by Clinical Department	Skill labs
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials. 2. The texture of the mannequin should be as close to the feel of the baby/ adult skin as relevant. 3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation. 4. The abdominal palpation model should have full size adult female torso (abdomen and pelvis) 5. The abdominal palpation mannequin should have one-piece full term fetus with palpable fontanel's, spine, shoulders, elbows and knees. 6. The abdominal palpation mannequin should have a mechanism to adjust the firmness of the abdomen in respect to the weeks of pregnancy i.e. 12, 24, 36, 42 gestational age models. 7. The abdominal mannequin should be able to accommodate the fetus in vertex, breech, or transverse positions.

2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	Mobility, portability	Yes, Portable
<b>4. Energy source (electricity, UPs, solar, gas, Water, Co2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	Fetus size-5th, 7th and term flexible enough to it inside abdominal palpation mannequin.
5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration in the mannequin.
<b>7. Standards and Safety</b>		
7.1	<b>certifications</b>	ISO/ CE certificate
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided
<b>9. Warranty And Maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User manuals to be supplied in English/Hindi language along with machine diagrams. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site, within warranty period including training of user on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		

11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 61

<b>Adult CPR Mannequin</b>		
Simulators (resuscitation training model)		A specially-constructed doll with simulated respiratory and cardiovascular functions designed to demonstrate and teach resuscitation techniques that include chest compressions [cardiopulmonary resuscitation (CPR)].
<b>General</b>		
<b>1. use</b>		
1.1	<b>clinical purpose</b>	It is used to demonstrate nose pinch required for ventilation techniques. Head tilt/chin lift and jaw thrust allowing students to currently practice all manoeuvres necessary when resuscitating a real victim.
1.2	<b>used by clinical department</b>	Skill lab
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials.</li> <li>2. The texture of the mannequin should be as close to the feel of the baby/ adult skin as relevant.</li> <li>3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation.</li> <li>4. It should have features to demonstrate opening of airway, head tilt/chin tilt and jaw thrust techniques.</li> <li>5. Adult CPR Mannequin should have disposable airways.</li> <li>6. Adult CPR Mannequins should have removable, reusable faces.</li> <li>7. It should have compression spring for consistent resistance.</li> </ol>
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	adult torso
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, portable
<b>4. Energy source (electricity, UPS, solar, gas, Water, Co2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA

4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	10 nos.reusable mannequin faces. 10 nos. reusable airways. 50 nos. mannequin wipes.
5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration in the mannequin.
<b>7. Standards And Safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty and Maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, technical and maintenance manuals to be supplied in English/Hindi language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to the site within warranty period including training of users on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

**Item Sl. No. 62**

<b>Child Birth Simulator Along With Attachment For Cervical Dilatation</b>		
Definition		Lower female torso with anatomical features of pregnancy capable of demonstrating child birth
<b>General</b>		
<b>1. use</b>		
1.1	<b>clinical purpose</b>	Should be able to demonstrate Leopold manoeuvre
1.2	<b>Used by clinical department/Ward</b>	skill labs
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous material.</li> <li>2. The texture of the mannequin should be close to the feel of the baby/ adult skin.</li> <li>3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation.</li> <li>4. Should have pelvis structure of adult female with anatomical landmarks like pelvic cavity, spine etc.Should have manual birthing system to enable the user to control the rotation and speed of foetus delivery etc.</li> <li>5. Should have fetal baby with movable joints.</li> <li>6. Should be versatile to change the position of the foetus during the process of birth including descent, flexion, extension, internal and external rotation, restitution.</li> <li>7. Should have features for training normal and breech deliveries.</li> <li>8. Should have features to demonstrate cord prolapse.</li> <li>9. Shall allow demonstration and practice of placenta previa.</li> <li>10. Should have cervical dilatation attachment for closed os, 4cm, 6cm, 8cm and fully dilated cervix.</li> </ol>
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	standard female pelvic structure
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, Portable
<b>4. Energy source (electricity, UPs, solar, gas, Water, Co2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	<ol style="list-style-type: none"> <li>1. Fetal baby with moving joints.</li> <li>2. 2 detachable abdominal pads.</li> <li>3. 2 nos placentas.</li> <li>4. 6 nos umbilical cords.</li> <li>5. 2 set cervical dilatation attachment for closed Os, 4cm, 6cm, 8cm and fully dilated cervix.</li> </ol>
5.2	<b>consumables/reagents (open, closed system)</b>	NA

<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water.
<b>7. Standards And Safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, technical and maintenance manuals to be supplied in English/Hindi language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of users on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. notes</b>		
11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

### **Item Sl. No. 63**

<b>Adult IV training Arm Kit</b>		
Infusion/injection training model		A synthetic replica of a human arm designed for instructing intravenous (IV) line placement, injections, infusions and intravenous. It simulates the anatomy of an arm with blood vessels, tissues, and skin produced in soft, rubber-like materials.
<b>general</b>		
<b>1.use</b>		
1.1	<b>clinical purpose</b>	It is ideal for practicing: intravenous injections, correct puncture of peripheral veins for blood sampling. Puncturing of arm veins. Positioning of a butterfly cannula.
1.2	<b>used by clinical department</b>	Skill lab

technical		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials.</li> <li>2. The texture of the mannequin should be close to the feel of the baby/ adult skin as relevant.</li> <li>3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation.</li> <li>4. Adult IV training Arm should have full adult arm with clenched/open list.</li> <li>5. Adult IV arm should be suitable for practicing IV injections.</li> <li>6. Adult IV training arm should have prominent venous network.</li> <li>8. Adult IV training arm should have anatomically located venous grooves, fitted with soft tubes, closely simulating consistency of human veins.</li> <li>7. Adult IV training arm must have a pliable translucent skin stretched over venous network.</li> <li>8. Adult IV training arm should have veins in dorsum of hand.</li> <li>9. Adult IV training arm should feature 'realistic feel' as needle enters vein.</li> <li>10. Adult IV training arm veins and skin must be replaceable.</li> <li>11. IV training arm should have cephalic, basic, antecubital, radial and ulnar veins.</li> <li>12. IV training arm must have base and metal stand to hold the mannequin and accessories as required.</li> </ol>
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical characteristics</b>		
3.1	<b>dimensions (metric)</b>	Adult arm
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, Portable
<b>4. Energy source (electricity, UPS, solar, gas, Water, Co2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, spare Parts, consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	<ol style="list-style-type: none"> <li>1. 2 packs of red colour concentrate/powder, with tubing and connector.</li> <li>2. 25 sets of replacement skin.</li> </ol>
5.2	<b>consumables/reagents (open, closed system)</b>	NA

<b>6. environmental And departmental considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration in the mannequin.
<b>7. standards And safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate
<b>8. training And installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, manuals to be supplied in English language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of users on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 64

<b>Episiotomy Suturing Trainer</b>		
Episiotomy suturing unit, reusable.		Model of female external pudendum with episiotomy and episiotomy with tears. Suitable for training of episiotomy suturing.
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	The models demonstrate the different types of episiotomies and permits episiotomy suturing.

Technical		
<b>2. Technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials. 2. The texture of the mannequin should be as close to the feel of the baby/ adult skin as relevant. 3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation. 4. Should enable use of chromic sutures. 5. Should have one model featuring standard episiotomy with tears in labia minora (medio-lateral) on left and right side. 6. It may have features to attach with child birth simulator and episiotomy with tears. (Desirable).
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, portable
<b>4. Energy source (electricity, UPS, solar, gas, Water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, spare Parts, consumables</b>		
5.1	Accessories & spare parts	If episiotomy part is replaceable, quote for 100 sets may be given.
5.2	Consumables/reagents (open, closed system)	NA
<b>6. Environmental And departmental considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration in the mannequin.
<b>7. Standards And Safety</b>		
7.1	Certifications	ISO/CE certificate.
<b>8. training And installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses,</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm

	<b>including prices</b>	completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User manuals to be supplied in English/Hindi language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of users on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierarchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

### Item Sl. No. 65

<b>Female Lower torso Mannequin with normal and postpartum uterus and accessories</b>		
Gynaecologic trainer		A model of female adult lower body with relevant internal anatomical landmarks suitable for intended palpation and inspection of female pelvic organ. The model should also permit practice of IUD insertion and removal and use of other female contraceptive devices.
<b>general</b>		
<b>1. use</b>		
1.1	<b>clinical purpose</b>	Used for teaching/practicing bi-manual pelvic examination, vaginal examination, PPIUCD (postpartum intrauterine contraceptive device).
1.2	<b>used by clinical department/ Ward</b>	Skill labs
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials.</li> <li>2. The texture of the mannequin should be as close to the feel of the baby/ adult skin as relevant.</li> <li>3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation.</li> <li>4. Should have full size adult female lower torso with relevant internal landmarks and post-partum uterus.</li> <li>5. Should have palpable normal and pregnant uteri with realistically sculpted and anatomically accurate ovaries and imbric.</li> <li>6. Should have normal and abnormal crevices.</li> <li>7. Should be suitable for teaching/practicing bi-manual pelvic examination.</li> <li>8. Should be suitable for vaginal examination, including insertion of speculum, uterine sounding and IUD insertion and removal and PPIUCD (postpartum intrauterine contraceptive device).</li> <li>9. Should have distal end of vagina to facilitate introduction of a female condom.</li> <li>10. Should have detachable and attachable cervix.</li> </ol>
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA

2.4	software and/or standard of communication (where ever required)	NA
<b>3. Physical characteristics</b>		
3.1	dimensions (metric)	NA
3.2	Weight (lbs, kg)	NA
3.3	configuration	NA
3.4	noise (in dbA)	NA
3.5	heat dissipation	NA
3.6	mobility, portability	Yes, Portable
<b>4. Energy source (electricity, UPS, solar, gas, Water, CO2 ....)</b>		
4.1	Power requirements	NA
4.2	battery operated	NA
4.3	tolerance (to variations, shutdowns)	NA
4.4	Protection	NA
4.5	Power consumption	NA
4.6	other energy supplies	NA
<b>5. Accessories, spare Parts, consumables</b>		
5.1	Accessories & spare parts	1. One normal and abnormal uterus. 2. One set of normal and abnormal cervices. 3. One anteverted and retroverted uterus. 4. One set of postpartum uterus with duckbill cervix and fallopian tubes. 5. 3 sets of 6 different types of cervices.
5.2	consumables/reagents (open, closed system)	NA
<b>6. environmental And departmental considerations</b>		
6.1	Atmosphere/Ambiance (air conditioning, humidity, dust ...)	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	user's care, cleaning, disinfection & sterility issues	Complete unit to be easily washable with mild soap and water without bringing deterioration in the mannequin.
<b>7. standards And safety</b>		
7.1	certifications	ISO/CE certificate
<b>8. training And installation</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	NA
8.2	requirements for sign-of	Demonstration may be asked while evaluation for quality purpose.
8.3	training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And maintenance</b>		
9.1	Warranty	3 years against functionality excluding aesthetics.
9.2	maintenance tasks	Maintenance manual detailing complete maintaining schedule.
9.3	service contract clauses, including prices	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. documentation</b>		
10.1	operating manuals, service manuals, other manuals	Advanced maintenance tasks required shall be documented User manuals to be supplied in English language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of users on maintenance.
10.2	other accompanying documents	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		

11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 66

## Normal New Born baby Simulation model

Definition		Synthetic or rubber replica of human baby to demonstrate Kangaroo mother care (KMC).
<b>general</b>		
<b>1.use</b>		
1.1	<b>clinical purpose</b>	It is used to demonstrate the characteristics and examination of new born baby and Kangaroo mother care (KMC).
1.2	<b>used by clinical department</b>	Skill labs
<b>technical</b>		
<b>2. technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials.</li> <li>2. The texture of the mannequin should be as close to the feel of the baby/ adult skin as relevant.</li> <li>3. New born baby mannequin should weigh close to the normal newborn.</li> <li>4. Should have actual size showing external development and growth.</li> <li>5. Should be close to normal skin colour, texture and bony feel.</li> <li>6. Should have moving head, flexible upper and lower limbs.</li> <li>7. Should have KMC clothes compatible with the size of the mannequins.</li> </ol>
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, Portable
<b>4. Energy source (electricity, UPS, solar, gas, Water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	Battery operated	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, spare Parts, consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	NA
5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. environmental And departmental considerations</b>		

6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration to the mannequin.
<b>7. standards And safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate
<b>8. training And installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User manuals to be supplied in English/Hindi language along with visit log sheet List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of user on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. notes</b>		
11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 67

<b>Paediatric IV Arm Kit</b>		
Definition	A synthetic replica of a human arm designed for instructing intravenous (IV) line placement, injections, and intravenous infusions. It simulates the anatomy of an arm with blood vessels, tissues, and skin produced in soft, rubber-like materials.	
<b>General</b>		
<b>1. Use</b>		
1.1	<b>Clinical purpose</b>	It is ideal for practicing: intravenous injections, correct puncture of peripheral veins for blood sampling, puncturing the veins of upper limb including positioning of butterfly cannula.
1.2	<b>Used by clinical department</b>	Skill labs
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>Technical Characteristics (specific to this type of device)</b>	1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous material.

		<p>2. The texture of the mannequin should be close to the feel of the baby/ adult skin as relevant.</p> <p>3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation.</p> <p>4. Should have paediatric arm.</p> <p>5. Should have simulated blood pack.</p> <p>6. Should have blood bag with tubing and connector.</p> <p>7. Should have clamp and hook.</p> <p>8. Should have mannequin lubricant, if required.</p> <p>9. Should have replacement skin and multi-vein system.</p>
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dab)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes
<b>4. Energy Source (electricity, UPS, solar, gas, Water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	Replaceable skin sets-25 Lubricant to be provided, if the type of mannequin requires it for effective functioning.
5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deteriorates in the mannequin.
<b>7. Standards And safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And Maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		

10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User manuals to be supplied in English language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance. Once a year visit to site, within warranty period including training of user on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierarchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

### Item Sl. No. 68

<b>Uterine Model</b>		
Uterine Cavity Simulator		Rubber or synthetic model with anatomical structures capable of demonstrating insertion of IUD.
<b>general</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	Based on real anatomy of female genitalia, this model is designed and used for demonstration of insertion or removal of IUD.
<b>technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials. 2. The texture of the mannequin should be as close to the feel of the baby/ adult skin as relevant. 3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation. 4. Anatomically accurate sagittal or coronal section of uterus and vagina suitable for demonstration of insertion and removal of IUCDs. 5. Should have uterus, ovaries and imbria. 6. Model should have a transparent window for easy view of cavity.
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes
<b>4. Energy Source (electricity, UPS, solar, gas, Water, CO2 )</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA

4.5	Power consumption	NA
4.6	other energy supplies	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	Accessories & spare parts	NA
5.2	consumables/reagents (open, closed system)	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	Atmosphere/Ambiance (air conditioning, humidity, dust ...)	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	user's care, cleaning, disinfection & sterility issues	Complete unit to be easily washable with mild soap and water without bringing deterioration in the mannequin.
<b>7. Standards And Safety</b>		
7.1	certifications	ISO/CE certificate
<b>8. Training And installation</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	NA
8.2	requirements for sign-of	Demonstration may be asked while evaluation for quality purpose.
8.3	training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And Maintenance</b>		
9.1	Warranty	3 years against functionality excluding aesthetics.
9.2	maintenance tasks	Maintenance manual detailing complete maintaining schedule.
9.3	service contract clauses, including prices	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	operating manuals, service manuals, other manuals	Advanced maintenance tasks required shall be documented User manuals to be supplied in English/Hindi language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to the site within warranty period including training of users on maintenance.
10.2	other accompanying documents	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	service support contact details (Hierchy Wise; including a toll free/landline number)	NA
11.2	recommendations or warnings	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 69

<b>Essential new born care and resuscitation mannequin</b>		
Simulators and associated devices		Human neonate model for the demonstration of ENBC and practice of cleaning of airway and ventilation as part of neonatal resuscitation
<b>general</b>		
<b>1. Use</b>		
1.1	Clinical Purpose	To demonstrate and practice neonatal resuscitation
<b>technical</b>		
<b>2. Technical Characteristics</b>		
2.1	Technical characteristics (specific to this type of device)	1. The material of mannequin should be of polyvinyl and silicone rubber, free from any hazardous material.

		<p>2. The texture of the mannequin should be close to the feel of the baby/ adult skin as relevant.</p> <p>3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation.</p> <p>4. New-born mannequin should have features for training essential newborn care (ENBC) and newborn resuscitation.</p> <p>5. Newborn Mannequin should facilitate effective bag and mask ventilation, chest must rise only with correct technique.</p> <p>6. The newborn mannequin should include the following: Squeeze bulbs for simulation of cord pulsation, spontaneous breathing, auscultation of heart sound and cry.</p> <p>7. The new born mannequin should demonstrate clearing of airways; perform suction; monitoring of ventilation and pulsation.</p>
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dab)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, Portable
<b>4. Energy Source (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	<p>1. 10 units-device for suction of nose and mouth.</p> <p>2. 4 external umbilical cords and 6 umbilical ties.</p> <p>3. 2 neonatal mucus sucker (easy to open, clean, autoclave and reusable).</p> <p>4. 2 training stethoscopes.</p>
5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration in the mannequin.
<b>7. Standards And safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And Maintenance</b>		

9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, technical and maintenance manuals to be supplied in English/Hindi language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of users on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

### Item Sl. No. 70

<b>Female Catheterization Mannequin</b>		
<b>Name And Coding</b>		
Cervical Dilatation catheter, Indwelling Catheterization kit.	Rubber or synthetic model depicting normal uro-genital system capable of demonstrating insertion of urinary catheter for drainage of urine.	
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	This simulator allows the students to feel the pressure and resistance when a catheter is passed through the urethra and sphincter into the bladder. When the catheter enters the bladder, artificial urine (water) will flow through the catheter.
1.2	<b>used by clinical departments/ wards</b>	Skill labs
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials. 2. The texture of the mannequin should be close to the feel of the baby/ adult skin as relevant. 3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation. 4. Should have adult female lower torso with realistic vulval area and urethral opening. 5. Female catheterization mannequin should have reservoir bladder. 6. Should have replaceable urethral valve to prevent fluid leakage. 7. Should have removable urinary assembly.
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical Characteristics</b>		

3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes
<b>4 Energy Source (electricity, UPS, solar, gas, Water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, spare Parts, Consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	2 bladder tanks, 6 urethra valves
5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration to the mannequin.
<b>7. Standards And Safety</b>		
7.1	<b>Certifications</b>	ISO/CE certificate
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	NA
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided
<b>9. Warranty And Maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User, manuals to be supplied in English/Hindi language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of users on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

**Item Sl. No. 71**

<b>Intramuscular Injection Training Mannequin</b>		
Infusion/injection training mode (Anatomical Training Models).		A synthetic replica of lower torso for demonstrating IM injections in gluteal region.
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	It is designed to simulate the actual sensation of the human skeletal structure required to determine the correct injection site. It helps users to practice a range of injection procedures, including needle puncture and infusion of simulated injection fluid (water).
1.2	<b>used by clinical department</b>	Skill labs
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials.</li> <li>2. The texture of the mannequin should be as close to the feel of the baby/ adult skin as relevant.</li> <li>3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation.</li> <li>4. Intramuscular injection training model should have lifelike human torso with intramuscular injection site in upper outer quadrant of palpable gluteal region on both side (left and right).</li> <li>5. Should have intramuscular injection in ventrogluteal site below iliac crest on both side (left and right).</li> </ol>
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, Portable
<b>4. Energy Source (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	NA
5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration to the mannequin.
<b>7. Standards And Safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate

<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And Maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented. User manuals to be supplied in English/Hindi language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance. Once a year visit to site within warranty period including training of users on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 72

## OG Tube Insertion Simulation Model

<b>Name and Coding</b>		
Gastric feeding tube		An infant simulation model to practise insertion of nasal and oral tubes for the purpose of suction and feeding
<b>General</b>		
<b>1. Use</b>		
1.1	<b>Clinical Purpose</b>	This model can be used to practice the insertion of suction catheters into oral cavity as well suction procedures, oral tube feeding, and gastrostomy care procedures, routinely applied in the nursing and care giving fields.
1.2	<b>Used By Clinical Department</b>	Skill labs
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (speciic to this type of device)</b>	<ol style="list-style-type: none"> <li>1. The material of the mannequin should be of Polyvinyl and silicone rubber, free from any hazardous material.</li> <li>2. The texture of the mannequin should be close to the feel of baby/adult skin as relevant.</li> <li>3. The Internal parts of the mannequin must be realistically sculpted, anatomically accurate and feel must be smooth/resilient/bony as relevant and suitable for simulation.</li> <li>4. Should look like 0-8 weeks old</li> </ol>

		5. Should have soft and flexible and replaceable face skin and upper body skin, 6. Placing NP/OP tubes must be possible, 8.should have markings for ear canal, should have removable internal parts.
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, Portable
<b>4. Energy source (electricity, UPS, solar, gas, Water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	NA
5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable with mild soap and water without bringing deterioration in the mannequin.
<b>7. Standards And Safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided.
<b>9. Warranty And Maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to airm completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User manuals to be supplied in English/Hindi language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of user on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be

		provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierarchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared.

### Item Sl. No. 73

<b>Postpartum Haemorrhage Simulation Model</b>		
Definition	A synthetic or rubber model which simulates Postpartum haemorrhage (PPH), which demonstrates different methods of prevention and management.	
<b>General</b>		
<b>1. Use</b>		
1.1	<b>clinical purpose</b>	It is used for teaching simulation of postpartum bleeding and allows students to practice fundal massage techniques.
1.2	<b>used by clinical department</b>	Skill labs
<b>Technical</b>		
<b>2. Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1. The material of mannequin should be of polyvinyl or silicone rubber, free from any hazardous materials. 2. The model should be highly realistic for simulating postpartum hemorrhage. 3. The model should have features to manually control the amount of bleeding.
2.2	<b>settings</b>	NA
2.3	<b>user's interface</b>	NA
2.4	<b>software and/or standard of communication (where ever required)</b>	NA
<b>3. Physical Characteristics</b>		
3.1	<b>dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dbA)</b>	NA
3.5	<b>heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	Yes, Portable
<b>4. Energy source (electricity, UPS, solar, gas, water, CO2 ....)</b>		
4.1	<b>Power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>Protection</b>	NA
4.5	<b>Power consumption</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5. Accessories, Spare Parts, Consumables</b>		
5.1	<b>Accessories &amp; spare parts</b>	The mannequin should have the following: 1. Full term fetus with placenta and umbilical cord 2. Red fluid Concentrate 3. Fluid Collection tray 4. Fluid drain 5. Urine catheter 6. 20 ml syringe 7. carrying bag

5.2	<b>consumables/reagents (open, closed system)</b>	NA
<b>6. Environmental And Departmental Considerations</b>		
6.1	<b>Atmosphere/Ambiance (air conditioning, humidity, dust ...)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, disinfection &amp; sterility issues</b>	Complete unit to be easily washable using mild soap and water without bringing deterioration in the mannequin.
<b>7. Standards And Safety</b>		
7.1	<b>certifications</b>	ISO/CE certificate
<b>8. Training And Installation</b>		
8.1	<b>Pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign-of</b>	Demonstration may be asked while evaluation for quality purpose.
8.3	<b>training of staff (medical, paramedical, technicians) optional (depending upon scope of work order)</b>	Training of users in handling and basic maintenance shall be provided. Training features to include complete and incomplete placenta delivery, oxytocin injection, and controlled cord traction.
<b>9. Warranty and Maintenance</b>		
9.1	<b>Warranty</b>	3 years against functionality excluding aesthetics.
9.2	<b>maintenance tasks</b>	Maintenance manual detailing complete maintaining schedule.
9.3	<b>service contract clauses, including prices</b>	Local clinical staff/authorized officer on behalf of purchaser to affirm completion of installation.
<b>10. Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Advanced maintenance tasks required shall be documented User manuals to be supplied in English language along with visit log sheet. List to be provided of equipment and procedures required for local calibration and routine maintenance Once a year visit to site within warranty period including training of user on maintenance.
10.2	<b>other accompanying documents</b>	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11. Notes</b>		
11.1	<b>service support contact details (Hierchy Wise; including a toll free/landline number)</b>	NA
11.2	<b>recommendations or warnings</b>	Any recommendations for best use and supplementary warning for safety should be declared

### Item Sl. No. 74

<b>Suction Pump Portable Electric</b>	
Definition	An assembly of devices designed to evacuate fluid, tissue, gas, or other foreign materials from a body cavity or lumen by means of suction. It generally consists of a mains electricity (AC and DC powered) suction pump, tubing, plastic/glass collection container(s), a vacuum gauge, a vacuum control knob, an overflow trap, a moisture litter, and a microbial litter. The pump creates a vacuum in the suction tubing, which is inserted into the body for the removal of materials into the collection container. This system can be used in a wide variety of settings within healthcare facilities.

<b>General</b>		
<b>1 use</b>		
1.1	<b>clinical purpose</b>	to aspirate fluids, secretions, or other foreign materials from a patient's airway by means of suction.
1.2	<b>used by clinical department/ ward</b>	All
<b>Technical</b>		
<b>2 Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	0 to - 760 mm Hg $\pm$ 10 reusable, 1/2 HP; single phase 1440 RPM motor; flutter free vacuum control knob,; Wide mouthed 2 x 2 LITRE (light weight, unbreakable and clear) with self-sealing bungs and mechanical over low safety device.
2.2	<b>Settings</b>	Manual
2.3	<b>user's interface</b>	Manual
2.4	<b>Software and/or standard of communication (where ever required)</b>	NA
<b>3 Physical Characteristics</b>		
3.1	<b>Dimensions (metric)</b>	Max: 43 x 30 x 68 cms ( $\pm$ 10%)
3.2	<b>Weight (lbs, kg)</b>	Max: 27Kg (with jar) ( $\pm$ 10%)
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dba)</b>	50 dB A $\pm$ 3
3.5	<b>heat dissipation</b>	Should maintain upto 36.5 deg temp and the heat disbursed through a exhaust fan
3.6	<b>mobility, portability</b>	Yes
<b>4 Energy Source (Electricity, UPS, Solar, Gas, Water, co2 ....)</b>		
4.1	<b>power requirements</b>	220 V, 50 Hz, 2 $\pm$ 0.5 Amps, 370 watts for AC
4.2	<b>battery operated</b>	NA
4.6	<b>other energy supplies</b>	NA
<b>5 Accessories, Spare Parts, Consumables</b>		
5.1	<b>accessories &amp; Spares</b>	collection container & its cap, suction tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob
5.2	<b>consumables / reagents (open, closed system)</b>	Silicone Tubing: 8 mm ID x 2 mtr (PVC), 2x2 Lt jar (one set extra)
<b>6 Environmental And Departmental Considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust)</b>	Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%. Capable of operating continuously in ambient temperature of 10 to 40 deg C and relative humidity of 15 to 90%.
6.2	<b>user's care, cleaning, Disinfection &amp; Sterility issues</b>	Complete unit to be easily washable and sterilizable using alcohol and chemical disinfectants.
<b>7 Standards And Safety</b>		

7.1	certifications	CE/FDA/ISO
<b>8 Training And Installation</b>		
8.1	pre-installation requirements: nature, values, quality, tolerance	Availability of 15 amp socket, safety and operation checks before handover. As per standard.
8.3	training of staff (medical, paramedical, technicians) optional (Depending upon scope of work order)	Training of users in operation and basic maintenance shall be provided
<b>9 Warranty and Maintenance</b>		
9.1	Warranty	3 years
9.2	maintenance tasks	maintenance manual detailing complete maintaining schedule
<b>10 Documentation</b>		
10.1	operating manuals, service manuals, other manuals	Advanced maintenance tasks required shall be documented in English and/or Hindi User, technical and maintenance manuals to be supplied in english/hindi language along with machine diagrams. List to be provided of equipment and procedures required for local calibration and routine maintenance
10.2	other accompanying documents	List to be provided of important spares and accessories, with their part numbers and cost. Certificate of calibration and inspection to be provided.
<b>11 notes</b>		
11.1	Service Support contact details (Hierchy Wise; including a toll free/landline number)	Any Contract (AMC/MC/ad-hoc) to be declared by the manufacturer
11.2	recommendations or warnings	Any recommendations for best use and supplementary warning for safety should be declared

**Item Sl. No. 75**

<b>Autoclave HP Vertical(Single Bin)</b>		
<b>General</b>		
<b>1 Use</b>		
1.1	clinical purpose	An airtight vessel for heating and sometimes agitating its contents under high steam pressure; used for industrial processing, sterilizing, and cooking with moist or dry heat at high temperatures.
1.2	used by clinical department/ward	Operation theatre
<b>Technical</b>		
<b>2 Technical Characteristics</b>		
2.1	technical characteristics (specific to this type of device)	1) High Grade strong stainless steel, Triple walled construction. 2) Positive radial self-locking safety doors. 3) Hydrostatically tested to withstand 2.5 times the working pressure. 4) Sealed with Neoprene/Silicon long-lasting and durable gasket.

		<p>5) Digital display for Jacket and Chamber pressure and temperature.</p> <p>6) Outer jacket insulated to prevent heat loss; with a high grade insulation material</p> <p>7) Mounted on 304 stainless steel frame with ground levelling flanges.</p> <p>8) Temperature and pressure cut-of device.</p> <p>9)Auto cut-of at low water level</p> <p>10) Rust-proof 304 grade stainless steel.</p> <p>11) Cylindrical construction.</p> <p>12) Equipment should have separate steam release valve and drainage system.</p> <p>13) Minimum of two safety valves with auto-release at 16 and 20.</p>
2.3	<b>Software and/ or standard of communication(where ever required)</b>	NA
<b>3 physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>capacity</b>	40 L,70 L 100 L
3.4	<b>noise (in dba)</b>	NA
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism
3.6	<b>mobility, portability</b>	Portable
<b>4 energy Source (electricity, ups, Solar, Gas, Water, CO2 ....)</b>		
4.2	<b>battery operated</b>	No
4.4	<b>pressure gauge</b>	0-2.1 Kgf/cm <sup>2</sup>
4.5	<b>operating pressure</b>	from 15-20 psi
4.6	<b>Sterilizing pressure</b>	1.2Kgf/cm(15 psi) at 121 °C
<b>5 accessories, Spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)</b>	<p>1. Automatic Pressure Control Switch -2 no.</p> <p>2. Automatic Water Cut-of Device -2 no.</p> <p>3. Micro Processor PID Controller with Timer &amp; Auto Stop Facility</p> <p>4. Digital Pressure Indicator-2 no.</p> <p>5. Perforate basket (rust-free stainless steel)</p> <p>6. Cord-plug-4 no.</p> <p>7. Biological and chemical indicators-1 set</p>
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	As per standard
6.2	<b>user's care, cleaning, Disinfection &amp; Sterility issues</b>	<p>1) As per standard.</p> <p>2) Sterilization not required.</p>
<b>7 Standards and Safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	<p>1. Should be FDA/CE/BIS approved product.</p> <p>2. Manufacturer and Supplier should have ISO 13485 certification for quality standards.</p> <p>3. Electrical safety conforms to the standards for electrical safety IEC 60601-General requirements (or equivalent BIS Standard)</p>
7.2	<b>local and/or international</b>	Manufacturer / supplier should have ISO certificate for quality standard.
<b>8 Training And Installation</b>		

8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	1) Safety and operation check before handover;
8.2	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	<b>other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11 notes</b>		
11.1	<b>Service Support contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed

### Item Sl. No. 76

<b>Autoclave HP Horizontal</b>		
Version no. :	1	
Date:	5-12-2014	
Done by : (name / institution)	HCT/NHSRC	
<b>Name And Coding</b>		
GMDN name	Autoclave HP Horizontal	
GMDN code(s)	NA	
<b>General</b>		
<b>1 use</b>		
1.1	Clinical purpose	An airtight vessel for heating and sometimes agitating its contents under high steam pressure; used for sterilizing, with moist or dry heat at high temperatures.
1.2	Used by clinical department/ward	CSSD
<b>Technical</b>		
<b>2 Technical characteristics</b>		
2.1		1) High Grade strong stainless steel, Triple walled construction. 2) Positive radial self-locking safety doors.

		<p>3) Hydrostatically tested to withstand 2.5 times the working pressure.</p> <p>4) Sealed with Neoprene/Silicon long-lasting and durable gasket.</p> <p>5) Digital display for Jacket and Chamber pressure and temperature.</p> <p>6) Outer jacket insulated to prevent heat loss; with a high grade insulation material</p> <p>7) Mounted on 304 stainless steel frame with ground levelling flanges.</p> <p>8) Temperature and pressure cut-of device.</p> <p>9) Auto cut-of at low water level</p> <p>10) Rust-proof 304 grade stainless steel.</p> <p>11) Cylindrical construction.</p> <p>12) Equipment should have separate steam release valve and drainage system.</p> <p>13) Minimum of two safety valves with auto-release at 16 and 20.</p>
2.2	<b>user's interface</b>	Manual
2.3	<b>Software and/ or standard of communication(where ever required)</b>	NA
3	<b>physical characteristics</b>	
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>Capacity</b>	100 ltrs;150 ltrs;250 ltrs
3.4	<b>noise (in dba)</b>	NA
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through a cooling mechanism
3.6	<b>mobility, portability</b>	Portable
<b>4 energy Source (electricity, ups, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>power requirements</b>	Recharging unit: Input voltage- 440 V AC, 50 Hz ,3-phase
4.2	<b>battery operated</b>	No
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>operating temperature</b>	121 deg c to 134 deg c
4.5	<b>operating pressure</b>	Should have operating pressure between 1.2 to 2.1 kg/cm <sup>2</sup> ; 10-20 psi
<b>5 accessories, Spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)</b>	<p>1. Digital Pressure Indicator-2 no.</p> <p>2. Perforate basket (rust-free stainless steel)</p> <p>3. Cord-plug-4 no.</p> <p>4. Biological and chemical indicators-1 set</p>
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	As per standard.
6.2	<b>user's care, cleaning, Disinfection &amp; Sterility issues</b>	As per standard.
<b>7 Standards and Safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..);</b>	<p>1. Should be FDA/CE/BIS approved product.</p> <p>2. Manufacturer and Supplier should have ISO 13485</p>

	<b>performance and safety standards (specific to the device type);local and/or international</b>	certification for quality standards.
7.2	<b>local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8 Training and Installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	As per standard.
8.2	<b>requirements for sign-off</b>	Certificate of calibration and inspection from the manufacturer
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years; on site
9.2	<b>maintenance tasks</b>	1)Maintenance manual detailing; 2)Complete maintenance schedule;
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	<b>other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11 notes</b>		
11.1	<b>Service Support contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 77****Autoclave HP Vertical (2 bin)**

<b>General</b>		
<b>1 Use</b>		
1.1	<b>clinical purpose</b>	An airtight vessel for heating and sometimes agitating its contents under high steam pressure; used for sterilizing, with moist or dry heat at high temperatures.
1.2	<b>used by clinical department/ward</b>	Operation theatre

technical		
<b>2 Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) High Grade strong stainless steel SS 304, Triple walled construction. 2) Positive radial self-locking safety doors. 3) Hydrostatically tested to withstand 2.5 times the working pressure. 4) Sealed with Neoprene/Silicon long-lasting and durable gasket. 5) Analogy display for Jacket and Chamber pressure and temperature. 6) Outer jacket of mild steel insulated to prevent heat loss. 7) Mounted on tubular Mild steel frame with ground levelling flanges. 8) Internal joints should be argon arc welded. 9) Should have 2 bins for loading.
2.2	<b>user's interface</b>	Manual
2.3	<b>Software and/ or standard of communication (where ever required)</b>	NA
<b>3 physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	400 mm x 600 mm to 400 mm x 1100 mm (+/-10%)
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>capacity</b>	100 Lts +/-10%
3.4	<b>noise (in dba)</b>	NA
3.5	<b>Heat dissipation</b>	As per standard
3.6	<b>mobility, portability</b>	Portable
<b>4 energy Source (electricity, ups, Solar, Gas, Water, CO2 ...)</b>		
4.1	<b>power requirements</b>	Input voltage- 220V-240V AC, 50Hz, 3-phase
4.2	<b>battery operated</b>	No
4.3	<b>pressure gauge</b>	0-2.1 Kgf/cm <sup>2</sup>
4.4	<b>operating pressure</b>	from 15-20 psi
4.5	<b>Sterilizing pressure</b>	1.2 Kgf/cm(15 psi) at 121 °C
<b>5 accessories, Spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)</b>	1) Vacuum breaker-2 no. 2) Gaskets-2 no.
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 Environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	As per the standard.
6.2	<b>user's care, cleaning, Disinfection &amp; Sterility issues</b>	As per the standard.
<b>7 Standards and Safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	1. Should be FDA/CE/BIS approved product. 2. Electrical safety conforms to the standards for electrical safety IEC 60601-General requirements (or equivalent BIS Standard)
7.2	<b>local and/or</b>	Manufacturer / supplier should have ISO certificate for quality

	international	standard.
<b>8 Training And Installation</b>		
8.1	pre-installation requirements: nature, values, quality, tolerance	As per standard
8.2	requirements for sign-of	Certificate of calibration and inspection from the manufacturer
8.3	training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	Warranty	3 years
9.2	maintenance tasks	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	other accompanying documents	List of important spares and accessories, with their part numbers and cost;
<b>11 Notes</b>		
11.1	Service Support contact details (Hierarchy Wise; including a toll free/ landline number)	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	recommendations or warnings	Any warning signs would be adequately displayed

**Item Sl. No. 78**

<b>Bowl Sterilizer (Big)</b>		
<b>General</b>		
<b>1 use</b>		
1.1	clinical purpose	Used for the purpose of sterilizing various medical instruments.
1.2	used by clinical department/ward	Operation theatre
<b>technical</b>		
<b>2 Technical Characteristics</b>		
2.1	technical characteristics (specific to this type of device)	1) Constructed of high grade stainless steel. 2) For steam sterilization/disinfection of utensils, bowls etc. 3) Low water cut of device 4) Fitted with thermostat 5) With perforated inner chamber

		6) Water outlet with angle iron painted stand. 7) Sterilizer tank is made of stainless steel SS 304 8) The perforated Tray of SS 304 is provided for keeping the Bowls of different size for sterilization. 9) Three SS heaters of 1.5 KW each for sterilization 10) Outer Cabinet is heavy gauge SS 304 11) Double walled with glass wool insulation. 12) Digital PID temperature controller for controlling the temperature. 13) Digital time controller housed in Temperature controller cabinet used for exposure time control. 14) Level Control give audible signal for maximum water level
2.2	<b>Software and/ or standard of communication(where ever required)</b>	NA
<b>3 physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	21.60 cm x 22.00 cm x 8.55 cm to 33.5 cm x 21.5 cm x 23.5 cm (+/- 10%)
3.2	<b>Weight (lbs, kg)</b>	As per standard
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dba)</b>	NA
3.5	<b>mobility, portability</b>	Portable
<b>4 energy Source (electricity, ups, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>power requirements</b>	-
4.2	<b>battery operated</b>	-
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>protection</b>	-
4.5	<b>power consumption</b>	As per standard
<b>5 accessories, Spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)</b>	NA
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	As per standard
6.2	<b>user's care, cleaning, Disinfection &amp; Sterility issues</b>	1) As per the standard. 2) Sterilization not required.
<b>7 Standards and Safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1. Should be FDA/CE/BIS approved product. 2. Manufacturer and Supplier should have ISO 13485 certification for quality standards.
7.2	<b>local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8. training and installation</b>		
8.1	<b>pre-installation</b>	

	<b>requirements: nature, values, quality, tolerance</b>	1)Safety and operation check before handover;
8.2	<b>requirements for sign-of</b>	Certificate of calibration and inspection from the manufacturer
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1)Training of users on operation and basic maintenance; 2)Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	<b>other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11 Notes</b>		
11.1	<b>Service Support contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed

### Item Sl. No. 79

<b>Bowl Sterilizer (Small)</b>		
1.1	<b>clinical purpose</b>	Used for the purpose of sterilizing various medical instruments.
1.2	<b>used by clinical department/ward</b>	Operation theatre
<b>technical</b>		
<b>2 Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Constructed of high grade stainless steel 304 2) For steam sterilization/disinfection of utensils, bowls etc. 3) Low water cut of device 4) Fitted with thermostat 5) With perforated inner chamber 6) Water outlet with angle iron painted stand. 7) Sterilizer tank is made of stainless steel SS 304 8) The perforated Tray of SS 304 is provided for keeping the Bowls of different size for sterilization. 09) Outer Cabinet is heavy gauge SS 304 10) Double walled with glass wool insulation.

		11) Digital PID temperature controller for controlling the temperature. 12) Digital time controller housed in Temperature controller cabinet used for exposure time control. 13) Level Control gives audible signal for maximum water level.
2.3	Software and/ or standard of communication(where ever required)	NA
<b>3 physical characteristics</b>		
3.1	Dimensions (metric)	NA
3.2	Weight (lbs, kg)	NA
3.3	configuration	NA
3.4	noise (in dba)	NA
3.5	Heat dissipation	As per standard.
3.6	mobility, portability	Portable
<b>4 energy Source (electricity, ups, Solar, Gas, Water, CO2)</b>		
4.2	battery operated	Yes
4.3	tolerance (to variations, shutdowns)	NA
4.5	power consumption	As per standard
<b>5 accessories, Spare parts, consumables</b>		
5.1	accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)	NA
<b>Bidding / Procurement Terms / Donation Requirements</b>		
<b>6 environmental and Departmental considerations</b>		
6.1	atmosphere / ambiance (air conditioning, humidity, dust)	As per standard
6.2	user's care, cleaning, Disinfection & Sterility issues	As per standard
<b>7 Standards and Safety</b>		
7.1	certificates (pre- market, sanitary); performance and safety standards (specific to the device type);local and/or international	1. Should be FDA/CE/BIS approved product. 2. As per standard
7.2	local and/or international	As per standard
<b>8 training and installation</b>		
8.1	pre-installation requirements: nature, values, quality, tolerance	As per standard
8.2	requirements for sign- of	As per standard
8.3	training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	Warranty	3 years
9.2	maintenance tasks	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local

		calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation; 5) As per standard
10.2	<b>other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11 notes</b>		
11.1	<b>Service Support contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 80**

<b>Dehumidifier</b>		
<b>General</b>		
<b>1 use</b>		
1.1	<b>clinical purpose</b>	Control Moisture level in hospitals
1.2	<b>used by clinical department/ward</b>	Operation theatre/Labour Room/Diagnostic Laboratory
<b>Technical</b>		
<b>2 technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Type of Dehumidifier: Desiccant type 2) Requirement of dehumidified air: 170 CMH. 3) CNC fabricated unit with powder coated finish. 4) Eco-Dry rotor and totally self-contained. 5) The desiccant rotor shall be of fluted honeycomb type 6) The dehumidifier shall have differential air pressure switch to control reactivation air low. 7) The Dehumidifier shall have high temperature thermostat cut out. 8) The Dehumidifier shall have additional cooling thermostat as a safety measure 9) The Dehumidifier shall have electrical interlocking of fan, motor, heaters and rotor drive as a safety measure. 10) The dehumidifier shall have PTFE bonded silicon bulb seal designed to minimize air leakage.
2.2	<b>user's interface</b>	Manual
2.3	<b>Software and/ or standard of communication (where ever required)</b>	NA
<b>3 physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	676 mm X 470 mm X 390 mm (H)± 10%
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dba)</b>	NA
3.5	<b>Heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	NA
<b>4 Energy Source (electricity, ups, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>power requirements</b>	-
4.2	<b>battery operated</b>	-

4.3	tolerance (to variations, shutdowns)	-
4.4	protection	NA
5.1	accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)	NA
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 environmental and Departmental considerations</b>		
6.1	atmosphere / ambiance (air conditioning, humidity, dust)	NA
<b>7 Standards and Safety</b>		
7.1	certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international	-
7.2	local and/or international	Manufacturer / supplier should have ISO certificate for quality standard.
<b>8 Training And Installation</b>		
8.1	pre-installation requirements: nature, values, quality, tolerance	NA
8.2	requirements for sign-off	NA
8.3	training of staff (medical, paramedical, technicians)	-
<b>9 Warranty and maintenance</b>		
9.1	Warranty	3 years
9.2	maintenance tasks	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	operating manuals, service manuals, other manuals	-
10.2	other accompanying documents	-
<b>11 notes</b>		
11.1	Service Support contact details (Hierarchy Wise; including a toll free/ landline number)	Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	recommendations or warnings	NA

**Item Sl. No. 81**

<b>Ethylene Oxide Sterilizer</b>		
<b>General</b>		
<b>1 use</b>		
1.1	<b>clinical purpose</b>	(EO or EtO) gas is commonly used to sterilize objects sensitive to temperatures greater than 60 °C and / or radiation such as plastics, optics and electrics. Ethylene oxide treatment is generally carried out between 30 °C and 60 °C with relative humidity above 30% and a gas concentration between 200 and 800 mg/l, and typically lasts for at least three hours.
1.2	<b>used by clinical department/ward</b>	
<b>technical</b>		
<b>2 technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	<ol style="list-style-type: none"> <li>1. Interior made of 304 stainless steel mirror sterilization, anti-corrosion.</li> <li>2. Equipped with a thermal barrier layer.</li> <li>3. Double protective doors, insulation, sealing and leak-proof.</li> <li>4. Sterilization process automatic computer control, LCD/digital panel display.</li> <li>5. Anti-leak vacuum pumping system.</li> <li>6. Automatic humidification system</li> <li>7. Automatic heating system</li> <li>8. Auto exhaust system should be sound proof.</li> <li>9. Efficiency and prevent environmental pollution discharge residual heating air purification system</li> <li>10. Audio-visual alarm system for temperature, pressure and leakage.</li> <li>11. Exhaust pipeline to be above the top floor of the building; copper pipeline</li> <li>12. Temperature accuracy: <math>\pm 1</math> °C</li> <li>13. Vacuum pressure: -7 ~-70 Kpa</li> <li>14. Composition of gases (90% Ethylene oxide and 10% carbon dioxide or 100% Ethylene Oxide)</li> <li>15. Operating temperature to be settable at 35 degree celsius and 55 degree Celsius.</li> </ol>
2.2	<b>user's interface</b>	Software, Automatic (stages to be displayed or recordable for printing)
2.3	<b>Software and/ or standard of communication(where ever required)</b>	NA
<b>3 physical characteristics</b>		
3.1	<b>Dimensions (metric)</b>	Max: 450 mm x 450 mm x 1200 mm (+/- 10%)
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dba)</b>	Noise-free system
3.5	<b>Heat dissipation</b>	As per standard
<b>4 energy Source (electricity, ups, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>power requirements</b>	-
4.2	<b>battery operated</b>	-
4.3	<b>tolerance (to variations, shutdowns)</b>	-
4.4	<b>protection</b>	-
4.5	<b>power consumption</b>	As per standard.
<b>5 accessories, Spare parts, consumables</b>		

5.1	accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)	Should have a detector to be installed in sterilizer room.
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 environmental and Departmental considerations</b>		
6.1	atmosphere / ambiance (air conditioning, humidity, dust ...)	As per standard.
6.2	user's care, cleaning, Disinfection & Sterility issues	As per standard.
<b>7 Standards and Safety</b>		
7.1	certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international	1. Should be FDA/CE/BIS approved product. 2. Manufacturer and Supplier should have ISO 13485 certification for quality standards.
7.2	local and/or international	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8 training and installation</b>		
8.1	pre-installation requirements: nature, values, quality, tolerance	1) Safety and operation check before handover; 2) To be installed in a separate room.
8.2	requirements for sign-off	Certificate of calibration and inspection of parts from the manufacturer
8.3	training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	Warranty	3 years
9.2	maintenance tasks	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	other accompanying documents	List of essential spares and accessories, with their part numbers and cost;
<b>11 notes</b>		
11.1	Service Support contact details (Hierarchy Wise; including a toll free/ landline number)	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;

11.2	recommendations or warnings	Any warning signs would be adequately displayed
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### Item Sl. No. 82

<b>Flash Sterilizer With trolley</b>		
<b>General</b>		
<b>1 use</b>		
1.1	clinical purpose	Used for sterilization of unwrapped equipment at 132 °C for three to ten minutes using steam.
1.2	used by clinical department/ward	Operation Theatre
<b>technical</b>		
<b>2 Technical Characteristics</b>		
2.1	technical characteristics (specific to this type of device)	1) 18-23 litres table-top model. 2) No utility connection other than drainage and electricity. 3) In-built dryer. 4) Constructed of 304 or 316 stainless steel 5) Automatic cycle control with printer
2.2	user's interface	Manual
2.3	Software and/ or standard of communication (where ever required)	Stages should be displayable.
<b>3 Physical Characteristics</b>		
3.1	Dimensions (metric)	As per capacity
3.2	Weight (lbs, kg)	Max: 150 Kg.
3.3	capacity	18 to 23 litre
3.4	noise (in dba)	Noise-free
3.5	Heat dissipation	As per standard
3.6	mobility, portability	Table with castors and brakes
<b>4 Energy Source (Electricity, Ups, Solar, Gas, Water, Co2 ....)</b>		
4.1	power requirements	-
4.2	battery operated	-
4.3	tolerance (to variations, shutdowns)	NA
4.4	protection	-
4.5	power consumption	-
<b>5 Accessories, Spare parts, consumables</b>		
5.1	accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)	1. Trays-2 Nos
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 Environmental and Departmental considerations</b>		
6.1	atmosphere / ambiance (air conditioning, humidity, dust ...)	As per standard
6.2	user's care, cleaning, Disinfection &	As per standard

<b>Sterility issues</b>		
<b>7 Standards and Safety</b>		
7.1	<b>certificates (pre-market, sanitary, ..); performance and safety standards (specific to the device type); local and/or international</b>	Should be FDA/CE/BIS approved product.
7.2	<b>local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8 Training And Installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	Safety and operation check before handover;
8.2	<b>requirements for sign-off</b>	Certificate of calibration and inspection from the manufacturer
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Should provide 2 sets (hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	<b>other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11 Notes</b>		
11.1	<b>Service Support contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 83**

<b>Operation Table Hydraulic Major</b>		
<b>General</b>		
<b>1 Use</b>		
1.1	<b>clinical purpose</b>	An operating table, sometimes called operating room table, is the table on which the patient lies during a surgical operation. This surgical equipment is usually found inside the surgery room of a hospital.
1.2	<b>used by clinical department/ward</b>	Operation theatre
<b>technical</b>		
<b>2 Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Should be a manually controlled operating table, working range from floor level: 800-1040 mm. 2) Should be adjustable to all essential positions. 3) Should be equipped with movement controls at side of the table. 4) Should have Frame and bottom made of Stainless Steel 304 material. 5) Should have reinforced three section stainless steel top. 6) Height should be adjustable by oil pump, foot step control. 7) Should have detachable head rest which can be easily adjustable to any desired position, above or below table top. 8) Table top can be rotated 360° through base. 9) Trendelenburg: $\geq 25^{\circ}$ - $30^{\circ}$ 10) Reversed Trendelenburg: $\geq 30^{\circ}$ 11) Head Section Raised from the Horizontal: $\geq 20^{\circ}$ - $30^{\circ}$ 12) Head Section Lowered from the Horizontal: $\geq 28^{\circ}$ - $30^{\circ}$ 13) Back Section Raised from the Horizontal: $\geq 60^{\circ}$ - $70^{\circ}$ 14) Leg Section Lowered from the Horizontal: $\geq 40^{\circ}$ - $50^{\circ}$ 15) Kidney Position should be achievable by breaking the table. 16) Table-top should be radio-lucent.
2.2	<b>user's interface</b>	Manual
2.3	<b>Software and/ or standard of communication(where ever required)</b>	NA
<b>3 Physical Characteristics</b>		
3.1	Dimensions (metric)	Table top dimension (1900 mm x 525 mm) $\pm$ 15% Table elevation: (700 mm -1000 mm) $\pm$ 10%
3.2	Weight (lbs, kg)	Should be able to bear patient having weight up to 160 kg
3.3	Configuration	NA
3.4	Noise (in dBA)	NA
3.5	Mobility, portability	Not portable
<b>4 Energy Source (electricity, ups, Solar, Gas, Water, CO2 ....)</b>		
4.1	Battery operated	Yes
4.2	Tolerance (to variations, shutdowns)	NA
4.3	Power consumption	NA
<b>5 Accessories, Spare parts, consumables</b>		
5.1	Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open,	1) S. S. Arm Rest 1 No 2) Anaesthetic Screen 1 No. 3) Lithotomic Leg Holders with Stir-Ups 1 Set 4) Leather Wristlets 1 Set 5) Padded Leg Rest (Gutter Type)-2 nos 6) Anti-static mattress-2 nos

	closed system)	7) Side rails-2 nos
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 Environmental and Departmental considerations</b>		
6.1	Atmosphere / Ambiance (air conditioning, humidity, dust ...)	1) Operating condition: As per standard 2) Storage condition: As per standard
6.2	User's care, Cleaning, Disinfection & Sterility issues	As per standard
<b>7 Standards and Safety</b>		
7.1	Certificates (pre-market, sanitary, ..); Performance and safety standards (specific to the device type); Local and/or international	As per standard
7.2	Local and/or international	Manufacturer / supplier should have ISO certificate for quality standard.
<b>8 Training And Installation</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	1) Safety and operation check before handover;
8.2	Training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	Warranty	3 years
9.2	Maintenance tasks	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	Operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	Other accompanying documents	List of important spares and accessories, with their part numbers and cost;
<b>11 Notes</b>		
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/add-hoc) to be declared by the manufacturer;
11.2	Recommendations or warnings	Any warning signs would be adequately displayed

**Item Sl. No. 84**

<b>Sterilizer (Big Instruments)</b>		
<b>General</b>		
<b>1 Use</b>		
1.1	<b>Clinical Purpose</b>	A sterilizer is a pressure chamber used to sterilize equipment and supplies by subjecting them to high pressure saturated steam at 121 °C for around 15–20 minutes depending on the size of the load and the contents
1.2	<b>Used by clinical department/ward</b>	Operation theatre
<b>technical</b>		
<b>2 Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Should have seamless shell & lever operated Lid fitted with full proof mechanism control excessive steam escape and restricts condensate within the shell. 2) Synchronized manoeuvrability of lid, due to statistically perforated tray for flushing & entry of water. 3) SS 304/316 deep drawn seamless construction 4) Thermostatically controlled 5) Drainage plug at the bottom
2.2	<b>user's interface</b>	Manual
2.3	<b>Software and/ or standard of communication (where ever required)</b>	NA
<b>3 Physical Characteristics</b>		
3.1	<b>Dimensions (metric)</b>	NA
3.2	<b>Weight (lbs, kg)</b>	NA
3.3	<b>capacity</b>	4.5-7.5 L
3.4	<b>noise (in dba)</b>	NA
3.5	<b>Heat dissipation</b>	Heat Dissipation: Should maintain nominal Temp and the heat should be disbursed through an cooling mechanism
3.6	<b>mobility, portability</b>	Portable
<b>4 Energy Source (electricity, ups, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>battery operated</b>	Yes
4.2	<b>tolerance (to variations, shutdowns)</b>	NA
4.3	<b>power consumption</b>	NA
<b>5 Accessories, Spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)</b>	NA
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 Environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	1) Operating condition: As per standard 2) Storage condition: As per standard
6.2	<b>user's care, cleaning, Disinfection &amp; Sterility issues</b>	1) Disinfection: As per standard 2) Sterilization not required.
<b>7 Standards and Safety</b>		
7.1	<b>certificates (pre- market, sanitary, ..); performance and safety standards (specific to the device)</b>	1. Should be FDA/CE/BIS approved product. 2. Manufacturer and Supplier should have ISO 13485 certification for quality standards. 3. Electrical safety As per standard.

	<b>type);local and/or international</b>	
7.2	<b>local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8 Training And Installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	1) Availability of standard socket; 2) Safety and operation check before handover;
8.2	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation.
10.2	<b>other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11 Notes</b>		
11.1	<b>Service Support contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	Any warning signs would be adequately displayed

**Item Sl. No. 85**

<b>Gynae-Examination Table</b>		
<b>1 Use</b>		
1.1	<b>clinical purpose</b>	A portable, collapsible chair/table for performing an OB/GYN examination or procedure, comprising a collapsible chair structure having a seat, a back rest, a pair of armrests and a pair of substantially planar leg rests, said chair being moveable between a collapsed condition for storage and/or transport and an examination position in which it enables a patient to be seated in a position suitable for an OB/GYN examination or procedure, said chair when in said examination position.
1.2	<b>used by clinical department/ward</b>	Examination room
<b>Technical</b>		

<b>2 Technical Characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Should have Head side adjustment 75° up on ratchet 2) MS/Equivalent steel 3) Perinea cut-out 4) Adjustable Lithotomic Rods with rexine covered padded crutches 5) U-Cut at leg end
2.2	<b>Software and/ or standard of communication (where ever required)</b>	NA
<b>3 Physical Characteristics</b>		
3.1	<b>Dimensions (metric)</b>	1830 mm L X 610 mm W X 760 mm H(minimum)
3.2	<b>Weight (lbs, kg)</b>	Should be able to support patient weight up to 160 kg
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dba)</b>	NA
3.5	<b>Heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	NA
<b>4 Energy Source (electricity, UPS, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>protection</b>	NA
4.5	<b>power consumption</b>	NA
<b>5 Accessories, Spare parts, consumables</b>		
5.1	<b>accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)</b>	1). Mattress 50 mm with U Cut thick should be tear proof covered with non-pinching Rexine, seamless joint, washable and water-proof
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 Environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust)</b>	NA
6.2	<b>user's care, cleaning, Disinfection &amp; Sterility issues</b>	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover.
<b>7 Standards and Safety</b>		
7.1	<b>certificates (pre- market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	NA
7.2	<b>local and/or international</b>	Manufacturer/supplier should have ISO 13485 certificate for quality standard.
<b>8 Training And Installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign- of</b>	NA
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
9	<b>Warranty and maintenance</b>	
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	<b>Service contract clauses,</b>	The spare price list of all spares and accessories

	<b>including prices</b>	(including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	<b>other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11 Notes</b>		
11.1	<b>Service Support contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	NA

**Item Sl. No. 86**

<b>Table For Obstetric Labour</b>		
<b>General</b>		
<b>1 use</b>		
1.1	<b>clinical purpose</b>	Delivery Bed finds extensive usage in hospitals and nursing homes. These are specifically designed to support the mother during all stages of giving birth that include labour, delivery and recovery. Manufactured using quality raw material, these beds are widely known for their sturdy construction.
1.2	<b>used by clinical department/ward</b>	Operation theatre/Labour Room
<b>technical</b>		
<b>2 technical characteristics</b>		
2.1	<b>technical characteristics (specific to this type of device)</b>	1) Three sections, with top made of SS 304 grade 2) Trendelburg and CPR position instantly available with the help of pneumatic gas spring mechanism along with manual over-ride 3) Back rest manually adjustable on ratchets mechanism 4) Leg end section should slide completely under the main section 5) Lithotomic Rods should be height adjustable covered with soft Rubber and Rexine 6) U-Cut in the middle section 7) Head and side safety railing along with hand grips made of SS
2.2	<b>Software and/ or standard of communication (where ever required)</b>	NA
<b>3 physical characteristics</b>		

3.1	<b>Dimensions (metric)</b>	74"L×35" W×26"H adjustable to 36" +/-10%
3.2	<b>Weight (lbs, kg)</b>	should be able to support patient weight up to 160 kg
3.3	<b>configuration</b>	NA
3.4	<b>noise (in dba)</b>	NA
3.5	<b>Heat dissipation</b>	NA
3.6	<b>mobility, portability</b>	NA
<b>4 energy Source (electricity, UPS, Solar, Gas, Water, CO2 ....)</b>		
4.1	<b>power requirements</b>	NA
4.2	<b>battery operated</b>	NA
4.3	<b>tolerance (to variations, shutdowns)</b>	NA
4.4	<b>protection</b>	NA
5.1	<b>accessories (mandatory, standard, optional); Spare parts (main ones); consumables / reagents (open, closed system)</b>	1). Mattress 50 mm with U Cut thick should be tear proof covered with non-pinching Rexine, seamless joint, washable and water-proof
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 environmental and Departmental considerations</b>		
6.1	<b>atmosphere / ambiance (air conditioning, humidity, dust ...)</b>	NA
6.2	<b>user's care, cleaning, Disinfection &amp; Sterility issues</b>	1) Disinfection: Parts of the Device that are designed to come into contact with the patient or the operator should either be capable of easy disinfection or be protected by a single use/disposable cover. 2) Sterilization not required.
<b>7 Standards and Safety</b>		
7.1	<b>certificates (pre- market, sanitary, ..); performance and safety standards (specific to the device type);local and/or international</b>	1. Should be US FDA /EU CE approved product.
7.2	<b>local and/or international</b>	Manufacturer / supplier should have ISO 13485 certificate for quality standard.
<b>8 training and installation</b>		
8.1	<b>pre-installation requirements: nature, values, quality, tolerance</b>	NA
8.2	<b>requirements for sign- of</b>	NA
8.3	<b>training of staff (medical, paramedical, technicians)</b>	1) Training of users on operation and basic maintenance; 2) Advanced maintenance tasks required shall be documented
<b>9 Warranty and maintenance</b>		
9.1	<b>Warranty</b>	3 years
9.2	<b>maintenance tasks</b>	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	<b>Service contract clauses, including prices</b>	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	<b>operating manuals, service manuals, other manuals</b>	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;

10.2	<b>other accompanying documents</b>	List of important spares and accessories, with their part numbers and cost;
<b>11 notes</b>		
11.1	<b>Service Support contact details (Hierarchy Wise; including a toll free/ landline number)</b>	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	<b>recommendations or warnings</b>	NA

### Item Sl. No. 87

<b>Focus lamp ordinary- For examination</b>		
<b>General</b>		
<b>1 use</b>		
1.1	Clinical purpose	Widely used in examination and operation lighting in surgical dept, ENT dept, dept of stomatology, orthopaedic dept, dept of ophthalmology, dept of dermatology and OPD, Facial features section, operation illumination, low examination, gynaecology examination etc. Perfect for specialties that require very focused light in specific areas like OB/GYN etc.
1.2	Used by clinical department/ward	Operation theatre
<b>Technical</b>		
<b>2 Technical Characteristics</b>		
2.1	Technical characteristics (specific to this type of device)	1) LED light 2) Illumination(lx) should be LED 3) Minimum 40,000 Lux 4) Height Adjustment(mm): <=440 5) Radial and axial movement of the lamp
2.2	User's interface	Manual
2.3	Software and/ or standard of communication(where ever required)	NA
<b>3 Physical Characteristics</b>		
3.1	Dimensions (metric)	NA
3.2	Weight (lbs, kg)	NA
3.3	Configuration	NA
3.4	Noise (in dBA)	NA
3.5	Mobility, portability	Portable
<b>4 Energy Source (electricity, UPS, Solar, Gas, Water, CO2 ....)</b>		
4.1	Battery operated	-
4.2	Tolerance (to variations, shutdowns)	NA
4.3	Protection	-
4.4	Power consumption	NA
<b>5 Accessories, Spare parts, consumables</b>		
5.1	Accessories (mandatory, standard, optional); Spare parts (main ones); Consumables / reagents (open, closed system)	NA
<b>bidding / procurement terms / Donation requirements</b>		
<b>6 Environmental and Departmental considerations</b>		
6.1	Atmosphere / Ambiance (air	1) Operating condition: As per standard

	conditioning, humidity, dust)	2) Storage condition: As per standard
6.2	User's care, Cleaning, Disinfection & Sterility issues	1) Disinfection: As per standard 2) Sterilization not required.
<b>7 Standards and Safety</b>		
7.1	Certificates (pre- market, sanitary, ..); Performance and safety standards (specific to the device type);Local and/or international	1. Should be FDA/CE/BIS and ISO 13485 approved product. 2. Electrical safety conforms to the standards. to be compliant with IEC 60601-2-4 for usability.
7.2	Local and/or international	Manufacturer / supplier should have ISO certificate for quality standard.
<b>8 Training And Installation</b>		
8.1	Pre-installation requirements: nature, values, quality, tolerance	1) Availability of standard socket; 2) Safety and operation check before handover;
8.2	Requirements for sign- of	Certificate of calibration and inspection from the manufacturer
8.3	Training of staff (medical, paramedical, technicians)	1) Training of users on operation and basic maintenance;
<b>9 Warranty and maintenance</b>		
9.1	Warranty	3 years
9.2	Maintenance tasks	1) Maintenance manual detailing; 2) Complete maintenance schedule;
9.3	Service contract clauses, including prices	The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached;
<b>10 Documentation</b>		
10.1	Operating manuals, service manuals, other manuals	Should provide 2 sets(hardcopy and soft-copy) of:- 1) User, technical and maintenance manuals to be supplied in English/ Hindi language along with machine diagrams; 2) List of equipment and procedures required for local calibration and routine maintenance; 3) Service and operation manuals (original and copy) to be provided; 4) Advanced maintenance tasks documentation;
10.2	Other accompanying documents	List of important spares and accessories, with their part numbers and cost;
<b>11 Notes</b>		
11.1	Service Support Contact details (Hierarchy Wise; including a toll free/ landline number)	Contact details of manufacturer, supplier and local service agent to be provided; Any Contract (AMC/CMC/ad-hoc) to be declared by the manufacturer;
11.2	Recommendations or warnings	Any warning signs would be adequately displayed

### Item Sl. No. 88

## EMBALMING MACHINE AND ACCESSORIES

1. Drive master flex L/S 100 RPM -01 No.
2. Pump Head L/S Easy Load 11 SS - 04No.
3. Master Flex L/S Chem Durance Biotubing 18, 50, 15.2 m -04 No.
4. Cannulas 18 gauge, ID 0.067, Length -2.5" -04 No.
5. Keep ramp clamp tubing pack of 12 – 01 No.

6. For injecting Formaldehyde solution in to Cadaverous at much higher speed than normal gravity process.
7. Unit is fully covered & mounted on a portable trolley having four castor wheels for easy movement.
8. Unit consists of one air compressor fitted with 1/2 HP Crompton /AUE/equivalent make Motor which is connected with a Stainless Steel Tank of 10 liters capacity meant for storing and injecting the solution with built in level Indicator and top liquid filling nozzle with cap.
9. Tank is fitted with a safety valve, pressure gauge and rubber tubing having provision for injecting the solution. Supplied with 2 sizes of cannulae.
10. Suitable to work on 220 volts, 1ph 50 Hz, Ac supply.

### **Item Sl. No. 89**

#### **Meat cutting machine (Bakon's slicer) for thin body sections for gross anatomy sections study**

1. Table made of thick SS sheet with special heavy axles for easy and firm movement.
2. Machine should be supplied complete with one blade, starter, cord and plug
3. Machine should work on 220 V, single phase, 50 Hz AC Supply
4. Machine should be fitted with moving table and extension table mounted on four ball bearing rollers.
5. Additional accessories 1) Blades – 02 nos 2) Belt – 01 no.

### **Item Sl. No. 90**

#### **HOT PLATE – ELECTRICAL**

##### 1 Description of Function

1.1 Used to heat glassware or its contents.

##### 2 Technical Specifications

2.1 Durable cast-iron heating element that heats up fast

2.2 Thermostatic control from simmer to boil

2.3 Durable and easy-to-clean spray plastic finish

2.4 Variable heat control

2.5 Stainless steel body with top having the diameter 30cm

2.6 Temperature and working indicator light

2.7 Maximum surface Temperature - 300 °C

### **Item Sl. No. 91**

#### **INCUBATOR**

##### A. Technical specifications:

1. Capacity: 100-150L

- 2 Interior chamber: Stainless steel for easy cleaning and decontamination
  - 3 Timer: 1 min. to 100 hours and hold position
  - 4 Minimum turbulence and no cross contamination
  - 5 Adjustable safety thermostat for temp setting at 1 deg C increment
  - 6 Temp Accuracy +/-1% of required temp, with inbuilt Temperature Sensor
  - 7 Internal glass door for the observation
  - 8 With minimum two adjustable shelves
  - 9 Audiovisual Alarm to Indicate when temperature deviates more than 1°C from setpoint, and when program or time has finished. Alarm may be muted.
  - 10 Peltier or Jacket or Blanket heating with continuous air circulation and Heating by natural/forced convection for homogenous temperature distribution.
  - 11 Temperature range: +5° C to 80°C
  - 12 There should be a Membrane Keypad with LCD/LED to set and display operating parameters, current status, running time and alarm conditions for time and temperature.
  - 13 Interior lighting facilities, insulated door fitted with heavy hinges handle locking, mechanical door lock.
- B.Power Supply:
- 1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
  - 2 Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
- C. Standards:
1. Should be CE or FDA or BIS approved product.

## **Item Sl. No. 92**

### **DISSECTION TABLE – STANDARD**

- 1 Technical Specification
  - 1.1 Approximate Dimension:-1820 X 600 X 900 (L x W x H)
  - 1.2 It should be made of stainless steel (steel grade 304) with a frame made of rugged torsion-resistant stainless steel profiles.
  - 1.3 It should have 4 solid rubber swivel locking castors
  - 1.4 Tabletop depth should be of approx. 15mm sloping towards the drain.
  - 1.5 Deleted.
  - 1.6 10 litre removable container with bayonet lock, mounted beneath the down spout, should be attached to a rack in the base frame.
  - 1.7 Airtight compartment should be mounted beneath the table top to serve as an odour-free storage of drapes. Size: 2 ft (Length) x 1.5ft (Width) x 9" (Depth)
  - 1.8 - It should have stainless steel full extension drawer and a removable stainless steel tray provided with a perforated plate and a removable lid. Size: 2 ft (Length) x 1.5ft (Width) x 9" (Depth)
2. System Configuration Accessories, spares and consumables
  - 2.1 Stainless Steel Bucket 50 Ltrs
  - 2.2 Headrest
  - 2.3 Body support shim.
  - 2.4 Foot rest.

- 2.5 Foldable, extendable arm rests.
- 2.6 Facility to fix stands & stands for lithotomy strapping.

### **Item Sl. No. 93**

#### **DISSECTION TABLE – SMALL**

##### 1 Technical Specification

- 1.1 Approximate Dimension:- 4ft X 2ft X 3ft (L x W x H)
- 1.2 It should be made of stainless steel (steel grade 304) with a frame made of rugged torsion-resistant stainless steel profiles.
- 1.3 It should have 4 solid rubber swivel locking castors
- 1.4 Tabletop depth should be of approx. 15mm sloping towards the drain.
- 1.5 Deleted.
- 1.6 10 litre removable container with bayonet lock, mounted beneath the down spout, should be attached to a rack in the base frame.
- 1.7 Deleted.
- 1.8. It should have stainless steel full extension drawer and a removable stainless steel tray provided with a perforated plate and a removable lid. Size: 2 ft (Length) x 1.5ft (Width) x 9" (Depth)

##### 2. System Configuration Accessories, spares and consumables

- 2.1 Stainless Steel Bucket 50 Ltrs
- 2.2 Headrest
- 2.3 Body support shim.

### **Item Sl. No. 94**

#### **X-RAY VIEWING LOBBY**

- 1 Panel Side by Side X-Ray View Box Illuminators; High quality with aesthetic finish.
- 2 Should have the following Standard Features:
- 3 LED light source (blue type) lasting several thousand hours.
- 4 Roller gravity film holding system
- 5 Durable steel construction
- 6 Thin 3" profile
- 7 Chip resistant hospital white finish
- 8 Continuous bottom film ledge
- 9 Even view reflective system, with white acrylic translucent surface.
- 10 Centralized cluster On/Off switching
- 11 Optional Features:
- 12 FAS – Film Activated Switching
- 13 MS - Master Switch
- 14 HGP - Hospital Grade Plug Specs: Surface Wall Mount 3 Panels Side by Side 56" x 17" Viewing Area.
- 15 Overall Dimensions approx: 56" (L) 21" (H) 3 3/8" (D) (approx.)
- 16 Illumination: 2000 cd/m<sup>2</sup>
- 17 It should be aesthetic and high quality, thin type and mountable on wall.
- 18 Power Supply

**Item Sl. No. 95**

**CHARTS**

All charts should be 26" x 20" size multi color, thick laminated with roller on up and lower end. Wall hanging type

NAME OF CHART

CHARTS ON ANATOMY

- 1 The Muscular System
- 2 The Skeletal Systems
- 3 The Vertebral Column
- 4 Rib, Vert, System & hyoid Bone
- 5 The Nervous System
- 6 The Brain
- 7 The Anatomy of the Brain
- 8 The Spinal nerves
- 9 The Autonomic nervous System
- 10 The vascular System and Viscera
- 11 The Heart
- 12 The Lymphatic System
- 13 The Human Skull
- 14 Skull External and Internal Surfaces
- 15 The Head and Neck
- 16 The Respiratory System
- 17 The Eye
- 18 The structural Anatomy of the eye
- 19 The Eye. Anterior & Posterior chambers
- 20 The Ear, Nose & Throat
- 21 The Ear - Organs of hearing & Balance
- 22 Pharynx & Larynx
- 23 Anatomy of the inner ear
- 24 Temporomandibular Joint (TMJ)
- 25 The Skin
- 26 The Female Reproductive System
- 27 The Male Reproductive System
- 28 Pregnancy & Birth
- 29 Female Reproductive Systems (Ant. & Patho)
- 30 The Female External Genitalis (Ant.& Patho)
- 31 Body surface area & body weight
- 32 Birth Weight
- 33 Obstetrical Table
- 34 Critical Stages of foetal development. 1st.lunar month - 10th lunar month
- 35 The Endocrine System
- 36 The Shoulder and Elbow (Ligament)
- 37 Shoulder, Arm, Elbow, forearm & Head
- 38 The Hand and Wrist (Ligament)
- 39 Male, Female pelvis, Sacrum, Coccyx, Hip and Knee
- 40 Hip Thighs, Knee and Leg
- 41 The Foot and Ankle (Ligament)

- 42 Ankle and Foot
  - 43 Skeletal Maturation & Growth
  - 44 The Digestive System
  - 45 The liver
  - 46 The Urinary Tract
  - 47 The Kidney
  - 48 The Prostate
  - 49 The portal System
  - 50 Gastroesophageal Disorders and Digestive Anatomy
  - 51 Origins, Development & Structure Cells
  - 52 Soft Tissues of the Lower Limb
  - 53 Soft Tissues of the Foot
  - 54 Bones of the pelvis and Lower Limb
  - 55 Varicose Veins
  - 56 (a) External Morphological Features in Male Female (b) Sex Differentiating Features in Skull (One Chart)
  - 57 (a) Sex Differentiating Features in Mandible.  
(b) Sex Differentiating Features in hip Bone.  
(c) Sex Differentiating Features in Sacrum .....( One Chart)
  - 58 (a) Sex Differentiating Features in Articulated pelvis In addition to those present in hip bone & sacrum.  
(b) Sex Differentiating Features in Femur.....(One Chart)
  - 59 (a) Estimation of Age-Ages of Eruption of teeth  
(b) International system of numbering the Teeth.....(One Chart)
  - 60 (a) Aged of appearance and fusion of different Ossification of bones  
(b) Multiplication factor for different bones .for calculation of persons of different parts of India .....( One Chart).
- (Bidder has to quote all the items as a set and price of each item should be mentioned separately)**

### **Item Sl. No. 96**

#### **MODELS**

##### 1- ANATOMY

- 1 Model of Man or Woman...Normal Size....Adult  
Showing superficial dissection on one side. And other side intact.  
Arms and legs are detachable . The internal organs in abdominal & thoracic wall are shown in situ and they are detachable.
- 2 Human Torso with Head ..... Life size .(Male or Female)  
Height 38 inches excluding arms & legs. Showing superficial dissection on one side and other side intact. The internal organs in abdominal & thoracic wall are shown in situ. Half of the skull cap can be removed and brain can be taken out.
- 3 Principal Structures found within tissue Cells
- 4 Head and Neck .....Longitudinal Section of Head and Neck
- 5 Brain with Skull
- 6 Brain in 4 Parts
- 7 Nervous system
- 8 Mid sagittal Section through the Brain

- 9 Structure of the Cerebellum.
- 10 A Superior View. An Interior View. A Sagittal View
- 11 Sagittal section through the Medulla Oblongata and pons showing
- 12 The Cranial Nerve Nuclei of Gray Matter
- 13 The Autonomic Nervous System
- 14 Spinal Cord with Spinal Nerves
- 15 Stretch Reflex
- 16 Tendon Reflex
- 17 Flexor (Withdrawal) Reflex
- 18 Crossed Extensor Reflex
- 19 Spinal nerves of the hand .... Anterior View
- 20 Spinal nerves of the leg. (Distribution of Nerves from Lumber & sacral Plexuses)
- 20 Posterior view of the brain Stem
- 22 Lymphatic System
- Types of Neurons
- 23 Multipolar Neuron. Bipolar Neuron. Unipolar Neuron
- 24 Reflex Arc. Including the Sensory receptor, Afferent Neuron, Association Neuron, Efferent neuron and Effector organ.
- 25 Converging Circuit in the Spinal Cord
- 26 Diverging Circuit in the spinal Cord
- 27 Ascending Pathway: The Dorsal Column Descending Pathway: The Pyramidal System (2 Models)
- 28 Somaesthetic pathway
- 29 Relationship of the Lymphatic System to the Cardio vascular system.
- 30 The cervical sympathetic Ganglia
- 31 Human Eye ... Vertical Section ....Greatly Enlarged Showing Muscle, Optic Nerves, Crystalline Lens, Iris, Cornea etc..
- 32 Human Eye ball.... 100 times enlarged (Detachable)
- 33 Visual Central nervous System pathways (Superior View)
- 34 Ear ... Large Size ... Dissectible in 4 parts
- 35 Structure within the inner ear including the cochlea & Vestibular Apparatus
- 36 Ear ... Sagittal Section ... On board. (External, middle & Inner Ear)
- 37 Larynx.... Anterior View, Posterior View, Side View, Cut away Side View & Sagittal Section (5 Models)
- 38 Functional Model of Larynx...
- 39 Larynx .....Deep side-View
- 40 The Pharynx.....Posterior View
- 41 Pharynx ....Sagittal Section
- 42 Tonsils ..... Pharyngeal, Palatine & Lingual Tonsil
- 43 Teeth (Lower jaw) with structure shown
- 44 the Structure of tooth
- 45 The Cavity in tooth
- 46 The Tongue .... Dorsal Surface
- 47 Pituitary Gland ..... Hypothalamus
- 48 Thyroid & Parathyroid Glands
- 49 Sagittal Section through Nasal Cavity and Pharynx Viewed From medical Side
- 50 Lungs ..... One side sectioned with Respiratory Tract, Bronchial Tubes, Arteries & Veins
- 51 Pulmonary circulation
- 52 The Respiratory System
- 53 Liver ..... Enlarged showing Gall Bladder
- 54 Liver with Gall Bladder & Pancreas (On Stand)
- 55 Blood Supply of the Liver
- 56 Duct System with Gall Stones in common sites
- 57 Duct Hepatic Portal System
- 58 Endocrine System
- 59 Pancreas Enlarged

- 
- 60 Structure of the pancreas
  - 61 Stomach.....Enlarged.....with duodenum, sectioned showing details
  - 62 An Anterior view of Abdominal aorta & its principles branches
  - 63 Spleen..... Normal size with details
  - 64 Gall bladder, Pancreas & Duodenum
  - 65 Blood supply of the Intestine
  - 65 Rectum (Anal Canal)
  - 67 Large Intestine
  - 68 Small Intestine.
  - 69 The Digestive System
  - 70 Heart ..... Enlarged ....Separable in 4 Parts
  - 71 Fat depositions in the arteries
  - 72 Death of an Artery.
  - 73 Artery section with Blockage. (Plaque built up on artery body)
  - 74 Principal Arteries of the body.
  - 75 Principal Veins of the body .
  - 76 Veins that drain the head & Neck
  - 77 An Anterior view of the Veins that the upper right extremity
  - 78 Veins of the lower Extremities.
  - 79 Circulatory System
  - 80 Relationship of the lymphatic system to the Cardio vascular system.
  - 81 Fetal Circulations
  - 82 A Schematic Model of Circulatory System
  - 83 Arteries of the Neck and Head. Major branches of the right Common carotid and right subclavian arteries
  - 84 An Anterior view of the Major Arteries of the Upper Extremity
  - 85 Arteries of the pelvic Region
  - 86 Arteries of the right lower Extremity (Anterior view & posterior view)
  - 87 Urinary System ..... With Kidney and Urinary Bladder
  - 88 Kidney .....in 2 Parts.....on stand
  - 89 Blood supply of the kidney
  - 90 Urinary Bladder .....Sectioned
  - 91 testis .....X Section
  - 92 Cross Section of the Penis..... Anterior view (Oblique section)
  - 93 Structure of the Penis showing the Attachment, Blood & Nerve supply and the arrangement of the erectile tissue
  - 94 Longitudinal Section of the Female Urethra
  - 95 Organs of the Male Reproductive System.(A Sagittal View)
  - 96 Organs of the Female Reproductive System (A Sagittal Section)
  - 97 The Size & Position of the Uterus in a full term Pregnant Woman in a Sagittal Section
  - 98 Uterus .....Sagittal Section .....with fallopian tube with details
  - 99 Uterus in section showing sperm & Ovum in process of Fertilization.
  - 100 Ovarian Cycle, Fertilization and the Morphofenic events of the first week.
  - 101 Blood supply of the uterus.
  - 102 Vascular Supply to the Uterus
  - 103 Tubal Ligation involves removal of a portion of each uterine tube.
  - 104 Structure of the Breast and Mammary glands (A sagittal section and anterior view partially sectioned)
  - 105 The skin .... 1000 times Enlarged
  - 106 Types of Skin Lesions.....Macule, Papule, Nodule, Wheel, vesicle, Intra or Sub epidermal blister, Pustule, Cyst, fissure and Ulcer
  - 107 Bone Structure..... Cross Section
  - 108 Hair Structure.....Cross Section
- Anatomy & Physiology of Pregnancy
- 109 Human Ovum Enlarged
  - 110 structure of Human Spermatozoon

- 111 spermatogenesis and Oogenesis
  - 112 Uterus in section showing Sperm and Ovum in Process of fertilization
  - 113 Foetal Surface of Placenta
  - 114 Maternal Surface of Placenta
  - 115 Breast In Pregnancy (Made of fibre Glass Material)
    - Before Puberty
    - At Puberty
    - Adolescent
    - Adult, conical type
    - Adult, well developed hemispherical type
    - In Pregnancy
    - in Lactation
    - Pendulous, in older multiparous woman
  - 116 Breast In Pregnancy (Made in Silicon Material .... Germany Make) Looks natural, Feels natural.
  - 117 Gradual Development of Uterus from 1st month to 9 months (9 Models)
  - 118 Model showing First, Second & third stage of Labour
- (Bidder has to quote all the items as a set and price of each item should be mentioned separately)**

#### **MODEL ON ANATOMY..... DISSECTION OF UPPER & LOWER EXTRIMITIES...**

Made of fibre glass

Material for Understanding dissection

- 1 Superficial branches of cervical plexus.
- 2 Dissection of the right mammary gland.
- 3 Contents of axilla exposed by reflexion of pectoralis major nodes. and the fascia, and removal of fat and lymph. Part of auxiliary vein has been removed to display the medial cutaneous nerve of forearm and ulnar nerve.
- 4 Lymph nodes and lymph vessels of axilla and mamma.
- 5 Dissection of auxiliary artery and its branches.
- 6 Dissection of lower part of posterior triangle of neck showing the supraclavicular part of branchial plexus.
- 7 Dissection of superficial muscles and nerves of the back.
- 8 Superficial veins at bend of elbow in a specimen in which the median vein was larg.
- 9 Superficial lymph vessels and lymph nodes of front of upper limb.
- 10 Superficial lymph vessels of back of upper limb.
- 11 Superficial veins and nerves of front of upper limb.
- 12 Superficial veins and nerves of back of upper limb.
- 13 Deltoid muscle and lateral aspect of arm.
- 14 Dissection of scapular region and back of arm to show the auxiliary and turned. The lateral head spiral groove on the humerus for the radial nerve
- 15 Anastomosing arteries around the scapula.
- 16 Dissection of left cubital fossa. The fat has been removed and the bicipital aponeurosis cut away with the rest of the deep fascia.
- 17 Dissection of back shoulder and arm. The lateral head of triceps has been divided and turned aside to expose the spiral groove on the humerus for the radial nerve
- 18 Dissection of superficial muscles, arteries, and nerves of front of forearm. Part of the radial artery was removed to show the muscles deep to it.
- 19 Deep dissection of muscles, and nerves of front of forearm. The division of the branchial artery is slightly lower than usual.
- 20 Deep dissection of front of forearm. The elbow is partially flexed, the forearm semi-pronated. The superficial muscles are cut short and turned aside. The deeper parts are still further displayed by the separation of the flexor digitorum superficial from the flexor carpi ulnaris.

- 21 Superficial dissection of palm to show the palmar aponeurosis. The deep fascia has been removed from the thenar and hypothenar eminences.
- 22 Structure in palm displayed by removal of palmar aponeurosis. In this specimen the radialis indicis and the princeps pollicis arteries took origin from the superficial palmar arch.
- 23 Superficial dissection of back of forearm.
- 24 Deep dissection of back of forearm.
- 25 Dissection of right forearm triangle.
- 26 Dissection of adductor canal in the right thigh. A portion of the sartorius has been removed.
- 27 Scheme of adductor group of muscles and obturator nerve.
- 28 Dissection of left gluteal region. Gluteus maximus and gluteus medius have been removed, and quadratus femoris has been reflected. In the specimen, the inferior gluteal artery was medial to the internal pudendal instead of lateral to it.
- 29 Left popliteal region after removal of the deep fascia- the muscles and fat being left undisturbed
- 30 Dissection of left popliteal fossa. The upper boundaries have been pulled apart and the aponeurosis to which the two heads of the gastrocnemius are attached has been split and the heads separated. For deeper dissection.
- 31 Dissection of left popliteal fossa. The two heads of the gastrocnemius and portions of the semimembranosus and semitendinosus have been removed. For more superficial dissection.
- 32 Left popliteal artery and its branches.
- 33 Dissection of gluteal region and back of thigh.
- 34 Synovial sheaths of dorsum of foot.
- 35 Dissection of front and lateral side of leg.
- 36 Dissection of dorsum of foot.
- 37 Dissection of showing synovial sheaths of tendons of lateral aspect of foot.
- 38 Superficial dissection of leg viewed from posteromedial side, showing veins and nerves. Note the numerous anastomosis between the great and the small saphenous veins.
- 39 Superficial dissection of leg viewed from posterolateral side showing veins and nerves. In the specimen were numerous large anastomosing channels between the small and the great saphenous veins.
- 40 Deep dissection of back of leg.
- 41 Dissection of medial side of ankle, showing the relations of the flexor retinaculum. (model no.-1)  
dissection of leg and foot showing synovial sheaths.(model no.-2)
- 42 Superficial dissections of sole of foot to show plantar aponeurosis. The skin and superficial Fascia, except the superficial transverse ligament, have been removed, and the fibrous flexor sheaths partially opened.
- 43 Superficial dissection of sole of foot. The plantar aponeurosis has been removed. The abductor digiti minimi and the abductor hallucis have been pulled aside
- 44 Dissection of sole of foot. Most of the flexor digitorum brevis has been removed.
- 45 Deep dissection of sole of foot.

### **Item Sl. No. 97**

#### **DISSECTING MICROSCOPE**

- |   |  |
|---|--|
| A | Eye piece:   |
| 1 | " Eye piece: Straight binocular type wide field (10 x) with 22 or better FOV".           |
| 2 | Magnification 2.0X to 40X with 10X eyepiece.   |
| 3 | Fine focusing- manual  |
| 4 | Objective 1X or better.  |
| 5 | Solid metallic body with sturdy stand riding on heavy castor wheels with locking breaks. |
| 6 | Halogen illumination 100W or LED with power supply.                                      |

- 7 Should have 3 spare lamps with each unit.
- B Power Supply  
Power input to be 220-240VAC, 50Hz  
CE or BIS approved product or equivalent.

### **Item Sl. No. 98**

#### **Paraffin Water Bath**

1. Should be temperature control.
2. Operation through key pad.
3. Bath tanks and all parts in contact with the bath liquid should be made up of high grade stainless steel.
4. Filling volume should be around 20 litres.
5. Working temperature range- room temperature to 90°C.
6. There should be a multi display facility (LED) with actual value, set point, high/low temperature,
7. Temperature stability should be  $\pm 0.2^{\circ}\text{C}$ .
8. Temperature uniformity in the bath should be  $\pm 0.05^{\circ}\text{C}$ .
9. Audible warning safety signals should be there for high/low temperature warnings, and dry running protection.
10. Instrument should have lift up bath cover.
11. Carrier racks should be given for flasks and test tubes racks.
12. A cock should be provided to facilitate draining of bath contents.
13. Water bath protective media should be there to prevent contamination and formation of algae.
14. Heating capacity - 2 KW.
15. Should be CE or BIS approved product

### **Item Sl. No. 99**

#### **Water Bath Serological**

1. Useful for dual purpose. It is a combination of serological and routine rectangular water bath with holes and concentric rings.
2. Standard double wall construction. Inner chamber made out of highly polished stainless steel sheet and exterior made out of thick mild steel duly finished power coated paint.
3. Immersion heaters are provided for heating to attain temperature range from 5° C above ambient to 95° C  $\pm 1^{\circ}\text{C}$ .
4. Digital temp. Indicator-cum-Controller. The equipment to work on 220v AC 50 Hz single phase.
5. Chamber size in mm & inches L x W x H 300 x 225 x 175 mm Approx Capacity approx 15 ltrs. Approx.
6. Should be CE or FDA or BIS approved product

### **Item Sl. No. 100**

#### **HOT AIR OVEN**

- 1 Description of Function
  - 1.1 Hot Air Oven is required for heating a sample under controlled conditions.
- 2 Operational Requirements
  - 2.1 Microprocessor based system with PID-temperature controller with integrated .auto diagnostic system with fault indicator.
  - 2.2 Thermostatically controlled system.
- 3 Technical Specifications
  - 3.1 External: Stainless Steel Casing :Insulated stainless steel door with locking and rear zinc-plated steel
  - 3.2 Interior - Internal Volume atleast 55 liters easy-to-clean interior, made of stainless steel, with supports on the three sides for three adjustable perforated stainless steel shelves
  - 3.3 Forced air circulation by quiet air turbine/Fan to ensure uniform temperature
  - 3.4 Fitted with load indicator and safety thermostat take over indicator lamp. LCD/LED Indicator
  - 3.5 Temperature Variation +/- 1 deg C.
  - 3.6 Temperature Range- ambient to 250 deg C.
  - 3.7 Output available for data acquisition.
- 4 System Configuration Accessories, spares and consumables
  - 4.1 System as specified-
- 5 Environmental factors
  - 5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
  - 5.2 The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%
- 6 Power Supply
  - 6.1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
  - 6.2 Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications.( Input 160-260 V and output 220-240 V and 50 Hz)

### **Item Sl. No. 101**

#### **ICE FLAKING MACHINE**

1. The ice flaking machine with safety control against failure of refrigerant & water.
2. Machine should automatically shut off when water is not available in line and resumes when water is available.
3. Machine should automatically stop when the Bin is full and resumes when sufficient ice is taken from the Bin.
4. Machine should automatically shut off and indicate if the Refrigerant is not sufficient to produce Ice.
5. An out let should be provided to drain water from the Bin to protect it from contamination.
6. Production Capacity: Should produce at least 200 Kg/24 hrs
7. Storage Bin Capacity: Should have a capacity to store 100 Kg Ice Flakes
8. Freezing Cylinder : Stainless Steel Made
9. Compressor : Should be Hermetically sealed
10. Condensation/Cooling : Air Cooled
11. Cabinet : Should be of Stainless Steel, corrosion free with PUF insulation
12. Exterior (Chamber) : Stainless Steel

13. Control : Microprocessor Control
14. Alarms Indications : Visual LED
15. Should produce very Low Noise Level
16. Operating Temp. : 10 to 38 deg.C
17. Machine should have AgION Silver Antimicrobial product protection
18. Refrigerant : R-404a CFC Free
19. Safety control: Microprocessor control against failure of refrigerant & water.
20. Hardness : Atleast 70%
21. Power Consumption not more than 760 Watts
22. Power Requirement: 220-240V/50Hz
23. Machine should have ISO/CE/FDA certification
24. Adjustable legs to keep the machine in level.

### **Item Sl. No. 102**

#### **ALL GLASS DISTILLATION APPARATUS**

Technical specifications:

1. The glassware should be made of high quality borosilicate glass to withstand high heat.
2. Apparatus capacity should be of 4 litres/Hr.
3. Should be double stage.
4. Should have metallic stand and other accessories.
5. Stand should be made of rust free material.
6. Standards heating elements of 2.5-3KW to be used.
7. An automatic cut off device should be attached.
8. Heater should be of quartz for immediate output of distilled water. Apparatus should consist of high quality Borosilicate Boiler with built in water leveller.
9. Output water should be pyrogen-free with conductivity less than 1 micro siemen, ph 6.9-7, distillate temp 65-75 deg C.
10. Metal stand.
11. Automatic cut off device or safety control module.
12. Power input to be 220-240 VAC, 50 Hz.
13. Manufacturer should have ISO & CE certification for quality standards.

### **Item Sl. No. 103**

#### **PERISTALTIC PUMP**

1. 2 channels
2. Choice of 6 rollers
- 0.001– 68 ml/min (per channel)
3. Microprocessor controlled
4. Motor type: DC motor
5. Speed : 2-channel 1.6 -160 rpm
6. Speed setting : rpm, resolution 0.1 rpm
7. Flow rate setting : µl/min or ml/min
8. 6 – button membrane key pad
9. LED display
10. Flow rates and tubing : 2-channel 0.012, 0.24, 0.53, 0.68 (ml/min per channel)

11. Mains connection : 230V AC/50Hz, 115V AC/60Hz adjustable
12. Protection rating : IP 30
13. Should be FDA or CE or BIS approved product

### **Item Sl. No. 104**

#### **Biological safety cabinet**

##### Description of Function

Bio-safety cabinets are used to provide primary containments in the laboratory when the investigator is using potentially infectious materials

##### Operational requirements

Protection for operator, environment and the product from the aerosols and microorganisms

Microprocessor/Microcontroller/Microcomputer controlled system

##### Technical specification

Outer body made of stain less steel with epoxy powder coated(dimension 4x2x3 feet with variation range +/- 3 inches

HEPA filters with 99.995% efficiency for particles 0.3mm (H14 class according to ENI 822)

Deleted

Air circulation to vertical with 30% exhaust and 70% recirculation

Single stainless steel perforated working platform

Alarms for power failure and door opening

Should be fitted with UV light > 800lux

High speed centrifugal blower with lifetime lubricated

Noise level <63dBA elapsed hour counter

DOP test outlet

Fluorescent lamp to obtain powerful glare free lighting

On /Off switch

Gas connection should be provided in the cabinet

Quote for BOP tested HEPA filter separately

Power Supply

Power supply – 220V 50Hz. Fitted with Indian plug

Reset table over current breaker shall be fitted for protection

Suitable serve stabilizer

Standards, Safety and Training

Electrical safety conforms to standards for electricity safety IEC-60601/IS-13450

Should be complaint to ISO 13485: Quality systems-Medical devices-Particular requirement for the application of ISO 9001 applicable to manufactures and service providers that perform their own design activities

Should be FDA or CE or ISI approved product

### **Item Sl. No. 105**

#### **PHYSIOGRAPH SINGLE CHANNEL WITH STANDARD ACCESSORIES**

Should be able to record simple muscle and nerve responses to nerve stimulations

It should be made of light metal for compactness and lightness.

Student Physiograph should be single channel console with 9 speed ( .5,1,2,5,10,20,25,30 & 50 mm/sec) chart drive, time & event markers and appropriate transducers and stimulator

Couplers: Strain Gauge and isotonic  
Transducers: Pressure, volume, muscle activity/ force, Isotonic fine movement  
Accessories, spares and consumables  
Earth Lead  
Ink bottle  
EP to EP lead  
Perpex pen  
Steel wire  
Motor Belt  
Chart paper Z- fold  
Fuse  
Cover  
Power Supply  
Power input to be 220-240VAC, 50Hz  
Digital Model is also acceptable

### **Item Sl. No. 106**

#### **PHYSIOGRAPH SINGLE CHANNEL WITH STANDARD ACCESSORIES**

Should be able to record simple muscle and nerve responses to nerve stimulations  
It should be made of light metal for compactness and lightness.  
Student Physiograph should be single channel console with 9 speed ( .5,1,2,5,10,20,25,30 & 50 mm/sec) chart drive, time & event markers and appropriate transducers and stimulator  
Couplers: Strain Gauge and isotonic  
Transducers: Pressure, volume, muscle activity/ force, Isotonic fine movement  
Accessories, spares and consumables  
Earth Lead  
Ink bottle  
EP to EP lead  
Perpex pen  
Steel wire  
Motor Belt  
Chart paper Z- fold  
Fuse  
Cover  
Power Supply  
Power input to be 220-240VAC, 50Hz  
Digital Model is also acceptable

### **Item Sl. No. 107**

#### **KYMOGRAPH**

Should run on electric motor,  
Speed should be adjustable with the minimum 2.5 mm/sec to maximum 640 mm/sec,  
Shaft with the groove on one side and screw lift at the top,  
Gear for adjusting the speed,  
Clutch to change the gear,  
Contact button with the striker or contact arms,

Drum 15 x 15 cm,  
Levelling screw.  
Digital Model is also acceptable

### **Item Sl. No. 108**

#### **PH Meter**

- 1 Description of function: will be able to measure precisely the Ph of any solution.
- 2 Operational requirement: combined electrode with digital display of Ph.
- 3 Technical specification:  
Ph: (1) range: 1-14, (2) Resolution: 0.1, (3) accuracy:  $\pm$ , (4) calibration: at least 2 point.  
ORD: (1) RANGE:  $\pm$  199 mv (2) Resolution: 0.1 mv / 1 mv  
Temperature: (1) range: 0-100° C, (2) Resolution: 1° C (3) Accuracy:  $\pm$ 1° C (4) calibration: off set range  $\pm$ 1° C
- 4 System Configuration Accessories, spares and consumables
- 5 Should be supplied with two level standard Ph solution / Ph tablets.
- 6 Manufacturer should have ISO certification for quality standards.

### **Item Sl. No. 109**

#### **Drug cart**

Advanced Emergency Cart-  
Emergency cart constructed of steel/aluminum and high density resin.  
Defibrillator shelf with monitor straps, glove dispenser, sharp container, oxygen cylinder cradle, IV pole, cardiac chest board, writing surface.  
Clear plastic overlay for top cap.  
Push handle built in to the end panel for smooth and stable movement.  
Pullout writing surface top.  
Cart should be light, sturdy and scratch resistant.  
All drawers should be lockable individually.  
Should have minimum of five drawers with adjustable divides.  
Should have side bin discarding syringes and gloves.  
Castor, should not be less than 5" diameter to facilitate quite and easy manuvreability,dust-prevention, flexible transportation.  
Size should be :-Height: 100 to 110 cm  
- Base should not be less than 60 to 70 cm  
- width and depth should be good enough to accommodate the necessary items:

### **Item Sl. No. 110**

#### **View Box**

Specialty X- Ray Film LED basedView Box for viewing CT/ MRI/ Diagnostic X-ray films with External Electrodes Fluorescent Lamp Technology.  
Unit suitable for viewing 3 Films of size upto 14" x 17" in single Panel.  
Light weight & Slim, giving uniform light output with adjustable light output.

Uniform light output of around 12000Lux  
Panel thickness not more than 1”  
Wall mounting.  
Lamp Life time should be longer over 20,000 hours.  
The unit is to operable on 220V  
Should be CE marking  
To be supplied with table stand from the manufacturer.

### **Item Sl. No. 111**

#### **Infantometer**

##### Technical Specifications

- 1 Measuring length of babies and infants
- 2 Measuring length 33 to 100 cm
- 3 Graduation 1 mm
- 4 Baby surface curved to place the babies in right position
- 5 Edges not sharp to prevent injury to the baby
- 6 The head and foot positioners lockable.
- 7 Should be ISO 9001 certified

### **Item Sl. No. 112**

#### **Stadiometer**

##### Technical Specifications

- 1 Stadiometer with head rest.
- 2 Measuring range : 20-205cm –Graduation : 1mm
- 3 Weight should be less than 5 KG
- 4 Robust platform for stand
- 5 CE/FDA/BIS/ISO approved product.

### **Item Sl. No. 113**

#### **Centrifuge-capillary**

##### Specification:

- 1 Benchtop centrifuge for quick assessment of hematocrit on microcapillary blood samples.
- 2 Rotation upto 16,000 rpm adjustable in increments of 100
- 3 Timer settable in minutes, maximum preset 99 minutes
- 4 Safety lid-lock feature and emergency lid release
- 5 Motor overheating protection and imbalance shut-off
- 6 Digital display shows rpm and time
- 7 Angle rotor, 24 positions, maximum approx 16000 rcf
- 8 2 hematocrit readers
- 9 Noise level less than 40 dB
- 10 Power requirement: 220V/50Hz
- 11 Should be CE/FDA/BIS approved product.

Supplied with each unit:

1. 10x pack of sealing compound for micro capillary tubes
  2. 10 spare sets of fuses
  3. Carbons: 5 pairs.
- 100 pack of 100 heparinised capillary tubes

### **Item Sl. No. 114**

#### **Air Oxygen blender**

Technical Specifications

- 1 High quality corrosion resistant stainless steel
- 2 Able to supply FiO<sub>2</sub> : 21 to 100%
- 3 Compatible with standard fitting
- 4 Compact unit
- 5 Supplied with two outlets providing different flow rates
- 6 Should be wall mountable

### **Item Sl. No. 115**

#### **Exercise Table**

- 1) Smooth Wooden Exercise Table
- 2) Plain table (Wooden table) with adjustable-hack 2" upholstered top.
- 3) Adjustable hack features positive locking in 6-8 places
- 4) Top : 150 cm x 88 cm
- 5) Provided with 6 legs
- 6) Special frame design allows 1000 pound patient capacity

### **Item Sl. No. 116**

#### **Tilt Table (Manual)**

- 1) Manually operated tilt table with foam padded top
- 2) Provided with three straps to hold the patient- Thoracic, Pelvic and Knee
- 3) Range of tilt calibrated from 0-90 degree
- 4) Table top is 61 cm wide x 198 cm long x 80 cm high
- 5) Fitted on heavy duty tubular steel frame with locking castors for easy mobility
- 6) Oven baked finish
- 7) Provided with two gripping handles for various activities.

### **Item Sl. No. 117**

#### **Tilt Table (Motorised)**

- 1) Table should have electric height adjustment control via remote from 46 to 84 cm
- 2) It should have electric tilting control via remote.
- 3) Both control can be adjust by two function hand remote.

- 4) Table should tilt full 90 degree
- 5) tilt tables motor should have 12- 14 mm/sec speed at unloaded and 6 -7 mm/sec speed at full load.
- 6) It should have Battery Back-Up to bring the patient down in case of power failure
- 7) It should have facility of lowers to wheelchair height
- 8) It should have good quality large braking castors
- 9) It should indicate tilt angle.
- 10) Table should have minimum 200 kg weight barring capacity of patient.
- 11) Table top should have minimum 61cm wide x 198cm long x 80cm high
- 12) Table should have minimum Three fixation belts:- Thoracic, Pelvic, Knee
- 13) Table should have work table attachment.
- 14) Should be USFDA or European CE or BIS certified.

### **Item Sl. No. 118**

#### **PARALLEL BAR WITH PLATFORM**

- a Width adjusts from 15" to 28" with ergonomic control knobs on each upright.
- b 30" clearance between uprights.
- c Satin-finish hardwood platform with tapered hardwood ends for easy wheelchair access.
- d "anti-slip" treads on each end.
- e 1.5 diameter one piece stainless steel handrails.
- f Heavy gauge black powder coated steel uprights and fittings.
- g Each upright telescopes up in 1.5 increments and locks into (10) height positions with fail-safe ball-tip locking pin.
- h Weight Capacity: 400 lbs.
- i Dimensions: L x W x H: 7'x 15"- 28" x 29"- 42"
- j Dimensions: L x W x H: 10'x 15"- 28" x 29"- 42"
- k Dimensions: L x W x H: 12' x 15"- 28" x 29"- 42"

### **Item Sl. No. 119**

#### **Hemoglobinometer**

- 1 Should be able to measure the Hb using blood from finger prick (Should be based on Azide methohemoglobin method).
- 2 Should be capable of displaying results within 1 minute
- 3 Accuracy  $\pm 1$  %
- 4 Disposable cuvettes. Cost of consumables to be quoted along with this tender as it will be considered for financial comparison.
- 5 Should be portable and should have the battery backup for 8 hours or more with provision of electric operations.
- 6 Factory calibrated and calibration should be verified automatically time when the instrument is turned on.
- 7 Should have the memory to store at least 500 results with date and time and should be able to transfer the results to PC.
- 8 Should be US FDA or European CE
- 9 Original literature of equipment should be submitted.

- 
- 10 Should be able to do turbidity correction by using double wave length method
  - 11 User's list should be attached with satisfactory report for the last three years from three users with contact details.
  - 12 Demonstration for performance of equipment is compulsory in nearby area failing to which will be disqualification.
  - 13 Electrical: The equipment should be able to run on the existing electrical provision  
Specification for the consumables for Haemoglobinometer
    - 1 Consumable should be compatible with the above mentioned system
    - 2 System should be calibrated against the reference ICSH. Method
    - 3 Should be able to use venous. Arterial or capillary blood
    - 4 Price of the consumable should be quoted.
    - 5 The system must be US FDA or European CE

### **Item Sl. No. 120**

#### **Dielectric Tube Sealer, Handheld**

Purpose of Equipment:

Handheld Blood Bag Tube Sealer is a compact handheld equipment to seal the Blood Bag pilot PVC tubing by transient radio frequency heating and sealing, with no haemolysis

Quality Standard:

Manufacturing should be compliant with ISO 13485.

Should be compliant with CE Class IIA and/or US FDA

Equipment must meet electrical safety specifications of IEC 60601.

Operational requirements:

Should gently seal tubing with no hemolysis, using radiofrequency heating

Should be capable of making wide seal of at least 2 mm width.

Should be rechargeable battery operated compact (less than 3 Kg) hand held type, not bench top type.

Sealing time should not be >2 sec

Electrodes should be well protected by a cover to prevent blood splutter.

Should have indicator lamp for sealing process

No warm up time should be required

Should have tear-seal feature to make segments that can be easily separated by hand

No. of seals per charge should be more than 1000 continuous seals from a fully charged battery.

Charger should be compatible with Input voltage: 240V 50 Hz Single phase Ac

Additional requirements

All equipment should specify qualifications for design, installation, operation and performance.

Validation and calibration reports should have traceability to applicable national and international standards.

Complete with comprehensive set of spare parts and a suitable capacity voltage stabilizer and surge protector with the charging set.

Necessary catalogues, technical write up in English, should be attached with the offer both in hard and electronic copies.

Demonstration and continued comprehensive training for lab staff and support services till familiarity with the system.

Should provide electronic and hard copies of User Manual (English), Service manual (English) and Complete construction details with respect to material specification, thickness, finish etc.

Should provide a set of equipments for calibration and routine Preventive Maintenance as per manufacturer documentation in service/technical manual.

### **Item Sl. No. 121**

#### **Blood Bag Tubing Stripper**

- 1 Should have completely anti-rust, stainless steel body.
- 2 Should be light weight.
- 3 Should ensure the uniform pressure while pressing to close and automatic recoiling of spring to release handle for opening.
- 4 Should have Screw- less rollers to avoid loosening of the rollers.
- 5 Should have extra sharp cutting edges.
- 6 Should behave ergonomically designed handle for better grip.
- 7 Should have roller guide to avoid any damage of tube.
- 8 Should have provision for manual tube sealing by aluminium rings.
- 9 Original literature of equipment should be submitted.
- 10 Should be ISO 13485 approved product.
- 11 User's list should be attached with satisfactory report the last three years from three users with contact details.

### **Item Sl. No. 122**

#### **Refrigerated Blood Bag Centrifuge for Marking Blood Components**

- 1 Design:  
Stable, sturdy all- steel design with stainless steel rotor chamber easy to clean/ corrosion resistant paintings & provision of both drain and condense water collection.
- 2 Max. rcf:  
6000 x g to 6400 x g
- 3 Max. speed:  
At least 4,000 rpm to 4500 rpm
- 4 Max. volume:  
Should be able to accommodate twelve 350ml 450ml single, double, triple, quadruple, quintuple blood bags with SAGM bag and empty satellite bags with „In Line filter system“
- 5 Drive unit:  
Maintenance free induction drive
- 6 Operation:  
(i)Should have 25-30 programming of all parameters,  
(ii) Should have digital display
- 7 Programme:  
Should be tamper proof
- 8 Safety of operation:  
Lid-lock and interlock, imbalance display and cutout, steel-armored chamber, protection of overheating of rotor and compressor should conform with European CE/ US-FDA certification specific for the safety issues should be submitted.
- 9 Protection of data:  
In event of power interruption or complete failure, data should remain stored for 2-3 weeks

- 10 Documentation:  
Should have software which should be compatible with hospital information system of respective AIIMS and /or Blood Bank software any interfacing required must be provided by the firm.
- 11 User-friendly handling:  
The equipment should be movable on castor wheels however it should have facility to be placed on four solid feet. There should be no need for ground fixing. Digital display should have keys for controlling for immediate access. The machine should be equipped with and automatic lid lock.
- 12 Digital Display and adjustment parameters should Include  
(a)Acceleration : Different acceleration profiles  
(b)Deceleration : Different deceleration profiles  
(c) RCF value : 4 digit, should be adjustable  
(d) Speed : 4digit, should be adjustable  
(e) Centrifugal : Format should be as hour and minutes  
(f) Programme number : Multiple programmes  
(g)Temperature control : Adjustable in 1°C intervals  
(H)Temp. range :-20° to +40°C  
(i) Min. temp. at max. rcf : 4°C  
(j) Error message : Programme error, imbalance, lid open or any other error.  
Speed variation: microprocessor controlled rotor speed to within 10 rpm of set value.  
( Certificate should be submitted by NABL calibration lab)  
 Temperature control Microprocessor controlled rotor temperature within 1°C of set temperature regardless of centrifuge speed.( Certificate should be submitted NABL calibration lab)
- 13 Refrigerant:  
CFC- free
- 14 Warm air Outlet:  
From sides and rear of the Machine  
Should be supplied with following Standard Accessories:
- 1 Swing-out rotor with or without shield, should be able to accommodate twelve 350ml and 450ml single, double, triple, quadruple/quintuple blood bags with SAGM bag and empty satellite bags with In Line filter system
- 2 6 buckets (one bucket for 2 blood bags) for centrifuging 12 units of bags.
- 3 Removable Plastic inserts, for centrifuging twelve 350ml and 450ml single, double, triple, quadruple/quintuple blood bag system with SAGM bag and empty satellite bags with In Line filter system for preparing blood components like Red Blood Cells Plasma/FFP/Platelets concentrate and Cryoprecipitate. One extra set of above plastic inserts will have to be provided by the firm.
- 4 Should be provided with balancing weights and balancing plates
- 5 Should be provided with Hook adapter to spin small volume of Cord Blood and Buffy coat.
- 6 Operation and Maintenance manual should be provided in original
- 7 Firm will have to supply the stabilizer with the equipment.  
European CE or US FDA certification specific for the product should be submitted  
Noise Level should be less than 58 Db  
Firm should supply the relevant calibration certificate for the equipment from NABL accredited Lab.  
User's list should be provided with satisfactory report for the last three years from three Licensed Blood Banks with contact details.  
Original literature of equipment should be submitted.  
Demonstration of performance of equipment compulsory in nearby area failing to which will be disqualification.  
Electrical: The equipment should be able to run on the existing electrical provision

### **Item Sl. No. 123**

#### **Manual Plasma Extractor**

- 1 Should be suitable to manually express blood components (Plasma, Platelets) from collection blood bags.
- 2 Front panel should be spring loaded to apply uniform pressure on container causing transfer of fluid.
- 3 Compression plate should be made of durable transparent acrylic
- 4 Metal used for the apparatus should be non-corrosive and can be cleaned with antiseptics
- 5 Base portion and vertical surface should be made to have better strength and long lasting performance
- 6 Certification: Product certification: CE class IIA or US FDA certified Quality certification: ISO 13485 certified
- 7 User's list should be attached with satisfactory report for the last three years from three users with contact details.
- 8 Demonstration of performance of equipment is compulsory in nearby area failing to which will be disqualification.

### **Item Sl. No. 124**

#### **Platelet Incubator with inbuilt Agitator**

- 1 Platelet incubator should have the provision to store 96-platelet bags agitator.
- 2 Should have transparent outer door for clear visibility
- 3 Should have micro processor controlled LCD display temperature graph display
- 4 Should have automated high/low alarm with alarm testing.
- 5 Should have independent temperature controller.
- 6 Should have 7 days inkless chart recorder with battery back up to one hour for continuous operation during power failure , should be supply with USB port.
- 7 The firm will have to supply 300 temperature recorder chart papers and 10 ink pens (if the temperature recorder is not inkless) along with the equipment free of cost.
- 8 Should be able to maintain a temperature of 22°C with  $\pm 1$  degree variation.
- 9 Should have digital temperature indicator cum controller
- 10 Should have forced air circulation for uniformity of temperature all over the incubator.
- 11 Inner chamber should be made of stain less steel and outer cabinet made of MS sheet powder coated.  
Platelet Agitator
- 12 Should be able to store minimum 96 random bags or aphaeresis bags of different sizes with gentle side-to-side agitation at 3.6 to 4cm, motion of 60-70 strokes per minute.
- 13 Graphical display of agitation speed of the agitator  
Shelves:
- 14 Should be made of good quality,
- 15 Coated with bacteria resistant material,
- 16 Perforated so that air circulation on both side of bags
- 17 Should be made of 'non slip' material
- 19 Removable shelves.
- 20 Should have noiseless heavy-duty ball bearing gear motor, which should continuously operate for 24 hours.
- 21 Should have built in motion alarm for unplanned ceased agitation. Should be FDA approved or European CE

- 22 Firm will have to supply the stabilizer if required along with the equipment free of cost
- 23 Original literature of equipment should be submitted.
- 24 Deleted.
- 25 User's list should be attached with satisfactory report for the last three years from three licensed blood banks with contact details.
- 26 Demonstration of performance of equipment is compulsory in nearby area failing to which will be disqualification.
- 28 Electrical: The equipment should be able to run on the existing electrical provision

### **Item Sl. No. 125**

#### **VDRL Shaker**

- 1 Body should be made of thick steel and finished with powder coating.
- 2 Should have rotation in horizontal plane.
- 3 Platform size should be minimum 12" x 12" for keeping reaction trays.
- 4 Should have Digital display with digital countdown timer of minimum 0- 15 minutes time.
- 5 Should have built in speed regulator with maximum speed upto 250 rpm.
- 6 Workable on 220- 240 volts AC supply, 50 Hz Single phase.
- 7 Demonstration of performance of equipment is compulsory in nearby area failing to which will be disqualification.
- 8 Warranty: Deleted
- 9 Electrical: The equipment should be able to run on the existing electrical provision
- 10 Should be BIS/CE/FDA/ISO approved product.

### **Item Sl. No. 126**

#### **Micropipette set (2ul-1000ul)**

A) Variable Volume

Range 0.2 to 2 ul, 0.5 to 10 ul, 10-100 ul, 100-1000 ul, 500-5000 ul,( ONE Each)  
2-20 ul, 20-200 ul or 30-300 ul ( 3 each)

Volume setting with click stop

Robust design

Tip ejector allows convenient one handed operation

Finger support keeps the pipette in place with minimum user effort.

Digital display clearly reads volume setting.

Ejector collar and tip cone can be removed for easy cleaning and maintenance.

The equipment should be USFDA or European CE approved

### **Item Sl. No. 127**

#### **Fixed volume micropipette set**

Volume 5ul;10ul;50ul;50ul;100ul;500ul:one each (**Price of each pipette should be quoted separately**)

Volume setting with click stop Robust design Tip ejector allows convenient one

handed operation Finger support keeps the pipette in place with minimum user effort. The equipment should be USFDA or European CE approved.

### **Item Sl. No. 128**

#### **Refrigerated Blood Component Transport Box**

Purpose of Equipment:

To transport Blood Component including Fresh Frozen Plasma in vehicles that may or may not have sufficient electric outlet.

Must be designed specifically for blood component transportation use.

Quality Standard:

Both manufacturer and distributor/service provider should be ISO 9001:2008 compliant.

Operational requirements:

- 1 Should have a Battery back up of at least 4-6hrs, and should be chargeable by Mains/Car battery.
- 2 All the internal corners should be rounded to make easy any cleaning operation
- 3 Insulation should CFC-free.
- 4 Should be high thickness value, the refrigerators should maintain the internal temperature for long time beyond when its battery back up is exhausted.
- 5 For easy handling of the portable refrigerator there should be handles and there should either be inbuilt wheels or an attachable trolley.
- 6 Lid should be fully insulated and fitted up with a perimetric rubber gasket, with a special locking device (granting a perfect seal).
- 7 Internal partitioning and securing should be possible for easy handling and preventing damage to fragile FFP units during tilting/harsh transport conditions.
- 8 Temperature range: infinitely adjustable between +10 C to -18C
- 9 Adjustable thermostat should be present to set for different temperatures for different transport functions eg +4°C for RBC and -18°C for FFP, and the present temperature and set temperature both should be displayed.
- 10 10. Cooling unit should have a hermetically sealed compressor and should be industrial grade granting the maximum reliability and safety during transport.
- 11 . Refrigerant should be CFC-free.
- 12 Should be able to store at least 30-40 bags.
- 13 Voltages: both 12/24 V and 220-230V/1 phase /50 Hz
- 14 Connecting cables (included): for both the voltage (12/24V and 220-230V).

Additional requirements

All equipment should specify qualifications for design, installation, operation and performance.

Validation and calibration reports should have traceability to applicable national and international standards.

Complete with comprehensive set of spare parts and a suitable capacity voltage stabilizer with the charging set.

Necessary catalogues, technical write up in English, should be attached with the offer both in hard and electronic copies.

Performance, efficiency, other factors as applicable should be furnished.

Should provide electronic and hard copies of User Manual (English), Service manual (English) and Complete construction details with respect to material specification, thickness, finish etc.

Should provide a set of equipments for calibration (eg thermometer) and routine Preventive Maintenance as per manufacturer documentation in service/technical manual.

Should provide Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

### **Item Sl. No. 129**

#### **LED Head lights**

1. Integrated battery/battery light source that allows more freedom of movement.
2. No separate light source required
3. No separate light cable required
4. No mains supply required
5. Low energy consumption
6. No need to change the lamp (Atleast 50,000 hours of service life)
7. Available with rechargeable battery option
8. Yellow/ white light
9. Luminosity adjustable from 10 to 100 mm at a working distance of 40 cm
10. Soft flexible headband
11. Ergonomic fit
12. Easy vertical and horizontal adjustment to the shape of head
13. Extension cable for attaching the rechargeable battery and battery box to the clothing
14. All accessories should be from the same manufacturer and should be European CE/ US FDA approved

### **Item Sl. No. 130**

#### **Tail Flick Analgesiometer**

- 1 Description of Function
  - 1.1 This Tail Flick Unit is required to perform rapid precise screening of analgesic drugs on the rat and mice tail.
- 2 Operational Requirements
  - 2.1 Microprocessor based system required with PC connectivity
- 3 Technical Specifications
  - 3.1 Should consist of an I.R. source, whose radiant energy of adjustable intensity is focused on the rat tail.
  - 3.2 Restrainers should be available to be used with rat and mice.
  - 3.3 The instrument should automatically detect the withdrawal latency to the nearest 0.1 s.
  - 3.4 The Experimental data can be directly exported to the PC USB or serial ports.
  - 3.5 Dedicated Data Acquisition Software Package.
- 4 Standards, Safety and Training
  - 4.1 Should be CE / BIS approved product
  - 4.2 Calibration/Acceptance test certificate from the factory required.
  - 4.3 Manufacturer/Supplier should have ISO certification for quality standards.
  - 4.4 Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.
- 5 Documentation
  - 5.1 User/Service Manual in English ( Both soft and hard copy ) 2 Nos must be provided

**Item Sl. No. 131****Electro Convulsimeter(with ear and corneal electrodes)**

- 1 Description of Function
  - 1.1 To the study of Anti-Convulsion and Anti-Epileptic drugs, whether for education, screening or manufacturing of drugs
- 2 Technical Specifications
  - 2.1 Should provide 50Hz Stimulus Current variable from 0.25mA to 500 mA through touch panel controls for producing minimal and Supra-maximal seizure in small animals
  - 2.2 The duration of Stimulus current is variable from 0.1 second to 1 second in steps of 0.1 second
  - 2.3 Power Supply 230V 50Hz
  - 2.4 Should be supplied with corneal electrode pair (different cup size) and ear clip pair
  - 2.5 Experiment data exported to PC or dedicated data acquisition software package.
- 3 Standards, Safety and Training
  - 3.1 Product should be CE/BIS approved
- 4 Documentation
  - 4.1 User/Technical manual should be supplied

**Item Sl. No. 132****Cooks pole climbing apparatus**

- 1 Description of Function
  - 1.1 For studying cognitive function, mainly response to conditioned stimulus during learning & its retention
- 2 Technical Specifications
  - 2.1 Digital Voltmeter: 16 - 200 V DC.
  - 2.2 Digital Timer: 0.1 - 999 sec.
  - 2.3 Digital Delay Timer: 0.1 - 999 sec (cyclic).
  - 2.4 Complete Chamber and Tray made of thick imported Acrylic Sheets.
  - 2.5 Climbing Pole of Bakelite.
  - 2.6 The experimental chamber has a grid floor sliding door with a clear perplex front. Electric buzzer and chamber light. Stimulator with built in timer to provide shock of 440 v 0.2 mA at a frequency of 5 per second. The duration also controlled manually.
  - 2.7 It should be a compact model
- 3 Standards, Safety and Training
  - 3.1 Should be CE / BIS approved product
  - 3.2 Calibration/Acceptance test certificate from the factory required.
- 4 Documentation
  - 4.1 User/Service Manual in English
  - 4.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.

**Item Sl. No. 133****Rotarod (6 compartments)- Computerized**

- 1 Description of Function
  - 1.1 The "Rota-Rod" treadmill technique has proved to be of great value in research involving screening of drugs which are potentially active on motor coordination
- 2 Operational Requirements
  - 2.1 Microprocessor / microcontroller treadmill is required for rat and mice
  - 2.2 Technical Specifications
  - 2.3 Rota-Rod treadmill should consist of a computer-controlled stepper motor-driven drum with constant speed or accelerating speed modes of operation or Variable speed via belt / gear
  - 2.4 Provision of recording 5 animals simultaneously in five test zones with independent trip counter.
  - 2.5 Plexi-Glas front panels for viewing during test.
  - 2.6 Adjustable test length(at least upto 900 sec, start speed (0-20,25,30 variation of +/- 3 RPM),top end speed( Max speed 30 RPM),ramp speed, Forward and reverse rotation mode
  - 2.7 PC connectivity as well as suitable PC of Latest configuration should be supplied.
  - 2.8 Printer connectivity as well as Printer should be supplied.
  - 2.9 Should have a digital display shows all test results for each animal position The results should include Stopping RPM, length of test and distance travelled.
  - 2.1 Should be able to determine neuro-pixicity, muscle tone, balance and motor co-ordination in rats and mice.
- 3 Standards, Safety and Training
  - 3.1 Should be CE / BIS approved product
  - 3.2 Calibration/Acceptance test certificate from the factory required.
4. Documentation
  - 4.1 User/Service Manual in English
  - 4.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/ para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.

**Item Sl. No. 134****Digital Photoactometer**

- 1 Technical Specifications
  - 1.1 Solid State instrument for monitoring spontaneous & induced Ambulatory (horizontal and vertical) activity of laboratory animals.
  - 1.2 Software must indicate fast and slow movements, fast and slow stereotypy and reaming.
- 2 Standards, Safety and Training
  - 2.1 Manufacturer should have ISO certification
- 3 Documentation
  - 3.1 User/Technical/Service manual should be provided

**Item Sl. No. 135****Video assisted Elevated plus maze for rats and mice**

- 1 Description of Function
- 1.1 This Elevated Plus-Maze a sturdy apparatus frequently used to measure anxiety levels in rodents and to screen potential anxiolytic drugs
- 2 Technical Specifications
- 2.1 Should have an elevated 4 arm maze in which 2 arms are open and 2 are closed with glass opening on top. (HxLxW : 40-45 cmx50-60 cmx10-12 cm)
- 2.2 Should have closed arm walls are held solidly in slotted base
- 2.3 Grey non reflective base plate
- 2.4 Grey Walls Height: 500 mm
- 2.5 Transparent Walls Height: 100 mm
- 2.6 Made by: Wood / stainless steel
- 2.7 Should Tracks time spent and distance travelled, speed and resting time in each zone
- 3 Standards, Safety and Training
- 3.2 Calibration/Acceptance test certificate from the factory required.
- 3.3 Manufacturer should have ISO certification for quality standards.
- 4 Documentation
- 4.1 User/Service Manual in English
- 4.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point ,if not substantiated with authenticated catalogue/manual, will not be considered.

**Item Sl. No. 136****Portable Autoclave (vertical)**

- 1 Suitable of general laboratory use as well as for field sterilization of instruments and dressings etc.
- 2 It should be portable with capacity 20-25 L
- 3 The sterilizer should be made up of S.S. Sheet deep drawn to cylindrical shape.
- 4 Dome shaped S.S. lid is to be provided which will seal the autoclave with neoprene joint less gasket.
- 5 The lid should be tightened to the body when closed.
- 6 The working pressure is 1.1 to 1.2 Kg./cm<sup>2</sup> (15-18PSI).
- 7 It should have seamless construction which will not allow bacterial residue and contamination.
- 8 It is equipped with dial pressure gauge 0-60 PSI, spring loaded safety valve, dead weight type safety valve and steam release valve.
- 9 The load is held in dressing drums (optional), which is supported on a stand (tripod) the autoclave is hydraulically tested at twice the working pressure as per ISI requirement.
- 10 Should be with plug & cord.
- 11 Suitable to work on 220/230 Volt, single phase, 50 Hz, AC supply.
- 12 Size : 350 x 300-325 mm
- 13 Accessories : Dressing Drum
- 14 Should be ISI marked/Test certificate from NABL accredited lab for the quoted model should be submitted.

**Item Sl. No. 137****Digital spirometer**

- 1 Description of Function
  - 1.1 Used for measuring lung function.
- 2 Operational Requirements
  - 2.1 Complete with all hardware and software is required
- 3 Technical Specifications
  - 3.1 The system should be able to measure spirometry and flow volume parameters and sub divisions, Maximum Ventilation Volume (MVV), Lung Volume including TLC, RV& FRC by multi-breath closed circuit Helium Dilution/ Nitrogen wash out.
  - 3.2 Should be able to perform diffusion studies.
  - 3.3 Broncho Provocation/ Histamine Challenge Test Software
  - 3.4 System should incorporate Precision Dry Rolling Seal Spirometer (11-13 Litres)/ heated Pneumotech for highest accuracy and reproducibility and Flow Volume Differentiator (Resistance less than 1 cm of H<sub>2</sub>O / Litre/Sec
  - 3.5 Volume resolution < 8ml
  - 3.6 Accuracy < 0.5%
  - 3.7 Flow Range+/- 15 Litre / Sec.
  - 3.8 Should have linear analyzers for
  - 3.9 Helium/Methane analyser: Range 0-15% Helium accuracy +/- 0.1 % or Methane analyzer- Range 0-0.35% CH<sub>4</sub>, accuracy +/- 0.1%
  - 3.10 "Carbon Monoxide Analyzer: Range0- 0.350%CO, Accuravy+/- 0.1%
  - 3.11 Oxygen Analyzer: Range: Range 0-100% Accuracy +/- 0.1%
  - 3.12 Gas Control Module with Automatic Filling circuit.
  - 3.13 System should have automated O<sub>2</sub> compensation during FRC test.
  - 3.14 System should also have fully automated Calibration/Test procedure with computer.
  - 3.15 Computer specification :CPU corei5 2GB RAM;150 GB Hard Disk Drive;High Speed DVD/CD Rom , Serial and parallel ports ;Keyboard, Mouse and Mouse Pad, Monitor size 15" and printer"
- 4 Accessories , Spares and Consumables
  - 4.1 System as specified
  - 4.2 Helium/oxygen cylinder -01  
Helium Cylinder-01 b) Cylinders Diffusion Mixtures-02
- 5 Standards, Safety and Training
  - 5.1 Should have the ISO certification and the copy of the same should be enclosed along with the technical bid.
  - 5.2 The quoted model should have US FDA/ European CE/BIS certificate and copy of the same should be enclosed along with the technical bid.
  - 5.3 Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual
- 6 Documentation
  - 6.1 Two numbers of Complete User/Technical/Maintenance manuals to be supplied in English.
  - 6.2 Certificate of calibration and inspection from factory.
  - 6.3 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/ para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.

**Item Sl. No. 138****Bicycle Ergometerwith digital display**

- 1 Should have LCD display with programmable protocols.
- 2 Should provide feedback for speed, time, distance calories and pulse
- 3 Tension control: Manual 8 level resistance with adjustable wheel
- 4 Fly wheel: Approximately 6 kg magnetic wheels
- 5 Handle bar: adjustable
- 6 Belt transmission: Bearing one way, flat belt, 3 PCS crank
- 7 Transportation: 2 front end cap
- 8 Seat: adjustable height front and back
- 9 Maximum user weight: Approximately 150 kg
- 10 Dimensions: Approximately 96 X 49 X 138 cm
- 11 Weight: Approximately 27 kg
- 12 Gross weight: 29.5 kg

**Item Sl. No. 139****Digital Reaction Time Apparatus**

- 1 Description of Function
  - 1.1 Reaction Time System is a multi-operational apparatus for measuring a subject's reaction time.
- 2 Technical Specifications
  - 2.1 Should perform a wide range of tests including reaction time, choice reaction time, reaction/movement time, and tapping tests.
  - 2.2 Should have state-of-the-art touch sensitive keypads for ultra-accurate reaction time
  - 2.3 System should have Reaction/Movement Time Panel. Control Unit for Psychomotor Devices,
  - 2.4 Should have Psychomotor Experiment Software, Single Touch Key with Stimulus, Foot Switch and Push Button Remote.
  - 2.5 Low Tone should be 200Hz
  - 2.6 High Tone should be 1kHz
  - 2.7 Tone Volume should be 75-85 dB max
  - 2.8 Headphone should be 90-105 dB max depending on style
  - 2.9 Stimulus should be 9 tri-colour lights, high or low tone
  - 2.1 Keys should be Touch sensitive with dual accuracy zones
  - 2.11 Cue should be Tri-colour light, high or low tone
  - 2.12 Cue Time should be Fixed, random or none
  - 2.13 Cue Time Range should be 0-25.5 seconds, 0.1 second resolution
  - 2.14 Response Timeout should be 0-25.5 seconds, 0.1 second resolution
  - 2.15 Tapping Duration should be 0-120 seconds, 1.0 second resolution
  - 2.16 Timing Resolution should be 0.001 seconds +/- 0.005%
- 3 Standards, Safety and Training
  - 3.1 The quoted model should have US FDA/European CE/BIS certificate and copy of the same should be enclosed along with the technical bid.
- 4 Documentation
  - 4.1 Two numbers of Complete User/Technical/Maintenance manuals to be supplied in English (Soft copy & Hard copy).

- 4.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/ para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.

### **Item Sl. No. 140**

#### **Multiple Choice Apparatus(with digital display)**

- 1 Description of Function
  - 1.1 Multiple choice Apparatus are used to test the visual perception and motor performance in humans.
- 2 Technical Specifications
  - 2.1 Should provide four different types of stimulus -- four different colour glowing indicator.
  - 2.2 Should be micro-processor based circuitry.
  - 2.3 Should have individual controls for each stimuli.
  - 2.4 Should have 4 digit display of time, maximum counting 99.99 second with resolution of 0.01 second.
  - 2.5 Should have power ON-OFF Switch & Indicators.
  - 2.6 Should have reset to Zero Switch.
  - 2.7 Should have removable Screen partition.
  - 2.8 Should be supplied with a Chronoscope
- 3 Standards, Safety and Training
  - 3.1 Manufacturer should have ISO certification
- 4 Documentation
  - 4.1 User/Technical/Service manual should be provided
  - 4.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.

### **Item Sl. No. 141**

#### **Critical flicker fusion apparatus**

- 1 Description of Function
  - 1.1 The Flicker Fusion System provides the user with a variety of versatile controls to perform accurate and timely measurements of Critical Flicker Frequency (CFF).
- 2 Technical Specifications
  - 2.1 Frequency: 1.0 - 100.0Hz in 0.1Hz increments with an error of .05%
  - 2.2 Analog Input: 3.5mm mono phone plug with voltage range from 0.1 - 10 V for 1.0 - 100.0Hz flicker rate 5 – 50 flashes/ second
  - 2.3 Absolute Maximum Input: 14V
  - 2.4 Typical Luminance: 58Cd/m<sup>2</sup>
  - 2.5 Viewing Angle: 1.9°
  - 2.6 Light/Dark Ratio: 1:1
  - 2.7 Stimulus Colour: White LED/ Green & Red Lights
  - 2.8 Should have minimum five modes of operation
  - 2.9 Should have a control over the stimulus luminance, sweep rates, and stimulus selection.

- 2.1 Should have RS-232 interface
- 3 Standards, Safety and Training
- 3.1 Manufacturer should have ISO certification
- 3.2 Product should be FDA/CE/BIS approved
- 4 Documentation
- 4.1 User/Technical/Service manual should be provided
- 4.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page / para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.

### **Item Sl. No. 142**

#### **Isolated organ bath**

- 1 Technical Specifications
- 1.1 The isolated organ bath (Single chamber) should provide accurate recording of isometric or isotonic tissue contraction / release
- 1.2 The complete compartment should be transparent for easy visualization
- 1.3 It should have easy and quick attachment of tissues
- 1.4 Diffusion between chambers and temperature equilibrating coils should be prevented by syringe valves
- 1.5 System should have precision water temperature control
- 1.6 The tissue washing should be achieved by without exposing tissue to the air
- 1.7 The water jet bath stirring should be provided by a noiseless vibration free centrifugal pump
- 1.8 A precise thermostat should maintain the temperature with an accuracy of +/-0.1 deg
- 1.9 The system should be supplied with all essential accessories like one muscle chamber with stimulator, temperature equilibrating coil, holder, supporting rod, isometric (tension 0-50g) and isotonic (Range: 0.1 – 2cm) transducers.
- 1.10 "Should be supplied with 4 channel data acquisition system  
Stimulator- constant voltage range- 0- 10V  
Dose response curve should be plotted automatically compatible computer, printer & printing paper"
- 1.11 System should work with 230 V,50 Hz power supply.
- 2 Standards, Safety and Training
- 2.1 Should be CE / BIS approved product
- 2.2 Calibration/Acceptance test certificate from the factory required.
- 2.3 Manufacturer/Supplier should have ISO certification for quality standards.
- 3 Documentation
- 3.1 User/Technical/Service manual should be provided
- 3.2 Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.

### **Item Sl. No. 143**

#### **Multi Channel Pipette(Manual)**

- 1 Light weight electronic Pipette for high Professional Standards that provide optimal support in work
- 2 Only one multi function rocker for liquid aspiration & dispensing.

- 3 To provide thermal, mechanical and chemical stability piston should manufactured with the combination of Fortron and PEEK material
- 4 Spring loaded tip cone that provide maximum tightness with minimal attachment force.
- 5 Provision to autoclave the lower parts
- 6 Should have provision for removing individual channels to adjust the distance between channels.
- 7 Should have adjustable volume range from 15 -300ul
- 8 Should have adjustable volume range from 0.5 - 10ul set
- 9 Should have Documentation Certificate of calibration and inspection from factory.
- 10 Five Channel pipette
- 11 Approved by USFDA or European CE Certificate

### **Item Sl. No. 144**

#### **Bioelectric Impedance Body Composition Analyzer**

- 1 Description of Function
  - 1.1 Body composition readings including: Weight, Fat %, Fat Mass, Total Body Water, Muscle Mass, Basal Metabolic Rate, Bone Mass, a unique Visceral Fat indicator, Body Mass Index etc.
- 2 Technical Specifications
  - 2.1 Should have LCD display
  - 2.2 Should be based on bioelectric impedance principle
  - 2.3 Should have direct printout of assessment result and data logging with computer interface facility. Branded Computer with latest configuration to be supplied with necessary software and Laser Printer.
  - 2.4 Should have multiple operating frequency : 5KHz,50KHz, 250KHz
  - 2.5 Power supply 230V 50Hz AC
  - 2.6 Should have battery back up
  - 2.7 Should have indicator for low battery
  - 2.8 Impedance range : 5-1100Ω
  - 2.9 Should have data storage and data transfer facility
- 3 Standards, Safety and Training
  - 3.1 Should have the ISO certification and the copy of the same should be enclosed along with the technical bid.
  - 3.2 The quoted model should have US FDA/European CE/BIS certificate and copy of the same should be enclosed along with the technical bid.
- 4 Documentation
  - 4.1 Two numbers of Complete User/Technical/Maintenance manuals to be supplied in English (Soft copy & Hard copy).
  - 4.2 Certificate of calibration and inspection from factory.  
Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/ para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.

### **Item Sl. No. 145**

#### **Vortex Mixer**

- 1 Should be lightweight and portable
- 2 Should have speed range of 200-3000 rpm with provision of speed change of at least 50 rpm
- 3 Orbit: 2-4 mm
- 4 Should operate in pulse mode and continuous mode/auto mode
- 5 Should have display to show speed and time remaining
- 6 Should have timer (0-9999 min) with increment/decrement of 1 sec
- 7 Should have provision to be adopted for single or multiple tubes (1-100) of varying sizes (microtubes – 25 ml tubes)
- 8 Should have auto-cut off function
- 9 Should operate at 220-265 V and 50 – 60 Hz
- 10 Manufacturer/Supplier should have ISO certification for quality standards.

### **Item Sl. No. 146**

#### **Automated tissue grinder (Homogenizer)**

- 1 Should be useful for disrupting a broad range of tissue.
- 2 It should be used for homogenizing the volumes of 250ul to 10 ml (H<sub>2</sub>O) and speed upto 24000 rpm
- 3 Should provide gentle disruption of tissues without damaging the subcellular structures.  
The stirrer motor should have electronic speed controller
- 4 The pestles and tubes should be chemically inert, resilient and autoclavable.  
They should have smooth and non-wettable surface
- 5 It should have pulse mode to process heat-sensitive samples; accelerate chemical and enzymatic reactions 0 to 15-minute timer
- 6 Power 220V AC/ 50Hz
- 7 Should include all accessories including support stand, replacement interface washers, and tip wrenches: Should include sets of different pestles and tubes.

### **Item Sl. No. 147**

#### **WEIGHING MACHINE FOR DEAD BODIES**

- a. Length of floor scale should be 4 feet to 6 feet.
- b. Platform for keeping the body – should be sturdy, made of stainless steel, 18 gauge – size 6 feet x 2.5 feet x 4 inch.
- c. Should have a digital meter (dial) to display the weight rapidly and measurements can be calibrated to adjust the weight of the platform.
- d. The digital meter (dial) should be enclosed dust proof and water tight stainless steel enclosure mounted on a wall. AC or DC operated.

- e. Should be able to perform under the most rigorous conditions of a mortuary conducting 15 post-mortem examinations per day measuring dead body weight ranging from 0 kg to 200 kg. Accuracy should be  $\pm 200$  grams.
- f. Rechargeable battery back-up pack provided for usage in power failure.  
Standards, safety and Training:  
Should be CE or BIS or ISO approved product.

### **Item Sl. No. 148**

#### **Digital Weighing Machine for organs/foetus**

1. Description of function:  
To measure weight of organs during Autopsy and for weighing the foetus
2. Operational Requirements:
  - a. Organ weights of each organ documented during autopsy
3. Technical specifications:
  - a. Stainless steel 304 grade construction
  - b. Platform minimum 350 mm x 350 mm (14" x 14"), easy to clean and anti-staining
  - c. Maximum of 15 kg can be measured with accuracy of about 2 gm.
  - d. Digital display
  - e. Rechargeable battery back-up pack provided for usage in power failure.
4. Environmental factors:
  - a. The unit shall be capable of operating continuously in ambient temperature of 20 – 30 deg C and relative humidity of 15 – 90%.
  - b. The unit shall be capable of being stored continuously in ambient temperature of 0 – 50 deg C and relative humidity of 15 – 90 %.
5. Standards, safety and Training:
  - a. Manufacturer should have ISO certification for quality standards
6. Documentation:
  - a. User / Technical / Maintenance manuals to be supplied in English.

### **Item Sl. No. 149**

#### **Cadaver / Autopsy Carrier (Non-elevating)**

- A. Technical specifications:
  1. Should be able to transport dead bodies from cold storage to autopsy table and then
  2. to the relative waiting area.
  3. Dimensions:
    4. Length: 75 inches to 85 inches
    5. Width: 25 – 35 inches
    6. Height: 30 – 35 inches
  7. Chassis should be made of SS 304. It should have a covering made of SS 304/ Heavy
  8. duty high impact PVC totally covering the dead body with non-transparent doors
  9. opening on the top side.
  10. Casters should be rubber edged with total lock wheel locking in-built system.
  11. Navigation should be possible in all directions
  12. Should be able to bear the weight of the dead body (up to 200 kg).
  13. Can be easily cleaned with ordinary detergent after each transportation and should
  14. be resistant to fumigation chemicals and cold temperature.

15. Should be durable and have bumpers to protect the carrier from accidental bumping
16. on the walls of autopsy hall and body storage racks.

B. Standards, safety and Training:

1. Manufacturer should have ISO certification for quality standards

**Item Sl. No. 150**

**Mortuary Cooler (12 bodies)**

Specification for cold storage chambers for dead bodies

1. Corrosion free interior and exterior.
2. Audio visual alarm for high and low temperature.
3. Designed for long storage of cadaverous.
4. PUF insulation on all sides.
5. Special design ensuring best hygiene with washing & draining facility.
6. Tray or Trolley should be available in the mortuary chamber so that the cadaver can be pushed inside or pulled outside the chamber smoothly.
7. Energy efficient and sturdy construction.
8. Light weight.
9. Digital temperature indication.
10. Microprocessor based / PLC temperature control.
11. Outer body of the mortuary chamber is constructed out of thick S.S sheets. The inner chamber made of heavy gauge stainless steel sheet of SS-304 grade. The 100 mm gap between the walls filled high grade poly urethane insulation, which ensures maximum thermal efficiency.
12. The doors connected by very sturdy chrome plate hinges and fitted with hard chrome plated lubricated latches for opening of the door.
13. The doors made of galvanized steel sheets, lined with stainless steel for extra protection and long life.
14. All the doors fitted with high quality neoprene rubber gaskets for airtight fittings with very sturdy casters.
15. CFC free compressors, conforming to latest international standards and guidelines.
16. Vapour proof lamp inside.
17. Temperature range -2 to 4 deg. C with temp failure alarms.
18. Suitable Voltage automatic stabilizer Output: 230 +/-10%, Input: 150 - 280 Volts.
19. The unit should be (3 x 2) x 2 or (2 x 2) x 3 format.

**Item Sl. No. 151**

**Rotary Microtome**

Rotary microtome complete with standard accessories e.g. disposable blade holder, specimen clamp, tool kit operating manual

1. High precision machine suitable for both delicate as well as hard tissue sectioning
2. Section thickness settings 1-60  $\mu\text{m}$  with settings in 1, 2, 5 increment at different levels
3. Specimen advance 28 mm or more
4. Vertical stroke 60 mm or more
5. Provision of step trimming
6. Adjustable specimen clamp at least 50 x 45 mm with orientation in X-Y axis
7. Single disposable blade holder for accommodating both high and low profile blades
8. Lateral coarse feed
9. Integrate removable section waste tray
10. Spare low and high profile blades: in dispenser pack of 5 blades each
11. Microtome knives
12. Specimen holders - Plastic (as required)
13. The equipment should conform to FDA/CE/BIS.

**Item Sl. No. 152**

**Analytical Balance**

1. Readability of minimum 0.1 mg
2. Capacity of maximum 180-200 gm
3. Linearity  $\pm 0.2$  mg
4. Repeatability 0.1 mg
5. Operating temperature 0- 45 deg C
1. 6. Pan Size ( diameter)  $\geq 80$ mm
6. Response time of 1-2 Seconds
7. Internal Calibration
8. Backlit LCD display
9. Glass shield cabinet
10. Power supply 230 V AC +/- 10% 50 Hz
11. Should be CE or FDA or BIS approved product

**Item Sl. No. 153**

**X-RAY VIEWING SYSTEM**

1. Panel Side by Side X-Ray View Box Illuminators; High quality with aesthetic finish.
2. Should have the following Standard Features:
3. LED light source (blue type) lasting several thousand hours.

4. Roller gravity film holding system
5. Durable steel construction
6. Thin 3" profile
7. Chip resistant hospital white finish
8. Continuous bottom film ledge
9. Even view reflective system, with white acrylic translucent surface.
10. Centralized cluster On/Off switching
11. Optional Features:
12. FAS – Film Activated Switching
13. MS - Master Switch
14. HGP - Hospital Grade Plug Specs: Surface Wall Mount 3 Panels Side by Side 56" x 17" Viewing Area.
15. Overall Dimensions approx: 56" (L) 21" (H) 3 3/8" (D) (approx.)
16. Illumination: 2000 cd/m<sup>2</sup>
17. It should be aesthetic and high quality, thin type and mountable on wall.
18. Power Supply
19. Power input to be 220-240VAC, 50Hz.

### **Item Sl. No. 154**

#### **Water Purifications System**

- A. Ultra-pure Water System: - Water quality required for Molecular biology, Tissue culture/HPLC applications. The system should contain pre filtration unit, Type 2 RO filtration equipment, Reservoir 50 L and Type 1 filtration equipment.
- B. Pre filter Unit:
  1. A Regenerable pretreatment unit for removing hardness, iron, manganese, organics and coarse particles
  2. Motor and booster pump for feed pressure.
  3. R O grade water system
  4. Prefilter with anti-scaling and activated carbon reverse osmosis
  5. Conductivity cell after RO membrane to check health of RO membrane.
  6. Feed water handling of conductivity up to 2000 microns/cm.
- C. TYPE 2 RO Stage Water Quality:
  1. Flow rate: 15-20 L/hr
  2. Organic ion removal up to 99%
  3. Resistivity: 5-15 cm.,
  1. 4. TOC < 30 ppb,
  4. Colloidal index SDI < 3
  5. Feed water pressure bar: 0 -5
  6. Reservoir of 50 L capacity.
  7. Electrical feed voltage 90 – 230 V ± 10%
  8. One pair of extra cartridge.
- D. Ultra-pure water machine producing water of the following quality:

1. Output/flow rate up to: 1.5 to 2 litre/min.
  2. Conductivity of 0.055 microns/cm
  3. Resistivity of 18.2 mega ohm. Cm
  4. Bacteria cfu/ml < 1
  5. Particles: <1/ml
  6. TOC :< 5 ppb
  7. Endo toxin:< 0.001EU/ml
- E. Should be FDA or CE or BIS approved product
- F. Accessories: One complete set for additional filters

### **Item Sl. No. 155**

#### **SKELETON ARTICULATED**

- 1 **Description of Function**
  - 1.1 Mounted skeleton, one with the various parts connected in such a way as to demonstrate normal relationships and allow motion between components as in the living body.
- 2 **Technical Specifications**
  - 2.1 The articulated skeleton should be ideal for teaching the basics of human anatomy ***(Price for each set to be quoted separately)***.
    - i. Adult Male & Female - 1 set each
    - ii. Old age Male & Female - 1 set each
    - iii. Adolescent Male & Female - 1 set each
    - iv. Child Male & Female - 1 set each
    - v. Pediatric Male & Female - 1 set each
  - 2.2 It should be real skeleton of a life size human skeleton and should show all skeleton part in high details
  - 2.3 The arms, legs and skull cap should be removable for study.
  - 2.4 All of the joints, sutures, fissure, foramina and processes should be portrayed with at most accuracy/ intact.
  - 2.5 Should be supplied with 5 caster roller stand.
  - 2.6. It should be neat and clean.

- 2.7 Origin of bone should be marked & painted in RED colour and insertions should be marked and painted in BLUE colour.

**Item Sl. No. 156**

**HUMAN BONES SET DIS ARTICULATED**

1. Real skeleton of life size human bone and should show all skeleton part in high details
2. The disarticulated adult bone set should be ideal for teaching the basics of human anatomy
3. bones for hands (below wrist) and feet (below ankle) to be supplied in articulated form for easy identification
4. It should be neat and clean.

**Item Sl. No. 157**

**SLEDGE AND FREEZING MICROTOME**

- 1 Description of Function
  - 1.1 A sledge microtome where the sample is placed into a fixed holder (shuttle), which then moves backwards and forwards across a knife. Freezing microtome is used for cutting thin to semi-thin sections of fresh frozen tissue
2. Radial Cutting facility
  - a) Knife: 3 1/4" (8 cm)
  - b) Section Thickness: 5 microns and up Calibrated 5-40 microns
3. Sledge Cutting
  - a) Knife: 6 2/3" (17 cm)
  - b) Section Thickness: 0.4 microns and up Calibrated -12 microns
4. Freezer for Microtome
  - a) Temperature Range: -40°C to +100°C
  - b) Resolution: 1/2 amp (curr. readout) 0.1°C, digital display
  - c) Heat Removal: ½ liter/min. Tap water or circulating pump & tank unit
  - d) Accessories: Thermocouple microprobe
  - e) Automatic protection against overheating in case of water supply failure  
Controller can be used as an independent digital thermometer and needle microprobe should be provided for this purpose.
5. Power Supply:  
Power input to be 220-240 VAC, 50 Hz

6. Standards, Safety and Training:  
FDA/CE/ BIS approved product.

**Item Sl. No. 158**

**REFRIGERATOR (LABORATORY TYPE)**

For storing blood plasma and other blood products, vaccines, other medical or pharmaceutical supplies. Also to cool samples or specimens for preservation. For faster pull-down and recovery times, it should have a bypass refrigeration and microprocessor-based controls

Technical Specifications:

1. Laboratory refrigerator should have capacity of 300-380 Litres.
2. Temperature range from 2 deg C to 8 deg C.
3. It should have galvanized sheet steel construction, powder coated and adjustable feet.
4. No welded joint to be exposed for rusting.
5. Insulation of high-grade pressure – foam material.
6. Lockable door with tight sealing surround to prevent cold loss.
7. Automatic defrosting and condensed melt water evaporation.
8. Re-circulating air-cooling system.
9. Control panel with thermometer, main switch and temperature selection.
10. Hermetically enclosed, low noise, vibration proof/low vibration compressor.
11. Visual and a caustic signal alarm system.
12. Epoxy coated outside finish and GS interior.
13. Low noise, automatic defrosting, CFC free & HCFC free.
14. Should be CFC free.
15. Digital temperature display should be provided.
16. Power input to be 220-240 VAC, 50Hz.
17. Should be CE or FDA or BIS approved product

## **Item Sl. No. 159**

### **Centrifuge Machine (Table top centrifuge)**

#### **1 Description of Function**

- 1.1 Centrifuges are required in the Laboratory to separate various components of Blood and any other liquid sample for analysis

#### **2 Operational Requirements**

- 2.1 Aerodynamic compact construction for vibration free performance
- 2.2 Table top version

#### **3 Technical Specifications**

- 3.1 Tube Capacity: No. 24 – 36: Size 5 – 15 ml
- 3.2 Should have a digital timer
- 3.3 Body should be made of strong fabricated & corrosion resistant steel
- 3.4 Control panel – for start/stop switch, dynamic brakes, step less speed regulator with zero start switch & speed indicator with timer and protective fuses.
- 3.5 Door interlock
- 3.6. Maintenance free brushless drive motor with exact speed pre selection and display. Speed range 300 to 6000 rpm and above, accuracy 20 to 30 rpm.

#### **4 System Configuration Accessories, spares and consumables**

- 4.1 Centrifuge complete with Swig and basic rotors and four buckets- 01 set.
- 4.2 Tube Holders as appropriate

#### **5 Environmental factors**

- 5.1 The unit shall be capable of operating continuously in ambient temperature of 10 -40 deg C and relative humidity of 15-90%
- 5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 - 50 deg C and relative humidity of 15-90%

#### **6 Power Supply**

- 6.1 Power input to be 220-240 VAC, 50 Hz as appropriate fitted with Indian plug
- 6.2 Voltage corrector/stabilizer of appropriate ratings meeting ISI Specifications.( Input 160- 260 V and output 220-240 V and 50 Hz)

#### **7 Standards, Safety and Training**

- 7.1 The supplier should be ISO certified for quality standards.
- 7.2 Should be FDA/ CE/UL/ BIS approved product
- 7.3 Should comply with IEC/TR 61010-3-020: Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 3-020: Conformity verification report for IEC 61010-2-020:1992 Particular requirements for laboratory centrifuges

**Item Sl. No. 160****Laminar Airflow****1. Description of Function**

- 1.1 Laminar Airflow is required to make available an environment whose air supply is free of bacteria, fungi, pollen, and practically all air-borne dirt.

**2. Operational Requirements**

- 2.1 The basic equipment shall consist of a HEPA filter, pre filter, suitable blower assembly, necessary lighting, indicators and controls for the cabinet. The equipment should be mounted on a stand with levelling feet.

**3 Technical Specifications**

- 3.1 Type of Flow: Vertical or Horizontal
- 3.2 HEPA FILTER: Face dimensions: 4ft (L) X 2ft (W) X 6 ft  
The HEPA filter should have rated efficiency of 99.97% (or better) at 0.3 microns to provide product protection of Class 100 or exceeding Class 100 requirements of Federal Standards 209E or equivalent ISO within the work. Area
- 3.3 PRE Filter with Synthetic, non-woven polyester fibers having casing of enamel painted CRCA frame with Retention of 10 - 15 Micron and 90 % Efficiency. Washable with an arrestance of 90% or better
- 3.4. Material of construction: Main body and rear panel: Electro-galvanized steel or Mild Steel, oven baked epoxy powder coated finish. Side window (panels): UV stabilized transparent Perspex or polycarbonate or dual metal side walls with negatively pressurized interstitial space. Work table (surface): SS304 or SS316.
- 3.5 Working area should be 24 cu ft.
- 3.6. Blower Assembly: DIDW type blower or dual brushless DC (BLDC) blower system with high RPM motor, enclosed in a powder coated MS casing suitably suspended in a pair springs & connected to the filter chamber through flexible canvas duct or metal blower plenum.
- 3.7 Front Windows Acrylic, fixed by clamps.
- 3.8 Illumination with Fluorescent tubes with diffusers. Light Intensity at Work Surface: 800-1000 lux/75-90 foot candles
- 3.9 Laminar Airflow Velocity: Approx. 90 feet per minute (fpm) +/-10% average velocity measured 50 mm from the filter face. Uniformity +/-20% of average or better.
- 3.10 Additional Requirement: Vibration free Gas burner facility on working bench .Air pressure indicator with manometer (Differential Pressure Gauge with Scale display in cms of water).Drain valve with smooth drainage arrangement. Exhaust ducting as per site requirement
- 3.11 Noise level
- 3.12 UV Germicidal lamp intensity >40 microwatt/sq. cm. over the entire work surface
- 3.13 Switched and indicators: Individual switches and indicator lamps for blower motor, florescent lamp and UV lamp.

**4 System Configuration Accessories, spares and consumables**

- 4.1 System as specified-
- 4.2 Spare HEPA Filters and PRE Filters- 2 SETS EACH
- 4.3 Other fitting required for attaching auxiliary services are

1. Electrical outlet socket (5 ampere rating) qty: 2 nos.
2. Valves for gas service-one each for gas and vacuum.

#### **5. Standards**

- 5.1 Should be CE or FDA or BIS approved product

### **Item Sl. No. 161**

### **DEEP FREEZER (-80° C)**

TYPE: Upright

INTERNAL DIMENSION: 55" x 35" x 25" Approx.

EXTERNAL DIMENSION: 78" x 42" x 35" Approx.

CAPACITY: 700 – 750 Litres.

OPERATING TEMPERATURE: Programmable –50°C up to –86°C with 1°C increment.

ELECTRIC SUPPLY: 220 V/50 Hz, 16 Amps. Single phase

- 1) Fully programmable microprocessor controlled with membrane keypad and eye level control panel.
- 2) Construction should be of thin vacuum insulation panel.
- 3) System should have Stainless steel interior and tough, powder coated exterior finish.
- 4) Freezer should have 3 or more Compartment with two or more adjustable height stainless steel shelves.
- 5) Freezer should have the sample (2" vials) capacity of 50,000 or more.
- 6) Freezers should have heated air vent and front panel air filter.
- 7) Freezer should be quoted with CO2 Backup along with CO2 cylinder.
- 8) Heavy duty lockable castors and lockable outer doors.
- 9) Freezer must have battery back - up and set point security through password protection for preventing unauthorized tampering.
- 10) Freezer must have interface data logging port and it must also have on board diagnostic software
- 11) Freezer must have three or more compartments with inner doors for easy handling of samples.
- 12) Audible and visible alarms for temperature, power failure, system failure, battery low etc. and it also have remote alarm port for connection to an auto dialer.
- 13) Freezer must use CFC-FREE, HCFC-FREE nonflammable refrigerants, and refrigeration system must be energy efficient and hermetically sealed cascade refrigeration system.
- 14) External or internal voltage stabilizer should be provided so that Compressor should be capable to run any voltage between 190 – 270V. Manufacturing site for the freezer must have ISO 9001 standard quality test requirements and IEC 61010 electrical safety. The unit should be CE or UL certified.
- 15) Freezer should be supplied with 5 KVA voltage stabilizer.
- 16) Should be CE or FDA or BIS approved product

**Item Sl. No. 162**

**PARAFFIN EMBEDDING SYSTEM**

**A Technical Specifications**

1. Should have single module design.
2. Electronically controlled for dependability and performance.
3. The heating function should be controlled by accurate digital thermostat
4. Low and flat work-surface to facilitate operator efficiency.
5. User friendly membrane switches.
6. 4-liter capacity paraffin reservoir which minimizes refilling frequency.
7. Forceps warmer and illuminated paraffin dispenser.
8. Warming oven with removable shelf and double hinged lid for convenient access to preheated base mould.
9. Wax bath complete with drainage shelf, debris screen, and hinged lid.
10. Heated work area which provides a flat working surface with the excess paraffin draining under the surface into the wax bath; complete with a hand and foot switch for activating the dispensing head.
11. Bright illuminations for convenient working.
12. The cold plate should have 170 sq. in. (1100 cm<sup>2</sup>) of efficient refrigerated cooled working surface with removable stainless steel drainage tray beneath.
13. Tactile membrane touch-pad for easy temperature setting and monitoring.
14. Height of Work Surface: Work stage 2.75"(7cm) above countertop
15. Wax Reservoir Dimension (approx.): .75"(L) x 4.75"(W) x 4"(D) (19.5 x 12 x 9.5 cm)
16. Wax Bath Dimension (Approx.): 10.25"(L) x 8.5"(W) x 1.75"(D) (26 x 21.5 x 4 cm)
17. Warming Oven Dimension (approx.): 6.5"(L) x 7.5"(W) x min 2.5" max 6" (14 - 16.5 cm)
18. Cold Plate Dimension (Approx.): 11.75"(L) x 14.5"(W) (29.5 x 36.6 cm)

**B Temp Ranges:**

1. Wax Reservoirs: 40° - 70°C +/-2°C
2. Work Surface: 40° - 70°C +/-5°C
3. Wax Bath: 40° - 70°C +/-2°C
4. Cold Plate working surface: ambient to -5°C

**C Accessories, spares and consumables**

1. Spare Bulb - 3
2. Thermostats - 1
3. Power input to be 220-240VAC, 50Hz

**D Standards, Safety and Training**

1. CE or BIS approved product.

**Item Sl. No. 163**

**PLASTINATION EQUIPMENT**

1. Silicone plastination, impregnation, sheet plastination kit with high quality stainless steel sheet drums/basket/barrels with a capacity of 40 ltrs – 130 ltrs
2. Plastination kettle of high quality glass cover capacity 40 ltrs-130 ltrs, with vacuum tubing, vacuum pump and connecting high pressure pipe with manometer along with acetometer; water bath tanks with customized acetone distillation unit.
3. Silicone infiltration machine with a pressure 390 kg-450 kg, vacuum pump with pressure 2 m<sup>3</sup>/h-18 m<sup>3</sup>/h.
4. Accessories like blinder clips, positioning wires, stainless steel clamps, grinding machine compatible with system.
5. Machines / equipment shall work at 220-240 V.
6. Installation of equipment /training / trouble shooting/AMC/CMC and availability of 24 hrs helpline and spare with consumables to be ensured at site.
7. Each Institute will send 2 faculty members for training in Plastination technology /training /methodology. The cost to be inclusive.
8. Should be CE or FDA or BIS approved product

**Item Sl. No. 164**

**HANDHELD PARTICLE COUNTERS**

**1. Description of Function**

- 1.1 Handheld unit for particle counting

**2. Operational Requirements**

- 2.1 The instrument should size and count the particles using laser optics
- 2.2 Should display both cumulative and differential particle count data as well as Temperature/Relative Humidity data on its easy to read LCD / touch Screen

**3. Technical Specifications**

- 3.1 Range: Up to 3 million particles per cubic foot
- 3.2 Particle Size Selection: Anywhere from 0.3 to 5.0  $\mu\text{m}$  in 0.1  $\mu\text{m}$  increments
- 3.3 The unit should operate at a constant flow rate of 2.83LPM
- 3.4 Instrument must have two channels for simultaneous display of user selectable two particle sizes
- 3.5 Large LCD / touch screen display
- 3.6 Complete control of the unit should be possible through keypad
- 3.7 Online printing capability should be provided
- 3.8 Data storage of up to 4,000 records

- 3.9 RS232/USB/RS485 output for Printer, PC connectivity and Data acquisition with selectable baud rate options should be there.
- 3.10 The supplied software must enable remote operation, create data files, and export the files to EXCEL and other spreadsheets
- 3.11 Weight: Less than 1 kg.

#### **4 System Configuration Accessories, spares and consumables**

- 4.1 System as specified-
- 4.2 Accessories should include:
- Removable Li-Ion battery
  - Purge Filter
  - Temperature/Humidity Probe
  - Software & cable
- 4.3 All consumables required for installation and standardization of system to be given free of cost.

#### **5 Environmental factors**

- 5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
- 5.2 The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of less than 70%

#### **6 Power Supply**

- 6.1 Rechargeable battery operated system. Charger to be provided if integrated

#### **7 Standards, Safety and Training**

- 7.1 Should be FDA or CE or BIS approved product
- 7.2 Manufacturer/Supplier should have ISO certification for quality standards.
- 7.3 Data Reported in Normalized Counts, FS-209E, ISO-14644-1 or EC GMP

#### **Item Sl. No. 165**

SI NO.	<b><u>Orbital Shaking Incubator</u></b>
	Specifications:
<b>1</b>	Double walled inner chamber.
<b>2</b>	PUF insulation between two walls
<b>3</b>	Heavy angle frame structure from all sides

4	Corrosion resistant stainless steel chambers
5	Front loading glass door
6	Shaking assembly electric pulley mechanism/ triple eccentric drive system
7	Universal tray to hold various spring clamps.
8	Clamps to be provided for 2L, 1L, 500 ml, 250 ml and 100 ml flasks – 2 nos of each size
9	RPM 50 to 400 RPM controlled by regulator
10	RPM Indicator in digital display
11	Stroke 25 to 30 mm stroke displacement
12	Temperature range : Ambient +5°C to 60°C or more
13	Stability : $\pm 0.1^\circ\text{C}$ or less
14	Increment : $\pm 1^\circ\text{C}$ or less
15	Uniform temperature maintenance
16	Should have over temperature safety feature
17	Illumination light to view.
18	Digital timer with audio visual alarm
19	To be provided with UV lamp.
20	Should be able to retain parameters during power failure and restarts unit automatically
21	Operable at 220 volts
22	Should be European CE or USFDA approved product

**Item Sl. No. 166**

**ORBITAL SHAKER**

1. Should have an temperature Range: 15° C below ambient to 80° C
2. 2. Should have an temperature accuracy: +/- 1° C
3. Unit should be stackable
4. There should not be limitation of shaking speed in the stackable unit.
5. Inner chamber should be made of stainless steel.

6. Shaking speed: Should be between 50-400 rpm or more with a speed accuracy of +/- 1 rpm
7. Timer range of shaking should be 0.1 hr to 999 hr or 0.1 min. to 999 min.
8. Shaking diameter should be adjustable between 10-50 mm on the same platform.
9. It should be belt driven or Triple eccentric drive or with magnetic drive based on permanent magnets
10. Auto stop on door opening and automatic restart resumption after failure.
11. There should be internal lighting in the chamber to view the samples.
12. It should be supported by software for programming calibration for different parameters and should also record the deviation of all the parameters.
13. The machine should automatically switch off in case of fault.
14. Should have international quality control certification.
15. Unit should be quoted with one full size Universal platform (capacity 15-25 flask of 250 ml) to hold all sizes of clamps (up to 5 liters Flask).
16. Accessories: At least 5 clamps each for 100 ml or 125 ml, 250 ml, 500 ml and 1000 ml flasks
17. Should be CE or BIS approved product

### **Item Sl. No. 167**

#### **GRADIENT PCR MACHINE**

1. 96-well 0.2 ml tube block format
2. Heated lid (at least 105° C)
3. Temperature range 4-99° C
4. Temperature accuracy better than 0.1 - 0.3° C
5. Temperature uniformity across the block better than 0.2 - 0.5° C
6. Sample temperature ramp rate (cooling/heating) better than 1 - 3° C
7. Capable of incrementing/decrementing temperature and time at each cycle
8. Gradient temperature range at least 40-75° C
9. Inbuilt LCD colour display or attached computer to display and set parameters
10. At least 200 protocol memory on board, storage extendibility by USB memory stick.
11. Should be FDA or CE approved product

**Item Sl. No. 168**

**VERTICAL GEL ELECTROPHORESIS**

Twin-plate mini gel unit with tank cooling device, built-in cooling coil and quick-fit tubing, lid, plain and notched glass plates, spacers, spacer aligners, dummy plate and combs

**A. TECHNICAL SPECIFICATION**

1. Unit Dimensions (W x D x H) should be approximately : 28 x 15 x 18 cm
2. Plate Dimensions (W x H x T) should be approximately: 10 x 10 x 0.2 cm
3. Spacer thickness should be approximately : 0.1 cm
4. Running Conditions for Denaturing/Native PAGE Gel
5. Voltage : 100 - 150 V
6. Current : 10 - 15 mA

**B. Power pack**

Technical specifications:

1. Type of Output : Constant Voltage/ Constant Current
2. Output Voltage (V) : 0 - 500 V
3. Output Current (mA) : 0 - 500 mA
4. Maximum Power (W) : At least 250 W
5. Number of Output : atleast 4
6. Voltage Setting Resolution : 1 V
7. Current Setting Resolution : 1 mA
8. Display for Voltage : at least 3 Digit
9. Display for Current : at least 3 Digit
10. Timer : 1 min to 999 min
11. Input Supply : 230 V AC  $\pm$  10%
12. Max Operating Temperature : ambient to 45° C
13. Weight :  $\leq$  3 Kg
14. Should be FDA or CE or BIS approved product

**Item Sl. No. 169**

**ELECTROLYTE ANALYZER**

1. The Analyser should have option to measure Blood/Serum/Plasma/Urine
1. The Analyser should be able to measure Na, K, Cl and Expandable to Ca and Li

2. Should have Integrated Pack to avoid Wastage Handling
3. Should have more than 800 Samples results Storage or more
4. Sample volume should be less Than 120 ul
5. Should have economy mode to save Reagents Consumption
6. Should have In-Built Thermal Printer
7. Should have option to feed Patient Name and Patient ID.
8. Should have Barcode Scanner
9. Suitable UPS with maintenance free batteries of minimum one hour back up should be supplied with the systems.
10. Should be FDA or CE or BIS approved product

**Item Sl. No. 170**

**RANDOM ACCESS HIGH THROUGHPUT FULLY AUTOMATED CLINICAL  
CHEMISTRY ANALYSER**

1. SYSTEM: Floor Model, Completely Open, Discreet, Multi-channel, Random Access, With automatic rerun, automatic reflex testing and capable of performing tests like Enzymes, substrates, Serum Proteins, Electrolytes, TDM assays and Immuno-turbidimetric etc.
2. THROUGH PUT: About 1000 Photometric tests/Hour and about 1500 Tests /Hour with ISE.
3. ASSAY MODES: End point, Rate, fixed point and ISE.
4. Analytical Methods: Colorimetric, turbidometry, latex agglutination, homogeneous EIA, ISE.
5. SAMPLE LOADING: Minimum of 80 sample positions with continuous Loading. Bar code reading Facility for positive sample identification, real time test requisition downloading from host should be possible.
6. Cooled compartment for Standards and Controls.
7. SAMPLE CUPS: Primary and secondary tubes and pediatric cups
8. SAMPLE TYPES: Plasma, Urine, Serum, CSF etc..

9. STAT FACILITY: Facility for continuous loading of stat samples without interrupting the routine run. Minimum 50 STAT sample positions for very urgent samples.
10. SAMPLE VOLUME: 2.0-30 microlitres in 1.0 micro litre increment.
11. SAMPLE PROBE: Probe liquid level sensor .Sample clot detection and crash prevention facility should be available.
12. REAGENT DISK: Two Refrigerated reagent disks with 50 positions for R1 and 40 positions for R2.
13. ON-BOARD PARAMETERS TESTS: Minimum 50 photometric tests + 3 ISE (Na, K, Cl).
14. REACTION VOLUME: Volume should not be more than 300 $\mu$ l.
15. REAGENT PROBE: Two reagent Probes liquid level sensors and washing facility. Probe crash detection should be available.
16. STIRRER: More than 2 on board variable speed stirrers should be available.
17. CUVETTES: may be reusable, permanent or Disposable, specify recurring cost if any
18. CUVETTE WASHING: Automatic on-board washing.
19. PHOTOMETER: Wavelength ranging from 300 - 800 nm.
20. LAMP SOURCE: Halogen / Xenon Lamp/ tungsten
21. QUALITY CONTROL: Real Time, Individual and cumulative quality control. Automatic QC Programming required.
22. Water Plant: Compatible RO plant to be supplied of supplying min 40 ltrs/ hr
23. SOFTWARE: Window XP or compatible.
24. DATA STORAGE: 75,000 patient samples.
25. INTER FACE: Unidirectional and Bidirectional communication possible.
26. REAGENTS: Manufacturing Company if have their own system reagents, controls and calibrators and the price list for the same should be enclosed with the price bid
27. Accessories, reagents calibrator and control: company shall provide a list of accessories reagents calibrator and control to be use for running the instrument.
28. FDA/ CE: The equipment to be supplied should have FDA / CE certification and should have minimum 5 installations in reputed Institutes/labs in India.

**Item Sl. No. 171**

**LAMINAR AIRFLOW FOR PCR**

1. Vertical Laminar Flow Bench with stainless steel table top, UV Light, polycarbonate door, gas cock, manometer.
2. Vertical ultra clean air flow at 90 +/- 20 rpm.
3. Front with foldable polycarbonate door.
4. Size of working table: 3' X 2' X 2'
5. Perspex sheet side panels.
6. Efficiency of ultra clean air down to 0.3 micron is 99.97%
7. Conforms to air cleanliness tests as per article 5.1 of U.S. Federal standard 209-B (class 100).
8. Heavy duty and continuous use Blower Assembly with ¼ H.P Motor, 50 Hz lph Max. 1375 RPM to deliver air at 550 CFM (approx.).
9. CABINET:
  - a. All wood and Mild Steel heavy gauges P.C.R.C. sheet, and mild steel sections welded at the ends to ensure leak free operation, all the joints are filled with steel filled "M" seal to gap any possible leaks.
  - b. Inside painted with synthetic Enamel Paint and outside with fine automotive finish.
  - c. Provision of electrical points within the chamber.
10. WORK TABLE: Made of stainless steel.
11. ILLUMINATION: 230 V, AC, 50 Hz Fluorescent tube lights.
12. CONTROLS:
  - a. Independent switches for laminar & capacity of UV light.
  - b. Drawer with key & 5/15 Amp. Socket.
13. Should be FDA or CE or BIS approved product

**Item Sl. No. 172**

**ULTRA CENTRIFUGE**

1. Maximum Speed: 100,000 rpm or more.
2. Speed control Accuracy:  $\pm 10$  rpm.
3. Maximum RCF: 802,000 g (Approx.)
4. Maximum Capacity: 1.5 litre
5. Tube volume range: 1.5 ml – 250 ml
6. Set Temperature: 0 to 40° C
7. Ambient Temperature 10 to 35° C
8. Cooling system: CFC & HCFC free
9. Acceleration / Deceleration Profile: 10/10 or more
10. Programmability: 20 or more with step run facility
11. Power: 210-240 VAC, 50 Hz, 30 A.
12. Machine should have features like eye-balancing of samples, delayed start/ stop, dual display of 'Run' & 'Set' parameters, data entry through key pad & touch pad, RPM/RCF mode, Rotor Life Management etc.
13. Machine should accept rotors of other makes.
14. Fixed Angle Rotors of titanium/carbon with 8 places of 6.5 ml (100,000 rpm, 802,000xg) & of carbon Fibre/titanium with 6 places of 13.5 ml (65,000 rpm, 324,000xg) & of carbon Fibre /titanium with 24 places of 1.5ml (50,000 rpm, 280,000xg)
15. Vertical rotor of Titanium with 8 places of 6 ml (70,000 rpm, 467,000 xg)
16. Top-loading Swing bucket rotor Titanium make with 6 places of 36 ml (30,000 rpm, 167,000xg)
17. Should be FDA or CE or BIS approved product

**Item Sl. No. 173**

**CELL COUNTER AND SIZER**

Versatile Dual cell and Particle counter

1. Mercury free.
2. Should not be hand held.

3. Absolute cell counts or concentration.
4. The system should be perfect for quick and accurate counting and sizing of particles as various as Blood cells (RBC, WBC, platelets), and tissue culture cells, spermatozoa, suspensions, etc.
5. Fully automated, easy to calibrate, simple to use by means of a user friendly remote pad including few, but clear, keys and data LCD display.
6. The lower & upper thresholds should be easily set in size or volume units and the results given in absolute count above the set upper and lower threshold, or between the two thresholds.
7. In addition to counting, the size distribution should be given in 64, 128 or 256 channels. Absolute count can be edited for each single channel or cumulated between cursors.
8. Software should include size distribution statistics, data archiving, size trend analysis, result overlays, average graph and table, cell type.
9. Automatic run and average of up to 10 replicates.
10. Analysis parameters should be either automatically set or operator selectable size settings.
11. Store upto 5 analyses settings.
12. Measurement range  $\leq 1$  to  $\geq 120$  micron overall range and  $\leq 1$  to  $\geq 60$  microns for ampoule insertable aperture tubes.
13. Aperture Tube – std 5 sizes between 50 – 200 microns each separated by at least 20 microns.
14. Ampoule insertable 50, 70, 100 microns.
15. Individual aperture working size range  $\leq 2$  to  $\geq 60\%$  of aperture diameter.
16. Metered volumes 100, 500, 1000 $\mu$ l at least should be available.
17. HP laser colour Jet Printer with cable, computer flat screen, compatible software, PC, CPU, keyboard.
18. Colour and refractive index should not affect results.
19. Should be FDA or CE or BIS approved product

### **Item Sl. No. 174**

### **VERTICAL LAMINAR AIRFLOW HOOD FOR CELL CULTURE**

1. Dimension of the system (W x D x H mm )
  - Inner dimension: 1200 X 600 X 650 mm
  - Outer dimension: 1320 X 905 X 1900 mm
2. Should have an approximate air volume capacity of 1350m<sup>3</sup>/h

3. Should have microprocessor controlled electronic circuitry
4. Should have LCD display to shown measured parameters like Stage velocity, total using time, UV/FL lamp on/off
5. The air purification should be done through class 100 HEPA filter, with 99.97%, 0.3 um particle removal
6. Should have a pre-filter of 3-30 um particle removal, and it should be recyclable
7. The cabinet should give class 100 purity
8. Should have an wind velocity of 0.35-0.50 m/sec
9. Should have UV lamp 40 w x 2 EA, FL lamp 40 w x 2 EA
10. Material of construction  
Inner - Stainless steel  
Outer - Powder coated steel
11. Door should be made of tempered safety glass sliding door or glass wind screen
12. Utility device - air cock, gas cock
13. Electricity Supply - 220 V, 50/60 Hz
14. Ensure noiseless operation and anti-vibration construction provides efficient working environment.
15. Filter replacement warning signal.
16. Should be FDA or CE or BIS approved product

**Item Sl. No. 175**

**RANDOM ACCESS SMALL THROUGH PUT FULLY AUTOMATED CLINICAL  
CHEMISTRY ANALYSER**

1. SYSTEM: Floor/Bench top Model, Completely Open, Discreet, Multi-channel, Random Access, With automatic rerun, automatic reflex testing and capable of performing tests like Enzymes, substrates, Serum Proteins, Electrolytes, TDM assays and Immunoturbidimetric etc.

2. THROUGH PUT: About 400 Photometric tests/Hour and about 600 Tests /Hour with ISE.
3. ASSAY MODES: End point, Rate, fixed point and ISE.
4. Analytical Methods: Colorimetry, turbidometry, latex agglutination, homogeneous, ISE.
5. SAMPLE LOADING: Minimum of 50 sample positions with continuous Loading .Bar code reading facility for positive sample identification, real time test requisition downloading from host should be possible.
6. Cooled compartment for Standards and Controls.
7. SAMPLE CUPS: Primary and secondary tubes and paediatric cups.
8. SAMPLE TYPES: Plasma, Urine, Serum, CSF etc.
9. STAT FACILITY: Facility for continuous loading of stat samples without interrupting the routine run. Minimum 20 STAT sample positions for very urgent samples.
10. SAMPLE VOLUME: 2 to 30 micro litres in 1.0 micro litre increment
11. SAMPLE PROBE: Probe liquid level sensor. Sample/Reagent Bubble & clot detection. Crash prevention facility should be available.
12. REAGENT DISK: Refrigerated reagent disk with minimum 50 positions.
13. ON-BOARD PARAMETERS TESTS: Minimum 50 on-board parameters tests.
14. REACTION VOLUME: Should be from 150 ul to 300 ul.
15. REAGENT PROBE: Probe with liquid level sensors and washing facility. Probe crash detection should be available.
16. STIRRER: 2 or more on board variable speed stirrers should be available
17. CUVETTES: may be reusable, permanent or Disposable, specify recurring cost, if any.
18. CUVETTE WASHING: Automatic on-board washing.
19. PHOTOMETER: Wavelength ranging from 340 - 750 nm
20. LAMP SOURCE: Halogen / Xenon Lamp.
21. QUALITY CONTROL: Real Time, Individual and cumulative quality control. Automatic QC programming required.
22. Water Plant: Compatible RO/water purification plant to be supplied.
23. SOFTWARE: Window based software or Compatible.
24. DATA STORAGE: 50000 patient samples.
25. INTER FACE: Unidirectional and Bidirectional communication possible.

26. REAGENTS: Manufacturing Company if have their own system reagents, controls and calibrators and the price list for the same should be enclosed with the price bid
27. Accessories, reagents calibrator and control: company shall provide a list of accessories reagents calibrator and control to be used for running the instrument.
28. The equipment to be supplied should have US FDA or European CE certification.
29. Suitable On-line UPS with one hour backup.

**Item Sl. No. 176**

**LYOPHILIZER**

1. System should be compact, bench-top.
2. The system should have Microprocessor Controlled LCD system.
3. The Programmable controlled temperature.
4. Automatic defrosting system for ice condenser when necessary.
5. The system should have Vacuum Control / Break Valve.
6. The system should have Hot Gas defrosts and switch.
7. The refrigerant type should be CFC free.
8. The condenser capacity should be minimum 3.5 litres.
9. Stoppering should be top down pneumatic.
10. Preferably double compressor.
11. Should be CE or BIS approved product

**Item Sl. No. 177**

**WESTERN BLOT APPARATUS WITH COMPATIBLE POWER PACK**

**A Gel transfer apparatus:**

1. Compact system to transfer proteins efficiently in less time from polyacrylamide gels onto the nitrocellulose or PVDF membrane. Should provide with the gel transfer stacks, to place on top and bottom of the gel.
2. Apparatus should be impervious to alcohol, alkali and acid.
3. Should be provided with compatible power pack with leads

**B Gel transfer apparatus**

1. Dimensions: Should not be greater than 40 cm (l) x 20 cm (w) x 15 cm (h)
2. Weight:  $\leq 2.5$  kg
3. Features: Suitable for transfer of mini (8x8 cm) as well as medi (8x13 cm) gel
4. Operating temperature: 4-40° C

**C Membrane processing device for western blot:**

The device should be fully automated and fast for processing of routine western immune detection steps. The device should allow processing of at least two membranes in parallel with required reagent sets. The device should have digital program display.

**D Instrument specifications**

1. Input power: 220-250 V
2. Operating temperature: 4-40° C
3. Dimensions: Not greater than 20"(w) x25"(d) x15"(h)
4. Features: Digital display, LED light
5. Membrane size: Suitable for mini blot (8.5x8.5 cm)

E Should be FDA or CE or BIS approved product

**Item Sl. No. 178****TOP LOADING BALANCE**

1. Readability: 0.01 gm
2. Capacity: upto 500 gm
3. Linearity: + /- 0.02 gm
4. Repeatability : 0.01gm
5. Operating temperature: 0- 45°C
6. Pan Size ( diameter ): 100 - 110 mm
7. Response time: 1 - 3 Seconds
8. Calibration: External

9. Display: Backlit LCD display
10. Power supply: 220 – 230 V AC +/- 10% 50 Hz
11. Should be FDA or CE or BIS approved product

### **Item Sl. No. 179**

#### **Analytical Weighing Scale**

##### **A. Description of Function**

Electronic Balance is required for precision weighing of Lab samples.

##### **B. Operational Requirements**

1. Microprocessor based single pan Analytical Balance with High accuracy & precision is required.
2. Reading of the weight by digital display.
3. Electronic top loading balance with transparent case

##### **C. Technical Specifications**

1. Weigh accurately up to 3rd decimal place.
2. Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself
3. Auto zero Setting
4. Weighing capacity up to 200g
5. Readability 0.001g
6. Repeatability 1mg or less
7. Setting time 1.5 second
8. Balance should have:
9. Liquid Crystal Display (LCD) for display
10. Stainless steel square weighing pan
11. IR sensors for hands free operation warns if balance is not correctly leveled
12. automatic and detachable draft shield
13. Detachable and adjustable terminal
14. including user administration and password protection
15. Integrated automatic safety function for external routine operations
16. Alphanumeric data entry of 4 ID"s

##### **D. Power Supply**

1. Power input to be 220-240VAC, 50Hz.
2. Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
3. Resettable over current breaker shall be fitted for protection

##### **E. Standards and Safety**

1. System should be US FDA or European CE approved.

**Item Sl. No. 180**

**Microbiological Autoclave (Horizontal)**

Single door, horizontal Rectangular High Pressure Microprocessor Controlled Microbiological Sterilizer.

Fully automatic, Steam jacketed suitable for operation on electricity.

Should have pre-selected programs and at least five variable program slot which should be adjustable as per our requirements

The unit should have third party certification for all the below given standards.

CE or FDA or BIS

Chamber Capacity: 100 - 120 liters

The working temperature range of 110 °C - 134°C and user should be able to set the desired sterilization temperature and sterilization time (10 minutes onwards) in the increment of one unit. This required particularly sterilization of culture media special at 110°C for 10 minutes and 121°C for 20 minutes.

The "Chamber, Jacket, door and all process pipes should be made of AISI 316L or Higher Quality"

The unit should have automatic sliding door with safety features.

Front and side panels should be made up of AISI 304.

The chamber should be supplied with two rails made up of AISI 316 for easy loading and unloading. A long steel handle should also be supplied to pull out hot sterilization carriage.

Pull out trays/ Tanks (2 pieces), floor loading carts and transfer carriages should be made up of AISI 316. Pull out tray/Tank in the chamber should have raised edges to protect against solution spillage during sterilization

The provision of locking the trolley as well as the carriage should be present

Loading cart should have a coupling system for connecting and disconnecting with the loading and unloading system of sterilizer

The digital display at front panel will show the following parameters:

Chamber temperature

Cycle no.

Batch no.

Time & Date

Alarm indicator

Error code

Low water indicator

"Inbuilt boiler made of AISI 316 or higher quality with low water protection system and automatic salt removal system"

"Inbuilt or External Printer to record dates, time, load, identification no. and operating parameters i.e. temperature and holding time etc."

Compatible Water softener / RO based water purification system to feed autoclave

The system should be able to work at 3 phase

"Installation should be on turnkey basis. Following will be the terms and conditions:

a) Water, electrical connection cable and drain outlet will be made available by the department. The supplier shall be responsible for arranging rest of the things for installation and smooth functioning of the equipment.

### **Item Sl. No. 181**

#### **Biosafety cabinet CLASS II A**

1. The system should be microprocessor based. The microprocessor must display the inflow and down flow air velocities in real time on an LED display to ensure the user knows whether or not the cabinet is working under safe operating conditions.
2. Motor must automatically adjust the air flow speed to ensure continuous safe working condition. Air flow shall be as per requirements of Biosafety regulations in respect of at least Class II A level cabinet.
3. The cabinet noise level must be less than 65 decibel
4. Dimensions (Cabinet Size): 4 to 6 feet. The interior of the cabinet shall be of stainless steel or equivalent material and must be smooth to ensure no risk of cuts to the users.
5. Efficiency of HEPA filter should be almost 99%
6. In order to ensure consistent and reliable down flow velocity across the supply HEPA filter over the life of the cabinet, the cabinet must use a pressure sensor (rather than anemometer) to detect pressure drop across the supply filter, rather than in just one point across the down flow. The pressure sensor must be

- encased in order to protect the sensor from temperature, humidity and other environmental phenomena that can impact the sensor's performance.
7. Fluorescent lamps for lighting of the interior of the cabinet. Front of the cabinet preferably be angled to help minimize glare.
  8. A provision for UV light to disinfect the interior of the cabinet. UV light must be programmable to allow for specific exposure time from 0 to 24 hrs. Automatic UV switch „OFF“ on opening of front window. The front window should be made of laminated safety glass to protect against leakage of UV rays and to ensure containment of potential hazardous material.
  9. Safety alarm / safety display for :
    - a) Low air velocity
    - b) Faulty exhaust fan etc.
  10. Power input to be 220-240 V AC, 50 Hz fitted with Indian plug.
  11. Should meet NSF-49 standards. Should be US FDA or European CE approved.
  12. Movable/ fixed stands.
  13. Warranty should cover UPS and batteries.
  14. Calibration certificate shall be provided at the time of installation in respect of all the parameters that require calibration.
  15. Audio visual indicator to understand HEPA filter loading to be provided.
  16. Drain pan should be made of stainless steel

### **Item Sl. No. 182**

#### **Biosafety Cabinet CLASS II TYPE B2**

1. The system should be microprocessor based. The microprocessor must display the inflow and down flow air velocities in real time on an LED / LCD display to ensure the user knows whether or not the cabinet is working under safe operating conditions.
2. Motor must automatically adjust the air flow speed to ensure continuous safe working condition. Air flow shall be as per requirements of Biosafety regulations in respect of at least BSC II B level cabinet.
3. Cabinet of bio safety Class II Type B2 specification
4. Minimum internal dimensions (W x D x H) should be 900-1250 X 500-650 X 600-700 mm
5. Base stand of minimum 75 cms in height
6. Well illuminated preferably stainless work surfaces
7. Sliding window that can be opened to insert & remove larger equipment.
8. Microprocessor based controlled system to supervise operation of all cabinet functions
9. Alarm/check system to trigger in case of safety failure
10. Fluorescent lamps for lighting of the interior of the cabinet. Front of the cabinet preferably be angled to help minimize glare.
11. A provision for UV light to disinfect the interior of the cabinet. UV light must be programmable to allow for specific exposure time from 0 to 24 hrs. Automatic UV

switch "OFF" on opening of front window. The front window should be made of laminated safety glass to protect against leakage of UV rays and to ensure containment of potential hazardous material.

12. Safety alarm: Low air velocity, Faulty exhaust fan etc.
13. Electrical requirement 220-240V AC, 50Hz with Indian type plug
14. Down flow ULPA filter efficiency >99.999% at 0.1 to 0.3 microns
15. Exhaust HEPA filter efficiency >99.99% at 0.1 to 0.3 microns
16. Exhaust to the outside environment via dedicated ducting
17. Provision for gas burner fitting
18. Adjustable ergonomic lab chair supplied with the system
19. Comprehensive user`s manual with a report documenting all test procedures
20. Onsite installation and training for operating the equipment
21. Should meet NSF-49 standards. Should be US FDA or European CE approved

### **Item Sl. No. 183**

#### **Micro pipette adjustable**

- 1 Fully autoclavable
- 2 Ejector should ensure safe eject contaminated tips, positioned for perfect ergonomics
- 3 Precision in control, spring loaded tip cone
- 4 One-button operation for aspiration, dispensing and tip ejection
- 5 Volume setting automatically locks
- 6 Chemically resistant
- 7 4-digit display
- 8 Capacity: 1 – 2.5 µl, 0.5 – 10 µl, 2-20ul, 10-100 ul, 20 – 200 µl, 100- 1000 ul with Accuracy: +/- 1% for all; 1 no. each
- 9 Calibration certificate should be provided with the supply.
- 10 Disposable tips 5000 each volume.
- 11 Should be supplied with tips holder rack & pipettes stand
- 12 Should be US FDA/ European CE approved.

**Item Sl. No. 184**

**Vertical Laminar Flow Bench With Hepa Filter**

1. Dimension of the system (W x D x H mm )
2. Inner dimension: 1200 X 600 X 650 mm (approx.)
3. Outer dimension: 1320 X 905 X 1900 mm (approx.)
4. Should have an approximate air volume capacity of 1350 m<sup>3</sup>/h
5. Should have microprocessor controlled electronic circuitry
6. Should have LCD/LED display to show measured parameters like Stage velocity, total using time, UV/FL lamp on/ off, Equipment should be on castor wheel for easy movability.
7. The air purification should be done through class 100 HEPA filter, with 99.97%, 0.3 um particle removal
8. Should have a pre-filter of 3-30 um particle removal, and it should be recyclable
9. The cabinet should give class 100 purity
10. Should have an wind velocity of 0.35-0.50 m/sec
11. Should have UV lamp 40 W x 2 EA, FL lamp 40 W x 2 EA
12. Material of construction
  - a) Inner - Stainless steel
  - b) Outer - Powder coated steel
13. Door should be made of tempered safety glass sliding door or glass wind screen
14. Utility device - air cock, gas cock
15. Electricity Supply - 220 V, 50/60 Hz
16. Ensure noiseless operation and anti-vibration construction provides efficient working environment.
17. Filter replacement warning signal.
18. Should be FDA or CE approved
19. Should meet NSF-49 standards

**Item Sl. No. 185**

**Walk in Cooler (9x8x7 ft)**

- 1 Description of Function
  - 1.1 Walk in Cooler is required to store Biological product at a temperature between 2 deg to 8 deg C.
- 2 Operational Requirements
  - 2.1 To be constructed of prefabricated, modular complete with floor and ceiling panels, mounted on a flat, solid concrete base. The vaccine cold store must provide total, 24-hour, all-season reliability under all conditions for the stored materials
  - 2.2 All refrigeration machinery must be provided with 100% standby capacity, with duplicate, independent controls, pipe work, instrumentation and machinery, to provide against failure of the primary system. Automatic changeover and starting of the secondary system is to be provided, activated by thermostatic or electrical control.
  - 2.3 Recommended spare parts kits to provide normal operation, provision of a service contract covering routine and emergency maintenance requirements, and details of installation-commissioning and guarantee-period charges are each to be stated as separate items in the tender price quoted.
- 3 Technical Specifications
  - 3.1 Internal Temperature : +2 deg to +8 deg C adjustable (i) during 43 deg C continuous ambient(ii) 32 deg continuous ambient (iii) 45/05 deg C day/night cycling temperatures
  - 3.2 Fabrication: Outer and inner: PVC sheet coated (minimum thickness 70 micron), made of galvanized steel panels double wall having minimum thickness 0.6 mm each. Panel shall have minimum 100 mm insulation material as specified sandwiched between two walls. Dimensions- Internal Height of 2.4 m. Cooler Dimensions 9feetX8feet Flooring: 1st layer: 75 mm cement concrete (dimensions suitable to the size of cold room); 2nd layer: of specified insulation of suitable thickness to meet the requirement of specified performance parameter of minimum 8 hrs hold over time; and 3rd layer of 6mm (minimum) Aluminum checker plate. The floor should be capable to support load of 250 kg/m<sup>2</sup>.
  - 3.3 Insulation: CFC-Free Urethane foam or extruded polystyrene foam core bonded sandwiched between two galvanized steel sheet having minimum thickness 100 mm for WIC larger than 40 cum capacity and 80 mm for less than 40 cum capacity, density of not less than 40 kg/m<sup>3</sup> and having a thermal conductivity of 0.17 W/m<sup>2</sup>k or better for hot zone climate. The insulation should be suitable for maintaining 8 hrs hold over time at 43oC ambient temperature.
  - 3.4 Door with frame heating heavy duty lock with internal safety release, shelving system and plastic curtains on the door way. Door to cold rooms to be lockable with 100% fail-safe provision for opening from inside. Entrance door shall have an

incandescent vapor-proof light mounted on the interior of the door section. The door dimensions will be 34" to 40" (W)x72" to 80"(H). Internal ceiling-mounted tungsten filament lighting with an external switch and pilot light should be provided. The external light and light switch must be fixed to the wall of the cold room enclosure near to the entrance door. The minimum illumination level on the vertical face of the lowest shelves must be 150 lux. The lighting should be evenly distributed inside the cold room.

- 3.5 Dual Refrigeration system (100% standby) air cooled refrigeration units, split type, automating defrosting (electric or hot gas) CFC free refrigerant. Tropicalized units suitable for ambient temperature up to 45 deg C.
- 3.6 Wall mounted seven days digital thermometer of 4 digits LCD/LED Display with data logging capability of 7 days with suitable printer for report generation with remote sensor.
- 3.7 High and Low temperature alarm unit.
- 3.8 Condensing unit(s) to comprise compressor, forced air condenser, oil separator, liquid receiver to carry full charge, filter/dryer with flare connections, service and isolating stop valves, high and low pressure dial gauges and oil level sight glass.
- 3.9 Storage conditions to be maintained at + 6 deg C  $\pm$ 2 deg C continuously, control by thermostat on each cold room, condensing unit(s) fitted with high and low pressure cutouts, time-operated electric defrost control and compressor motor overloads.
- 3.10 Cold room(s) to be fitted with locally made/manufactured, running adjustable (slatted shelves will be preferred) shelves 600 mm wide at 600 mm spacing; four shelves above the ground all around the wall and intermediate shelves should be placed suitably. The total area covered by shelves should be at least 42% of the ground area. There should be a minimum 900 mm distance in between two intermediate racks, to facilitate the movement of men and material. The final drawing of the room with shelves will have to be got approved from the authorities after placement of NOA. The material of the shelves should be non corrosive medical grade stainless steel to take load of at least 20 kg/sq.foot. The top face of the lowest shelf must be mounted 200 mm above the floor. Shelving must be washable.
- 3.11 Evaporators to be forced-draught, electric-defrost, ceiling-mounted units with fitted condensate drip tray and drain connection.
- 3.12 The room should be fitted with a pressure release vent which should open and allows enough outside air to enter and rebalance any pressure difference.
- 3.13 Voltage stabilizer broad specifications: KVA Rating : As suitable. For single phase Input Voltage 160-260 V AC 50 Hz and output 220-240 V AC 50 Hz For three phase : Input Voltage 275-440 V 50 Hz ;Output : 400 V+/- 1%, 50 Hz. Three phase four wires (for more than 16.5 cum capacity cold room) Common Specs: 3-4 sec cut off and 2 minutes restart delay. Facilities for manual control of output. Arrangements for direct supply bypassing the stabilizer in case of failures, voltmeter and indicators on front panel, suitable safety and protection devices. Quick start arrangement for

bypassing restart delay The voltage stabilizers would be one but should be able to run both the working and stand by units simultaneously.

4 System Configuration Accessories, spares and consumables

4.1 System as specified-

4.2 Recommended Spare parts kit for operations should be quoted. The quote should include the following components in one kit: evaporator/condenser fan motor; Compressor: capacitor; contactor; auxiliary relay; defrost timer; dual pressure switch; thermostat; drier; control switch; fuse, automatic transformer, high pressure switch and any other recommended item.

4.3 Special I service tools for cold/freezer rooms should be quoted for refrigeration unit for non CFC refrigerant used. The quote should include: leak detector; serviceman's kit in special case (R-134a or R404 or other non CFC refrigerant), including valves, hoses and manometers; refrigerants cylinder (R-134a or R404 or other non CFC refrigerant), 12 kg; compressor oil to be used with (R-134a or R404 or other non CFC refrigerant)

5 Environmental factors

5.1 The unit shall be capable of operating continuously in ambient temperature of 5 to 45 deg. C and relative humidity of 15-90%

5.2 Complete installation to be done by the supplier inclusive of installation of stabilizer, drainage system and assembly of the panels and installation of refrigerator units, data logger, and complete earthing and smoke evacuation system, including all civil, electrical and all other related work required for installation.

6 Power Supply

6.1 Power input: 220-240V/ 50 Hz AC Single phase or 380-400V AC 50 Hz Three phase fitted with appropriate Indian plugs and sockets.

7 Standards, Safety and Training

7.1 Electrical and refrigeration components and the panels should have national or international approvals like UL/ NSF/BIS.

7.2 Should have local service facility. The service provider should have the necessary equipment recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.

7.3 All operational and maintenance training to the end users after successful installation and commissioning.

**Item Sl. No. 186**

**Dessicator Cabinets**

1. Made of clean strong 3mm thick polymethyl methacrylate resin
2. Rubber door gasket ensures airtight seal
3. Removable shelves on brackets
4. Tall cabinet height of 50 cm and depth 30cm
5. Clean tray with vent holes

**Item Sl. No. 187**

**Refrigerated centrifuge**

1. High speed refrigerated table top centrifuge, microprocessor controlled, freely programmable, spin control with LC graphic display screen (for centrifugation in angle rotors, swing out rotors and micro titer plate rotors)
2. Max speed: At least 14,000 rpm
3. Temperature: -10 to +40°C, CFC free refrigeration
4. Single knob operation (simple keypads)
5. Maintenance free, noiseless, brushless induction motor drives
6. Pre selection of run parameter in terms of RPM and RCF
7. Pre-selection of from 1 min to 99min or continues
8. Acceleration and deceleration curves – 9 each
9. Atleast 9 freely programmable Accel/Deaccl. Curves with graphic display
10. Storing of at least 5-10 run protocols
11. Free programming of all parameters
12. Self-diagnostics error messages and alarms
13. Deleted
14. Magnetic rotor identification and imbalance sensor
15. Motorized lid locks and interlocks
16. Deleted
17. Operates on 230 V/50 Hz power supply
18. Angle rotor 10 x 10 ml

19. Angle rotor 24 x 2.2/1.5 ml
20. Angle rotor 6 x 50 ml. (Falcon)
21. Adapter for 1 x 15 ml culture tubes (set of 2)
22. Swing out rotor 4 place without bucket
23. Should be US FDA or European CE approved product

**Item Sl. No. 188**

**Heating Block For PCR**

Specifications:

- 1 Safe dry heat mode blocks with modular design
- 2 Removable heating blocks
- 3 Uniform heat distribution
- 4 Chemical resistant powder coated steel body
- 5 Precise temperature control [Precision of 0.1 deg C]
- 6 Temperature control –ambient to 130 deg C
- 7 The temperature control should consist of
- 8 Digital heater unit Interchangeable heating block modules to accommodate of variety of  
sample tube size requirements
- 9 Blocks with multiple tube size 1.5 ml and 2 ml.

**Item Sl. No. 189**

**Positive Pressure Pump for Tissue Culture**

1. Positive pressure filtration pump for membrane filter of 90-100mm diameter
2. Made of S.S with stand.
3. Filter holder made of S.S with stand and able to membrane size of 90-100mm diameter
4. Should have maximum pressure 19 bar
5. Maximum differential pressure 5bar

6. Dimension: height- 16-17.5 cm, diameter 11-12.5 cm
7. Fitting inlets/outlets- 1.4 in mptf with connection supplied for 9.5mm
8. Vent/relief valve 1/8mptf
9. Should work on 220-230V AC

**Item Sl. No. 190**

**MICROBIOLOGICAL INCUBATOR (BOD )**

1. The equipment should have Microprocessor controlled temperature.
2. The system should have a temperature control range from Ambient +5°C to 70°C.
3. The heat transfer to environment at 37°C should be 40 Wh/h.
4. The equipment should have inner chamber volume of 30-50 Litres.
5. The system should have a temperature deviation of+ 0.2°C at 37°C
6. The system should have heating up time of less than 45 min to achieve 37°C.
7. The equipment should have temperature recovery time of 10 min at 37°C.
8. The equipment should have rounded edges and corners for easy cleaning.
9. Equipment should have interface for the documentation of temperature during incubation.
10. Should work on 220 volts, 50 Hz.
11. Should be FDA or CE or BIS approved product.

**Item Sl. No. 191**

**ICE flaking machine**

1. For Production & Storage of Flaked Ice directly from Tap water
2. Should have antimicrobial protection against mold, mildew and fungus
3. Large bin door for easy access
4. Stainless Steel Exterior
5. Automatic Cut off when storage Bin is full
6. Air cooled or water cooled compressor
7. Attached legs to raise ice maker and for levelling on uneven floor
8. Added Para:
9. Ice making capacity : Minimum 90 kg per 24 hours

**Item Sl. No. 192**

**Table Top Dispenser**

- 1 Routine use of fixed quantity
- 2 Extensive volume range and highly resistant to chemicals
- 3 Dispensing range from 0.1 mL to 999.9 mL
- 4 Should have PFA-sealing of the slide piston prevents jamming
- 5 It should have wiping piston design to prevents crystallization of liquid
- 6 Rapid volume setting using precise graduation scale
- 7 Easy disassembling and cleaning
- 8 Telescopic filling tube for use with most bottles

**Item Sl. No. 193**

**Ultra Sonicator**

- 1 Ultra sonicator should work on an operating frequency of 20-25 KHz
- 2 Should have an digital LCD display to display to show measured parameters
- 3 Maximum power output of the equipment should be 100 watts (Maximum)
- 4 Power supply 220 – 240 V, 50 Hz
- 5 Dimensions of the equipment should be compact (Approx. 8"X13")
- 6 Probes and accessories -
  - i Processing volume - 0.2-5 ml , 0.5-15 ml and 2-25 ml
  - ii Tip diameter - 1.6 mm, 3.2 mm, and 4.8 mm
  - iii Intensity - High
  - iv Amplitude (microns) - 320  $\mu$ m, 240  $\mu$ m , and 150  $\mu$ m
  - v Power supply - 1 KV
  - vi Accessory: Cover for the equipment
- 7 Unit should be US FDA or CE approved product.

**Item Sl. No. 194**

**Hybridization Chamber**

1. Hybridization oven with one chamber
2. Vacuum glass door.
3. Should have a temp. range from 10°C to 85°C
4. Speed 5-15 RPM variable
5. Should have platinum temperature sensor
6. Control accuracy 0.5°C.
7. Equipment should also have a shaker platform with approximate dimensions 20 x 25cm (W x D)

Accessories should include –

1. Holders
  2. 6 Large hybridization bottle
  3. 12 medium hybridization bottle
  4. 12 small hybridization bottle
  5. Should be provided with 5 packs of Nylon meshes and all other manual accessories.
- Certificate of inspection and calibration
  - Should be CE or FDA or BIS approved product

**Item Sl. No. 195**

**Refrigerated Shaker**

- 1 Microprocessor controlled with LED/LCD display; digital PID control
- 2 Should have overheating protection, buzzer alarm for temperature
- 3 Should have perforated shelves
- 4 Unit should stop automatically when opened the lid/door
- 5 Temperature range: 5°C- 60°C; with accuracy +0.5°C at 37°C
- 6 Shaking speed: 30-300 per minute;
- 7 Timer: continuous or upto 48h
- 8 Platform size approx. 450x450 mm (2 nos each for 2L, 1L, 500 mL, 100 mL flasks)
- 9 The unit should be US FDA or European CE approved.

**Item Sl. No. 196****Comparator, Nessler**

The comparator consists of a robust pocket case made of solvent and acid-resistant plastics, which accommodates a comparator disc containing a range of colour standards and two sample cells of up to 40mm light path length. Measurement is made by comparison of a sample of the test solution against a disc representing the colour range produced by known concentrations of the test material. Viewing is carried out by transmitted light which may be north daylight or from the white light cabinet available as an accessory.

**Accessories**

- White light cabinet

Artificial day light, Dimensions (l x w x h) 290 x 180 x 140mm, Electrical requirements 240V 50 Hz, Supplied with daylight correction filter.

- Portable daylight unit

Pocket-size unit only 80x60x100mm. Powered by rechargeable batteries with 'battery low' indicator.

- Nessler attachment

Accepts Nessler cylinders of up to 250mm path length, for assessment of dilute or pale coloured solutions. May be used with natural daylight or with the white light cabinet.

Dimensions l x w x h, 110 x 100 x 370mm

- Comparator discs

Sl No.	Test	Method	Range
1	Ammonia	Nessler'sreagent	0.02 to 0.2mg/ltrNH3
2	Ammonia	Nessler'sreagent	0.1 to 0.52mg/ltrNH3
3	Ammonia	Nessler'sreagent	0.56 to 1.2mg/ltrNH3
4	Ammonia	Nessler'sreagent	1.2 to 2.0mg/ltrNH3
5	Chlorine	DPD tablets	0.1 to 1.0ppm
6	Chlorine	DPD tablets	0.2 to 4.0ppm
7	Hazen scale	Colour match	5 to 70mgPt/ltr

8	Hazen scale	Colour match	70 to 250mgPt/ltr
9	Hazen scale	Colour match	0 to 30mgPt/ltr
10	Hazen scale	Colour match	30 to 70mgPt/ltr
11	Ozone	DPD tablets	0.1 to 1.0mg/ltrO <sub>3</sub>
12	Ozone	DPD tablets	0.01 to 1.10mg/ltrO <sub>3</sub>
13	Ozone	DPD tablets	0.05 to 0.45mg/ltrO <sub>3</sub>
14	Ozone	DPD tablets	0.01 to 0.3mg/ltrO <sub>3</sub>
15	pH	Thymol blue	1.2 to 2.8
16	pH	Bromophenol blue	2.8 to 4.4
17	pH	Methyl red	4.4 to 6.0
18	pH	Bromothymol blue	6 to 7.6
19	pH	Cresol red	7.2 to 8.8
20	pH	Thymol blue	8.0 to 9.6
21	pH	Universal	4.0 to 11.0
22	Swimming	DPD for chlorine	0.5 to 6.0mg/ltr
23	pools	Phenol red for pH	7.0 to 8.0pH

### **Item Sl. No. 197**

#### **Barometer - Precision, (Manual)**

1. The instrument should consist of scale, mercury –filled glass tube and Cistern.
2. Scale should be graduated in hPa (mb) and mmHg on a brass tube marking apex of ivory pointer as cardinal point and is read by the vernier in 0.1 mm graduation.
3. Measuring method –mercury column
4. Measuring range – 870 to 1090 hPa / 650 to 820 mmHg
5. Min graduation – 1 hPa/1mmHg
6. Vernier readings – 0.1hPa/0.1mmHg

7. Accuracy - +/- 0.5hPa
8. Mounted Thermometer – Mercury filled glass thermometer, measuring range -20° C to 50°C, Minimum graduation – 0.5°C

### **Item Sl. No. 198**

#### **Barometer - Aneroid with thermometer**

Specification

Measuring range – 930 to 1070 hPa, 700 to 800 mmHg

Min .graduation – 1 hPa / 1 mmHg

Temperature compensation- Bimetal

Accuracy - +/-1hPa at 980 to 1020hPa

+/- hPa at other range

Temperature – Glass thermometer

Range: -10°C to 50°C

Accuracy: +/- 2°C

Usable altitude – upto 500 m

Case material – Brass

### **Item Sl. No. 199**

#### **Binocular Microscope (For students)**

1. Frame
  - Optical system – Infinity corrected optical system
  - Focus - Stage height movement by roller guide (rack & pinion), stroke with coarse adjustment limit stopper, Stage mounting position variable, high sensitivity fine focusing
2. knob.
  - Illuminator - Built-in Koehler illuminator for transmitted light, 12V100W halogen light source and built-in filters.
  - Revolving nosepiece Interchangeable reversed quintuple nosepiece.
3. Observation tube

- Wide field trinocular, inclined 30°.
4. Stage
    - Spill resistant, coaxial stage with left or right hand low drive control: with rotating mechanism and torque adjustment mechanism.
  5. Condenser
    - Swing out Achromatic (N A. 0.9), for 1.25X- 100X (swing-out: 1.25X-4X)
  6. Objectives
    - 4x, 10x, 20x, 40x, 100x(oil)
    - 40x and 100x should be spring loaded
  7. Camera
    - Photo system with beam splitter.
    - Digital colour CCD camera with suitable mount.
  8. Camera specification – 2/3|| CCD, 5 MP or Better, 12bit, USB interface.
    - Image management software with High Resolution TFT Monitor & Computer
    - Computer specification –Intel I5 3rd generation processor ,8GB RAM ,500GB hard disk, licensed operating system and HD LED display screen.
    - Facility to interface with HD LCD projector.
  9. Should be CE certified or FDA or BIS approved product.

### **Item Sl. No. 200**

#### **Continuous Dichotomous Ambient Particulate Monitor**

- 1 Measurement Method - Tapered Element Oscillating Microbalance (TEOM) technology
- 2 Measurement Ranges - 0 to 1,000,000 µg/m<sup>3</sup> (1g/m<sup>3</sup>)
- 3 Precision - ±2.0µg/m<sup>3</sup> (one-hour average), ±1.0µg/m<sup>3</sup> (24-hour average)
- 4 Accuracy - For Mass Measurement: ±0.75%
- 5 Resolution - 0.1µg/m<sup>3</sup>
- 6 Flowrate - Main flowrate: Fine PM filter, 3.9L/min.; Coarse PM filter, 1.67L/min.
- 7 Bypass flowrate- 12.0L/min.
- 8 Data Memory - Internal datalogging of user-specified variables; 5,00,000 record capacity
- 9 Input Output - Four averaged analog inputs (0 to 5VDC) with user-defined conversion to engineering units; 8 User-defined Analog Outputs (0-1 or 0-5VDC); 2 User-defined contact closure alarm circuits; Ethernet with embedded FTP server, US, RS-232, and RS-485; touch screen with user interface, and software to view and change system operation from PC
- 10 Data Output - Selectable from 10 sec. to 24 hour

- 11 Operating Limits [Temperature Range] [CENTIGRADE] - Temperature of sampled air may vary between -40° and +60°C. TEOM sensor and control units must be weather protected within the range of 8° to 25°C.
- 12 Power Supply – 220V, 50Hz
- 13 Should be CE certified or FDA or BIS approved product
- 14 Suitable On-line UPS with one hour backup. Suitable Rack, Gas sampling Hood, Sample conditioned system, Calibration Gas cylinder, Multi Gas calibrator, Zero Air Generator and other accessories required for the system functioning should also to be supplied with the system. The supplied system should be portable.

### **Item Sl. No. 201**

#### **Continuous Emissions Monitoring System**

- 1 Should be configurable to measure various combinations of SO<sub>2</sub>, NO<sub>x</sub>, CO, TRS, NH<sub>3</sub>, HCl, THC, Hg, CO, O<sub>2</sub>, PM, H<sub>2</sub>S, Flow, Opacity
- 2 Measurement ranges for most criteria pollutants from 0 to 10ppm to 0 to 10,000ppm full scale
- 3 Should meets EPA performance specifications
- 4 Should have wide dynamic range in different applications
- 5 System should accommodate devices utilizing the following technologies:
- 6 NDIR - Nondispersive Infrared: Used to measure carbon monoxide, carbon dioxide, HCl, and other infrared-absorbing gases
- 7 Chemiluminescence: For the measurement of nitrogen-based compounds
- 8 Pulsed Fluorescence: For the determination of SO<sub>2</sub>
- 9 FID - Flame Ionization Detection: Measures hydrocarbons to meet the criterion of USEPA Methods 25A and 25B
- 10 Atomic Fluorescence: The technology utilized by the Mercury Freedom System
- 11 Transmissometers for opacity monitoring
- 12 Cross-stack and in-stack ultrasonic monitors for determining flow of gas stream
- 13 Both full extractive and dilution extractive probes
- 14 Should be CE certified or FDA or BIS approved product.

15 Suitable On-line UPS with one hour backup. Suitable Rack, Gas sampling Hood, Sample conditioned system, Calibration Gas cylinder, Multi Gas calibrator, Zero Air Generator and other accessories required for the system functioning should also to be supplied with the system. The supplied system should be portable.

**Item Sl. No. 202**

**SO3 Analyzer**

- 1 Should be suitable for sensitive, continuous measurement of SO3
- 2 Should be based on Laser-based measurement technology
- 3 Should be suitable for rack mounting
- 4 Measuring range should be 0 - 200ppm
- 5 Linearity should less than or equal to 1%
- 6 Sample flow rate 250ml per minute or better
- 7 Should operate on temperature range -10°C to 45°C
- 8 Should have LCD display for parameter display and setting
- 9 Computer connectivity through RS232 or RS 485 or better.
- 10 Power supply – 220V,50Hz
- 11 Should be CE certified or FDA or BIS approved product.
- 12 Suitable On-line UPS with one hour backup. Suitable Rack, Gas sampling Hood, Sample conditioned system, Calibration Gas cylinder, Multi Gas calibrator, Zero Air Generator and other accessories required for the system functioning should also to be supplied with the system. The supplied system should be portable.

**Item Sl. No. 203**

**CO Analyzer**

- 1 Should be based on gas filter correlation technology
- 2 Measurement range 0 – 20000ppm
- 3 Sample flow rate – 0.5 to 2.0 L/min

- 4 Linearity – 2%
- 5 Should have Temperature and pressure correction
- 6 Alarms for different concentration levels
- 7 Ethernet connectivity for efficient remote access
- 8 Key pad programming and LCD display screen
- 9 Flash memory for data storage
- 10 Enhanced electronics design optimizes product commonality
- 11 Improved layout for easier accessibility to components
- 12 Power supply – 220V, 50Hz
- 13 Operating temperature range 0°C - 45°C
- 14 Should be CE certified or FDA or BIS approved product
- 15 Suitable On-line UPS with one hour backup. Suitable Rack, Gas sampling Hood, Sample conditioned system, Calibration Gas cylinder, Multi Gas calibrator, Zero Air Generator and other accessories required for the system functioning should also to be supplied with the system. The supplied system should be portable

**Item Sl. No. 204**

**Enhanced Trace Level SO2 Analyzer**

Should be based on Pulsed fluorescence measurement technology

Measurement ranges from 0 - 1000ppb

Sample flow rate should be 0.5 L/min

Should have linearity of +/- 1%

Should have temperature and pressure compensation facility

Alarm for different concentration levels

PC connectivity through Ethernet , RS 232 or RS 485

Keypad programming and LCD display screen

Flash memory for data storage

Should be ideal for rack mounting

Power supply – 220V ,50Hz

Should be CE certified or FDA or BIS approved product.

### **Item Sl. No. 205**

#### **Dosimeter**

1 Dosimeter is used for the routine measurement of electrons, x-rays and gamma rays from linear accelerators, cobalt-60 units and other radiation sources to standardize outputs before treatment. It can also control the precise dose delivered to the patient during treatment.

2 Should be portable, rugged, and easy to operate

3 Should have a measurement range of 30 kv to 140 kv

4 Should have facility for pressure, temperature and chamber response compensation.

Ambient Pressure: 500 to 1100millibars; Ambient Temperature: 0° to 40°C; Chamber

Factor: 0.800 to 1.200

5 Linearity should be +/- 0.05%

6 Should have a built-in timer with preset facility

7 Trip at dose limit

8 Temperature range from 1 to 4000 sec.

9 Should have a printer output

10 The polarizing voltage divider provides quick and accurate determination of ionization chamber collection efficiency - using the two point technique

11  $\pm V, \pm V/2, \pm V/4, \pm V/8$

12 For continuous, pulsed and swept beam radiation

13 Voltage ratios defined to better than  $\pm 2\%$

14 Lockable selector switches

15 LCD screen for parameter display.

16 On-line UPS with one hour backup. Suitable Rack, Gas sampling Hood, Sample conditioned system, Calibration Gas cylinder, Multi Gas calibrator, Zero Air Generator and

other accessories required for the system functioning should also to be supplied with the system. The supplied system should be portable

**Item Sl. No. 206**

**Analytical Balance 200 gm**

- 1 Description of Function
  - 1.1 Electronic Balance is required for precision weighing of Lab samples.
- 2 Operational Requirements
  - 2.1 Microprocessor based single pan Analytical Balance with High accuracy & precision is required.
  - 2.2 Reading of the weight by digital display.
  - 2.3 Electronic top loading balance with transparent case
  - 2.4 The balance should have functions of piece counting, percent weighing, formulation, dynamic weighing with automatic and manual start and provision for data interface.
- 3 Technical Specifications
  - 3.1 Weigh accurately up to 3rd decimal place
  - 3.2 Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself
  - 3.3 Auto zero Setting
  - 3.4 Weighing capacity up to 200g
  - 3.5 Readability 0.001g
  - 3.6 Repeatability 1mg or less
  - 3.7 Setting time 1.5 second
  - 3.8 Suitable for internal and external adjustment weights
  - 3.9 PC connectivity through RS 232 or Ethernet or Bluetooth or PS/2 for efficient data capture and easy network integration.
- 3.1 Balance should have
  - Liquid Crystal Display (LCD) for display
  - Stainless steel square weighing pan
  - IR sensors for hands free operation
  - warns if balance is not correctly levelled

automatic and detachable draft shield

Detachable and adjustable terminal

Facility for user administration and password protection.

Integrated automatic safety function for external routine operations

Alphanumeric data entry of 4 ID's

4 System Configuration Accessories, spares and consumables

4.1 As specified

5 Environmental factors

5.1 Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.

5.2 The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of 80%.

6 Power Supply

6.1 Power input to be 220-240VAC, 50Hz

6.2 Suitable Auto voltage corrector with spike protector should be available.

6.3 Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.

6.4 Resettable overcurrent breaker shall be fitted for protection

7 Standards and Safety

7.1 Should be FDA or CE or ISI approved product

7.2 Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450

7.3 Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities.

### **Item Sl. No. 207**

#### **Centrifuge clinical**

1. Should accommodate Max. Volume of 180 ml (12 x 15ml).
2. Should have an maximum speed of 5,000 rpm
3. Should have an Max. RCF 3,000 x g

4. Should have an LCD or LED display for displaying the parameters
  5. Should have a Timer programmable from 0 to 30 minutes or continuous mode
  6. Should have alarm facility
  7. Rotor swing angle
  8. Power supply – 220V50Hz
- Should be FDA or CE or BIS approved product.

### **Item Sl. No. 208**

#### **CO2 INCUBATOR (AIR JACKETED) WITH AUTOMATIC STERILIZATION**

1. Inner total volume 170 to 190 liters
2. Temperature range: +4oC above ambient to +50oC
3. Silicon removable autoclavable inner door gasket.
4. Built in HEPA filter Airflow System (100% HEPA filtered air within 1 minute) with internal blower with or without FAN inside.
5. Thermal conductivity sensor or Infrared sensor with two year warranty
6. On demand sterilization at 140oC up to 12 hours
7. Alpha numeric character display screen and message screen.
8. Class 100 condition of air inside the chamber within five minutes after door closing.
9. Access code to lock the parameters
10. Alpha numeric message for HEPA filter replacement.
11. Certified by ISO 9001,& CE /UL listed /CSA approved.
12. Three Appreciation letter from the reputed institute for similar instruments supplied one & half years back towards it performance & services should be included with the offer.
13. CO2 Cylinder & Regulator should be quoted.

**Item Sl. No. 209**

**FULLY AUTOMATED CLINICAL CHEMISTRY – LOW THROUGH PUT**

1. SYSTEM: Floor/Bench top Model, Completely open, Discreet, Multi-channel, Random Access, With automatic rerun, automatic reflex testing and capable of performing tests like Enzymes, substrates, Serum Proteins, Electrolytes, TDM assays and Immunoturbidimetric etc.
2. THROUGH PUT: About 400 Photometric tests/Hour and about 600 Tests /Hour with ISE.
3. ASSAY MODES: End point, Rate, fixed point and ISE.
4. Analytical Methods: Colorimetry, turbidimetry, latex agglutination, homogeneous, ISE.
5. SAMPLE LOADING: Minimum of 50 sample positions with continuous Loading. Bar code reading facility for positive sample identification, real time test requisition downloading from host should be possible.
6. Cooled compartment for Standards and Controls.
7. SAMPLE CUPS: Primary and secondary tubes and paediatric cups
8. SAMPLE TYPES: Plasma, Urine, Serum, CSF etc.
9. STAT FACILITY: Facility for continuous loading of stat samples without interrupting the routine run. Minimum 20 STAT sample positions for very urgent samples.
10. SAMPLE VOLUME: 2 to 30 micro litres in 1.0 micro litre increment
11. SAMPLE PROBE: Probe should have liquid level sensor .Sample clot detection and crash prevention facility should be available.
12. REAGENT DISK: Refrigerated reagent disk with minimum 50 positions.
13. ON-BOARD PARAMETERS TESTS: Minimum 50 on-board parameters tests.
14. REACTION VOLUME: Should be from 150ul to 300u1
15. REAGENT PROBE: Probe with liquid level sensors and washing facility. Probe crash detection should be available.
16. STIRRER: 2 or more on board variable speed stirrers should be available
17. CUVETTES: Must have permanent hard glass. It should have the facility to change individual cuvettes.
18. CUVETTE WASHING: Automatic on-board washing.
19. PHOTOMETER: Wavelength ranging from 340 - 750 nm

20. LAMP SOURCE: Halogen / Xenon Lamp.
21. QUALITY CONTROL: Real Time, Individual and cumulative quality control. Automatic QC programming required.
22. Water Plant: Compatible RO /water purification plant to be supplied.
23. SOFTWARE: Window based software or Compatible.
24. DATA STORAGE: 50000 patient samples.
25. INTER FACE: Unidirectional and Bidirectional communication possible.
26. REAGENTS: Manufacturing Company if have their own system reagents, controls and calibrators and the price list for the same should be enclosed with the price bid
27. Accessories, reagents calibrator and control: company shall provide a list of accessories reagents calibrator and control to be use for running the instrument.
28. The equipment to be supplied should have FDA and CE certification

**Item Sl. No. 210**

**Fat Extraction Apparatus**

1. Extraction Apparatus, fat, complete
2. Fat Extractor used to determine fat and oil content in samples.
3. Measurement based on AOAC methods.
4. Frame is constructed of anodized aluminium or better.
5. Power consumption 700 watt,
6. Spring-loaded heater elements operated by control knobs / Key pads with variable heat input from 20-100% capacity;
7. Red pilot light:
8. Metal condensers with Type 304 stainless steel heads with automatic pressure-release valves:
9. On/Off switch;
10. Control valve for connection to cold water supply;
11. Water outlet for connection to an open drain

## 12. Accessories

1. 12 borosilicate glass 100 ml beakers.
  2. 6 alundum extraction thimbles,
  3. 6 heat covers,
  4. 6 cork gaskets,
  5. 6 beaker rings.
  6. 6 upper condenser gaskets,
  7. 9 sample tubes,
  8. 6 support stirrups and
  9. 9 borosilicate glass reclaiming tubes.
- Should be FDA or CE or BIS approved product.

### **Item Sl. No. 211**

### **Incubator, Electric**

#### **1. Description of function**

Incubator is a closed chamber which heats/chill a sample at a preset temperature for long term for application like culture growth etc.

#### **2. Operation requirement**

Microprocessor /Microcontroller /Microcomputer controlled system.

#### **3. Technical specification**

- a. Capacity: 120L with 2 compartments having light in each compartment with UV light.
- b. Interior chamber: Stainless steel for easy cleaning and decontamination.
- c. Timer 1 min to 100 hours and hold position.
- d. Minimum turbulence and no cross contamination.
- e. Adjustable safety thermostat for temperature, with inbuilt temperature sensor.
- f. Internal glass door for the observation.

- g. With minimum two adjustable shelves one with shaking facility (lower shelf).
- h. Audiovisual alarm to indicate when temperature deviates more than 1°C from set point, and when program or time has finished, Alarm may be muted.
- i. Peltier heating with continuous air circulation and heating by natural /forced convection for homogenous temperature distribution.
- j. Temperature range: +5 deg. C above ambient to 80 deg C and variable shaking speed.
- k. There should be a membrane key pad with LCD/LED to set and display operating parameters. Current status, running time and alarm conditions for time and temperature.
- l. Interior lighting facility, insulated door fitted with heavy hinges handles locking, mechanical door lock.
- m. System Configuration Accessories, Spares and consumables.
- n. Flask holding tray of different volume 25 -500ml.

#### **4. Power Supply**

Power input to be 220-240VAC50Hz fitted with Indian plug

Suitable UPS with maintenance free batteries for minimum one hour backup should be supplied with the system

#### **5. Standards, Safety and Training**

Electrical safety conforms to standards for electricity safety IEC-60601/IS-13450

Should be complaint to ISO 13485: Quality systems-Medical devices-Particular requirement for the application of ISO 9001 applicable to manufactures and service providers that perform their own design activities

- 6. Should be FDA or CE approved product.

### **Item Sl. No. 212**

#### **Trinocular microscope – Teaching**

1. Digital Research Microscope with CCD Camera.
2. Observation Tube - SiedentopfTrinocular, 30 deg inclined 360 deg rotatable. IPD range 52-75mm.

3. Eyepiece - Focusable WF10x (18mm/ 20mm).
4. Revolving Quintuple nose piece (for objectives)
5. Objectives - RP Series Infinity Corrected Plan 4X, 10X,40X(Spring Loaded), 100X (Spring Loaded, Oil Immersion)
6. Illumination - 6V 20 W Halogen Lamp with 5 spare lamps
7. Image Device - 2/3" CCD Camera - Resolution 1.4MP or better with suitable mount
8. Light Sensitivity - 1 Lux
9. Interface - USB
10. Software - Image Analysis Software
11. System Requirements – Suitable PC having 19" Colour LCD/TFT Monitor, CPU: RAM: 4 GB or more, Hard Disk Space: 500 GB or more, CD/DVD-ROM drive and USB port 3.0. Power adapters/ cables etc for projection and LAN transmission.
12. Should be supplied with compatible colour printer.
13. Manufactures/Supplier should have ISO certificate to Quality Standard.
14. Should be FDA/CE approved product.
15. Equipment should be installed and demonstrated.
16. Training should be given to atleast two faculties.

### **Item Sl. No. 213**

#### **Perimeters, with charts (Priestly Smith model)**

1. Should have a calibrated arc, revolving chart holder.
2. Should be able to rotate in any direction and fix at any position with a tightening screw. The arc should be graduated from 0° to 90° with a movable test object.
3. At the back of the arc arrangement should be provided for fixing of chart which has concentric circles corresponding to the degrees of arc.
4. Adjustable chin rest.
5. The above mentioned should be fitted over a sturdy base with receptacle for keeping charts.
6. Should be supplied with 20 packets each containing consist of 100 charts

7. Accessories – Objects should be of minimum 2 sizes, round and square shaped and of 5 different colors.

**Item Sl. No. 214**

**Olfactometer**

1. Detection Technique: Human Nose
2. Discrete Dilution Ratios: 2, 4, 7, 15, 30, 60 D/T's
3. (Standard Dilution-to-Threshold Ratios)
4. Response Time: As fast as 10-seconds or better(2 inhalations)
5. Accuracy: +/- 10% of D/T
6. Repeatability: +/- 2%
7. Inhalation Rate: 16-20 liters per minute
8. Operating Temperature Range: 32° to 104° F, 0° to 40° C
9. Odor Filter Cartridge - of suitable size
10. Nasal Mask – of suitable size
11. Provision for 9 inlet and outlet port.
12. Power supply – 220 V, 50 Hz
13. The product should be CE or FDA or BIS Certified

**Item Sl. No. 215**

**Thermal aesthesiometer**

1. Should microprocessor controlled
2. Should have computer connectivity for data logging.
3. Should work on the temperature range of 5° C to 55° C
4. Should have sampling rate of 18 samples/sec
5. Should have a starting temperature 25° C to 40° C
6. Temperature increment rate 0.2 deg/s to 2.5 deg/s
7. Temperature decrement rate 0.2 deg/s to 2.5 deg/s
8. Delay between the repeats should be 3 to 30 secs

9. Power supply – 220 V 50 Hz
10. The product should be CE or FDA or BIS Certified

### **Item Sl. No. 216**

#### **Von Frey Aesthesiometer**

1. Electronic von Frey is used to assess mechanical allodynia with rigid tips (threshold) and the flexible von Frey hairs are used for sensory test on all test subjects.
2. Should plug up to 3 probes into a single unit.
3. The systems should be supplied with 90, 800 and 1000 gram probe.
4. Should be supplied with limit indicator with all probes.
5. Should measure, store and display your test readings in grams based upon the amount of pressure applied.
6. Should be calibrated at the factory.
7. Should have MRI Probe.
8. Should have LCD Readout.
9. The product should be CE or FDA or BIS Certified

### **Item Sl. No. 217**

#### **Dale's Organ Bath for Internal Organs**

1. Dale's tissue organ bath should record intestinal movements and effects of drugs
2. Should be thermostatically controlled with stirrer, Uprights, glass inner vessel & Oxygen tube with platinum tip, warming coil and frontal lever from SS capillary tubing.
3. With chemical thermometer 0° c - 100° c
4. The product should be CE or FDA or BIS Certified

**Item Sl. No. 218**

**Electronic Muscle Stimulator**

1. Should do elicitation of muscle contraction using electric impulses
2. Should be solid state microprocessor controlled unit with digital timer and intensity display
3. Microprocessor controlled pulse duration 0.3,1,10,30,100,300ms
4. Pulse repetitive Frequency: 0.3,1,3 seconds
5. Intensity variation: 0 to 130 volts
6. Output Voltage: 100 ACV to 260 ACV
7. Protection Class - I complies with IEC 601-1
8. Accessories - Electrode set
9. Power supply – 220 to 240 VAC, 50 Hz

**Item Sl. No. 219**

**Stimulator, Isolator & Recorder system**

The system should have the four component ie, stimulator, isolation unit for stimulation, average and an oscilloscope.

The system should be able to record electromyography, evoked potentials (motors, somatosensory, visual and auditory), monosynaptic reflexes from rats, mice and rabbits.

1) The stimulator should

Have single pulse and train stimulation modes

Provide option of current or voltage stimulation

Current stimulation range of 1 $\mu$ A-100mA and voltage stimulation range of 0.01 -50V

Provide stimulation frequency from 0.01 – 1000 pulses per sec

Provide stimulation delay of 0.01 – 100ms

Provide stimulation pulse duration of 0.01-100ms

Be able to stimulate auditory and photic stimulation unit

2) The Isolation unit should be separate from the stimulation unit and should have

Input and output ports

Different modes(voltage and current with range in  $\mu\text{V}$ -V and  $\mu\text{A}$  –mA

Allow fine adjustment for volts /current

Adjustment for anodal and cathodal stimulation

3) The average should be a separate unit and should

Be able to average between 1 to 9999 pulses

Be compatible with and have input/outputs ports for stimulator and recorder.

Have the option for manual calibration

Have reset and read out option

4) The oscilloscope should

Have at least 4 channels with options for up gradation of channel numbers

Have option for external as well as auto triggering source

Have low cut filter to be varied from 0.01 Hz – 200 Hz

Have high cut filter to be varied from 10Hz -20KHz

Have AC and DC adjustment option

Have the option for manual calibration

Have time scale range  $1\mu\text{s}$  – 2 sec and sensitivity range range  $1\mu\text{V}$ -5V

Have option for online recording/saving the response

Have a common mode input impedance > 1000 M ohm

Ear phone for auditory animal stimulation and photic stimulation

Sub-dermal needle electrodes 1000nos

Trolley to keep all units

UPS of 2 KVA

The product should be CE or FDA or BIS Certified

**Item Sl. No. 220**

**Physiograph – Three Channel**

1. Console with time & Event channel and stimulator for human experiments
2. Couplers
3. Strain gauge - 1 No.
4. Isotonic - 1 No.
5. Pulse respiration - 1 No.
6. Temperature - 1 No.
7. EKG (Clinical) with electrode 1 No. ,5 pin junction and belly
8. Biopotential (with electrodes, 1 No., 3 pin junction box, pastes and electrodes for action potential)
9. Transducers:
10. Pressure – 1 No
11. Volume – 1 No
12. Muscle activity /Force – 1 No
13. Respiration belt – 1 No
14. Isotonic Fine movement – 1 No
15. Pulse – 1 No
16. Respiration (Thermistor type) – 1 No
17. Temperature – 1 No
18. Accessories: Following accessories are supplied along with each console:
19. Chart paper Z folds 250 folds 10 nos
20. Fuses 10 nos
21. Instruction manual
22. Earthing codes 01. Nos
23. Extra pen with Cradles 01 nos
24. Ink ½ Ltr
25. Machine cover 01 nos
26. The product should be CE or FDA or BIS Certified

**Item Sl. No. 221**

**LANGENDORFF'S APPARATUS**

- 1 The Langendorff system is designed as a perfusion system for isolated, small mammalian hearts and specially designed two-way Teflon taps.
- 2 Retrograde perfusion of isolated hearts from mouse, rat, guinea pig.
- 3 Measurements in constant pressure or constant flow mode on the same device
- 4 Equipped with two columns for using different buffers
- 5 Capable of recording aortic pressures as high as 250 mmHg
- 6 Equipped for measuring left ventricular pressure (LVP)
- 7 Ports in the system are available for measuring pressure, flow, temperature and mechanical activity, and for the infusion or injection of drugs
- 8 Continuous filling of buffer columns with use of a pump
- 9 Continuous oxygenation of buffers
- 10 Water-jacketed system for precise temperature control
- 11 Attachment of simple heart.

**Item Sl. No. 222**

**ECG machine 12 channel**

1. Real-time recording and printing of 12-channel ECG waveform
2. Graphic display of 12-Channel ECG waveform
3. Light, compact with A4 size thermal recorder
4. Simultaneous acquisition of 12-lead ECG data
5. Built-in analysis software of age which assures accurate analysis result
6. Auto-measurement, auto-interpretation, waveform playback and storage of ECG data
7. RS232 and USB interface cope with data-share or remote data management requirement
8. Option wireless function makes more convenient communication with PC
9. User friendly operation system

10. Literal and graphic operation interface
11. Powerful filters to minimize interference
12. Heart rate measurement and pace-maker detection circuit.
13. Multiprinting formats: manual & automatic, standard 12 channel, 3 channel plus 3 rhythm lead, 6 channel, 6 channel plus rhythm lead, 60s analysis of arrhythmia, trend graph. 3 rhythm lead, 6 channel, 6 channel plus rhythm lead, 60s analysis of arrhythmia, R-R histogram, trend graph
14. AC, DC or built-in lithium battery power supply, alarm of battery weak and lead-off
15. Tremendous ECG data can be saved in built-in SD card
16. 20 boxes of disposable electrodes
17. Certifications and standards: FDA / CE / BIS approved product
18. Manufacturer should be ISO certified for quality standards.

### **Item Sl. No. 223**

#### **ECG Machine Single Channel**

- 1 Description of Function
  - 1.1 ECG Machine is primary equipment to record ECG Signal in various configurations
- 2 Operational Requirements
  - 2.1 The ECG Machine should be able to acquire all 12 Leads ECG signals
  - 2.2 Should print all the 12 leads in a single channel mode
- 3 Technical Specifications
  - 3.1 Should acquire 12 lead ECG for both adult and pediatric patients
  - 3.2 Should have Artifact, AC, and low and high pass frequency filters.
  - 3.3 Should have an integrated-high resolution, thermal array printer for print of ECGs
  - 3.4 Should have battery capacity of at least 30 ECGs or 30 minutes of continuous rhythm recording on single charge
- 4 System Configuration Accessories, spares and consumables

- 4.1 System as specified-
- 4.2 Patient cable -02
- 4.3 Chest Electrodes Adult-(set of six) -2 sets.
- 4.4 Chest Electrodes Pediatric-(set of six) -2 sets
- 4.5 Limb Electrodes (set of 4)- 02 sets for Adult and 02 sets for Pediatrics.
- 4.6 Thermal print paper: 10 Rolls/Z Fold
- 5 STANDARDS
- 5.1 The product should be CE or FDA or BIS Certified.

### **Item Sl. No. 224**

#### **Treatment Table with Postural Drainage**

1. High quality, functional and extremely durable physiotherapy tables Angle of the Head Section should be adjustable from to -20 to 80 Degree.
2. Width of working area of table should be 70 Cm.
3. It should have Breathing Hole & Plug.
4. It should have Adjustable foot for uneven flooring.
5. It should have hand remote control.
6. It should have electrically adjustable Height Range from to 45 to 90 cm.
7. Table should be three sections with electrically operated postural drainage facility.
8. Angle of leg section should be adjustable from 0 to 80 degree.
9. should be European CE or USFDA certified.

### **Item Sl. No. 225**

#### **Recumbent Cycle Exerciser**

1. Cycle should have following program.
2. Hill, Interval, Manual/Track, Random, Weight Loss HRC, Quick Start and should be with 2 to 4 user IDs.

3. Cycle should have Infrared remote control, Lumbar pouch.
4. Cycle should have Adjustable seat pad, Adjustable seat back.
5. Cycle should have Feedback display for Speed, watts, calories, RPM , Distance, Time, Resistance level, HR and Targeted HR.
6. Cycle should have LED display and should be adjustable without pedaling.
7. Cycle should be capable for Max user weight up to 400 lbs.
8. Cycle should have Mini 15- 20 electromagnetic resistance level.
9. Cycle should have Self-generating power supply with 2 minute backup.
10. Cycle should supply with hot and cold pack to be place in lumber pouch.

Should Be US FDA/ European CE certified.

### **Item Sl. No. 226**

#### **MOVEMENT THERAPY SYSTEM FOR LOWER & UPPER LIMB**

1. Should have safety foot shells for feet and leg guides with calf shells to secure support for the legs.
2. Leg guides should have suspension system to avoid pressure marks.
3. Electronic leg insertion aid to aid helps to insert and remove the legs with LCD display
4. The unit should be height adjustable.
5. Range of motor power in steps: 1- 16 N.
6. Velocity range: 0-60 rpm
7. The unit should have got servo cycling mode.
8. The unit should have got movement protector & spasm control also.
9. The unit should display the current date & time.
10. The unit should have got gear shift control in the range of 1-20 steps.
11. The unit should be compatible with functional electrical stimulator.
12. The unit should have got operating power consumption of max. 140 watts.
13. The unit should have got non-operating power consumption of max. 3 watts.
14. Leg guides with calf support (1 pair).

15. Arm/upper body trainer active/passive.
16. Should be US FDA/ European CE certified.

### **Item Sl. No. 227**

#### **Sterile connecting Device**

1. should accommodate and weld all types of blood bags tubing in use in our country
2. The welding should be seamless
3. Should be capable of joining wet-wet/wet-dry/dry-dry tubes.
4. Welding should not affect the quality of the tube in terms of its physical and chemical properties and it should not cause hemolysis.
5. It should have LED indicators to display the actual status of the ongoing procedural steps and audio- visual alarm system for any functional irregularities.
6. Requirement for tube length to be welding/docking should be as small as possible
7. The welding accessories should be available with the local agent throughout year.
8. The consumable wafers cost per 100 pieces will be taken into account during price evaluation.
9. Certifications:
10. CE class II A or US FDA certified
11. Quality certifications: ISO 13485 certified
12. Firm will have to supply compatible UPS with minimum half hr backup along with the equipment free of cost.
13. Original literature of equipment and consumables should be submitted.
14. User's list should be attached with satisfactory report for the last three years from three blood bank users with contact details.
15. Demonstration of performance of equipment is compulsory in nearby area for technical evaluation failing to which will be a disqualification.
16. Electrical: The equipment should be able to run on the existing electrical provision

### **Item Sl. No. 228**

#### **Stairs Training Unit (Wooden stairs)**

1. Wide platform for patient: Enough to change direction with crutches
2. Built in two sections fit in STRAIGHT
3. Step Arrangement : four 15 cms steps leading to platform of 76 x 76 x 60 cms high
4. Hand rails at different height to accommodate adult and children.

5. Sides and supporting frame of steps is made of commercial board of thickness
6. Hand rails with supporting bars made of hardwood.

**Item Sl. No. 229**

**Wheel Chair**

1. Width: 21.5" (17" seat); 23.5" (19 seat)
2. Length/Depth: 24"
3. Weight Capacity: 180 kg.
4. Seat Width: 17" or 19"
5. Seat Depth: 16"
6. Seat to Floor Height: 19".
7. Back Height: 17"
8. Arm rest: Removable.
9. Front Riggings: Swing-away aluminium Footrests.
10. 5 cm 50PU density foam cushioned top and back covered with leathered Rexene of 2mm thickness.
11. Rear Axle: Single Position 12mm.
12. All the Stainless Steel should be 304 grade/ 16 gauge.
13. Desirable reclining mode Should be CE approved.

**Specifications for Pediatric Wheelchair.**

1. Aluminum Special Functional Epoxy Detachable Arm Rest & Foot Rest.
2. Seat & Back Upholstery made of colored Leatherette.
3. 8" Front Wheel & 24" Rear Wheel.
4. Seat Width 38cms & Overall width 58 cms .
5. Adjustable Arm Rest.

**Item Sl. No. 230**

**Motorized Wheel Chair**

**Specification of wheel chair**

1. Load capacity : 100 Kg (minimum)
2. Speed : Up to 8 km/hr

- 
3. Motor power : 270-320 Watt
  4. Motor speed : 4700-5300 rpm
  5. Brake : Electromagnetic
  6. Grade ability : 10 degree (minimum)
  7. Ground Clearance : 7 cm (minimum)
  8. Drive Range : 10 km (minimum)
  9. Turn Circle Radius : 60 cm (max)
  10. Battery : 20 volt 24 h maintenance free
  11. Total Dimension : Total Length- 100 cm
    - a. Total Width  $\leq$ 60 cm
    - b. Total Height  $\leq$ 100 CM
  12. Seat Dimension : Depth =40 cm
    - a. Width =50 cm
    - b. Back Height =40 cm
    - c. Back Width =50 cm
  13. Arm Support Width : 5 cm (minimum , height of arm support should be adjustable)
  14. Foot Support : 20 cm in length (minimum ,height of support should be adjustable)
    - a. adjustable)
  15. It should be able take signal thought joy stick mounted in right arm support signals from other Means through wired and wireless ( compatible receiver should mounted on it.)
  16. Should have removable arm rest & Foldable foot support.
  17. Should have reclining mode.

Should be European CE or US FDA certified.

### **Item Sl. No. 231**

#### **Medical Gym**

1. All the equipment should work on Pneumatic technology and not on weighing stacks
2. Operational noise should be less than 50 db
3. All the equipment's should have following minimum features:

4. Transmission should mimic the function of muscles. The resistance should always perfectly accommodate the force output of the muscles regardless of the speed of motion. Safety aspects, all Transmission parts should be completely covered
  - a. There should not be any wires or cables. All moving joints in the transmission should be with ball bearings
  - b. Should have facility for Range limiters , which can be used to limit the range of motion- in flexion and extension
  - c. Should have "Step less" transmission to accommodate every level of strength.
  - d. Should have ergonomically contoured back support to reduce the load on the spinal column.
  - e. Many of equipment should dual action.
  - f. Medical Gym should have not more than 4 units , covering following exercises :
5. Hip Adduction/ Abduction
6. Leg Press
7. Abdomen/Back
8. Twist
9. System should supply a isometric maximum force measuring device. Device should provide information on maximum strength and Muscular balance, right, left, front and back. Unit should supply with require software for visual feedback of tests and numerical values.
10. Entire system should supply with required compressor
  - a. Entire system should supply with required compressor
  - b. Unit should be European CE / US FDA certified.

### **Item Sl. No. 232**

#### **Specifications of Hip, Knee, Ankle CPM**

1. Unit should be able to work on adult and pediatric.
2. Unit should have facility automatically increasing the programmed flexion angle by very

3. hour up to 5 ° per 24 hour period of time
4. Unit should have facility to work more in working ROM mimicking oscillation with hand..
5. Unit should accelerate quicker through the non-working ROM
6. Unit should have facility that when the patient's threshold for pain is reached, allows the unit to continue working the affected limb but at a reduced flexion angle limit.
7. Force Reversal: Safety allowing the therapist to set an amount of passive force without
8. Causing damage to the surgery or unnecessary pain i.e. 16 – 34 kgs
9. Should have following:
10. extension (-10°) to (120°)
11. Speed Range : 32 degree min to 145 degree min
12. Should have automatic pause in between
13. System should be US FDA / European CE certified.
14. All three movements in single unit. Ankle movement 20 degree to – 30 degree

### **Item Sl. No. 233**

#### **Shoulder CPM**

**The Shoulder CPM should have following features:**

1. Control should be either from main unit or Hand held pendant
2. Storage card/Internal memory for storing programmed values
3. Universal left/right design for both arm activity.
4. Anatomically correct adjustment
5. Motor Control: on/off
6. Reverse-on-load — unit should switch to the opposite direction when patient resistance increases the target set value.
7. Patient compliance meter should calculates the cumulative patient use time
8. Warm-up mode — the unit should recognizes the start and stop angles and midpoint. From that point, motion should initiated 3 degrees from all angles until full
9. ROM is achieved.
  - a. Pauses: 0-20 seconds

- b. Speed: 0-100%
  - c. Timer: 0-250 minutes
10. The Shoulder CPM should allow the following motions of the shoulder joint:
- a. Adduction/Abduction 0°- 30° - 175°
  - b. Internal/External Rotation 90°- 0° - 90°
  - c. Elevation (Flexion) with 60° - 90° flexion of the elbow 30° - 175°
  - d. Ante/Retroversion (horizontal adduction/abduction) set manually 0° - 125°
11. Mains Power: 230V, 50/60 Hz,
12. The unit should be European CE or US FDA certified.

**Item Sl. No. 234**

**Ultrasonic Therapy Machine (UST)**

- 1. Ultrasonic Therapy — Digital
- 2. Pulsed and continuous therapy operation
- 3. Digital control circuitry / Digital timer 0 to 30 minutes or more with digital display
- 4. Output power 15 W (Continuous), 21 W (Pulsed) or upto 2.5 watts /cm<sup>2</sup>, which
- 5. Output frequency 1 MHz
- 6. Pulse ratio: 1:2, 1:4, 1:8, 1:16
- 7. Pulse frequency 8 Hz, & 16 Hz
- 8. Display- Seven segment display
- 9. The unit should be US FDA or European CE approved

**Item Sl. No. 235**

**Cryotherapy**

- 1. Unit should have chilling coils.
- 2. Unit should be equipped with heavy duty compressor for fast cooling and it should cool faster even if lid will be open frequently.
- 3. Unit must have Closed-cell foam insulation for energy efficiency.

4. Should have facility for easy cleaning and defrosting.
5. Unit should be made up of stainless steel.
6. Unit should provide casters facility.
7. Unit should provide Temperature Range from -12 ° C to -6° C.
8. Safety Class : Type B
9. Safety Tests: Safety Tests: EN 60601-1 should provide certificate.
10. Unit should provide with 6 Standard size (28 cm x 36 cm) and 6 half size (19 cm x 28 cm) cold packs with non-toxic gel and should be latex free.
11. It should be USFDA/ European CE certified.

### **Item Sl. No. 236**

#### **Laser Therapy Unit**

1. Laser therapy is used for treatment of pain relief. The laser therapy is more penetrative through the tissue and safe for use emitting multiple wavelengths laser.
2. Should have microprocessor based with LCD display having control functions like dose meter, treatment timer, tissue depth treatment setting etc. Laser probes contact/non-contact type
3. Should have facility of Continuous and pulsed operation Cluster probe/laser scanner with > 900 mW power
4. Should cover wavelength range from 660-880 or more. Digital display of wavelength, power and duration. User defined/Pre-programmed, safe treatment protocols.
5. Facility for testing power of the laser output
6. Set of standard accessories with cover & extra safety goggles
7. Should be USFDA/ European CE approved.

### **Item Sl. No. 237**

#### **Short Wave Diathermy (High Power)**

1. Shortwave Diathermy power output 450-500 W with continuous and pulsed mode
2. Standard accessories: Pad Electrodes

3. High power medical diathermy incorporating a high power transmitting oscillator valve and solid state rectifier.
4. Cooling fan- available
5. RF power source Vacuum generating valve
6. Output frequency 27.12 MHz
7. Wavelength: 11 meters
8. Operative Voltage : 230 V, AC 50 Hz.
9. The unit should be European CE or US FDA certified.
10. User defined/pre-programmed protocols

**Item Sl. No. 238**

**Interferential Current Therapy (IFT)**

- 1) Operating Voltage 220 V (AC), 50 Hz
- 2) Carrier Frequency 4 kHz
- 3) Unique sweep programme
- 4) Beat Low AMF 0 to 150 Hz
- 5) Beat high AMF 0 to 100 Hz
- 6) Therapy Mode: Two pole, Four Pole, Vector 100, Vector 40, Russian
- 7) Intensity 0 to 100 mA
- 8) Output display moon light graphical LCD
- 9) Timer Built in, presentable digital timer
- 10) Dimensions (H\*L\*W) 9 cm\*27 cm\*20 cm
- 11) Weight 1.94 kg with accessories
- 12) The unit should be European CE or US FDA certified.

**Item Sl. No. 239**

**Moist Heat Therapy Unit**

- 1) Minimum Size: L x 12" W x 18" Depth
- 2) Stainless steel heavy duty gauge tank well insulated, temperature control, auto cut-off, hot packs for back, knees and shoulder, Side hooks for Packs

- 3) Tap for water drainage
- 4) Mounted on high quality castor wheels
- 5) Handles for carrying the unit from one place to another
- 6) Fitted with 1000 W heating element
- 7) Tank capacity should be 45 -49 ltr
- 8) Temp range should be from 72 to 74 deg C
- 9) Should have additional Thermal cut out at temp 82 to 85 deg C
- 10) Unit should be European CE or US FDA certified

**Item Sl. No. 240**

**PARAFFIN WAX BATH**

1. Internal wax tank minimum size will be around: 22x16x12 inches.
2. Internal wax tank should be made of stainless steel sheet.
3. The top has a metallic cover and the edges of the bath have a laminated covered wooden rim, all around the top
4. Should have castors for easy mobility.
5. Works on 220 VAC. , provided with one special wax immersion heater and thermostat to control temperature from 0 to 100 deg.Cent.
6. Should provide with 10 kg wax.

**Item Sl. No. 241**

**Transcutaneous Electric Nerve Stimulation (TENS)**

- |                     |                         |
|---------------------|-------------------------|
| 1. Output Channel   | Min. 4 channel          |
| 2. Input voltage    | 220 VAC / 50 Hz         |
| 3. Intensity        | 99 mA                   |
| 4. Frequency        | 2, 20,40, 80,120 Hz     |
| 5. Pulse Duration   | Normal                  |
| 6. Dimension Normal | (245x220x88) (LxWxH) mm |

7. Timer 0 to 99 minutes
8. Safety Isolated power output
9. Various modes, including continuous, burst, pulsed, width and frequency modulation.
10. Should be portable and light weight.
11. Should be provided with following accessories:
  - a. 8 rubber electrodes
  - b. 4 output cables
  - c. 8 straps
12. Unit should be CE certified.

### **Item Sl. No. 242**

#### **TRACTION (Electronic Traction system for cervical and lumber traction)**

1. An accurate and sturdy intermittent traction machine
2. Dimension (L x H x D) 325 mm x 290 mm x 310 mm
3. Weight (approximately) 10-15 kg
4. Operating Voltage 220 VAC, 50 Hz
5. Absorption 37 Watts- Max
6. Fuses 500 mA
7. Room temperature 10 degree to 40 degree Celsius
8. Moisture 10% to 80%
9. Treatment Mode Static/ Intermittent
10. Traction Force 5 to 45 Kg
11. Cervical 5 to 15 Kg
12. Lumbar 23 to 45 kg
13. Hold Time 10,20,40, 60, 80 sec with LED indicator
14. Rest time 1,5,10,15, 20 sec with LED indicator
15. Timer 01 to 99 minutes programmable
16. Patient safety available
17. Solid moulded aluminium gear box assembly and high power sturdy motor.
18. The treatment time is electronically controlled and displayed digitally.

19. At the end of treatment time the alarm comes up, traction stops automatically and releases the patient.
20. The unit should be European CE or US FDA certified

Sturdy adjustable height traction table imported should be supplied

### **Item Sl. No. 243**

#### **Specifications for Portable Combination Therapy**

1. A single unit consist of Electrotherapy Current and 1 & 3 MHz Ultrasound.
2. Should have inbuilt Clinical Library for Electro Therapy and Ultrasound Modalities
3. Should have facility to run three treatments simultaneously with individual parameters
4. In combination mode , it should deliver selected current from the ultrasound applicator along with ultrasound waves
5. Equipment should have Graphic LCD screen with minimum of 5.7 inch diagonal length
6. Equipment should have S-D curve facility where all reading should appear in tabulation
7. Unit should have following minimum current with given specifications of the parameters :
  - i. 4 Pole with Vector
  - ii. 2-Pole
  - iii. I-Galvanic with frequency upto 100 Hz and width from 0.01 to 300 mSec
  - iv. Russian with Ramp ON / OFF
  - v. TENS with selection of Symmetrical and Asymmetrical biphasic output
  - vi. Iontophoresis
8. NMES with Single , Reciprocal and Co-Contraction modes
9. Ultrasound Therapy should deliver 1 Mhz or 3 Mhz from the single applicator.
10. Ultrasound should have facility to adjust following parameters
  - a. Timer.....1 - 90 min
  - b. Duty Cycles : Pulsed.....10%, 20%, 50%
  - c. Continuous.....100%
  - d. Rate ..... 16, 48, and 100 Hz
  - e. Frequency.....1 MHz, 3 MHz
  - f. Intensity .....0 to 2.5 W/cm<sup>2</sup>
11. System should supply with two set of output cable, 4 rubber electrodes, 1 packet of pre-jelled sticking electrode, point electrode.

12. Should be USFDA/European CE certified

**Item Sl. No. 244**

**Treadmill with Reverse Belting and Safety Harness**

1. Speed range of treadmill should be 0 ... 20 km/h starting from 0 and should be very smooth
2. Elevation (inclination) range should be '-20% to +20 %
3. Running-deck size L: 150 x B: 50 cm Approx.
4. allowed weight load on deck: 180 kg or more
5. shock-absorbing system (not too soft for natural running)
6. Line voltage: 220 ... 240 Volts / 50/60 (Hz)
7. Treadmill must connect to printer without using PC software
8. for fast documentation of therapy exercise
9. Speed display resolution 0.1 km/h
10. Elevation display resolution 0.1 %
11. Distance display resolution 1 meter
12. Time display resolution 1 second
13. MET display resolution 1 MET
14. Energy consumption display resolution 1 K Cal or 1 K joule
15. Wattage display resolution 1 Watt
16. User definable profiles ( freely Programmable) – specify no of user defined profiles
17. Training profiles (already programmed)- specify no of training profiles available.
18. Stress-test profiles- specify the number of stress test profiles available.
19. Display of error-codes
20. min. 2 to 4 acceleration levels (slow and fast increase or decrease of speed)
21. Treadmill should have long handrails to cover entire treadmill.
22. Emergency – Stop/Off button (disconnecting power supply)
23. Should have facility for reverse belting
24. anti-slip footboard (step-tread) left & right side
25. 3.2- 3.4 kW (4.2-4.5) drive motor.

26. Should supply with a software for remote control, to display all treadmill data and function on PC screen.
27. Treadmill should have safety arch with chest harness and facility for fall stop. The max body weight for safety arch should be more than or equal to 180 kg.
28. System should have arm support with width and height adjustment and should fit to any age group.
29. System should supply with expander with different resistance in front of the treadmill and rear of the treadmill to create resistance and traction of Forces
30. Expander system should be adjustable in different angle with numeric adjustment record.
31. Should supply with suitable computer system.
32. System should be certified with CE0 123; guideline 93/42/EEC+GL 2007/47/EC; MDD, machinery directive 2006/42/EC; DIN EN 60601-1;
33. The offered equipment should be European CE or US FDA approved.

### **Item Sl. No. 245**

#### **Blood Collection Monitor**

1. Should have facility to preset total volume of blood to be collected and accordingly monitor and display amount collected. It should have facility to clamp to stop the collection of blood as soon as preset volume is collected and not allow over collection.
2. Battery backup should be > 8 hours with continuous work load(rechargeable battery)
3. Battery charger should be inbuilt
4. Should be portable (Suitable for outdoor blood donation camps).
5. Should have standby / park mode
6. Should be able to operate at 10-50° C
7. There should be digital display of preset volume, rate of collection and total time taken at the end of collection.
8. Oscillation: 12 ± 2 rpm
9. Should mix the blood with anti – coagulant solution during collection and ensure that only correct amount of blood is collected
10. There Should be Visual display and audible alarm:
  - (i) when flow rate goes below 20 ml /min or high flow rate above 180 ml / min
  - (ii) at the end of collection
  - (iii) when battery low
  - (iv) during pause function
  - (v) any abnormal condition

11. European CE or US FDA certification specific for the product should be submitted
12. Every Bio-mixer should be provided with carry box with handle
13. Original literature should be submitted
14. User's list should be provided with satisfactory report for the last three years from three Licensed Blood Banks with contact details.
15. Original literature of equipment should be submitted.
16. Electrical: The equipment should be able to run on the existing electrical provision.
17. Suitable Automatic Voltage regulator/stabilizer meeting ISI specifications should be supplied. Broad specifications are: Automatic Type Input 150-280 V, Output 220 V +/- 7 %, 50 Hz. Single phase, AC with automatic 2-4 sec Cut Off and 6-9 minutes restart delay.. Quick start arrangements for bypassing the start delay. Suitable MCB on input voltmeter and indicators on Front Panel. Input Power Cable with 15 A Plug and six way output terminal strip for two outlets
18. Accessories :-
  - Floor stand
  - Transport case with built-in charger
  - 500 g Calibration weight
  - Auto Set cable

### **Item Sl. No. 246**

#### **Bio Sealer**

1. Should be heavy duty radio frequency sealer.
2. Should be capable of doing 500+ sealing in 8 hrs. and should be capable of functioning for minimum 12 hrs nonstop.
3. Should be a compact single unit
4. Should have high frequency sealing with low RF emission
5. There should be automatic detection of the tube by pressing of a lever which activates sensor.
6. Should be able to detect wet tube, leakage and sealing defects. There should be and alarm in case seal is not safe and completed.
7. There should be uniform sealing irrespective of power supply variations.
8. Tube thickness of up to 6 mm of diameter and wall thickness up to 0.75 mm can be sensed and sealed automatically.
9. Should be able to making wide Seal of 2 mm thickness.
10. Indication of seal in progress should be there.
11. Sealing time should be less than 2 sec.
12. Separable rupture line to separate tube after sealing.
13. Should ensure safety against electrical shock hazards, fire hazards, and mechanical hazards.
14. There should be no hemolysis of blood in the tube segments
15. No warm-up time should be required
16. Should be able to withstand voltage fluctuation
17. It should be easy to clean.
18. Should have hand grip on top side of the equipment for easy lifting of equipment.
19. Splashguard to protect user from any kind of blood splash during operation.
20. European CE/US-FDA certification specific for the product should be submitted.

21. ISO 13485 certification specific for the product should be submitted
22. Weight of equipment should not exceed 6 Kg.
23. Original literature of equipment should be submitted.
24. Firm will have to supply the suitable stabilizer with the equipment if it is essential for the performance of the equipment.
25. Electrical: The equipment should be able to run on the existing electrical provision

**Item Sl. No. 247**

**Bio Sealer (Handheld)**

1. Purpose of Equipment:
2. Handheld Blood Bag Tube Sealer is a compact handheld equipment to seal the Blood Bag pilot PVC tubing by transient radio frequency heating and sealing, with no haemolysis.
3. Quality Standard:
4. Manufacturing should be compliant with ISO 13485.
5. Should be compliant with CE Class II A and/or US FDA
6. Equipment must meet electrical safety specifications of IEC 60601.
7. Operational requirements:
8. Should gently seal tubing with no hemolysis, using radiofrequency heating
9. Should be capable of making wide seal of at least 2 mm width.
10. Should be rechargeable battery operated compact (less than 3 Kg) hand held type, not bench top type.
11. Sealing time should not be >2 sec
12. Electrodes should be well protected by a cover to prevent blood splutter.
13. Should have indicator lamp for sealing process
14. No warm up time should be required
15. Should have tear-seal feature to make segments that can be easily separated by hand
16. No. of seals per charge should be more than 1000 continuous seals from a fully charged battery.
17. Charger should be compatible with Input voltage: 240 V 50 Hz Single phase Ac
18. Additional requirements
19. All equipment should specify qualifications for design, installation, operation and performance.
20. Validation and calibration reports should have traceability to applicable national and international standards.
21. Complete with comprehensive set of spare parts and a suitable capacity voltage stabilizer and surge protector with the charging set.
22. Necessary catalogues, technical write up in English, should be attached with the offer both in hard and electronic copies.
23. Demonstration and continued comprehensive training for lab staff and support services till familiarity with the system.

24. Should provide electronic and hard copies of User Manual (English), Service manual (English) and Complete construction details with respect to material specification, thickness, finish etc.
25. Should provide a set of equipments for calibration and routine Preventive Maintenance as per manufacturer documentation in service/technical manual

### **Item Sl. No. 248**

#### **Donor Couch**

1. Based on haemodynamic principles to allow blood volumes to redistribute
2. Armrest suitable for phlebotomy and better blood flow.
3. Automatic adjustment of arm- rest to adjust seat of length more than 50 cm and width of 15 cm to set the arm position to the donor's comfort
4. Material should be waterproof with rounded borders and easy to clean.
5. The length of the couch should be 200 cm to 215 cm to accommodate all type of donors.
6. Specially designed for comfort of donor and phlebotomist
7. Should be able to accommodate Donor weight capacity of more than 200 Kg.
8. Electronic remote adjustment for height and comfortable sitting position.
9. Provision to shift the donor's position from "head high – foot low" to "foot high- head low" or any position in between
10. Only one button to reach shock position: Head low in case donor reaction.
11. 2/3 motors with separate control through remote for positioning of couch.
12. Electric motor should have limit switch and safety circuit.
13. Central locking with locking lever: Couch should be movable with wheels with locking facility.
14. Seat height adjustable to enable to lower it as low as 50 – 75 cm from the floor level for donor to sit easily.
15. Provision of I.V. stand with provision keeping standard Bio mixer on both sides.
16. Trolley should be provided with each couch for keeping blood collection monitor and other consumables.
17. Good quality Couch covers (two sets) to be provided along with the couches including handles.
18. Original literature of equipment should be submitted.
19. User's list should be attached with satisfactory report for the last three years from three users with contact details.
20. Demonstration of performance of equipment is compulsory in nearby area failing to which will be disqualification.
21. Electrical: The equipment should be able to run on the existing electrical provision.
22. Should be European CE /US FDA certified product
23. Should be supply with suitable stabilizer with BIS/CE mark.
24. Accessories:-
25. Dust cover
26. Power cable
27. Additional arm rest (pair)
28. Remote control

**Item Sl. No. 249**

**Folding Donor Couch (One set -2 chairs with one trolley)**

1. Mobile Foldable designed to fold into a compact
2. Dimensions: 24-30"W X 62-75"L X 18-25"H
3. Weight should not be more than 20 Kg.
4. Should be easily to clean and maintain
5. Should be in durable tubular metallic material rust resistant.
6. Should be able to bear the larger donors weight up to 150 Kg.
7. Should have padded armrest for extra comfort to the donor, adjustable for proper arm placement.
8. Standard Electronic blood collection scale with each couch (Optional)
9. Couch should easily be reclined into a secured shock position
10. Pockets to be provided at the back of each couch for keeping accessories
11. Should be provided with washable linen covers( 1 pair) with each couch
12. Should be sturdy and should be able to withstand transportation rigors
13. Should be provided with transportation trolley to hold maximum 5 couches
14. Cost of transportation trolley should be quoted separately
15. Original literature of equipment should be submitted.

**Item Sl. No. 250**

**Tube Stripper**

1. Should have completely anti-rust, stainless steel body.
2. Should be light weight.
3. Should ensure the uniform pressure while pressing to close and automatic recoiling of spring to release handle for opening.
4. Should have Screw- less rollers to avoid loosening of the rollers.
5. Should have extra sharp cutting edges.
6. Should behave ergonomically designed handle for better grip.
7. Should have roller guide to avoid any damage of tube.
8. Should have provision for manual tube sealing by aluminum rings.
9. Original literature of equipment should be submitted.
10. Should be ISO 13485 approved product.
11. User's list should be attached with satisfactory report the last three years from three users with contact details.

**Item Sl. No. 251**

**Two Pan Component Balance (Digital)**

1. Should be two pan balance
2. Should have digital LCD/LED display of weight and other parameters

3. Accuracy  $\pm 1$  to 2 grams
4. Should have two independent weight sensors, which display individual weight of each bucket with accuracy
5. It should have individual display monitor to display the weight of each bucket with blood bags
6. Visual or audio alarm should get on as soon as the two plates get balanced
7. Weight Measurement: Should be able to measure weight of upto 3000 grams
8. Should be appropriate to weigh and balance blood holding baskets of standard size
9. Weight of balance should not be more than 5 Kg.
10. Original literature of equipment should be submitted.
11. User's list should be provided with satisfactory report for the last three years from three Licensed Blood Banks with details.
12. European CE or US FDA certification specific for the product should be submitted.
13. Firm will have to supply suitable UPS with 30 min back up along with the equipment free of cost
14. Firm should also provide the relevant calibration certificate for the equipment from any NABL accredited Lab.
15. Demonstration of performance of equipment is compulsory in nearby area failing to which will be disqualification.
16. Electrical: The equipment should be able to run on the existing electrical provision

### **Item Sl. No. 252**

#### **(-40° C) Deep Freezer**

1. Should be suitable for storage of FFP/ plasma / cryoprecipitate in blood banks.
2. Operating temperature rate should be from -20° C to -40° C at ambient
3. Upright model with internal capacity 500 to 600 liters.
4. Solid outer cabinet of painted steel to prevent corrosion, Inner cabinet of stainless steel.
5. Separate inner doors to prevent temperature loss.
6. System should have 4-6 inner shelves of stainless steel
7. Microprocessor control for operation with integrated audio/visual temperature alarm function with digital monitoring display.
8. Minimum four hours battery backup for temperature display.
9. System four inbuilt features to identify any temperature deviation beyond set point.
10. Should be provided with data logger device
11. System should have operating temperature & high/ low limit alarm functions with set point adjustable in steps of 1° C.
12. System should have CFC free refrigerants.
13. Should be European CE Class-2 A/ US-FDA approved product.
14. Should be ISO 13485 approved product.
15. System should have automatic voltage boost compensations for low voltage conditions.
16. System should have safety alarms with automatic, continuous charged battery back up to provide alarm functions even in case of power failure.
17. System should have appropriate insulation to maintain temperature

18. System should have double seal lid gasket to minimize frost build up
19. System should have minimum vibrations, and noise level should not exceed 60 db
20. Heating device on frame to avoid condensation or automated defrost will be an added advantage.
21. System should have 7 days temperature recorder
22. The firm will have to supply 300 temperature recorder chart papers, free chart should be provided for the period of warranty, along with the equipment free of cost.
23. Should have castor wheels with locking facility
24. Firm will have to supply the stabilizer if required along with the equipment free of cost
25. Original literature of equipment should be submitted.
26. Firm should also provide the relevant temperature calibration certificate for the equipment from any NABL accredited Lab.
27. Electrical: The equipment should be able to run on the existing electrical provision

### **Item Sl. No. 253**

#### **Cryo-Bath**

##### **Purpose:**

1. The Cryo Bath is designed for rapid and uniform thawing of fresh frozen plasma bags at 4 °C +/- 0.2 °C such that the cryoprecipitate remains solid, and a cryosupernatant liquid is formed that can be transferred out of the bag in order to manufacture cryoprecipitate units.

##### **Operational Requirements:**

2. Floor standing system, mounted on lockable castors.
3. Should be having capacity of 12-18 bags per run for one cycle.
4. Should be able to thaw ten to twelve plasma units (FFP ~200-300 ml) at a time.
5. Should have Stainless Steel Tank of 22G, and an insulated lid covered with 20G Stainless Steel.
6. Should be fitted with compartments that have removable rack/tray system for securely holding the plasma bags and ensuring that entry ports are not contaminated with water.
7. Should be a microprocessor controlled water bath based system operating at a temperature at 4 °C +/- 0.2 °C or alternative can also be safely set at 37 °C +/- 0.2 °C.
8. Digital, electronic system with provision for programmable temperature adjustment setting with LED display with temperature resolution of 0.1 °C
9. Should not take more than 2 hours at full loads to thaw the plasma into cryosupernatant.
10. Should have a deep thawing chamber with a stirrer for water circulation & gentle rocking for uniform heating by high capacity pump.
11. Should have a system to drain the chamber without lifting or tilting, and should be fitted with a shut off valve.

12. The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90% without getting rusted.
13. Compatible with Input voltage: 240 V 50 Hz Single phase AC
14. Should have an integrated voltage stabilizer or external servo stabilizer of appropriate ratings meeting ISI Specifications (Input 160-260 V and output 220-240 V and 50 Hz).
15. Resettable overcurrent breaker shall be fitted for protection

**Quality standards:**

16. Manufacturing should be compliant with ISO 13485.
17. Should be compliant with European CE or US FDA
18. Equipment must meet electrical safety specifications of IEC 61010-1

**Additional requirements:**

19. Validation and calibration reports should have traceability to applicable national and international standards.
20. Complete with comprehensive set of spare parts, and a suitable capacity voltage stabilizer and Suitable UPS with maintenance free batteries for minimum one-hour back-up for each equipment should be supplied with the system.
21. The make, rating, model, description, specifications, price quantity of each item should be furnished separately.
22. Necessary catalogues, technical write up in English, should be attached with the offer both in hard and electronic copies.
23. Demonstration and continued comprehensive training for lab staff and support services till familiarity with the system.
24. Should provide electronic and hard copies of User Manual (English), Service manual (English) and Complete construction details with respect to material specification, thickness, finish etc.
25. Should provide a set of equipment for providing calibration (eg thermometer) and routine Preventive Maintenance as per manufacturer documentation in service/technical manual.
26. Should provide Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

**Item Sl. No. 254**

**Water Bath**

1. Dimensions (external, lxbxh ) 40 cm x 40 cm x 20 cm (Approx.)
2. Dimensions (internal, lxbxh ) 30 cm x 30 cm x 15 cm (Approx.)
3. Double wall Insulated metal body
4. Temperature range 37° C -100° C
5. Digital temperature control and Display
6. Temperature precision 0.1° C
7. Should have provision to maintain uniformity of temperature
8. Should have the provision to incubate racks of all size of test tubes
9. Illuminated On switch

10. Indicator light showing heating element operation
11. Temperature control
12. Demonstration of performance of equipment is compulsory in nearby area failing to which will be disqualification.
13. Electrical: The equipment should be able to run on the existing electrical provision
14. Should be BIS/CE/FDA approved product

### **Item Sl. No. 255**

#### **Mobile Transport Box**

1. Mobile refrigerated transportation box should be able to transport packet red cells, whole blood, platelets, plasma at the required specific temperatures.
2. Should be robust, lightweight, portable mobile refrigerated transport box made up of rotationally moulded polyurethane.
3. Temperature range adjustable from -20 deg C to +22 deg C
4. Capacity to hold 25-30 blood bags of 450 ml
5. Should work on AC & DC power with the provision of attachment to vehicle battery.
6. Should have digital temperature display of the internal temperature with functional alarm systems to indicate variations in the set temperature.
7. Should be CFC free refrigerant.
8. Should be USFDA or European CE certified

### **Item Sl. No. 256**

#### **Table Top Micro plate Centrifuge**

1. Speed: 300-3000 rpm with increment of 10
2. Max RCF: 2000 x g or more
3. Automatic Rotor Recognition and imbalance detection.
4. Timer: 0 to 60 mins. continuous operation
5. Drive system: Brush less induction drive
6. Noise level at max speed should be less than 60 db
7. System should have safety features like lid lock and interlock
8. System should have microprocessor controlled pre-selection and display of speed and time.
9. Centrifuge should be European CE or USFDA approved or equivalent
10. The centrifuge should be provided with the following accessories
11. Swing out rotor:
12. Speed: 300-4000 rpm or more
13. RCF: 2000 x g or more
14. Capacity: Should be able to centrifuge 2 Microplate of 96 wells
15. Rotor head should be available with the firm for immediate replacement
16. Price of the spares should be quoted
17. Firm will have to supply the stabilizer with the equipment if required.

18. Firm will have to supply suitable table for keeping the centrifuge, made of powder coated stainless steel of good stability
19. Firm will have to supply the stabilizer if required along with the equipment free of cost
20. Original literature of equipment should be submitted.
21. Firm should also provide the relevant temperature calibration certificate for the equipment from any NABL accredited Lab.
22. Electrical: The equipment should be able to run on the existing electrical provision

### **Item Sl. No. 257**

### **Deep Freezer (-20 deg C)**

#### **1. Description of Function**

- 1.1 Deep Freezers are required to preserve blood and blood products, vaccinations etc at specified temperature.

#### **2. Operational Requirements**

- 2.1 Vertical Freezer, single door with adjustable 6 to 8 shelves or drawers (frost free).
- 2.2 Separate Chamber racks or drawers to be pulled out for easy handling.
- 2.3 Non-CFC refrigerant

#### **3. Technical Specifications**

- 3.1 Capacity: 350L to 400 L.
- 3.2 Digital display of set and actual temperature, with audiovisual alarm
- 3.3 No condensation on storing material with automatic defrost.
- 3.4 Construction: Solid rust free cabinet to prevent corrosion and lockable castor wheels.
- 3.5 Refrigeration System Heavy Duty refrigeration system, with low maintenance, below -20 deg C (+ 10 C) with hermetically sealed refrigeration compressor and reliable refrigeration to minimize noise and vibration, air cooled with special design or arrangement to prevent unintentional switch off shall be supplied. It should have maximum cooling time hours at maximum ambient temperature of 33 deg C. The equipment should be of continuous duty and frost free.
- 3.6 Alarm: It should also have audio visual Electronic Alarm System independent of power supply.

- 3.7 Insulation: High density polyurethane or equivalent Gaskets - Double seal silicon.

#### **4. System Configuration Accessories, spares and consumables**

- 4.1 As specified

#### **5. Environmental factors**

- 5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%
- 5.2 The unit shall be capable of operating continuously in ambient temperature of 10 -40 deg C and relative humidity of 15-90%

#### **6 Power Supply**

- 6.1 Power input to be 220-240 VAC, 50 Hz.
- 6.2 Resettable over current breaker shall be fitted for protection.

#### **7 Standards**

- 7.1 Should be CE or FDA or BIS approved product.

### **Item Sl. No. 258**

#### **ESR Analyser**

1. Should be based on Westergreen Principle and conforming to the recommendations of International Council for Standardization in Haematology (ICSH)
2. Should be able to accept EDTA blood samples in vacutainer tubes with continuous loading possibilities.
3. System should offer very low running cost employing 80-100 or more precision bore Westergren glass tubes, with automatic wash and reuse.
4. Should have facility to accept the sample rack of common blood cell counter in a universal rack adapter for walk away operation.
5. System should be able to have one to five racks at one location, each rack with a capacity to hold more than 10 samples on an average.

6. Should have bi-directional interface with LIS for check of bar code and select from rack only those samples meant for ESR and without need for separation of ESR from non ESR
7. Machine should be equipped with autoloader and open access to samples all the time when space is available, with positive sample identification bar code reader.
8. Accurate and automatic on-board dilution with citrate solution and automatic temperature correction to specified temperature of 18°-20°C should be available.
9. The tubes should be automatically cleaned on board,
10. Should have the ability to detect even haziness in samples and measure the position of the meniscus accurately and consistently for precise results.
11. System should have a minimum throughput of 50-60 samples in per hour
12. The system should be ideally microbiologically safe for the operator and environment.
13. Equipment will be supplied with suitable on-line UPS with one hour backup.

### **Item Sl. No. 259**

#### **Vacuum Assisted Tissue Processor**

1. The equipment should be carousel type with 12 stations of 1.8 litre each; 10 reagent stations, 2 wax baths.
2. The System should have inbuilt vacuum with fume control.
3. Audible alarms, error message and warning codes should be available.
4. Ergonomic control panel with full protected keyboard and LCD should be available.
5. Easy editing and changing of programs, even during a processing run should be an available feature.
6. Delayed start function up to 4 days should be possible. Auto-restart function should also be available.
7. Infiltration time separately programmable for each station should be available.
8. The equipment should have nine freely selectable programmes.
9. Drain time should not exceed 60 sec.
10. Possibility of interrupting an automatic process for reloading or removing cassettes for special applications before the end of a run should be available.
11. Baskets should automatically immerse in a station during the power failure.
12. Suitable online UPS support with minimum one hour backup should be available
13. The equipment should be USA- FDA/European- CE approved

14. There should be provision for display of level indicators.

### **Item Sl. No. 260**

#### **Embedding Station with Hot & Cold Table & Paraffin Dispenser**

1. Microprocessor controlled bench top unit with high specimen throughput.
2. Paraffin reservoir capacity should be a minimum of 3 liter.
3. Paraffin reservoir temperature setting range from 55°C to 70 °C with +/- 1°C steps
4. Ample cold plate to accommodate at least up to 60 blocks.
5. Cassette bath to store at least up to 80 cassettes.
6. Mold warmer temperature programmable from 55°C to 70°C with +/- 1°C steps
7. Work surface temperature programmable from 55°C to 70°C with +/- 1°C steps
8. Paraffin reservoir, cassette bath, mold warmer and work surface temperature should be individually temperature adjustable.
9. Instrument should be programmable for work-days, work starting time, work end time, real time and day of the week for Automatic switch on/off of the instrument.
10. 1-way paraffin flow rate adjustment must be available up to 100% flow.
11. Illuminated workspace for clear visibility of the processing.
12. Activation of paraffin flow via foot switch or using the pressure clip should be available.
13. Spacious paraffin collection tray to collect excess paraffin from work surface should be available.
14. Suppliers should have a good number of installation base with efficient after sales support with proven track record.
15. The equipment should be USA- FDA/European- CE approved model.
16. Equipment should be supplied with 100 steel moulds.

### **Item Sl. No. 261**

#### **Microtome-Semi Automated**

The instrument should have Motorised feeding system with manual sectioning with rocking mode facility and ability for voltage selection, 2nd handwheel brake, separate control panel for display, blade holder, and disposables blades of both high and low profile type, universal cassette clamp with following specifications:

1. Section thickness setting : 0.5 to 100 microns
2. Setting values: 0.5 to 5 micron in 0.5 micron increments  
5 to 20 micron in 1 micron increment

20 to 60 micron in 5 micron increment

60 to 100 in 10 micron increment"

3. Horizontal specimen feed : 28 mm +/- 1 mm, feed motion via step motor
4. Coarse feed : Motorised course feed in two steps  
i.e 300 micron /sec and 900 micron/sec."
5. Vertical specimen stroke length: 60 - 70 mm
6. Specimen orientation : Horizontal 8 deg, Vertical 8 deg.
7. Trimming Section thickness: 1 to 600 micron
8. Specimen retraction : 5 to 100 micron in 5 micron increment,
9. Voltage supply: 230 V-50/60 Hz.
10. The equipment should be USA- FDA/European- CE approved Model.
11. Instrument should be supplied with minimum 10 high profile and 15 low profile disposable blades and 2 sets of brushes.

### **Item Sl. No. 262**

#### **Cryomicrotome/Cryostat**

1. The Cryostat should be a floor standing model with power requirements of 230 V, 50-60 Hz.
2. Cryo chamber temperature setting should be 0° C to -40° C Cooling via two separate
3. compressor systems with specimen cooling
4. Specimen cooling facility available should be in the temperature range of – 10 to - 50 deg C.
5. Maximum cooling time up to maximum low temperature should be less than 4 hours after start up.
6. Actively cooled quick freezing shelf should be at -45 °C.
7. Specimen storage shelf should store up to 8 chucks.
8. Maintenance free microtome with section thickness setting range from 0.5 to 30 micrometer should be available.

9. Fully Automatic Sectioning with an option of manual operation should be available.
10. Equipment should be suitable for sectioning of maximum specimen size: 40 mm x 55 mm.
11. Vertical specimen stroke length available should be 45-60 mm, with a horizontal specimen feed of 20-30mm
12. Motorized rapid and slow coarse feed preferably at two speeds 500µm/s & 1000 µm/s should be available.
13. Trimming facility from 5 to 150 µm +/- 0.5 um, in steps of 5, 10,30,50,100,150 µm should be available.
14. Disposable blade holder system with lateral displacement and integrated glass anti-roll guide should be available.
15. Glass anti-roll guide with anti-static feature to facilitate perfect stretching of sections should be available.
16. Specimen precision orientation by 8 deg. (in x/y/z axis) should be available.
17. Instrument should have closed drainage system to allow controlled disposal of fluids.
18. Automatic & manual chamber defrost facility should be available with one automatic defrost cycle / 24 hours
19. Duration of the defrost cycle should be 6 – 15 minutes.
20. Electronic locking key to avoid any inadvertent changes in program setting should be available.
21. Manual disinfection facility should be available.
22. System should be quoted with Disposable Blade system of both high and low profile. Instrument should be supplied with minimum 15 high profile and 10 low profile disposable blades and 2 sets of brushes.
23. The equipment should be USA- FDA/European CE approved
24. Embedding medium of 500ml should be supplied.
25. Facility of UV lamp decontamination should be available.

**Item Sl. No. 263**

**Cytosine/Cytocentrifuge**

1. The equipment should be a Bench-top centrifuge for cytology specimens
2. The equipment should be capable of thin-layer cell preparation for retrieving cells from various body fluids especially paucicellular fluids and preserving their morphology
3. Should be capable of processing up to 12 specimens at one time
4. Should be equipped with Biological safety cabinet for safety of the operator
5. Auto-lid lock during rotation with a special lid-release mechanism should be available
6. Should be designed for easy disinfection and also have a wipe- clean control panel
7. Should be resistant to fluid spillage on the electronic components with capped disposable sample compartments/ chambers for elimination of aerosol
8. May have different sizes of disposable chambers
9. Safety alarms during all stages of operation should be available
10. Microprocessor based controls and programming for time and speed with pull-out program card for fast retrieval
11. Should be compliant with international standards for electrical equipment requirements for laboratory use
12. Speed upto-3000rpm or more
13. Noise levels < 50 Db
14. The equipment should be a automated slide preparation system that produces uniform thin-layer slides for both gynecologic and non-gynecological sample processing which should remove obscuring blood, mucus, debris and also thoroughly mix the sample
15. The equipment should be USA- FDA/European- CE approved Model.

**Item Sl. No. 264**

**Downdraft ventilated, Stainless Steel, Dissecting Bench**

**1. Description of function:**

- a. Grossing Station comprises of complete set up of working area with facility to carry out autopsy. Working area should have drainage and continuous rinse facility.
- b. Wall mounted autopsy sink provides all the features normally found in a typical pedestal style autopsy table without the space requirement

**2. Operational Requirements:**

The wall mounted style should eliminate the physical strain of moving the body by enabling autopsy directly performed on the autopsy cart and an elevated design should allow for easy floor cleaning

**3. Technical Specifications Work Station:**

- a) Should have right and left work stations
- b) Grid plates should be provided
- c) Working area should have drainage
- d) Central sink:
- e) Should have hydro-aspirator with reverse flow
- f) Should have hot / cold water fixtures.
- g) Fixtures should have wrist blade handles
- h) Fixtures should have gooseneck faucet
- i) Sink rinse with hose fittings and hose hanger should be provided
- j) Vacuum breaker should be provided
- k) It should have Cart to Sink locking mechanism.
- l) Instrument Drawer:
- m) Under both work stations
- n) Fluorescent light:
- o) Over both work stations

**4. Electrical receptacles:**

- a) GFCI type 220 / 240 Volts AC 50 Hz.
- b) Disposer Unit:
- c) Should have Solenoid valve, Vacuum breaker, Water tight on / off switch, Internal Overload protector, Motor ½ to ¾ HP.

**5. Fabrication:**

- a) Stainless Steel Type 304 with satin finish

**6. Dimensions:**

- a) Length: 280 – 290 cm.
- b) Width: 65 – 75 cm.
- c) Height: 180 – 190 cm.

**7. System configuration accessories, Spares and Consumables:**

- a) None

**8. Environmental factors:**

- a) Shall meet IEC-60601-1-2:2001 (Or Equivalent BIS) General Requirements of safety for Electromagnetic Compatibility or should comply with 89/366/ECC; EMC-Directive.

- b) The unit shall be capable of operating continuously in ambient temperature of 20-30 deg C and relative humidity of 15- 90 %
  - c) The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg C and relative humidity of 15 – 90 %
- 9. Power Supply:**
- a) Power input to be 220 – 240 VAC, 50 Hz fitted with Indian plug.
- 10. Standards, Safety and Training:**
- a) Should be European CE or US FDA approved product
  - b) Manufacturer should have ISO certification for quality standards.
- 11. Documentation:**
- a) User / Technical / Maintenance manuals to be supplied in English.
  - b) List of important spare parts and accessories with their part number and costing.
  - c) Compliance report to be submitted in a tabulated and point wise manner clearly mentioning the page / Para number of original catalogue / data sheet. Any point, if not substantiated with authenticated catalogue / manual, will not be considered.

## **Item Sl. No. 265**

### **Air Purifier**

- 1. Technical specifications:**
- a. Should be noiseless while running.
  - b. Spraying solution should be environment friendly, non-toxic, ozone safe and biodegradable.
  - c. Spraying solution should be able to breakdown and neutralize odour causing bacteria and molecules.
  - d. System should have at least four spraying units.
  - e. Spraying solution should be readily available on a recurring basis.
- 2. System configuration accessories, Spares and Consumables:**
- a. None
- 3. Environmental factors:**
- a. The unit shall be capable of operating continuously in ambient temperature of 20-30 deg C and relative humidity of 15- 90 %
  - b. The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg C and relative humidity of 15 – 90 %
- 4. Power supply:**
- c. Power input to be 220 – 240 VAC, 50 Hz fitted with Indian plug.
  - d. UPS of suitable rating with voltage regulation, spike protection and maintenance free batteries for 60 minutes back up.
- 5. Standards, Safety and Training:**
- a. Should be European CE or BIS or FDA approved product.
  - b. Manufacturer should have ISO certification for quality standards.

**6. Documentation:**

- a. User / Technical / Maintenance manuals to be supplied in English

**Item Sl. No. 266**

**Cadaver lift Conveyor style**

**1. Description of function:**

- a. Eliminates the strain of manual lifting of the bodies to body racks in cold room

**2. Operational Requirements:**

- a. Eliminates physical strain of lifting the body to the body racks and getting it down from the body racks.

**3. Technical specifications:**

- a. Should be able to transport dead bodies from cold storage to autopsy table and then to the relative waiting area. Should be able to lift bodies and place them on the body racks in the cold room and also bring them down from body racks.
- b. Stainless Steel Type 304 with satin finish, rugged frame structure, gray powder coated.
- c. Should be able to bear the weight of dead body. Lifting capacity: 250 kg.
- d. Dimensions: Length: (75 – 95) inches. Width: 35 – 40 inches. Height adjustable. When fully elevated: 75 – 85 inches; lowermost: 9 inches.
- e. Integrated 12 V Hydraulic Unit for vertical adjustment.
- f. Battery operated electro-mechanical lifting system.
- g. Casters should be rubber edged with total lock wheel locking in-built system. Navigation should be possible in all directions.
- h. Can be easily cleaned with ordinary detergent after each transportation and should be resistant to fumigation chemicals and cold temperature.
- i. Should be durable and have bumpers to protect the carrier from accidental bumping on the walls of autopsy hall and body storage racks.
- j. Push handle for movement.

**4. System configuration accessories, spares and consumables:**

- a. None

**5. Standards, safety and Training:**

- a. Should be European CE or BIS approved product
- b. Manufacturer should have ISO certification for quality standards.
- c. Comprehensive training for lab staff and support services till familiarity with the system.

**6. Documentation:**

- a. User / Technical / Maintenance manuals to be supplied in English.
- b. Compliance report to be submitted in a tabulated and point wise manner clearly mentioning the page / Para number of original catalogue / data sheet. Any point, if not substantiated with authenticated catalogue / manual, will not be considered

**Item Sl. No. 267**

**Oscillating Electric Autopsy Saw**

- 1. Technical specifications:**
  - a. Strong Motor with at least 17,500 rpm
  - b. 15,000 – 16,000 Oscillations / minute
  - c. Motor is to be provided with long service cord with plug.
  - d. Hand piece with safety flange permitting firm grip and should stay cool during operation
  - e. Easily detachable hand piece – autoclavable.
  - f. Both hand and foot switch for on and off operation.
  - g. Suitable wrench to remove blades
  
- 2. System configuration accessories, spares and consumables:**
  - a. Large section blade 6.3 cm width with a stem of 1.1 cm. Small section blade 4 cm width - (10 nos. each)
  - b. Should be provided with vacuum bonedust collector with HEPA filter.
  
- 3. Environmental factors:**
  - a. The unit shall be capable of operating continuously in ambient temperature of 20 – 30 deg C and relative humidity of 15 – 90%.
  - b. The unit shall be capable of being stored continuously in ambient temperature of 0 – 50 deg C and relative humidity of 15 – 90 %.
  
- 4. Power supply:**
  - a. Power input to be 220 – 240 VAC, 50 Hz fitted with Indian plug.
  
- 5. Standards, safety and Training:**
  - a. Should be US FDA/ European CE/ BIS approved product.
  - b. Manufacturer should have ISO certification for quality standards.
  - c. Comprehensive training for lab staff and support services till familiarity with the system.
  
- 6. Documentation:**
  - a. User / Technical / Maintenance manuals to be supplied in English.
  - b. Compliance report to be submitted in a tabulated and point wise manner clearly mentioning the page / Para number of original catalogue / data sheet. Any point, if not substantiated with authenticated catalogue / manual, will not be considered.

**Item Sl. No. 268**

**Analytical Digital Balance single pan**

**Description of Function: Required for precision weighing of Lab samples**

- 1. Operational Requirements**
  - a. Microprocessor based single pan Analytical Balance with High accuracy & precision is required.

- b. Reading of the weight by digital display.
- c. Electronic top loading balance with transparent case
- d. The balance should have functions of piece counting, percent weighing, formulation, dynamic weighing with automatic and manual start and provision for data interface

**2. Technical Specifications**

- a. Weigh accurately up to 3rd decimal place
- b. Fully automatic time and temperature controlled internal calibration and balance should be capable to adjust itself
- c. Auto zero Setting
- d. Weighing capacity up to 200g
- e. Readability 0.001g
- f. Repeatability 1mg or less
- g. Setting time 1.5 second
- h. Suitable for internal and external adjustment weights
- i. PC connectivity through RS 232 or Ethernet or Bluetooth or PS/2 for efficient data capture and easy network integration.
- j. Liquid Crystal Display (LCD) for display
- k. Stainless steel square weighing pan
- l. IR sensors for hands free operation
- m. Warning if balance is not correctly levelled
- n. Automatic and detachable draft shield
- o. Detachable and adjustable terminal
- p. Facility for user administration and password protection.
- q. Integrated automatic safety function for external routine operations
- r. Alphanumeric data entry of 4 ID's

**3. System Configuration Accessories, spares and consumables - As specified**

**4. Environmental factors**

- a. The unit shall be capable of operating in ambient temperature of 20-30 deg C and relative humidity of 80%.

**5. Power Supply**

- a. Power input to be 220-240VAC, 50Hz
- b. Suitable Auto voltage corrector with spike protector should be available.
- c. Suitable UPS with maintenance free batteries for minimum one-hour back-up should be supplied with the system.
- d. Resettable overcurrent breaker shall be fitted for protection

**6. Standards and Safety**

- a. Should be US FDA/European CE/BIS approved product
- b. Should be compliant to ISO 13485: Quality systems - Medical devices - Particular requirements for the application of ISO 9001 applicable to manufacturers and service providers that perform their own design activities

**Item Sl. No. 269**

**Dissecting Lights (Double Ceiling Mounts)**

- 1. Description of function:**
  - a. Autopsy light is required to conduct autopsy.
  
- 2. Operational Requirements:**
  - a. Should be a Surgical Light unit incorporating the latest LED technology shadowless operating light field
  - b. Should comply with forensic stipulations, i.e. should be able to illuminate the whole body of 6 feet length simultaneously with the same brightness all over.
  - c. Should be of suspension type suspended from the ceiling
  
- 3. Technical specifications:**
  - a. Should have Single Colour high performance LEDs with life time more than 40,000 hours
  - b. Should be a dual dome and the main light and satellite should have the following specifications
  - c. LUX intensity 1,40,000 Lux & Satellite 1,40,000 Lux or above
  - d. Colour temperature should be between 4000 to 4500 degree K
  - e. Colour rendering index should not be less than 95
  - f. Depth of illumination should not be less than 100 cm.
  - g. Illumination adjustment 30% to 100%
  - h. The light dome shall be compatible for laminar air flow.
  - i. Should have stable illumination throughout the life period of the light. If the intensity reduces during the warranty or CMC period the LEDs has to be replaced free of cost if required
  - j. The LEDs must be of a single color suitable for long term maintenance and ease of replacement
  - k. Temperature rise at the pathologist's head level should be less than 2 degree C.
  - l. Should have control panel for light focusing adjustment fixed on the dome or arms.
  
- 4. System configuration accessories, spares and consumables:**
  - a. Should supply autoclavable handle 3 Nos. for each dome
  
- 5. Environmental factors:**
  - a. The unit shall be capable of operating continuously in ambient temperature of 20 – 30 deg C and relative humidity of 15 – 90%.
  - b. The unit shall be capable of being stored continuously in ambient temperature of 0 – 50 deg C and relative humidity of 15 – 90 %.
  
- 6. Power supply:**
  - a. Power input to be 220 – 240 VAC, 50 Hz fitted with Indian plug
  
- 7. Standards, safety and Training:**
  - a. Should be US FDA/ European CE/ BIS approved product.
  - b. Manufacturer should have ISO certification for quality standards

**8. Documentation:**

- a. User / Technical / Maintenance manuals to be supplied in English.
- b. Compliance report to be submitted in a tabulated and point wise manner clearly mentioning the page / Para number of original catalogue / data sheet. Any point, if not substantiated with authenticated catalogue / manual, will not be considered.

**Item Sl. No. 270**

**Temporary Pacemaker**

1. Single chamber temporary pacemaker
2. Should Have Battery Replacement Facility
3. Maximum Pacing Rate –upto 800 ppm
4. Preferably MRI Compatible

**Item Sl. No. 271**

**Patient Care Simulator**

1. Should be a full-body, lifelike manikin to teach basic and advanced nursing skills
2. Head with anatomical landmarks, trachea, and esophagus, along with simulated lungs and stomach, allow the practice of many procedures
3. It should have the Head with anatomical landmarks, trachea, and esophagus, along with simulated lungs and stomach, allow the practice of many procedures:
4. Irrigation of the eye and ear (simulated)
5. Application/instillation of medications in the eye, ear and nose including nasal packing
6. Mouth and denture care procedures
7. Insertion and suctioning of oropharyngeal and nasopharyngeal airways
8. Insertion, securing, and care of endotracheal tubes
9. Tracheostomy care and tracheal suctioning
10. Various oxygen delivery procedures
11. NG tube insertion, care, medication administration, and removal
12. Gastric lavage and gavage
13. Nasoenteric and esophageal tube insertion, care, and removal
14. Subclavian, jejunostomy and Hickman catheter openings
15. Manually generated carotid pulse

16. Deltoid, dorsogluteal, and vastus lateralis IM injections possible (with removable injection pads)
17. Full range of motion for realistic patient handling
18. Able to sit upright without any support
19. Interchangeable stomas depict colostomy, ileostomy and suprapubic cystotomy
20. Colostomy may be irrigated and will retain an indwelling catheter
21. Fingers and toes are spread to allow bandaging
22. Interchangeable Male and Female Genitalia which should have the following features:
  23. Complete urinary catheterization
  24. Can be attached to urinary and colon reservoirs via connector valves
  25. Female genitalia capable of vaginal douching
  26. Will retain indwelling or straight catheter
  27. Enema procedures may be performed using fluid for realistic return
  28. When used with manikin, fluid may be used for realistic return
  29. Urinary valves give the natural resistance felt when catheterizing
  30. Anal valves simulate the internal anal sphincter
31. Circulatory Skills and IV Drug Administration
32. It should have:
  - a) Articulating IV training arm with replaceable skin and infusible vein system allows peripheral intravenous therapy and site care
  - b) Venipuncture possible in the antecubital fossa and dorsum of the hand
  - c) Accessible veins include median, basilic and cephalic
  - d) It should include the following standard accessories:
    - e) Washable hospital gown (2 set)
    - f) Carrying case
    - g) Lubricant or polish

### **Item Sl. No. 272**

#### **Patient Care Simulator Externally Controlled By Electronic Device**

1. Manikins should have option for advance nursing procedure, including the measurement of noninvasive blood pressure and the auscultation and recognition of normal and abnormal heart, lung and bowel sounds when used with a wifi touch screen remote control with simpad/monitor connectivity
2. Should be a full-body, lifelike manikin to teach basic and advanced nursing skills
3. Head with anatomical landmarks, trachea, and esophagus, along with simulated lungs and stomach, allow the practice of many procedures.

4. It should have the Head with anatomical landmarks, trachea, and esophagus, along with simulated lungs and stomach, allow the practice of many procedures:
- a) Irrigation of the eye and ear (simulated)
  - b) Application/instillation of medications in the eye, ear and nose including nasal packing
  - c) Mouth and denture care procedures
  - d) Insertion and suctioning of oropharyngeal and nasopharyngeal airways
  - e) Insertion, securing, and care of endotracheal tubes
  - f) Tracheostomy care and tracheal suctioning
  - g) Various oxygen delivery procedures
  - h) NG tube insertion, care, medication administration, and removal
  - i) Gastric lavage and gavage
  - j) Nasoenteric and esophageal tube insertion, care, and removal
  - k) Subclavian, jejunostomy and Hickman catheter openings
  - l) Manually generated carotid pulse
  - m) Deltoid, dorsogluteal, and vastus lateralis IM injections possible (with removable injection pads)
  - n) Full range of motion for realistic patient handling
  - o) Able to sit upright without any support
  - p) Interchangeable stomas depict colostomy, ileostomy and suprapubic cystotomy
  - q) Colostomy may be irrigated and will retain an indwelling catheter
  - r) Fingers and toes are spread to allow bandaging
  - s) Interchangeable Male and Female Genitalia which should have the following features:
    - t) Complete urinary catheterization
    - u) Can be attached to urinary and colon reservoirs via connector valves
    - v) Female genitalia capable of vaginal douching
    - w) Will retain indwelling or straight catheter
    - x) Enema procedures may be performed using fluid for realistic return
    - y) When used with manikin, fluid may be used for realistic return
    - z) Urinary valves give the natural resistance felt when catheterizing
    - aa) Anal valves simulate the internal anal sphincter
    - bb) Circulatory Skills and IV Drug Administration

**5. It should have:**

- a) Articulating IV training arm with replaceable skin and infusible vein system allows peripheral intravenous therapy and site care
- b) Venipuncture possible in the antecubital fossa and dorsum of the hand
- c) Accessible veins include median, basilic and cephalic
- d) It should include the following standard accessories:

- e) Washable hospital gown (2 set)
- f) Carrying case
- g) Lubricant or polish

### **Item Sl. No. 273**

#### **BLS Practising Manikin**

1. Oral and nasal passages should allow realistic nose pinch required for mouth to nose ventilation
2. Natural Obstruction of the airway will allow the students to learn the important technique of opening the airway.
3. Head tilt/ chin lift and jaw thrust will allow students to correctly practice all maneuvers necessary when resuscitating a real victim
4. Realistic airway function: airway remains obstructed without proper head tilt/chin lift or jaw thrust and chest rise is seen with correct ventilators
5. Anatomically correct landmarks and sternal notch allow the students to practice identification of all anatomical landmarks relevant to adult CPR
6. Audible or Visual feedback reinforces correct compression depth with clicker feature signals
7. Realistic chest compression resistance allows the students to experience the amount of pressure needed to perform proper chest compressions in a real life situation
8. Economical disposable airways for quick and easy clean up Removable and reusable faces for convenient and affordable maintenance.

### **Item Sl. No. 274**

#### **ATLS PRACTISING MANIKIN**

1. It should be useful for trauma assessment & Management skill. The product should have head which should facilitate facial and cranial trauma assessment including and open depressed skull fracture, deviated trachea, bilateral mandible fracture and fracture of the c-6, vertebrae.
2. Standard incubation head should allow airways management manual manoeuvres and various airways devices.

3. The trauma intubation head should have an impaled object in the cheek, avulsed ear, unequal pupils, broken teeth and multiple lacerations.
4. The manikin should help interchangeable bullet wound chest module for assessment and care
5. It should have a carry case or transportation and storage
6. It should also allow to train according to basic trauma life support protocol
7. The arms & Legs should have provision of simulated burns, cuts and fractures
8. The wounds may alternatively serve as distracting element for realism in CPR
9. Penetrating bleeding wounds with fracture femur which should allow student to train in control of bleeding.
10. Complete trauma module set to add realism to training scenarios
11. Includes injuries required in 12 patient scenario
12. Over 30 wound lay on with Velcro design allowing easy application and detachment
13. Dilated pupils
14. Contusions, lacerations and abrasions
15. Cervical spine injury
16. Distended jugular vein
17. Flail chest segment
18. Fractures - open and closed
19. Burns - 1"-2" and 3" degree
20. Impaled object
21. Abdominal eviseratin
22. Stab Wound
23. Projectile entry/exit (Small and large caliber)

**Item Sl. No. 275**

**Gluteal IM injection Model**

- A. It should have the following Features:
1. Realistic model for practice of intramuscular injection.
  2. Trainees can feel and confirm the Skelton as required for measurement.
  3. Injection site corresponding to Clark's point measurement method.
  4. Facilitate to perform syringe infusion.
  5. Similar texture of the muscle and skeleton as of a human body and should help in selecting the correct region and angle for injection.
  6. Injected solution should be drained out by the drainage tube.
  7. The sensation of needle insertion should be very realistic.
  8. Supplied with stand for giving lateral injection in supine position
  9. Replaceable skin and vein system ensure longevity of model
  10. Will articulate to other adult manikins
- B. It should include the following standard accessories:
1. Manikin Lubricant
  2. Stand
  3. Carrying case
  4. Spare injection sites (left and right) 2 each
  5. Drainage tube 2 pcs
  6. Skin 1 pc

**Item Sl. No. 276**

**Dental Chair**

- 1 Description of Function
  - 1.1 Dental Chair is the dental chair required for dental and surgical procedures.
- 2 **Operational Requirements**
  - 2.1 Physiological dental chair operated by electricity.
- 3 **Technical Specifications**
  - 3.2 It should have double articulated head rest.
  - 3.3 It should have two 3 way syringes (tip autoclavable, with 6 spare tips) one on unit side and other on the assistant side.
  - 3.4 It should have one high speed Air Rotor terminal with water control on coupling supplied with handpieces.
  - 3.5 It should have one high speed fiber-optic air-rotor terminal with handpiece.
  - 3.6 One micro motor (Brushless) with one contra angle hand piece with internal spray and one straight hand piece with internal spray(It should not be in-built within the chair).
  - 3.7 It should have LED light cure unit on unit sides (with cord or cordless) (Min. Intensity 1200 mW/cm<sup>2</sup>).
  - 3.8 It should have one in-built Piezon LED (fiber-optic) Ultrasonic Scaler with 4 scaler tips.

- 3.9 It should have infection control system with non-retraction valves (Bio System/ equivalent).
- 3.10 All handpieces/terminals should be kept on Autoclavable pads. 6 spare autoclavable pads should be supplied.
- 3.11 Arm of unit should be pneumatically locked.
- 3.12 All air tubing of the delivery system can be disinfected internally after every dental procedure.
- 3.13 Removable auxiliary tray (stainless steel)
- 3.14 It should have latest foot operated/sensor based minimum dual intensity LED Light (30,000 to 40,000 LUX).
- 3.15 It should have Rotatable Water System with removable spittoon.
- 3.16 It should have Medium Vacuum Suction and High suction (Motorised Suction).
- 3.17 It should have following programmes –  
Two programmable working positions  
Spitting and last working position with light ON and OFF automatically  
Return to Zero position with light OFF automatically  
It should have option to Lock the movements of chair  
It should have emergency stop control  
Programmable Bowl water and Cup filler water
- 3.17 It should have LED based X-ray viewer
- 3.18 It should be provided with right arm (options for Fixed, Lateral 90 degree swivel available)
- 3.19 It should have multifunctional foot control base (fixed or mobile)
- 3.2 It should be provided with one doctor's stool and one assistant's stool with adjustable height & backrest tilt including an adjustable ring for foot rest.
- 3.21 Upholstery of the chair has to be removable for cleaning.
- 4 System Configuration Accessories, spares and consumables**
- 4.1 System as specified
- 4.2 All consumables required for installation and standardization of system to be given free of cost.
- 4.3 Suitable compressor for smoothly running of the chair with all accessories and configuration should be supplied. **(Price should be quoted separately and price will be considered for the ranking purpose.)**
- 5 Environmental factors**
- 5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%.
- 5.2 The unit shall be capable of operating continuously in ambient temperature of 10-40deg C and relative humidity of 15-90%.
- 5.3 Complete installation & Demonstration of the equipment required after supply.
- 6 Power Supply**
- 6.1 Power input to be 220-240VAC, 50Hz
- 7 Standards, Safety and Training
- 7.1 Should be US-FDA/ European CE approved product (copy of certificate should be submitted along with the bid).
- 8 Documentation**
- 8.1 User/Technical/Maintenance manuals to be supplied in English.
- 8.2 Certificate of calibration and inspection.
- 8.3 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist.
- The job description of the hospital technician and company service engineer should be clearly spelt out.

**Item Sl. No. 277**

**Dental Digital radiography System with Radiography Unit**

**1. Description of Function**

- a. RVG is used for digital dental X-rays which can be instantly viewed and evaluated with minimal radiation exposure

**2. Operational Requirements**

- a. High resolution RVG based on CCD/CMOS technology

**3. Technical Specifications**

- a. Min. 90% reduction in patient radiation as compared to analogue X-ray film
- b. Thickness of the sensor should be less than or equal to 7.5 mm
- c. Spatial resolution approx. 25 line pairs/mm
- d. Dynamic range (accurate measurement of bone density), should be more than or equal to 14 bit mage acquisition
- e. It should be supplied with a branded 500 GB computer having the latest compatible hard ware and all genuine software specifications and a minimum 20 inch LED HD monitor, LaserJet printer and servo UPS (1 KVA).  
Specifications.(Input 160-260 V and output 220-240 V and 50 Hz) "
- f. Intra oral X-ray unit should
- g. Be based on DC current, and high frequency X Ray generator,
- h. Tube voltage, selection: 60-65-70 kvp,
- i. Tube current, 6 ma/ 8 ma,
- j. Focal spot 0.8 x 0.8 mm,
- k. Total filtration > 2 mm Al,
- l. Minimum range of exposure time range – 0.02 to 3.2 secs,
- m. Manufactured with international Safety standards for radiation leakage,
- n. Electronic selection of exposure time/radiation according to tooth number.
- o. It should be possible to select exposure time manually
- p. Option for wall mount/ mobile stand.
- q. Should have remote hand held trigger button
- r. The timer should be pre-programmed to automatically calculate settings according to the age, gender, jaw and tooth. "
- s. Should have positioning devices

- i. Bitewing
- ii. Periodical
- iii. Endodontic
- t. Should have at least 1,00,000 numbers of disposable plastic sheaths for the placement of sensors in the patient's mouth
- u. Should be supplied with compatible software which has full mouth acquisition ability

**4. System Configuration Accessories, spares and consumables**

- a. X-ray unit should be supplied with lead free apron.
- b. The bidder has to provide two sensors as part of this bid
  - I. One adult size with minimum active area of 800 mm sq
  - II. One pediatric size with minimum active area of 600 mm sq.

**5. Power Supply**

- a. Power input to be 220-240 VAC, 50Hz fitted with Indian plug
- b. Servo Voltage stabilizer of appropriate ratings meeting ISI Specifications.(Input 160-260 V and output 220-240 V and 50 Hz)

**6. Standards, Safety and Training**

- a. Should be US FDA or European CE approved product
- b. Should be AERB Type Approved
- c. Manufacturer/ Supplier should have ISO certification for quality standards.
- d. Electrical safety for dental x-ray unit conforms to standards for electrical safety IEC-60601 / IS-13450

**7. Documentation**

- a. User/Technical/Maintenance manuals to be supplied in English.
- b. List of important spare parts and accessories with their part number and costing

**Item Sl. No. 278**

**SURGICAL MICROMOTOR WITH CONSOLE**

- 1. US FDA or European CE Certified
- 2. Should be a Motor-Brushless induction motor

3. The Control Unit should have easy control of speed, motor direction, torque and irrigation pumps.
4. It should work within 50-60 Hz or 100-240 V
5. The irrigation pumpage should not be more than 120ml/minute.
6. The Max rpm should be at least 40000 u/min
7. Motors should have high consistent torque
8. The micro motor should be with a illumination (LED Based/Fiber optic)
9. The Micro Motor with Cable should be autoclavable up to 134°C.
10. The Micro Motor should come with an intra-coupling ("E" coupler) so that allows for universal attachment between motors and hand pieces regardless of make
11. The Micro motor with Intra coupling should be upgradeable such that Micro compass saw and Micro sagittal saw can be attached in future
12. The Control unit should also come with a foot pedal
13. The Foot pedal should have protection proof class of at least IP x 5.
14. The Foot pedal should have on and off for irrigation pump and have change over function for clock wise and anticlockwise rotation.
15. Should include Cleaning & Lubricating spray
16. All the accessories for basic functions should be provided.
17. One straight scratch resistant Hand piece. (Should be able to accept regular Burs)

### **Item Sl. No. 279**

#### **Heavy Duty Suction**

1. Should be manufactured by ISO Certified Company.
2. Should be US FDA or European CE certified or BIS
3. Should be Noiseless and Vibration free.
4. Should be operated by Foot Switch also
5. Should be totally oil free Medical grade
6. High vacuum suction unit, run on electricity with two suction jars of 4-5 liters capacity each
7. Auto cut off device for preventing entry of fluid to the pump
8. Fast and efficient jar change facility.
9. Easy access and controls
10. It should be heavy duty and noiseless, with piston/cylinder technology
11. Should be able to create desired maximum vacuum in least possible time (up to – 90 Kn pascal)

12. Vacuum should not be less than -690mmHg and displacement air should be atleast 60 ltrs/min should be provided. Diaphragm type of regulator to get repeat accuracy of vacuum during surgical procedure. The regulator variation should be within 5%
13. Light and maneuverable fitted on a mobile trolley.
14. One plastic suction jar cover, steam sterilizable to be provided extra.
15. Two extra suction jar (Plastic) of capacity 4-5 ltrs. should be quoted along with accessories like lid, tubing etc. with the equipment to make the unit functional
16. Quantity certification of the product from international/Indian Agency should be provided
17. The bidder should clearly indicate in the technical bid itself that the prices of all standard accessories are included in the quoted price.
18. The bidder will give rate list of all possible spares, accessories & consumables if any, as part of financial bid. If price of any spare is not mentioned & is required for repair in life time of equipment/instrument, then the firm will be obliged to give it free throughout life cycle of the equipment.

### **Item Sl. No. 280**

#### **Lab Micromotor**

1. Brushless micro motor which ensures smooth, vibration free rotation
2. 1000 – 50,000 RPM variable speed; variable speed motor
3. High torque at all speeds
4. Should have a high concentration of ball bearing to provide stable grinding
5. It should have digital display electronic control
6. Hand piece rest
7. Variable speed should be possible to control by hand or foot control
8. It should have reverse and forward rotation by hand and foot control

### **Item Sl. No. 281**

#### **LED Light Cure Unit**

1. Should be Cordless
2. Noiseless, Portable, and Powerful LED dental curing light with capacity of curing composites in 3-5 seconds maximum
3. Fan free/micro fan silent operation
4. Multiple setting light timer

5. Light source: Inbuilt LED with minimum intensity of 2800 mW with short curing time
6. The LED Tip should be freely adjustable, rotating 360, for easy access to the restoration site.
7. Should include Eye Protection Shields,
8. Should be slim and not a robust design so it comfortably sits in the operators hand.
9. Light shall be instant ON, no wait, no warm up time.
10. Poly wave technique with spectrum of 385-515 nm and with 3 - 4 different programs (e.g. Low, medium, High).
11. Should have high performing rechargeable Lithium Polymer battery.
12. LED Display for mode selection

### **Item Sl. No. 282**

#### **Endomotor - Endodontic Electric Motor**

1. US FDA or European CE Certified
2. Should be Cord-less
3. Simple, flat control panel and LED screen
4. Should include lightweight hand piece with a miniature head for easy accessibility to the posterior region
5. Should have Variable torque range from 5 – 3 Ncm
6. Should have the preset programs as well as the ability to manually set speed, torque and gear ratio
7. Should have Auto-Torque/Reverse
8. On / Off button on the motor handpiece
9. The handpiece should be Contra-Angle 16:1
10. Should have a speed range of 100 rpm and more
11. Deleted
12. Should have adjustable programme selections
13. Should include rechargeable Battery, Adapter and Handpiece stand with the equipment
14. Should be able to use any rotary system available.
15. Bidder has to give the demonstration of the entire quoted product as and when required.
16. Should have an alarm for torque limit as well as during auto reverse

**Item Sl. No. 283****Ultrasonic cleaner**

- 1 The units should be a compact free-standing bench model, with a built-in tank
- 2 microprocessor controlled display with memory time and temperature functions.
- 3 The electrical energy should be transformed into sound waves by transducers, fixed to the bottom of the tank
- 4 The ultrasonic cleaner should have a display and control which could be easily seen and placed above any liquid for safety and reliability.
- 5 It should have digital read out timer and temperature setting (temperature adjustable from 30 to 69 °C or more) monitoring.
- 6 Capacity should be 10 L or more
- 7 Should work on 230 V, 50 Hz AC Supply.
- 8 Ultrasonic cleaner should be European CE /US FDA certified.

**Item Sl. No. 284**

<b><u>UV Cabinet For Each Chair</u></b>
1. The ultraviolet cabinet should double door.
2. Minimum of Eight small trays and 3 deep trays.
3. Specialize chamber for all kind of surgical dental instruments
4. Magnetic door latch.
5. Door actuated switch and mains switch.
6. Should be manufactured by an ISO Certified Company.
7. UV tube of short wave Ultraviolet germicidal irradiation range.
8. Should have a interior Capacity of minimum 20 Litres.

**Item Sl. No. 285****Physiodispenser with Reduction gear Hand piece**

1. Should Be US FDA or European CE certified
2. Powerful motor with 5.5 Ncm torque
3. Wide speed range: 300 up to 40,000 rpm at the motor

4. Precise torque limitation: 5 to 70 Ncm
5. Automatic thread cutter function
6. Motor with cable, thermo washer disinfectable and sterilizable, Autoclavable
7. Fiber Optic Hand Piece (02)
  - i. Should have powerful gearings
  - ii. Should offer Maximum torque (Approx 70 Ncm) necessary for all drilling and shaping applications and thus ensures precise work.
  - iii. Should be a reduction gear of 20:1
  - iv. Internal or External Spray
8. Important spare parts and accessories with their part number should be provided.
9. Should include 500 disposable irrigation system
10. Bidder has to give the demonstration of the entire quoted product as and when required.
11. Should have a foot control, which controls both forward and backward rotations and irrigation ON/OFF
12. Should include Cleaning & Lubricating spray at least 5 nos.
13. All the accessories for basic functions should be provided
14. Should include suitable storage solutions and autoclavable cassettes for the hand piece

### **Item Sl. No. 286**

#### **Heavy duty Dental Vibrator**

1. Dental vibrators should be designed to use to de-bubble plaster, stone or viscous solution.
2. A dental vibrator should feature varying intensity vibration with different speed settings.
3. The size of the platform should not be less than 5 inches in any dimension and should be detachable for proper cleaning.
4. Rubber feet stop movement of the dental vibrator when powered on.
5. Vibrator should be able to debubble most of the dental products like plaster, stone.
6. Should be manufactured by an ISO certified company.
7. Should be US FDA or European CE certified

**Item Sl. No. 287**

**Dental Extraction Instruments**

1. Should be US FDA or European CE Certified and should be Medical grade stainless steel, Autoclavable and ergonomically in design
2. Forceps should have precise, anatomically designed beaks for a sure, effective grip.
3. Full set of forceps for extractions of all the teeth which Should Include all these forceps
  - i. Upper Anterior, Premolar and Roots Forceps 3 Each
  - ii. Upper Molar (Rt & Lt) and Roots Forceps 3 Each
  - iii. Upper bayonet and third molar forceps 3 Each
  - iv. Lower Anterior, Premolar and Roots Forceps 3 each
  - v. Lower Molar and Roots Forceps 3 each
  - vi. Lower Cow horn type Forceps 3 each
  - vii. Lower third Molar Forceps 3
  - viii. Child pattern Forceps (Pediatric) 1 set
4. Full set of Elevators which should include
  - i. Apex Elevators 2 Set
  - ii. Luxators 5
  - iii. Copland's Elevator 5
  - iv. Straight Elevator 5
  - v. Cryer's Elevator (Left and right) 4 pairs
  - vi. War Wick James Pattern Elevator (Straight, Left and right) 4 each
  - vii. Root Tip Elevator 2
5. Bidder has to give the demonstration of the entire quoted product as and when required.
6. Bidder has to quote all the items as a set.

**Item Sl. No. 288**

**Surgical Saw Unit with Console**

1. The instruments must be ISO certified and copy to be enclosed
2. All instruments should be European CE or US FDA certified
3. Electric motor drill should have speed not less than 60,000 RPM
4. Should have integrated cooling mechanism
5. Should accept two hand pieces simultaneously
6. Should have bidirectional rotation

7. Rotation should be controlled by the console
8. Should have option for hand control also
9. Should have irrigation system
10. The total length of the hand piece cord should be more than 10 feet
11. The total length of the cord for foot switch should be more than 10 feet
12. Foot switch should have irrigation Of/on Switch
13. Foot switch should have rotation direction control
14. Should be supplied with reciprocating saw more than 10000 rpm
15. Should be supplied with oscillating saw more than 10000 rpm
16. Should be supplied with sagittal saw more than 10000 rpm
17. Should be supplied with burs nos 20
18. Should be supplied with different saw blades nos 10 each.
19. Should have handy design for easy handling and operation preferably a pen shaped design.
20. Should have Emergency Safety OFF on hand switch
21. Torque limitation switch is available in the console
22. Irrigation can be turned ON/OFF from sterile field with footswitch
23. Low heat generation for electrical system
24. Maximum speed indication for burrs on burr shaft
25. Snap lock for reciprocating saw blades on reciprocating saw
26. Irrigation Tube Set with all necessary attachments
27. Bidder has to give the demonstration of the entire quoted product as and when required.
28. Should be supplied with mobile cart for console unit with adequate storage option

### **Item Sl. No. 289**

#### **1. SUBCONDYLAR AND RAMUS FIXATION WITH TRANSBUCCAL SET**

1. Should be European CE or US FDA certified
2. The instruments must be manufactured by an ISO certified company.
3. All the instruments should be quoted along with autoclavable containers which meets  
2. international standards.
3. The instruments should remain sterile in the container and the container should be capable  
4. of being brought into the operation room without any essential packaging.
5. Bidder has to quote all the items as a set.
6. Bidder has to give the demonstration of the entire quoted product as and when required.

7. Should support intraoral and submandibular endoscopic approaches
8. Should support open surgical approaches to trauma and orthognathic surgical procedures
9. Should assist in manipulation of the bone segments
10. Should include specialized instrumentation designed to support the endoscopic treatment of trauma and orthognathic surgery involving the sub condylar/ramus region of the mandible.
11. Should include also.
  - a. Double ended elevators for soft tissue dissection and fracture reduction
  - b. Optical retractors with Handles
  - c. Trocar set
  - d. Fragment manipulation instruments
  - e. Subcondylar Elevators Left Right
  - f. Articulator plate introducer with holding tips
  - g. Insert Drills
  - h. Retractors
  - i. Plate holding forceps
  - j. Handle for drill sleeves
12. Universal screw driver with separate shaft/ blade and handle holding mechanism compatible with the system.
13. Suitable compatible 30 degree autoclavable telescopes to be used with this system for endoscopic assisted ORIF should be included along

### **Item Sl. No. 290**

#### **HAND PIECE CLEANING SYSTEM**

1. Should be European CE or US FDA certified
2. The instruments must be manufactured by an ISO certified company.
3. To automatically and correctly clean and lubricate all high speed hand pieces, low speed
  1. hand pieces and air motors before autoclaving.
4. The system should have pneumatic operation and provide following functions
  - a. Automatic Cleaning and lubrication of internal components with service oil.
  - b. Deleted
  - c. flushing through with compressed air
5. Fast cycle time less than 2 minutes

6. Separate containers for lubricating oil
7. Operating compressed air pressure must be between 4 bars and above
8. Must have indicators for lubricating oil level.
9. Should have minimum of 3-ports to maintain all hand pieces brands.
10. All the lubricating liquids necessary for the function should be provided – 5 lts each.  
The cost of the lubricant should be quoted separately

**Item Sl. No. 291**

**SURGICAL LOUPES**

**A. LOUPE:**

The Surgical System should mainly consist of the optical system, titanium eyeglass frame and standard accessories

**B. OPTICAL SYSTEM:**

1. Galilean optical system featuring compact design, delivering precise image with good colour fidelity extending to the peripheral zones, excellent depth of field of view ensuring clear visualization of anatomical structures.
2. Magnification : 3 X
3. Working Distance ( Eye to operating area) of 550 mm or more
4. Field of view diameter at working distance of 550mm : 110mm or more
5. Quick adjustment of interpupillary distance from 55mm to 80 mm by means of left and right coaxial knobs to suit individual surgeons.
6. High Quality scratch free lens protection device with anti-reflection coating shielding the objective lens against tissue debris for increased protection
7. High quality surface of the optical system resistant to standard disinfectants
8. Telescopic rail enabling quick positioning of the eye piece with a single adjustment.
9. Quick adjustment of eyepiece tilt to desired viewing angles even in extreme treatment options
10. Flip up function for unobstructed vision and eye contact with patients with single adjustment
11. Mount for easy attachment and removal of the optical system

12. Serializable contact guard for reliable swinging of the optical system up and down.

### **C. LED LIGHT ILLUMINATION**

1. Powerful LED light source with integrated temperature control
2. Should be able to attach easily to the optical system
3. Light intensity up to 50000 Lux
4. Shock proof protection for the light and accessories
5. Light should be resembling day light and should illuminate the whole field with even illumination.
6. Low weight
7. Should include 2 Medical grade Lithium ion rechargeable battery with charging device
8. Should have a run time of above 3 hrs at 100 % intensity.
9. All the necessary accessories for the proper functioning of the unit and suitable high quality soft case for storage.

### **D. EYE GLASS FRAME**

1. Sturdy titanium eyeglass frame with straight temples, elastic headbands, soft nosepiece for comfortable fit and maximum wearing comfort and neutral lenses protecting against splashes and particles,
2. Frame size 53 – 20 mm (Medium),: suitable for surgeons with prescription lenses
3. Side shields for protection against splash and particles

### **E. STANDARD ACCESSORIES:**

1. Objective lens protective device(2), Contact Guard (2), Side Shield (2) cleaning cloth for optical components, Allen Key, accessories for the LED light Illumination, High quality soft case for protection of the surgical loupe and accessories.

### **F. MANUFACTURER AND COMPLIANCE**

1. The Loupe should be manufactured by a well-known international manufacturer /company
2. Should be European CE or US FDA approved

**Item Sl. No. 292**

**Erbium Laser (Dental Hard Tissue Laser)**

1. It should be Erbium Laser
2. Wave length should be in the range 2780 to 2940 nm
3. Power output should be 0.1 – 10W
4. Aiming Beam should be 650nm RD – 5MW adjustable.
5. Energy to tissue: 30-400mJ (1-10pps), 30-170mJ (20pps), 30-80mJ (25pps)
6. Laser delivery should be self-calibrated.
7. It should be self-diagnostic.
8. There should be LCD touch screen.
9. Cooling system should be water or air (inbuilt).
10. Input power should be 220 VAC, 50-60 MHz
11. System should be ISO and CE compliant.
12. It should come with 25 nos. of Laser Fiber dispersible tips.
13. Cost of tips should be quoted separately.
14. It should be supplied with 2 pair of safety goggles.
15. It should be supplied along with voltage stabilizer.

**Item Sl. No. 293**

**Portable Dental Chair and Unit**

1. Portable dental chair with adjustable seat heights and back adjusts from upright to supine position.
2. Handle or case for convenient transportation.
3. Portable operator stool.
4. Portable light source.
5. Briefcase or suitable unit which should include 1 each of the following :
  1. Saliva ejector, 3 way syringe, air rotor point with hand piece, ultrasonic scaler with minimum 3 scaling tips
  6. Built in air compressor.
  7. Built in suction.

**Item Sl. No. 294**

**Pure Tone Audiometer**

1. Should be advance 2 channel clinical audiometer with High Frequency upto 20 KHz.
  - a. Air , Bone and Speech
  - b. Free Field ,Speech and Pure Tone
  - c. 2 Channel Binaural Speech
  - d. Automatic Threshold
  - e. Automatic Speech Scoring
  - f. Tones : Pure, Warble and Pulsed Tones
  - g. Masking : WN, NB and SN Masking
  
2. Special Test:
  - a. SISI Free Field
  - b. Tone decay
  - c. ABLB Test
  - d. MLB
  - e. MLD
  - f. Loudness Balancing: 250 Hz, 500 Hz, 2kHz, 4kHz, 6kHz NB noise with direct comparison to standard curves
  
3. Tone decay:
  - a. Number of Channels : Two Independent Oscillators
  - b. Frequency Range : 125 Hz – 20kHz
  - c. Intensity Range : 10dB – 120dB (Air Conduction) -10dB – 80dB (Bone Conduction) 5dB and 1 dB Attenuators
  - d. Frequency Resolution: Multi frequency
  
4. Others
  - a. All accessories for all the above units to be included.
  - b. Facility for the free field audiometry to be included.
  - c. Software for report, data storage and printing should be included.
  - d. Regular calibration of equipment.
  - e. All accessories should be from the same manufacturer and should be European CE/ US FDA approved
  
5. Audiometer should have:-
  - a. Facility to connect printer directly.
  - b. Mention availability of Audiogram display.
  - c. Should have internal memory for 500 patients

**Item Sl. No. 295**

**Tympanometer**

Impedance audiometer with contra ear testing facilities

1. Multifrequency
2. Probe Frequency- 226Hz, 678Hz,800Hz,1000Hz
3. Pressure Range- +200 to – 400 daPa
4. Volume Range - 0.1 ml to 6.0 ml
5. Accuracy -  $\pm 5\%$  to  $\pm 10$  daPa
6. Test Time- < 3 Seconds
7. Reflex Mode
8. Test Frequencies- 500, 1000, 2000, 4000 Hz  $\pm 2\%$
9. Test Method- Ipsilateral, Contralateral
10. Noise (Band) - WN/HP/LP
11. Intensities IPSI Lateral-70 to 110 dbHz
12. Intensities Contra Lateral- 70 to 120 dbHz
13. Intensity Setting- Automatic or Manual
14. Eustachian Tube Function - Intact and Perforated mode
15. ETF Pressure Range -+ 300 to – 400 daPa
16. Test - Ipsilateral Reflex Test with AGC, Reflex Decay
17. Test Programme- Reflex Test selectable
18. Memory :test results of minimum 20 cases.
19. Probe - Light weight, Hand Held , With Built in control light & switch.
20. Printer- Silent Thermal Printer , (with paper printer facility)
21. Display-Graphic LCD with adjustable contrast
22. Power Supply- Mains 100-240 Volts, 50/60 Hz 25 VA
23. PC Interface- USB Cable
24. Automatic self-calibration
25. Regular calibration of equipment.
26. All accessories should be from the same manufacturer and should be European CE/ US  
FDA approved

**Item Sl. No. 296**

**Oto Acoustic Emission (Screening unit)**

1. TEOAE
  - a. 1.5 to 4 kHz
  - b. Sample Rate - 16 kHz
  - c. Stimulus Level- ca. 80 dB SPL peak
  
2. DPOAE
  - a. DP 2 to 5 kHz
  - b. Frequency Ratio  $f_2/f_1$ - 1.2
  - c. Level Ratio  $L_2/L_1$ - Scissor Paradigm
  - d. Measurement Interval- 512 samples
  - e. Frequencies  $f_2$ - 1.5, 2, 3, 4, 6, 8, kHz (single & multiple selections possible)
  - f. Stimulus Levels  $L_2$ - 35 to 65 dB HL (in steps of 5dB)
  - g. Also battery operated
  - h. Multiple test methods
  - i. Database for at least 200 tests
  - j. Data transfer to PC via USB or wireless
  - k. Printing via PC/ Printer(Software should be included)
  - l. Stimulus intensity: 40 to 70 dB SPL (DPOAE). 83 dB
  - m. Maximum output (Protection): 90 dB SPL.
  
3. Power supply: (4) AA/UM-3/R6 - alkaline, lithium.
4. Battery life: Approximately 250-300 tests.
5. Display: LCD-display 4 line x 10 character.
6. All accessories should be from the same manufacturer and should be European CE/ US FDA approved
7. It should be upgradable to diagnostic DPOAE and TEOAE
8. Should have cavity test to check probe maintenance.
9. Should have adjustable noise floor.
10. Should have neonate modes for newborn hearing screening
11. Should have ear tips of different size & both foam types. 6) OAE should be upgradable.

**Item Sl. No. 297**

**Brainstem Evoked Response Audiometer (BERA) with ASSR**

1. BERA:
  - i. 2 channels.
  - ii. Windows based.
  - iii. Bone Conduction.
  - iv. Integrated database.
  - v. Pre-programmed auto tests.
  - vi. Waveform reproducibility indication.

- vii. Split left/right recordings.
  - viii. Simultaneous recording of condensation rarefaction stimuli.
  - ix. Normative data indication.
  - x. Wave editing during testing
  - xi. Digital filter application (during and after test).
  - xii. Add, subtract curves
  - xiii. Low noise amplifier
  - xiv. Ecoch G recordings with markers
  - xv. Middle Latency
  - xvi. Late Latency (P300, MMN etc.)
  - xvii. Essential facility for OAE and NCT.
2. ASSR:
- i. PreAmplifier
  - ii. 2 channels
  - iii. Gain 80 dB
  - iv. Frequency Response upto 8000Hz
  - v. Noise 6.0 nV Hz
  - vi. CMR Ratio > 115 dB at any frequency between 0.1Hz & 10Hz.
  - vii. Input Impedance > 10M
  - x. Impedance Check
  - xii. Ranges 0.5k – 25k.

All accessories should be from the same manufacturer and should be European CE/ US FDA approved

- 1) Should have adjustable Intensity- Latency norms
- 2) Should have stimulus type; should be- klik, pure tone & Filter

### **Item Sl. No. 298**

#### **SHAVER SYSTEM CUM MICRO DRILL**

- A. It should be fully upgradable to one unit- six functions:
1. Shaver system for surgery of the paranasal sinuses and anterior skull base
  2. Drill for Otology, NASAL, DCR & Skull Base Surgery
  3. Sinus shaver
  4. Micro saw (Oscillating type)
  5. Drill for Otology, NASAL, DCR & Skull Base Surgery
  6. Skeeter Drill (for stapedotomy)
- B. Drill System:
1. Built in microprocessor controlled flow rate irrigation pump.
  2. Integrated irrigation and coolant pump (silicon tubing)
  3. Should be compatible with Micro ear drill handpiece & drill bits (universal)
  4. Maximum Revolution for Shaver mode should be 5000 rpm or more
  5. Maximum revolution for sinus burr mode should be 12,000 rpm

6. Maximum revolution speed for Drill mode should be 40,000 – 60,000 rpm.
7. Power supply 230-240 VAC, 50,60 Hz.
8. Easy to maintain and sterilizable.
9. Both Autoclavable and Disposable range of blades should be available.
10. Along with blades (2 each) – straight, curved (45, 60 & 90 deg.) and circular (laryngeal)
11. Multifunction foot switch

C. Handpiece Maintenance kit

1. Lubricating and cleaning
2. Voltage 220V AC at 50Hz, 22 V at 1 Hz
3. Air supply 0.35 to 0.60 MPa
4. Capability – 350ml
5. Air Displacement – 60L/min

D. Hand piece Straight, angled (compatible with micromotor drill) - 02 each

E. Drill bit Cutting, polishing 0.5 or 0.6, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0 or 8.0 mm - 04 each

F. Saw blades - 04 nos. (Separate hand piece for Saw to be provided)

G. Nasal drill bit with and without guard - 02 each

H. The equipment should be European CE or US FDA approved.

**Item Sl. No. 299**

**Xenon head light with Micro Camera**

A. Head light with following features

1. Light weight head band with pads.
2. Adjustable spot light 15mm to 100mm
3. Cable of thicker diameter (3mm or above), minimum 2 meter in length

B. Light weight Micro Camera with following Features

1. Good depth of field, automatically adjustable
2. Resolution vertical around 450 lines and vertical around 350 lines
3. Effective pixel around 760 (Horizontal) and 500 (vertical)
4. Shutter speed 1/60 to 1/10,000 seconds
5. Sensitivity 1 lux

C. Matching video Monitor for Camera

D. Xenon light fountain 300 watt bulb

E. Stand for light fountain

F. CD Documentation system Recording Time of 90 minutes on CD and RWCD. VCD, DVD and PC compatible. Connection to connect to PC and Camera System. Remote control to operate. Software for Operation, Editing, and still image Extraction. Facility to record voice. Recording system should be of PAL System

G. Any other accessory essential for functioning of Equipment All accessories should be from the same manufacturer and should be European CE/ US FDA approved

### **Item Sl. No. 300**

### **Radiofrequency unit for ENT**

1. Frequency : 1.7 MHZ and 4 MHZ
2. Power output: 120 Watt.
3. No need for ground contact or skin contact of antenna plate.
4. Finger switch & foot switch activated.
5. 4 wave forms
6. Fully filtered waveform
7. Fully rectified waveform.
8. Partially rectified waveform
9. Fulguration
10. For cut, coagulation, hemostasis, fulguration,
11. Bipolar cautery

Probes:

1. Micro-Larynx RF Probes
  2. Ear RF Probes
  3. Tonsil/adenoids RF Probes
  4. Nasal surgery RF Probes
  5. Oral surgery RF Probes
  6. Bayonet RF Turbinate Volume Reduction Electrode
  7. Bayonet Electrodes
  8. Tongue Base Reduction Electrode
  9. Cleaning Brush for Suction Probe
  10. Angled Suction Coagulator
  11. Suction Coagulator
  12. All probes asked should be autoclavable for reusing.
- The unit should contain all the accessories required for performance of ENT, head & neck surgeries.
  - The unit should be European CE /US FDA approved

**Item Sl. No. 301**

**Photo – slit lamp with Applanation Tonometer**

1. Slit width : adjustable, 0-12 mm or more
2. Slit length : 0-12 mm or 0.1 –14mm adjustable in steps.
3. Slit angle : +90 – 90 continuous
4. Decentering of slit image : +4 to –4 horizontal
5. Diaphragm sizes: 0.2 – 12 mm or more.
6. Rotation : 0-180 degrees
7. Light source : Halogen/Tungsten or LED lamps
8. Slit tilt : 0-20 degrees
9. Filters : cobalt blue, red free, neutral, UV protection
10. Binocular microscope with standard objective and eyepieces
11. 5x/6x-40x magnification in steps with drum rotation
12. 6-40 mm field of view
13. Movement : base movement (x, y, vertical), adequate chin rest movement
14. Motorized table for slit lamp
15. Applanation tonometer
16. Beam splitter
17. Slit lamp camera-
18. Camera- 12.2 Megapixel, Large 3.0 inch LED display, Integrated cleaning system, Rechargeable battery, video cable, USB cable.  
*Or*  
Integrated camera at least 3 Megapixel high resolution.
19. 8 GB SD/SDHC memory card & power cable.
20. Accessories-
  - (1) Bulbs- 06 nos.
  - (2) Fuses- 04 nos.
21. Should be USFDA or European CE approved product

**Item Sl. No. 302**

**Noncontact Tonometer**

1. Air puff non-contact tonometer
2. To measure intraocular pressure without actual eye contact
3. Digital display of intraocular pressure
4. Measurement range 4 to 59 mm of Hg
5. Printer & USB connectivity.
6. LCD display 5" or more
7. Fixation cues should be obvious.
8. Alignment & measurement should be automatic.
9. Measurement with a single button, one touch triple measurement mode.
10. Voltage- 100/240 V AC.
11. Frequency 50/60 Hz.
12. Motorized table for NCT.
13. Should be US FDA or European CE approved product

**Item Sl. No. 303****ND: YAG Laser**

1. Laser wavelength 1064 nm,
2. Structure Mode: super-Gaussian/ Fundamental for highly precise beam profile.
3. Optical breakdown 3 mJ or less in air.
4. Pulse duration  $\leq 4$ ns
5. Max. Laser energy 10mJ ( Single Pulse), 23mJ(Double pulse) and 37mJ (Triple pulse)
6. Minimum Energy 0.3mJ – 10mJ( Single Pulse)
7. Energy levels: 22 steps
8. Pulse repetition frequency 2/3 Hz.
9. Focus diameter 10 micron in air
10. Cone angle/Angle of exit aperture 16 Deg.
11. Aiming beam Laser diode with 625nm-685nm wavelength, It should be with four point aiming beam system for perfect focusing/ targeting with astigmatic disorders.
12. Aiming beam focus offset +/- 150  $\mu$ m posterior & anterior focus shift.
13. Laser control unit can be separate or Integrated/mounted on the Slit lamp.
14. LASER SLIT LAMP :
15. Slit Lamp with 5, 8, 12, 20, 32x magnification changer with 10x eyepieces and straight tube f=140mm with PD adjustable 50-78mm.
16. Illumination : Halogen 12 V/30 W;
17. Adjustable slit width 0-14mm continuous, Length 1/3/5/9/14mm.
18. Asymmetrical motorised table for height adjustment
19. Should be US FDA or European CE approved product

**Item Sl. No. 304****Auto Refractometer**

1. The unit should have the following features:
2. Measurement Range for Refractometry.
3. Objective and subjective mode and measuring corneal astigmatism, low contrast glares acuity testing.
4. Sphere Range: at least -25 D to + 22 D (0.12 D / 0.25 D)
5. Cylinder Range : at least 0 D to  $\pm 10$  D ( 0.12 D / 0.25 D)
6. Axis Range: 0° to 180° (in 1° or 5° steps)
7. Minimum measurable pupil diameter: 2 mm
8. PD Measurement range: at least 20 - 85 mm in 1 mm step
9. Preferably with IOL mode and print out facility.
10. Automatic measurement in case of correct centering
11. Corneal Curvature mode for Keratometry.
12. High accuracy measurements of corneal and contact lens radii.
13. Corneal curvature radius: at least 5.00 to 10.00 (0.01 mm)
14. Corneal refraction: at least 33.75 D to 67.5 D (0.12 D / 0.25 D)
15. Corneal Vertex distance: 10.5, 12.0, 13.5, 15
16. Refraction index: at least 1.3375
17. Auto and manual mode with contact lens base curve measuring facility.
18. Internal thermal printer with cut off facility. Adjustable tilt LCD monitor. Motorised table. Data memory facility should be available.
19. Should be US FDA/ European CE approved

**Item Sl. No. 305**

**Indirect Ophthalmoscope (Wireless)**

1. Binocular Indirect ophthalmoscope with precision viewing upto 1.0 mm pupil size
2. Spot size: 3 integrated spot size small spot, medium spot and large spot.
3. Filters: 4 integrated filters to choose from red filter, cobalt blue filter, yellow filter and diffuser
4. Vertical adjustment, +/-4 degrees
5. Headband with Rheostat and Articulating Hinge to provide vertical adjustment of the rear band.
6. Integrated flip up adjustment optics, which can be flipped, and locked at 0, 12.5, 47.5, 60 degrees.
7. Aperture and filter adjustment levers: can be locked to the desired position required.
8. Locking apertures and filter adjustment (safety clutch): protect mechanism from the forced adjustment while in the lock position.
9. P.D. range from 46-75 mm.
10. 6V Halogen/Xenon bulb.
11. Teaching mirror
12. Rechargeable Li-ion battery transformer with LED indicator
13. Desk top cum wall transformer.
14. Transformer compatible with voltage system of 220-240 VAC
15. Large & small depressors
16. Carrying case.
17. Spare rechargeable battery – 1 No.
18. +20 D lens.
19. Should be USFDA or European CE approved product.

**Item Sl. No. 306**

**Autolensometer**

1. Auto focus /Auto alignment/Auto centering
2. Contact lens module
3. Able to detect power of progressive lenses
4. Able to detect UV absorption capacity of lenses both UV A & UV B with visible light transmission qualities of the lens.
5. Spherical Power: -25D to +25D
6. Cylinder Power: 0D to ±10D
7. Axis: 0 Degree through 180 Degree (1 Degree Steps)
8. Addition: 0D to ±10D
9. Prismatic Power: 0 to 10 Prism Diopter and prism base direction 0-360 deg. {1 deg. steps (0-180 deg.) and 5 deg. step (0-180 deg.)}
10. UV Transmittance Measurement: 0 to 100% (1% Increments)
11. Pupillary Distance Measurement: 40 mm to 90 mm
12. Lens Power Measuring Wavelength: 630 nm
13. UV Transmittance Wavelength: 375 nm

14. Measurement Modes: Single Vision, Bi-Focal, Progressive, Prism, UV, Hard and Soft Contact Lenses, high index lenses.
15. LCD/TFT monitor 5" or more
16. Printer attachment and auto save facility
17. Power: 220- 240 V
18. Abbe no. 30-60 at least.
19. Measurable lens diameter –
  - (a) Spectacle lenses – 30 to 100 mm.
  - (b) Contact lenses- Larger than the inner diameter of the nose piece.
20. Facility for marking centration of the lenses.
21. Should be USFDA or European CE approved product.

### **Item Sl. No. 307**

#### **Hand Held Keratometer**

1. Radius Curvature:  
Range: 5.00 – 10.0 mm
2. Step : 0.01 mm
3. Refractive Power :  
Range : 33.75 – 67.50 D (n=1.3375)
4. Step : 0.01/0.12/0.25 D
5. Astigmatism :  
Range : 0 to  $\pm$  10.00 D  
Steps : 0.01 / 0.12 / 0.25 D
6. Axis:  
Range : 0 - 180°
7. Step : 1°
8. Measuring Area : 3.3 mm (R=7.7 mm)
9. Eccentricity : Range : 4.10 to  $\pm$  2.05 D
10. Measuring Angle : Superior, inferior, Temporal, nasal at an angle of 25° from the Centre
11. Measuring Time: 0.1 sec. or less
12. Observation Window: 2X magnification, 54 (W) X 16 (H)mm
13. Should be US FDA or European CE approved product

### **Item Sl. No. 308**

#### **Teller Acuity Charts**

1. Pediatric stereo visual acuity charts
2. 17 cards that test pediatric visual acuity from 20/20 to 20/3200.
3. Series of cards showing stripe of different width.
4. Printed digitally for optimum accuracy, and are laminated for better durability.

### **Item Sl. No. 309**

#### **Neonatal Open Care System**

1. Warmer module swivel 90° on either side horizontally optional: The heater automatically shuts off when in this position.
2. Examination light: Facility for an examination light with variable intensity should be present
3. Heating element: quartz with parabolic reflector and protected by metal grid, warming system with microprocessor based controls, probes & alarms.
4. Control unit allows air and skin temperature preset (LED indicator) and drives radiant heater output (servo and manual).
5. Bassinet tilt:
  - a. Should allow tilt for Trendelenburg as well as reverse Trendelenburg position
  - b. Should have continuous variable bed tilting mechanism for a bed tilt on either side
6. Should have motorized variable height adjustment mechanism to vary the cradle/baby bed between from the ground, should be able to adjust height of the bed from either side of the warmer
7. Should have inbuilt weighing scale which can weigh at least 7kg with facility for Tare facility
8. Integrated timer: 1 to 59 min, with count-up /count-down feature
9. Temperature range, skin : 32 to 38°C (use pre-settable)
10. Temperature accuracy of +0.1°C at the set temperature
11. Monitoring of skin temperature by means of sensor, range ; 30 to 42 °C
12. Manual mode:
  - a. Adjustable in steps from 0 to 100% in increments of 5%
  - b. Heater power should be reduced to 50 - 60% after 10-15 minutes in manual mode for baby safety
13. Control unit: audiovisual alarms according to timer and temperature presets avoiding overheating
14. Under table 2 nos. of storage drawers
15. Two side rails allow for mounting of accessories
16. Hood suspended above the table integrates heating elements and overhead light
17. Antistatic castors, 2 with brakes
18. Display reports systems errors, sensor failures.
19. It should be European CE or US FDA approved product.
20. Supplied with: Additional 5 reusable skin temperature probes (including connection cables)

### **Item Sl. No. 310**

#### **Weighing machine (Nappy)**

1. Microprocessor based digital electronic weighing scale
2. Weight range: 0-5kg (11 lbs)
3. Accuracy at least +/- 1g (0.05oz)
4. Minimum weight which can be measured is 2 gm
5. Weighing unit: Standard display in grams and should have kg/lbs switch-over.
6. Functions:
  - a. Tare
  - b. Automatic switch off
7. Automatically switches off after 5-10 minutes of non-use
8. Unit preferably should have "Freeze reading feature" to show reading even when the baby is removed

9. It should have stainless Steel surface allows easy cleaning of the Surface.
10. Basinet size approximately: 450 x 300 mm  $\pm$ 20 mm
11. LED display should be large enough to be visible from a distance of 3-4 feet to a normal eye
12. The unit should be able to run on mains and/or inbuilt battery with power supply of 220 / 240 V, 50-60 Hz with DC adaptor
13. Should be FDA/ CE/ BIS approved product
14. ISO 9001 certified manufacturer (certificate to be submitted)
15. The scales are only cleaned with normal disinfectants
16. Supplied with: 1 x spare set of fuses

### **Item Sl. No. 311**

#### **Neonatal Ventilators with HFO**

1. Suitable for neonates.
2. Continuous flow, Time cycled & pressure limited.
3. Volume guarantee with every mode .
4. Volume targeting ( Range 2 ml to 50 ml)
5. Modes : IMV, SIMV, nasal CPAP, CPAP, PSV, A/C - (It should have pressure control and volume targeted both)
6. It should have facility for High Frequency oscillation mode of ventilation(HFO)
7. Apnea back-up ventilation.
8. Capable of providing:
9. PIP : 0-60 cm water
10. PEEP : 0-25 cm water
11. Frequency : 5-150 breath /min
12. Digital display : Should have integrated high resolution LCD screen minimum 10" or more color display with touch screen facility for real-time display of scalar (Pressure, Flow and Volume against time) and loop (Pressure-volume, volume-flow and pressure-flow). Graphic display of at least 3 waveforms together out of choice of flow, volume and pressure versus time with a facility to freeze these waveforms. Facility for loops together with a facility to freeze the same.
13. Digital display of FiO<sub>2</sub>, peak pressure, mean airway pressure, CPAP/PEEP, Expiratory tidal volume, expiratory minute volume, total frequency, spontaneous frequency, lung function monitoring including compliance, resistance, lung distention coefficient, (C20/C), Lung time constant, Rate volume ratio etc.
14. Should have built-in logbook for recording events like various alarms
15. Integrated monitoring: Integrated volume and pressure monitoring i.e. monitoring of PEEP Pmax, Pmean and VT, VTspont, MV and MVleak. The volume monitoring should have NTPD to BTPS correction
16. Monitoring of I:E, frequency and Spontaneous Frequency
17. Audiovisual alarms with advisory on-screen message: MV high/Low, Apnea, tube obstruction, FiO<sub>2</sub> high/low, high PIP, low PEEP/CPAP, CO<sub>2</sub> alarm, fail to cycle, gas supply low, power failure, ventilator inoperative, alarm log book ,Tables and Trends of Two days should be available.
18. Monitoring of flow: At the Y piece with facility to activate or deactivate it
19. Ventilator should have following features in Pressure Support/ Volume Guarantee:
  - a. It should be possible to give leakage adapted inspiratory trigger during pressure support to spontaneously breathing patients with a set volume guarantee.
  - b. Volume guarantee should be regulated with lowest possible airway pressure within a set PIP.
  - c. It should be possible to adjust the Volume Guarantee manually as per patient requirement Control Panel user friendly

20. Reusable patient tubings (after chemical and heat sterilization)
21. Proximal flow sensor
22. Ventilator should be US FDA or European CE approved product and should submit the relevant certificate.
23. Good quality medical air compressor (European CE/ US FDA marked) – **Price to be quoted separately and this will be considered for ranking purpose.**
24. The Servo Controlled Heated wire Humidifier should be supplied along with Reusable patient circuit. The humidifier must be FDA approved.
25. Integrated Battery back-up (at least 30 minutes) should be provided for ventilator.
26. Should be supplied with ultrasonic nebulizer which should have capability to deliver particle size of less than 3 micron and to be used in both 'off' and 'on' line with ventilator.
27. Settings range:
  - a. Trigger Flow/ volume, leak adapted
  - b. PIP 10 to 80 cm H<sub>2</sub>O
  - c. PEEP/ CPAP 0 to 25 mbar
  - d. I:E ratio 1:0 to 1:10
  - e. Insp. Time 0.1 to 2 Sec
  - f. Exp. Time 0.2 to 30 sec
  - g. Frequency Up to 200 BPM
  - h. Base Flow (VIVE) 1 to 30 LPM
  - i. Synchronization Patient synchronization with adjustable flow trigger
  - j. High frequency amplitude 1-100% Or upto 100 cms H<sub>2</sub>O
  - k. Integrated blender for Oxygen 21% to 100%
  - l. Integrated nebulization facility
  - m. Integrated monitoring of FiO<sub>2</sub>.
28. Scope of supply with each ventilator
  - a. Ventilator on trolley with wheels and brake facility
  - b. Integral medical air compressor
  - c. Humidifier: autoclavable humidifier chamber (2 Chambers with each ventilator)
  - d. Circuit support arm
  - e. 2 hose sets for conventional reusable neonatal ventilation circuit
  - f. 5 hose sets of disposable conventional neonatal ventilation circuit
  - g. 1 hose set for reusable HF ventilation
  - h. Bacterial filters
  - i. Flow sensors (10 sets)
  - j. Oxygen cell
  - k. Oxygen connecting hose
  - l. Air connecting hose
  - m. Test lung
  - n. Heater wire (2 nos.)
  - o. Temperature probe (2 nos.)
  - p. Expiratory valve (2 nos.)
  - q. Nasal interface (2 nos.) with nasal mask (2 nos. for all sizes) and nasal prongs (2 nos. for all sizes) and bonnet (2 nos. only for preterm size) with each ventilator

### **Item Sl. No. 312**

#### **Micromethod Bilirubin analyzer**

1. Bench top point-of-care bilirubin meter
2. Direct reading photometry determining total bilirubin in serum /plasma
3. Uses any commercially available capillary tubes

4. On switch off and auto off
5. Automatic calibration setting between measurements.
6. Dual wavelength measurement: 460 nm and 550 nm
7. Correcting for Hb at 550nm
8. Main light source, 5W tungsten lamp
9. Measuring range: 0 to 700  $\mu\text{mol/L}$  or 0 to 40 mg/100mL
10. Accuracy equivalent to laboratory spectrophotometer (approx.  $\pm 5\%$ )
11. Read out switchable between mg/100 ml and  $\mu\text{mol/L}$
12. Analysis time: less than 5 sec.
13. Should have silicon photo diode.
14. Large LED display readable in low light working situations, display cover durable plastic
15. Power requirements: 220 V/ 50Hz (with adapter)
16. ISO 9001 certified manufacturer (certificate to be submitted)
17. Should have data storage of latest 100 results, interface USB port, built in calendar, printer and timer.
18. Should be CE/FDA/BIS approved product.
19. Supplied with following:
  - a) 3 x reference solution packages
  - b) 5 x pack of sealing compound for micro capillary tubes
  - c) 2 x spare lamp
  - d) 2 x dust cover
  - e) 5 x spare set of fuses
  - f) 5 pack of heparinised capillary tubes.
  - g) 5 columns of thermal paper

### **Item Sl. No. 313**

### **Bubble CPAP Machine**

Bubble CPAP machine (without air compressor) for use in preterm and term neonates

1. Should be light weight, easily portable, reliable and sturdy.
2. CPAP generator:
3. Pressure setting from 3 to 10cm H<sub>2</sub>O
  - Should have a detachable overflow container
  - Should deliver the intended pressure constantly and accurately ( $\pm 1\text{cm}$ )
  - Easy to clean/sterilize
  - The gradations (on the sliding rod) should be easily visible from a distance of 4 feet
4. Air-oxygen blender
  - FiO<sub>2</sub> concentration should be adjustable (21-100%) and accurate ( $\pm 5\%$ )
5. Humidifier:
  - a. Should automatically regulate the necessary temperature (37 °C)
  - b. Should have a closed system for filling-up the required water level
  - c. Should display the chamber temperature and/or the temperature at patient end
  - d. Should have ports for attaching a temperature probe as well as heater wire
6. Patient circuits:
  - Should have the option of using both disposable and reusable circuits.
7. Thermoregulation – with both manual and servo modes; (temperature probe, heater source, and a thermostat mechanism are essential)
8. Oxygen therapy – air/oxygen blender and flow meter, oxygen cylinder
  - Disposable circuits should be readily available and reasonable priced

- Should have /be able to accommodate a heater wire; heat loss should be minimal along its length.
9. Power system: Rechargeable battery with charge lasting for at least 30 minute
10. Temperature display of the baby and heater output
11. Safety Features
- Limiting the delivered pressure in the event of an occlusion
  - Facility for monitoring the delivered pressure.
  - High/low pressure alarm
  - A stand or arm support for holding the nasal tubing in support.
  - Should be US FDA or European CE approved product
12. Other features:
- a. Fitting rail for accessories
  - b. Straps for baby
  - c. Sturdy wheels for easy portability
13. Argyl Nasal prongs (consumables) to be supplied with each unit: Small – 10, Extra Small – 10

### **Item Sl. No. 314**

SI NO.	<b><u>PeadiatricO.T.Table</u></b>
	Remote operated Electro-Hydraulic O.T. Table with full manual override system. The table should rest of easy-rolling castors and should be fitted with electro hydraulic brakes.
	Following: are the minimum specification which must be met
1	Should have electro hydraulic /motorized longitudinal slide for at least 300 mm.
2	Should be electro-hydraulic with facility for various positions including setting.
3	The lowest height of the table from floor should be at least minimum of 700mm and the maximum height should be at least 1000mm(Without mattress)
4	Should have a top with dimensions 400mm (w) X 1500 – 1600 mm (L).
5	The Remote Control Hand switch should become inactive after 10 sec for safety.
6	Electro hydraulic control to achieve the following positions:
	Ø Trendelenburg -25°
	Ø Reverse Trendelenburg -25°
	Ø Side tilt -25°
	Ø Back plates raise -90°up
	Ø Back plate drop -40°
	Ø Head section -45° up 90° down
	Ø Leg section adjustment -10° up 90° Down, 110° outward
7	Should have radiolucent tabletop to take intra operative X-Rays, The table design must permit a very easy access of C-arm Image Intensifier.
8	Should have easily accessible X-ray Tray

9	Should have following accessories:
	Ø Arm board –one pair
	Ø Body horns for side supports-One pair
	Ø Anaesthesia screens-One
	Ø Lithotomy rods- For Neonates (One air); for children (one pair)
	Ø Suitable attachments for all above accessories.
	Ø The after sales services must be available in mentioned city, Bidders must have attach certificates from users for satisfactory after sales services.
	Ø The firm should clearly indicate in the technical bid itself that the prices of all standard accessories as well as the other items & accessories specifically mentioned in the above specifications are included in the quoted price
	Ø The firm will give rate list of all possible spares, accessories & consumables if any, as part of financial bid. If price of any spare is not mentioned and is required for repair in life time of equipment/instrument, then the firm will be obliged to give it free throughout life cycle of the equipment
	1.It should have zero level facility 2.It should have inbuilt battery backup for 2 hours. 3.It should be European CE or USFDA certified.

### **Item Sl. No. 315**

## **Cardiotocography Machine**

### **1 Description of Function**

Antepartum and Intrapartum foetal monitor (Cardiotocomachine) is used to monitor Foetus during antepartum period (before labour) or intrapartum period (birth process)"

### **2 Operational Requirements**

The complete unit with printer and all accessories should be offered

### **3 Technical Specifications**

The monitor should be provided with

- 1) Battery and main operation facility
- 2) Should have inbuilt LCD / TFT Screen with tilt adjustment upto 90 degree with facilities to display on screen fetal heart tracings and toco tracings.
- 3) Should be compact, lightweight and should have inbuilt carrying handle and waterproof transducers
- 4) The unit should have
  - a) Fetal Heart Rate range 50 to 240 bpm
  - b) External Toco range 0 to 127 relatives units
  - c) Should have NST timer for antepartum applications
- 5) Highly sensitive ultra sound transducer which should be 1.5 MHZ for less signal attenuation and good signal acquisition. Ultrasound transducer should be a

waterproof unit. Designed with Snap Clasp closure for easy application and cleaning. Should have facility to connect any transducer in any socket for easy use. Preferably there should be facility to switch between transducers when more than one transducer is used.

- 6) Ability to give an accurate continuous trace and should be able to detect sudden beat changes upto 25 bpm
- 7) Audible alert indication of fetal bradycardia and tachycardia
- 8) External tocotransducer which should be a sealed waterproof unit. Guard ring designed to reduce maternal respiration artifact
- 9) Patients event marker
- 10) Capability of automatic fetal movement detector
- 11) Digital numeric and text display along with audio signal of fetal movement should have inbuilt keyboard entry screen for patient data entry, name etc. Minimum 5 hour memory of traces with fast printing
- 12) Should provide following accessories – Transducer belts, Belt buckles, Main cables, interconnecting cables, ultrasound gel bottles
- 13) Inbuilt high resolution thermal/Laser printer with easily available cost effective paper.
- 14) Should be provided with trolley with wheels with locking facility for mounting the unit on it with accessories for storage of transducers paper etc. or the unit must have the facility for wall mounting and a protective cover with cabinet.
- 15) Should have facility for intra uterine pressure monitor.
- 16) Should have facility to record fetal heart rate pattern through fetal ECG.
- 17) Should have facility to monitor twins. Should have twin offset feature so that both fetal heart traces are clearly visible
- 18) Should have facility of connection of central monitor system

#### **4 System Configuration Accessories, spares and consumables**

Machine to be supplied with 10 nos. of paper roll with each unit. Bidder has to ensure the supply of paper roll. (Price for paper roll to be quoted separately)

#### **5 Power Supply**

5.1 Power input to be 220-240VAC, 50Hz fitted with Indian plug

5.2 Should work on 220-240 VAC as well as rechargeable batteries. Mains adaptor to be supplied

#### **6 Standards, Safety and Training**

6.1 Should be US FDA or European CE approved product

6.2 Comprehensive training for lab staff and support services till familiarity with the system.

6.3 Manufacturer should have ISO certification for quality standards

6.4 Should have local service facility .The service provider should have the necessary equipment recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual

#### **7 Documentation**

7.1 User/Technical/Maintenance manuals to be supplied in English

7.2 List of Equipments available for providing calibration and routine Preventive Maintenance Support as per manufacturer documentation in service/technical manual

7.3 Certificate of calibration and inspection

### **Item Sl. No. 316**

#### **DELIVERY BED**

##### **1. Description of Function**

Delivery bed is used for Baby Delivery and should incorporate ideal blend of the patient's individual requirements on comfort and the professional needs of the delivery team, focusing on the esthetic and functional design of the entire product.

##### **2. Operational Requirements**

Delivery bed should be supplied with all accessories as mentioned in the technical specifications.

##### **3. Technical Specifications**

Delivery Bed should have following essential specifications:

- i. It should have control devise for making height (44 cm to 90cm) and back adjustments.[ manual as well as remote control].
- ii. It should have collapsible side rails
- iii. It should have three sectional mattress and seat section should have large perineal cut. The mattress thickness should be 50mm or more.
- iv. Head board and food section can be detached or slides and stores under the bed.
- v. Should have wheels (dia- 6" or 8") provided with locking system.
- vi. Should have retractable foot section with indication for locking, so as to convert bed into table.
- vii. Should have infusion rods which have adjustable heights, quick release and attaches to all corners of bed.
- viii. Should have adjustable leg rests available as an accessory
- ix. Should have push grip handles
- x. Should have sliding stainless steel bowl at perineal part of table
- xi. Should have easy slide calf supports swing into correct positional lock with single lever.
- xii. Should have CPR release.
- xiii. It should have catheter bag holder which can be attached on either side of bed
- xiv. It should be able to give trendelenburg, reverse trendelburg and 60 degree sitting position both mechanically and electronically.
- xv. Pelvic tilt: – 15 degree.
- xvi. It should have adjustable foot supports for nursing staff

- xvii. It should be easy to clean, sterilize (especially blood stains) and maintain
- xviii. Frame should be of epoxy powder coated steel
- xix. Dimensions - Length: Minimum 180 cm and width: Minimum 75 cm
- xx. Weight capacity: 200 (Approx)

#### **4. System Configuration Accessories, spares and consumables**

All consumables required for installation and standardization of system to be given free of cost.

#### **5. Environmental factors**

- i. The unit shall be capable of operating continuously in ambient temperature of 10-40 deg. C and relative humidity of 30-90%
- ii. The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg. C and relative humidity of 15-90%

#### **6. Power Supply**

- i. Power input to be 220-240VAC, 50Hz fitted with Indian plug
- ii. UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up.

#### **7. Standards, Safety and Training**

- i. Should be European CE or US FDA
- ii. Manufacturer should have ISO certification for quality standards.
- iii. Comprehensive training for lab staff and support services till familiarity with the system

#### **8. Documentation**

- i. User/Technical/Maintenance manuals to be supplied in English
- ii. List of Equipment available for providing calibration and routine Preventive Maintenance Support as per manufacturer documentation in service/technical manual

### **Item Sl. No. 317**

#### **Cryo Surgical System**

- 1. Operating Pressure Range: 40-60 bar.
- 2. Coolant: N<sub>2</sub>O or CO<sub>2</sub> in two cylinders (A type).
- 3. Gas consumption for freezing: ca.35g – 50 g/min.
- 4. Max. exhaust gas volume: 40-60 l/min
- 5. The unit should have Manometer to monitor operating pressure.
- 6. A different indicator lamp to indicate freezing and defrosting phase.
- 7. Should have a connection pipe for gas exhaust.

8. It should be mounted in a cart with cylinder case for easy mobilization
9. Activation should be via footswitch or hand control.
10. Min freezing temperature should reach within 5 seconds.
11. It should be supplied with multiple different sized probe-tips to cater for cervical cryocautery of lesion of all sizes.
12. All cryo probes and accessories should be autoclavable.
13. Should be European CE or US FDA approved.
14. Minimal maintenance, Flawless performance, Available with knob to regulate pressure.

**Item Sl. No. 318**

**CAESAREAN SET**

1. BP Handle No.04
2. DEbakey Forceps plain 8" atraumatic tissue forceps
3. DEbakey Forceps toothed 6" atraumatic tissue forceps
4. Adson Forceps plain 5"
5. Adson Forceps toothed 5"
6. Metzenbaum Scissor Stght 8" (TC TIP)
7. Metzenbaum Scissor Cur 8" (TC TIP)
8. Kocher Artery Forceps Stght 7"
9. Haeny Mod Cur 8" Hysterectomy Clamp "
10. Babcock Tissue Forceps 6"
11. Babcock Tissue Forceps 7"
12. Allis Tissue Forceps 6"
13. Allis Tissue Forceps 8"
14. Artery Forceps Cur 8" long
15. Artery Forceps Cur 6" Medium
16. Mosquito Artery Forcep Cur 5"
17. Doyen"s Retractor 3"
18. Langenback Retractor 11x35mm
19. Heavy Straight Scissor S.S./Sharp 8"
20. Needle Holder 8" & 6" (TC TIP)
21. Kidney Tray 8" S.S.
22. Bowl S.S.
23. Green Armytage X"s series
24. Artery Forceps str 6"
25. Right Angle Artery Forcep MIXTER 8"

26. Sponge Holding Forcep 10" & 6"
  27. Suction Tip Pool Stght 8mm All S.S.
  28. Cross Action Towel Clips Engl. Mod. Angled 3.5"
  29. Cross Action Towel Clips Backhaus 3"
  30. Wrigley Outlet Forceps
- All Instruments should be of High quality stainless steel, corrosive resistant, reusable and rust free
  - All instruments should be FDA/CE/BIS approved

**Item Sl. No. 319**

**ABDOMINAL / VAGINAL HYSTERECTOMY PER SET**

1. BP Handle No.04
2. Dissecting Forceps plain 8"
3. Dissecting Forceps toothed 8"
4. Dissecting Forceps plain 6"
5. Dissecting Forceps toothed 6"
6. Kocher Artery Forceps Stght 7"
7. Kocher Artery Forceps Cur 7"
8. Artery Forceps Cur 8" long
9. Artery Forceps Cur 6" Medium (FINE)
10. Mosquito Artery Forcep Cur 5"
11. Artery Forceps str 6"
12. Doyen"s Retractor 3"
13. Deaver"s Retractor 1" & 3"
14. Langenback Retractor 8x35mm
15. Morris Retractor with ring handle 2.5"
16. Babcock Tissue Forceps 6"
17. Babcock Tissue Forceps 7"
18. Allis Tissue Forceps 6"
19. Allis Tissue Forceps 8"
20. Kidney Tray 8" S.S.
21. Bowl S.S. 6"
22. Metzenbaum Scissor Stght 8" (TC TIP)
23. Metzenbaum Scissor Cur 6" (TC TIP)
24. Metzenbaum Scissor Cur 8" (TC TIP)
25. Needle Holder 6" (TC TIP)
26. Needle Holder 8" (TC TIP)

27. Myomectomy Screw (small, medium & large)
  28. Right Angle Artery Forcep MIXTER 6"
  29. Right Angle Artery Forcep MIXTER 8"
  30. Sponge Holding Forcep 10"
  31. Balfour Retractor 10" shaft for abdominal hysterectomy Doyen"s 8" shaft
  32. Suction Tip Yankeur All S.S.
  33. Suction Tip Pool Stght 8mm All S.S.
  34. Cross Action Towel Clips Engl.Mod. Angled 3.5"
  35. Cross Action Towel Clips Backhaus 3"
  36. Heaney ATrauma Straight UNS-370-23 Hysterectomy Clamps
  37. Heaney ATrauma Curved UNS-371-22 Hysterectomy Clamps
  38. Uterine manipulator. double action 11"
  39. Mayo"s Scissors (TC TIP)
  40. Kelly Clamps
  41. Right Angled Clamps
  42. Suction tips
  43. Micro needle holder (TC TIP)
  44. Microscissors (TC TIP)
  45. Wertheim"s Vaginal clamp
  46. TC parametrium scissors
  47. Shirodkar"s uterine holding forceps & rubber pad
- Instruments should be of High quality stainless steel, reusable, light weight, corrosive resistant and rust-free
  - All instrument should be US FDA or European CE approved

### **Item Sl. No. 320**

#### **MTP SUCTION**

1. The Machine should be ergonomically designed and easy to clean.
2. Piston/cylinder system (self-lubricating)
3. Fast vacuum build up, vacuum capacity 40 - 50 L/min with vacuum of minimum -90 Kpa/- 675 mm Hg.
4. Should be very quiet in operation.
5. Double suction container of 3 ltrs, polysulfone, graduated with lid for overflow protection and 2 spare suction tube
6. Separate foot on/off switch
7. To be operated on 220-240 V/50 Hz
8. Mobile caster stand on 4 antistatic castor, 2 with locking device
9. It should be US FDA or European CE or BIS approved

**Item Sl. No. 321****ICU Monitor**

1. Advanced high end modular patient monitor having integrated non-invasive, invasive measurement & features suitable for neonate, pediatrics & adult patients.
2. Monitor must have bright, highly visible minimum 15" or more color TFT display with full touch screen facility.
3. Monitor must have the facility to display min 12 waveform or more, along with related numerical parameters on single screen.
4. Monitors must be able to monitor ECG, SpO2, NIBP, Respiration, dual temp, dual IBP, modular ET/CO2 and minimally invasive Continuous Cardiac Output.
5. Monitor must be ready to connect for CO (Thermodilution), BIS/Entropy, NMT, ICP monitoring, three IBP, 4 ch EEG, module.
6. Monitor must have advanced arrhythmia detection and ST Analysis as standard feature.
7. System must have minimum 24 hours review data including graphical and tabular trends, arrhythmia event recalls, alarms. Full disclosure for user selectable waveform, hemo and lung trends.
8. Monitor must have the time linked review function. Monitor must show the waveforms for the time when the arrhythmia occurred in case of arrhythmia recall.
9. Monitor must have facility to display 12 lead ECG.
10. Monitor should have ST segment calculations
11. Must have inbuilt rechargeable battery for minimum 1 hour operation.
12. Must have facility to hook up with network printer, at any point of time and able to take print any review data (Trends, Graphs, waveform full disclosure, arrhythmia recall etc.)
13. Monitor must be able to connect to central monitoring station and should use single network for all kind of networking with the central station or other hospital information system (HIS).
14. Monitor must be US FDA or European CE approved.
15. Each monitor to be supplied with following:
  - a. 3 and 5 Lead ECG electrode cable 2 Nos. each
  - b. Adult, Pediatric and neonate SpO2 probe – 1 No. each (Ear lobe probes for neonates )
  - c. NIBP cuffs for Adult, Pediatrics and neonates – 2 no each (of different sizes)
  - d. Temp Probe – 2 Nos. (skin & esophageal one each)
  - e. IBP connection cable – 02 Nos.
  - f. IBP Disposable Pressure Transducers – 2 Nos
  - g. ET/CO2 sample line: 2 nos. (if applicable)
16. Price of following Optional items to be quote separately
  - a. CNS of 21" LED to be provided with one laser printer and one 21" slave monitor. The cabling has to be done by bidder in the ICU One CNS with 16 monitors
  - b. One module each for ECG, SpO2, NIBP, Respiration, dual temp, 2IBP, EtCO2 for each monitor (independent/dual)
  - c. One Module of minimally invasive CO monitor.
  - d. One module of NMT, EEG and spirometer, BIS/Entropy.
17. EtCO2 values should be shown on main monitor screen.
18. To provide suitable facility for sending and receiving DICOM compatible radiological images like Ultrasound, X-ray etc. to and from monitoring network to and from HIS, RIS etc. for integration of various information (Optional-Price to be quoted separately)

**Item Sl. No. 322****DVT Pump**

1. Provides graduated sequential compression and rapid impulse inflation to calf, foot & thigh.
2. Pulse frequency 1 per minute range.
3. Choice of three cuffs of universal size: Calf, thigh , foot
4. No DVT sleeves should be required below cuffs.
5. Should deliver constant pre-set pressure ranges – Distal 52 pulse mince 10 % mmHg
6. Pro 45 pulse mince 10 % mmHg
7. Alarm present
8. Visual indicators for pressures and time present
9. Portable, can be mounted on the bed.
10. Battery backup at least 2 hours.
11. US-FDA/ European CE approved product.

**Item Sl. No. 323**

<b><u>TRANSPORT MONITOR</u></b>
The monitor should have:
1. High – resolution colourTFT display of minimum 8" or more
2. It should be rugged and sturdy for transport use.
3. Should be able to monitor ECG, NIBP, 2 IBP, SpO2. Temperature and Respiration
4. Plethysmograph with perfusion indicator
5. Monitor should be at least three channel
6. 24 Hrs. graphical / tabular trends
7. NIBP trends memory should be at least 50 readings (tabular)
8. Suitable for Adult / paediatric/neonate.
9. Selectable Arrhythmia detection
10. Should have inbuilt two channel recorder
11. Must have Graded and Colour coded alarms
12. User selectable screen formats and user – friendly menu driven functions.
13. Battery backup for at least 3 Hrs.
14. Should be supplied with:
One 3 lead ECG cable, Reusable SpO2(adult, paediatric ,neonate) sensor, NIBP cuffs (each for Adult ,child and neotate ), IBP cable
15. It should be European CE or US FDA Certified.
16. Product should have Airworthiness RTCA DO-160 D, section 7,8,21 and Vibration standard MIL STD 810F, method 514.5 certifications. (Preferable)

**Item Sl. No. 324**

**Non-invasive ventilator**

1. The unit shall be capable of being stored continuously in ambient temperature of 0-50deg C and relative humidity of 15-90%
2. IPAP 4 to 30 cm
3. EPAP 4 to 25 cm
4. Breath rate upto 50 BPM with spontaneous for time mode
5. Timed inspiration 0.5 to 3.0 sec
6. Rise Time 100 to 600 msec
7. System should be supplied with all reusable accessories
8. Power input to be 220-240VAC, 50Hz fitted with Indian plug
9. UPS of suitable rating with voltage regulation, spike protection and maintenance free batteries for 60 minutes back up
10. Should be USFDA or European CE approved product.
11. Comprehensive training for lab staff and support services till familiarity with the system
12. User/Technical/Maintenance manuals to be supplied in English.
13. List of important spare parts and accessories with their part number and costing.
14. List of equipment available for providing calibration and routine Preventive Maintenance Support as per manufacturer documentation in service/technical manual.
15. Certificate of calibration and inspection
16. Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.
17. Leakage compensation.
18. Mode:- CPAP with PS, Biphasic pressure control, apnea backup

**Item Sl. No. 325**

**I.C.U Beds**

**1 Description of Function**

ICU Beds are required in the Intensive Care for comfort & safety of the patient and to facilitate comfortable transfer to and fro emergency/OT/Wards etc. It is also required to carry out point of care procedures including radiological procedures at the bedside.

**2 Operational Requirements**

The system should be electrically operatable by control panel and adjustable for heights, trendelenburg etc. It should also be having radiotranslucent top for carrying out X-Ray at the bedside.

**3 Technical Specifications**

- 3.1 Should have four section mattress base
- 3.2 Should have X-Ray translucent back section made up of high pressure laminate.
- 3.3 Should have X-Ray cassette holder underneath the back section & should allow insertion of X-Ray cassette from either side of the bed or from Head end.
- 3.4 Base frame & support frame should be made up of Epoxy powder coated MS or CRCA tubes for long life & prevention from rusting.
- 3.5 Should have stepless electrical adjustment for the following :-
  - a. Height: 450-840 mm +/-10%
  - b. Back section: 0- 50 degrees or more
  - c. Leg Section: 0-25 degrees or more
- 3.6 Should have step-less pneumatic / electric adjustments for Trendlenburg (12 deg or more.); anti-trendlenburg (12 deg or more)
- 3.7 Should have a manual quick release mechanism for back section adjustment during emergency situation
- 3.8 Should be equipped with four articulated half-length tuck away side rails with lock facility
- 3.9 Should be equipped with large castors (diameter atleast 125 mm) with central braking and steering facility.
- 3.10 Mattress of the Bed should be made up of high density foam with Anti-Microbial agent incorporated into all components that assists in Prohibiting growth of bacteria & fungi and easy to clean.
- 3.11 Mattress should be fully Radiolucent for ease in performing portable X-Rays.
- 3.12 Should have bumpers at all four corners and place for fixing accessories
- 3.13 Dimensions of bed:
  - a. Length: 2100 -2290 mm
  - b. Width: 850 -1020mm
  - c. Mattress Size: appropriate as per bed size

**4 System Configuration Accessories, spares and consumables**

- 4.1 I.C.U Bed Mainframe perforated heavy gauge sheet
- 4.2 Heavy Gauge & total weight of Bed
- 4.3 Bed Ends, detachable: 01 pair
- 4.4 Articulated half-length tuck away side rails: 04 Nos.
- 4.5 IV Rods: 01 No.
- 4.6 Mattress 12 cm Thick: 01 No.

**5 Environmental factors**

- 5.1 Shall meet IEC-60601-1-2:2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility.
- 5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 - 500 C and relative humidity of 15-90%

- 5.3 The unit shall be capable of operating continuously in ambient temperature of 10 - 40deg C and relative humidity of 15-90%

## 6 Power Supply

- 6.1 Power input to be 180-270 V AC, 50-60 Hz as appropriate fitted with Indian plug with rechargeable battery backup of atleast one hour.
- 6.2 Resettable over current breaker shall be fitted for protection

## 7 Standards, Safety and Training

- 7.1 Electrical safety conforms to standards for electrical safety IEC-60601 /IS-13450
- 7.2 Should be USFDA or European CE approved product.
- 7.3 Manufacturer should have ISO certification for quality standards.
- 7.4 Electric Shock Protection level-Class-B
- 7.5 Electric current Protection- Class -1
- 7.6 Should have local service facility. The service provider should have the necessary equipment recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.

## 8 Documentation

- 8.1 Certificate of Calibration and inspection from the factory
- 8.2 List of Equipment available for providing calibration and routine maintenance support as per manufacturer documentation in service / technical manual.
- 8.3 List of important spare parts and accessories with their part number and costing
- 8.4 Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.
- 8.5 The job description of the hospital technician and company service engineer should be clearly spelt out

### Item Sl. No. 326

#### ICU Universal Ventilator

1.	Should be touch screen.
2.	Single integrated screen with size 12" or more
3.	Compressed air driven
4.	Should have the following modes.
a)	Volume and Pressure Controlled modes
b)	SIMV (Pressure controlled and volume controlled) with pressure support
c)	Spontaneous modes like CPAP / PEEP
d)	Inverse Ratio ventilation
e)	Advanced mode like Pressure Regulated volume control mode

f)	Airway Pressure Release ventilation
g)	Non-invasive ventilation.
5.	Should have the facility for following settings:
a)	Tidal Volume: Minimum 5ml or less and maximum of 1500 ml or more in Volume control
b)	PEEP upto 25 cmH <sub>2</sub> O or more
c)	Pressure support 35 cmH <sub>2</sub> O or more
d)	Flow Pattern: Square, Decelerating
e)	Respiratory Rate upto 80 bpm or more
f)	Inspiratory plateau upto 60% of Inspiratory time
g)	SIMV Rate upto 60 cycles/min
h)	FIO <sub>2</sub> : 21% - 100%
i)	Should have flow and pressure Trigger Sensitivity
j)	Manual Cycle, Inspiratory Pause, Expiratory Pause
6.	Should be able to monitor and measure the following parameters:
a)	Tidal Volume
b)	plateau
c)	Mean Airway Pressure
d)	Peak Airway Pressure
e)	Intrinsic PEEP
f)	RSBI (Rapid Shallow Breathing Index)
g)	Resistance and Compliance
7.	In line ultrasonic nebulizer with reusable chamber
8.	Should have the facility to find (Lower inflection point) and UIP (Upper Inflection Point)
9.	Compiled trend analysis at least for 24 hours for all measured parameters.
10.	Should have the facility to display multiple loops for comparison
11.	Should have facility to measure:
a)	Pressure / Volume loops
b)	Flow/ volume loops
12.	Should display minimum 2 curves/graphs /loops simultaneously on the screen
a)	Should have audio-visual alarms for the following parameters:
b)	Peak inspiratory pressure – High & Low
c)	FiO <sub>2</sub> – high & low
d)	Respiratory rate – high & low
e)	Tidal volume – high & low
f)	Minute volume – high & low

g)	Apnoea
h)	Gas supply failure
13.	Should have the facility for ETCO <sub>2</sub> measurement ( <i>Price to be quoted separately and shall be considered for ranking</i> )
14.	Should have battery backup at least for 1 hour.
15.	Event log: 1000 Alarm History.
17.	Spares should be available for 10 years.
18.	Should be supplied with following ( <b><i>Price to be quoted separately and will be considered for ranking</i></b> ):
a)	Reusable Silicon tubing, Adult - 2 nos., Paediatric – 1 no.
b)	Imported humidifier - 1 no.
c)	Ultrasonic nebulizer with reusable chamber - 1 no.
d)	Adult & Paediatric disposable breathing circuits - 10 nos. each
e)	NIV masks - Large, Medium, Small: 2 nos. each
f)	Flow sensors – 5 nos.
19.	Should be European CE or US FDA approved
20.	Ventilator should have external compressor, from the same manufacturer ( <i>Price to be quoted separately and shall be considered for ranking</i> ).
21.	Expiratory valve/cassette/block should be autoclavable and supply 02 nos. with each unit.
22.	Oxygen sensor should be paramagnetic/ultrasonic/Galvanic and covered under warranty & CMC and will be supplied free of cost during warranty and CMC period.
23.	Compressor should be US-FDA or European CE approved.
24.	Compressor, hinged arm and ventilator trolley should be from the same manufacturer

### **Item Sl. No. 327**

#### **Hemodialysis Machine**

- 1 Description of Function
  - 1.1 Hemodialysis, is a method for removing waste products such as potassium and urea, as well as free water from the blood when the kidneys are incapable of this (i.e. in renal failure). It is a form of renal dialysis and is therefore a renal replacement therapy.
- 2 Operational Requirements
  - 2.1 Machine should have facility for Acetate, Bicarbonate, Sequential dialysis (Isolated UF)
  - 2.2 The blood pump should run even in the absence of water or dialysate flow.
- 3 Technical Specifications

- 
- 3.1 Should have facility for conventional and High flux dialysis.
  - 3.2 Machine should have two bacterial filter (Pyrogen filters) one at water inlet and one before water going to dialyser
  - 3.3 Battery back-up for 15-20 minutes to run complete machine with heater supply
  - 3.4 Should have Na+, Bicarbonate and UF profiling
  - 3.5 Dialysate temperatures selectable between 35 degrees C to 39 deg. C
  - 3.6 Variable conductivity setting between 12 to 15ms/cm
  - 3.7 Should have variable dialysate flow 300-800 ml/mt
  - 3.8 Should have facility to show trends curve of all parameter for 15-20 minutes
  - 3.9 Heparin pump with syringe sizes up to 10ml or 20ml
  - 3.10 Stroke pressure operated short term single needle dialysis
  - 3.11 Ultrafiltration 0.1 to 2.5 litre/hr. The in and out fluid circuit must be separated so that there is no chance of contamination in the event of membrane rupture.
  - 3.12 Treatment parameter should be displayed by graph and digitally both
  - 3.13 Should have integrated heat (80 deg. C) and chemical disinfection facility.
  - 3.14 Should have accurate feedback control conductivity mixing technique.
  - 3.15 Should have accurate UF control by flow measurement technique.
  - 3.16 All important data should be preset so that machine can be used anytime without feeding data every time
  - 3.17 Should have automatic self-test facility
  - 3.2 Should have auto ON/OFF Facility
  - 3.21 Should have touch button screen/ touch screen
  - 3.22 Easy to service, troubleshoot and calibrate
  - 3.23 Machine can be connected to computer to feed all data and trouble shoot whenever any problem
  - 3.24 Blood pump rate from 50-500 ml/min adaptable to standard, A-V bloodlines
  - 3.25 Ability to monitor pulse rate and NIBP with graphic and tabulated trends (rate to be quoted separately but will be added for price ranking).
  - 3.26 Audio visual alarms on limit violation of conductivity, blood leak, air leak, transmembrane pressure alarms, Dialysis temperature alarm, dialysis can empty alarm, end of disinfection alarm by pass alarm and blood pump stop alarm
  - 3.27 Alarm for reverse Ultrafiltration.
  - 4 System Configuration Accessories, spares and consumables
  - 4.1 System as specified-
  - 4.2 All consumables required for installation and standardization of system to be given free of cost.
  - 4.3 To be supplied free of cost Bacterial filters – 2 sets extra, 10 polysulfone dialyzers and tubing's
  - 5 Environmental factors
  - 5.1 The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%

- 5.2 The unit shall be capable of operating continuously in ambient temperature of 10 - 40deg C and relative humidity of 15-90%
- 6 Power Supply
- 6.1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
- 6.2 UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up.
- 7 Standards, Safety and Training
- 7.1 US-FDA or European CE approved product.
- 7.2 Manufacturer/Supplier should have ISO certification for quality standards.
- 7.3 Comprehensive training for lab staff and support services till familiarity with the system.
- 7.4 Should have local service facility .The service provider should have the necessary equipment recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual.
- 8 Documentation
- 8.1 User/Technical/Maintenance manuals to be supplied in English.
- 8.2 Certificate of calibration and inspection.
- 8.3 List of Equipment available for providing calibration and routine Preventive Maintenance Support, as per manufacturer documentation in service/technical manual.
- 8.4 List of important spare parts and accessories with their part number and costing.
- 8.5 Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out

### **Item Sl. No. 328**

SI NO.	<b><u>Anesthesia Workstation with monitor</u></b>
1	Compact and modular, three gas Anesthesia workstation with an integrated ventilator for adult to infants and integrated airway monitor for airway pressures and volume.
2	The Machine should be suitable for low and minimal flow anesthesia application with compliance compensation of breathing circuit, fresh gas flow compensation/ decoupling.
3	Anesthesia machine should have minimum 60 min. battery backup.
4	Anesthesia workstation should be European CE/US FDA certified.
5	Gas Delivery System
	Should have pin index yokes one for oxygen and one nitrous oxide besides separate connection for central gas supply for oxygen, nitrous oxide and air.
	The machine should have pressure gauges for cylinders and central supply lines visible from the front of anesthesia machine. The gas connections should be non-interchangeable.
	Automatic cutoff of N2O / oxygen pressure failure.
	Hypoxic guard for liner regulation of minimum oxygen concentration at 25% volume and must ensure a minimum oxygen flow of 200ml at low fresh gas flow setting even below total 500

	ml fresh gas flow.
	Audio-visual oxygen failure alarm.
	Emergency oxygen flush at 30-70L/min bypassing the vaporizer
	<b>Should have O2 monitoring with paramagnetic/Galvanic fuel cell technology and should be covered under warranty for 5years and thereafter under CMC.</b>
	Should have Auxiliary O2 flow meter.
6	Flow meter
	<b>Dual cascade type flow meter tubes for oxygen and N2O. Range 100ml /min to 10lit/min.</b> Calibrated in multiple scales. Single tube for air 100 ml to 14L/min
7	7. Vaporizer
	Machine should have facility to mount two quick mount type selectatec vaporizer for easy interchangeability and safety
	Should be provided with a temperature / pressure compensated and flow independent vaporizer for Isoflourane, Sevoflourane & Halothane
	Vaporizer should have extended delivery range with standard marking.
	<b>The vaporizer design should be with one time life time calibrated.</b>
8	Breathing System
	Should have semi closed circle absorber system
	Should have adjustable pressure relief valve from 5 to 60m bar.
	Should have change over from spontaneous to Bag ventilation with single step.
	Should have an external fresh gas outlet for connecting Magill or Bain's circuit.
9	Anesthesia Ventilator
	Electronically controlled electrically driven / pneumatically driven ventilator
	Should not require changing of bellows for adult & infants.
	Modes: Volume controlled, manual / spont, pressure controlled mode, pressure support, SIMV
	<b>Tidal volume : 20 ~ 1400ml</b>
	<b>PEEP : 3 ~ 20m bar</b>
	Breathing Frequency : 4 to 60 BPM
	<b>IE Ratio : 2:1 to 1:3</b>
	Inspiratory pause : 0 – 50% of Ti
	Flow : 1 to 60 L/min.
	Pressure limiting (Pmax) : 15 – 70 cm H2O
	Should automatically compensate for compliance of breathing system
10	Airway Monitoring
	<b>Integrated monitor (color display/EL) for electronic monitoring and display of following set and measured values</b>
	Expiratory Tidal Volume, Expiratory Minute volume, PEEP, Peak and Mean and Plateau airway pressure, Frequency, Waveform and loop display for Airway pressure, flow and volume.
11	Alarm limits an alarms
	Adjustable high / low limits with audio and visual alarms for the following:- Minute volume, airway pressure (incl stenosis and disconnect), Insp oxygen concentration, audio power supply fail alarm, Fail to cycle warning, low driving gas pressure, low battery Apnoea alarm
12	Machine should have RS 232 connectivity port.
13	Monitor
	(i) Should be suitable for adult, paediatric and neonatal patients monitoring
	(ii) Should have minimum 8 channels of waveforms with minimum 18" color touch screen display with vertical and horizontal cursors.
	(iii) <b>Battery backup for 60 minutes should be provided through internal batteries or UPS</b>

	(iv) Should have automatic graphic and tabular trending of all monitored parameters as standard for at least 24 hours.
	(v) Should have minimum ECG, NIBP, SpO2 (masimos technology), 2 IBPs, 2 Temp., Anaesthesia gas monitoring (N2O, CO2, MAC) with Anesthesia Agent EtCO2 monitoring side stream based.
	(vi) Should have ST segment analysis and arrhythmia detection including life threatening arrhythmias such as V. TACH, ASYST, V. FIB as standard features.
	<b>(vii) Should have manual as well as automatic scaling of screen format.</b>
	(viii) Should have user selectable parameter priority and colour selection for parameter on screen.
	(ix) Anaesthesia depth monitoring by BIS
	<b>(x) It should be US FDA and/or European CE approved.</b>
14	Scope for supply with each machine:-
	3 gas anesthesia machine
	Writing surface
	Pin Index yokes for O2 and N2O
	Pipe line connections for all three gases
	Ventilator and monitor
	Semi-closed breathing system
	Adult & Paediatric autoclavable patient tubing (Silicon) - 2 each
	Vaporizer for Isoflourance, Sevoflourance & Halothane
	Central gas supply hoses (color coded)
	5 lead ECG cable – 2 Nos.
	SpO2 finger sensor with extension cable (adult) – 2 Nos.
	SpO2 finger sensor with extension cable (Paeds) – 2 Nos.
	SpO2 finger sensor with extension cable (Infant) – 2 Nos.
	Skin Temperature probe – 1 Nos per monitor
	Rectal / Esophageal temperature probe – 1 Nos
	NIBP Hose – 2 Nos
	Adult, Paeds and Infant cuffs – 2 each
	Large Adult cuff – 2 Nos
	IBP reusable cable for 2 IBP and 10 Pcs disposable transducers per monitor
	Sample lines for EtCO2 – 50 Nos.
	Instruction for use
	BIS (complete) – 25 Nos.

### **Item Sl. No. 329**

#### **Defibrillator**

1. The defibrillator should be least, lightweight, small size with bright colored display
2. The defibrillator should be Biphasic waveform with 3 wave form display with screen size minimum 6 inches diagonal
3. It should display of both selected and delivered energy
4. It should have ability to energy selection from Paddles or Unit.
5. In manual mode the unit should provide energy selection at (1-10, 15, 20, 30, 50, 70, 85, 100, 150, 200) joules

6. The unit should have transcutaneous external pacing with 40 milli-second pulse width
7. The unit should do self-test daily with facility to give print out of defibrillator testing report and also have code ready indicator on unit.
8. The defibrillator should be able to monitor
  - a) ECG
  - b) SPO2 (**Price to be quoted separately and it will be considered for ranking purpose**)
9. Should have optional capability of internal defibrillation if and when required.
10. The Unit should be US FDA and/or European CE approved
11. In addition to standard accessories following items have to be supplied with unit
12. Li-Ion smart battery. 30 minute display and 90 shocks.
13. Multi-Function Defibrillator/Pacing padz-5 Nos.
14. Defib paddle adult & Paed. Combined-1 no.
15. AED facility should be available as standard.

### **Item Sl. No. 330**

#### **PATIENT WARMING SYSTEM**

1. Should be suitable for intra-operative applications for adult & pediatric patients
2. Should consist of active warming arm-cum-shoulder section, pair of leg segments and abdominal segment of cover the entire body.
3. Should be based on semiconductor /carbon fibre polymer foil for precise warming of entire patient body during & after surgery.
4. Size: All sizes for Adult & Pediatric patients
5. Control unit should be capable of warming minimum two segments at a time.
6. Control unit should have display for easy operation.
7. Control unit should have touch screen /key pad display to select & display temperature of all segments at a time.
8. Control unit should automatically detect the number of segments which are connected to the unit and display the same on the screen.
9. Should offer precise digital temperature control with selectable temperature range of 37 to 40 °C in steps of 0.1 °C
10. Should have facility to measure & display the real time core body temperature of the patient continuously on the screen.
11. Should also have on screen graphical/digital display of patient body temperature for the entire duration of surgery.
12. Should have a provision to connect whole body blanket, pediatric size blanket, jelly based warming mattress / pad to the same control unit for future requirement.
13. Should have safety features such as Automatic check, Precise temperature control between warming system and patient, Autostop on detecting any problem
14. Should have non latex anti-bacterially coated, blood and fluid Resistant, washable and replaceable covers

15. The control unit should be light weight and small in size, easily attachable to IV rod/OT table with fixing claw.
16. Should have low energy consumption and noiseless operations
17. It should be US FDA / CE /BIS Certified.

**Item Sl. No. 331**

**Blood & Fluid Warming Device**

1. Should be able to warm fluid /blood at a temperature range of 37-40 c.
2. Should be able to maintain or warm the water/blood when at a flow rate of 3 L/hr.
3. Should have digital temperature display of fluid.
4. Alarms for disconnections, less water (if applicable) & over temp.
5. Disposable tubing set for Fluid/Blood-100 Nos.
6. Should have over temp, alarm test system.
7. Should be useful for both in Adult & Paed. Patient.

**Item Sl. No. 332**

**RECOVERY TROLLEY**

1. Should have two or three sectional mattress base made of X- Ray translucent high pressure laminate.
2. Should have facility to insert X-Ray Cassette from either sides & ends of the trolley.
3. Should be able to X- Ray the patient from positions along the entire length and width of the trolley.
4. Should have pneumatic stepless adjustment for back section, Trendelenburg, reverse trendelunberg and foot section.
5. Should have hydraulic height adjustment with a foot paddle on either side of the trolley
6. High pressure laminate mattress base should be lift-able for easy cleaning and disinfection of the x-ray platform.
7. Frame should be made up of epoxy powder coated steel.
8. Should have Central braking system with steering facility, heavy duty castors diameter 150mm or more
9. Should have facility to fix IV rod at all the four corners and middle or mattress base frame.
10. Should have place for fixing 'B' Type Oxygen Cylinder.
11. Should be CE or FDA or BIS or ISO 13485 approved product.

12. Should be supplied complete with and aid for patient transfer made up of low fiction fabric and suitable for heavy patient transfer to and from OT Table, Bed, Trolley, Stretcher x-ray table etc.
13. Should be supplied with standard accessories such as
  - a. Anti static Hygienic Mattress (80mm) with pull straps, 01pc
  - b. Collapsible Side Rails, (detachable) 01pair
  - c. IV Rod (height adjustable with self locking facility), 01pc
  - d. Cylinder Holder for 'B' Type Oxygen Cylinder, 01pc
  - e. Aid for patient transfer, 01pc
14. Dimensions:
  - a. Max. Length : 205 cm or better
  - b. Max. Width : 75 cm or better
  - c. Height : Min. 54 cm or less, Max. 90 cm or better
15. Trendelenburg : 14deg or better
16. Anti Trendelenburg : 6 deg or better
17. X-ray viewing area : entire length

### **Item Sl. No. 333**

#### **Nerve Stimulator**

1. Should be suitable to identify peripheral nerves and giving percutaneous stimulation in neuron muscular block.
2. Should have a percutaneous monopolar/ bipolar stimulating handle for localization of nerves without puncturing the nerve which should be autoclavable.
3. Should have selectable stimulation intensity ranging from 0 – 60 Ma in steps 0.1 mA and stimulation impulse width from 0.3 ms, 0.5 ms and 1.0 ms
4. Should continuously measure & display actual current passing through the patient and selected current.
5. Should have pause function to interrupt stimulation without delivering impulses test function
6. Should automatically switch off with a acoustic warning if not operated more than 10 minutes.
7. Should have LCD display for stimulation current, impulse pattern, pulse width, impulse amplitude.
8. Should have analog and digital display of selected current and actual current.
9. Should have membrane touch pads for choosing stimulation function
10. Should be small (pocket size) & light weight.
11. Machine should be USFDA/European CE certified
12. Should be supplied complete with
13. Adapter with extension cable
14. Percutaneous Bipolar Stimulating Handle
15. Switch Box for switching between invasive and percutaneous nerve stimulations
16. Plexus Cannula with Thin polymer insulation coating (Teflon coating not desirable) 22G, 24G, 25G – 10 nos. each
17. 9 volt rechargeable battery with charger

**Item Sl. No. 334****Automatic Tourniquet System**

Automatic Tourniquet System should be dual-port, dual-cuff system with microprocessor controls and dedicated ports for supplying and measuring pressure independently, so that it can be used for bilateral joint replacement procedure. The Tourniquet should combine the latest in advanced tourniquet technology with the well-established tradition of safety, reliability, and convenience

It should have the following Features:-

1. Ability to provide a specific Recommended Tourniquet Pressure (RTP) for each patient based on physiological characteristics.
2. Should use ambient air
3. Microprocessor Controlled
4. Self- check calibration
5. Audible and Visual Alarms
6. Internal Pump for Fast Inflation Time
7. Positive locking connectors
8. Should automatically checks the accuracy of machine calibration every time the system is powered up
9. Should alert the user of the cuff status when attempt is made to power down the machine
10. Cuff Lockout Safety Feature
11. Audio visual alarm for “deflation” to reduce the incidence of clinically significant issues related to “sudden deflation
12. Dual display for each cuff during bilateral surgery.
13. Dual compressors to allow for independent control over cuffs “one” and cuff “two”, addressing the potential physiological differences in the patient
14. Dedicated pressure line and pressure measurement line for cuff “one” and cuff “two” which should be designed to provide most accurate readings.
15. Utilization of two independent cuffs during one surgical procedure to allow bilateral limbs procedures
16. Battery backup of 2 hrs, so that it can be used during patient transport and to be used during a power failure. No interruption in the procedure while the cuff is inflated- Automatically transfers power to the battery.
17. Should sense, calculate and report the cuff pressure necessary to achieve complete blood occlusion in the operative limb.
18. Carrying Handle
19. Should be supplied with reusable cuff of all sizes (small, medium & large - 2 Nos each)
20. The system should be CE / FDA / BIS approved

**Item Sl. No. 335**

**Orthopaedic Bed with Balkan Frame with traction attachment**

1. Should have simple design, lightweight & sturdy construction
2. Should have three - sectional base
3. Should have X-ray translucent back section made of high pressure laminate for X-ray & ease of clearing / disinfection
4. Should have stepless hydraulic Height adjustment through the use of a foot pedal
5. Should have the adjustment of the back section with the aid of a gas spring and should also have a patient operated lever enabling the patient to adjust the back section
6. When the back section is raised the leg section should also rise slightly to prevent the patient from sliding
7. Should be equipped with a foot pedal for hydraulic adjustment of back section
8. Should have stepless pneumatic adjustment for trendelenburg and reverse trendelenburg
9. Should have pneumatic stepless leg - section adjustment
10. Should be convertible to chair position
11. Frame of the bed should move with mattress base when foot section/ back section is adjusted
12. The bed ends should be easily detachable and re-attachable along the entire length of the foot section according to the patient need
13. Should have place to fix IV rod to all four corners of the bed
14. Should have large castors with central braking system with an easy to reach foot-operated control lever.
15. Bed should be CE/FDA/BIS approved
16. Should have stepless adjustment for the following:
  - a. Height: Min. 425 mm or less, Max. 800 mm more
  - b. Back section : Up to 65° or better  
: Down up to 5° or more
  - c. Leg Section: 0° to 40° or more
  - d. Trendelenburg: 25° or more; Anti-trendelenburg: 14° or more
17. Dimensions of bed: Length: 2100 mm or more, Width: 940 mm or more
18. Mattress Size: 850 X 2000 X 100 mm
19. Max load bearing capacity: 220 Kg or better
20. Each bed should be supplied complete with:
  - a. Bed Ends, one pair
  - b. Collapsible side rails, one pair
  - c. IV - Rods, one pair
  - d. X-ray translucent Mattress min. 10 cm thick, one pc
  - e. Balkan Beams & attachments

**Item Sl. No. 336****Heart Lung machine with Accessories****1. Description of function**

1.1 Heart Lung Machine is an apparatus through which blood is temporarily diverted, during heart surgery, to oxygenate it and pump it throughout the body, thus maintaining circulation until the heart and lungs are able to return to normal functioning

**2. Operational requirements**

2.1 BASIC EQUIPMENT will consist of the following unit

- 1) 5- Pump Console
- 2) Temperature Control Module (Hypo-Hyper thermia unit)
- 3) Monitors:
  - a) Pressure monitor – arterial and cardioplegia with transducers
  - b) Time – at least three timers
  - c) Temperature Monitor with at least two probes
  - d) Display of total volume of each infusion along with delivery time supply.
- 4)
  - a) Air- Oxygen Blender with hoses and Flow meter
  - b) CO2 Blender Optional
- 5) Safety Devices–
  - a) Level Sensor
  - b) Ultrasonic air sensor (optional)

2.2 ACCESSORIES will include

- 1) Stainless steel line clamps
- 2) Stainless steel intra cardiac suckers
- 3) Remote Control module for Temperature Control Monitor Instrument tray with mounting arm

**3.1 5- Pump Console**

- 1) The unit should have 5-pump console compactly arranged with separate power supply and control modules. Should have easy access connectors for interchanging the pump.
- 2) Each individual roller pump should be capable of running independently on 180-270 V/50- 60 Hz or DC supply
- 3) Should have a spill proof base.
- 4) The unit should be supplied with a Battery backup for at least two pumps, all safety systems and accessories for a minimum of 60 minutes. Switch over from main power to battery backup should be automatic and immediate. The battery unit should be built in to the pump base and it should be recharged automatically when the system is operating with main power supply.
- 5) Individual pump heads should have Harvey Roller pumps with facility for tubing to be used adjustable and easily changeable mechanism.
- 6) Individual pump heads should have display in digital –The total infusion volume in litres and delivery time, the flow rates in LPM and in RPM

- 7) Each Pump should have easy mechanism for occlusion setting for different thickness of tubes available in the market
  - 8) Should have unidirectional hand crank facility as a critical safety feature hand crank loading should be from top for faster access.
  - 9) The Console should have a compact base mount for the entire pump heads together, with pole and handles.
  - 10) Should have variable, changeable tubing holders in each pump head
  - 11) Should have movable oxygenator holder.
  - 12) Roller pump should have a self-diagnostic circuit with provision to detect and display critical alarm conditions. Optional Pulsatile module which can be mounted on any of the blood pump.
- 3.2 Should have a venous control module with single pole mast with electronic venous line occluder.
- 3.3 Should have a monitor mount with adjustable monitoring arm
- 3.4 Instrument tray positionable with long monitoring arm
- 3.5 Lightweight surface table; writing surface
- 3.6 TEMPERATURE CONTROL MODULE: TEMPERATURE CONTROL AND MONITOR SYSTEM WITH CARDIOPLEGIA SUPPLY AND REMOTE TEMPERATURE DISPLAY: with the following features:
- 1) Simultaneous delivery of water for arterial and cardioplegia heat exchangers and to thermal blankets to be available from suitable ports.
  - 2) To work with power supply of  $220 \pm 20$  V 50 Hz.
  - 3) Pressure regulated blanket ports maintaining the temperature of the arterial port.
  - 4) Temperature display range of 0- 50 ° Celsius; remote accuracy of 0.3 ° Celsius and remote temperature display unit module with 3-temperature display.
  - 5) Microprocessor based unit to control, cool, rewarm and maintain temperature.
  - 6) Water outlet temperature of heat exchanger and blanket range 0-42° C.
  - 7) Maximum flow performance of oxygenator heat exchanger supply port 15 – 22 LPM for fast cooling; 480mmHg maximum pressure; Blanket 1.5 to 2.5 LPM at zero head.
  - 8) Built in Ice Maker to provide 50 lbs of ice in about 8 hours from 25° C water.
  - 9) Should be capable of providing ice water for cardioplegia independently with variable cooling rate
  - 10) Rewarming facility with venous difference mode settable at 6 to 10 ° C gradients to hold the water bath temperature at higher than the venous blood temperature.
  - 11) Temperature probe module for the operating ranges of 0-50° C.
  - 12) Temperature probes to fit in standard oxygenators (bubble / membrane)
  - 13) Optional remote control unit should be capable of taking 9 Temp. Probes and display temperature in digital readouts. Alarm limits setting for at least three probes at crucial sites.
- 3.7 MONITORS: PRESSURE MONITOR: Facility to monitor one arterial line pressure and one cardioplegia line pressures (total 2); along with necessary pressure transducers, cables six (2 x 3 = 6) and domes reusable, with accurate digital display and alarm facilities audio and visual.
- TIME MONITOR: Facility for 4 time displays -- 2 for arterial and 2 for cardioplegia delivery. With stop, reset and start function.

TEMPERATURE: 6 temperature displays for patient monitoring and for cardioplegia monitoring with digital display in Celsius with 6 necessary compatible temperature 6 probes and 6 additional probes (6x2=12 probes) with 3x2 = 6 of them for nasal, rectal and oesophageal use

- 3.8 AIR- OXYGEN BLENDER: To work at 50-60 PSI for membrane oxygenator with water trap attached with necessary hoses and connections of minimum of 5 meters length and with triple flow glass flow meters.
- 3.9 SAFETY DEVICES: Safety monitor should have optional capability for computer interface to retrieve perfusion data
- ULTRASONIC AIR SENSOR: Ultra sonic air sensor to detect bubbles to work equally well with crystalloid and blood; should be possible to fit anywhere in the circuit easily.
- LEVEL SENSOR SYSTEM: Ultrasonic transducers to work well with crystalloid and blood with adhesive pads, with alarm settings.

### 3.10 ACCESSORIES

- 1) STAINLESS STEEL LINE CLAMPS for cardio pulmonary bypass 12 Nos.
  - 2) REMOTE CONTROL MODULE FOR THE TEMPERATURE CONTROL MONITOR  
Optional remote control unit should be capable of taking 9 Temp. Probes and display temperature in digital readouts. Alarm limits setting for at least three probes at crucial sites.
  - 3) INSTRUMENT TRAY WITH MOUNTING ARM
  - 4) AT LEAST TWO THERMAL BLANKET.
  - 5) ON LINE MEASUREMENT OF PH, PCO2\*& HB FOR NEONATAL CARDIAC SURGERY
4. System Configuration Accessories, spares and consumables
- 4.1 Stainless steel line clamps x 12 nos.
  - 4.2 Remote Control module for Temperature Control Monitor
  - 4.3 Instrument tray with mounting arm
  - 4.4 Machine cover
  - 4.5 System should be provided with appropriate furniture like adjustable revolving chair for the perfusionist to operate the system. The system should contain all the above accessories in Integrated or as separate accessories.
5. Environmental factors
- 5.1 The unit shall be capable of operating continuously in ambient temperature of 10 -40 °C and relative humidity of 15-90%
  - 5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 °C and relative humidity of 15-90%
6. Power supply
- 6.1 Power input to be 180-270VAC, 50-60 Hz,/440 V 3 Phase as appropriate fitted with special imported plug dedicated to the unit.
  - 6.2 Resettable over current breaker shall be fitted for protection
  - 6.3 Suitable UPS of with voltage regulation and spike protection for 60 minutes back up.
7. Standards, safety and training
- 7.1 Should be US-FDA or European CE approved product (Copy has to be enclosed)

- 7.2 Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- 7.3 One engineer should be posted for a week to impart training
- 7.4 Manufacturer should have ISO certification for quality standards.
  
- 8. Documentation
  - 8.1 User manual in English
  - 8.2 Service manual in English
  - 8.3 List of important spare parts and accessories with their part number and costing available in stock with the supplier.
  - 8.4 Certificate of calibration and inspection from factory.
  - 8.5 Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out
  - 8.6 List of Equipment available for providing calibration and routine Preventive Maintenance Support as per manufacturer documentation in service/technical manual

### **Item Sl. No. 337**

#### **ACT Machine**

- 1. Description of Function
  - 1.1 Activated Clotting Time (ACT) is a measure of the anticoagulation effects of heparin. The main use of this diagnostic test is in cardiac catheterization labs and open heart and vascular surgery, where they need to keep track and have specific measures of clotting times.
  
- 2. Operational Requirements
  - 2.1 One button operation, easy to use
  - 2.2 Portable system
  
- 3. Technical Specifications
  - 3.1 ACT machine having at least two test well
  - 3.2 Two point clot detection facility to get accurate results (Optional).
  - 3.3 Parameters- ACT (Mandatory) APTT & PT (Optional).
  - 3.4 Shall use fresh blood at the bedside.
  - 3.5 Shall require less than 3 cc of blood per sample
  - 3.6 Digital Display on Screen of any size.
  
- 4. System Configuration Accessories, spares and consumables
  - 4.1 System as specified-
  - 4.2 ACT Tubes - 100 nos.
  
- 5. Environmental factors
  - 5.1 Shall meet IEC-60601-1-2:2001(Or Equivalent BIS) General Requirements of Safety for Electromagnetic Compatibility. Or should comply with 89/366/EEC; EMC directive.
  - 5.2 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 °C and relative humidity of 15-90%

- 5.3 The unit shall be capable of operating in ambient temperature of 20-30° C and relative humidity of less than 70%
6. Power Supply
  - 6.1 Should work on 180-270V AC as well as batteries. Mains adaptor to be supplied
7. Standards. Safety and Training
  - 7.1 Should be US - FDA or European CE approved product
  - 7.2 Manufacturer/Supplier should have ISO certification
8. Documentation
  - 8.1 User/Technical/Maintenance manuals to be supplied in English.
  - 8.2 Certificate of calibration and inspection.
  - 8.3 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

**Item Sl. No. 338**

**STERNAL SAW**

1. The sternal saw is light weight and provide clear line of sight.
2. The sternal saw operates through a flexible drive cable by an electric motor.
3. It is able to be ETO Sterilized/autoclaved.
4. The blade holding mechanism is chuck type assembly for quickly replacing the blades.
5. The reciprocating blade has a 5mm stroke length.
6. The saw should have a blade protector on it and blade protector should be easily replaceable. Additional 10 blades of sterna saw should be provided.
7. Foot switch permits variable saw speeds with waterproof and anaesthetic agent proof.
8. The system operates on be 220V/250Hz. Single phase.
9. Should provide minimum1 No. of sterile micro oil 300 ml.
10. Overheating cut off of motor with reset facility.
11. The unit should be USFDA or European CE approved.

**Item Sl. No. 339**

**SURGICAL LOUPES**

1. Customized operating loupe light wt. Frame (3.5 X) with all accessories.
2. Optics should have superior resolution, field size and image brightness.
3. Magnified lens (spherical/prismatic) is fixed to the glasses.
4. Custom made for cardiac surgeon.
5. It should be provided with the case and accessories
6. Field of vision should be wide
7. It should be light weight.
8. It should be USFDA or European CE Approved.

**Item Sl. No. 340**

**ABG Machine**

1. Fully automatic, upgradeable, fast electrolyte & Blood gas analyzer.
2. Essential Measured parameters; pH, pCO<sub>2</sub>, pO<sub>2</sub>, SaO<sub>2</sub> with co-oximetry, tHb, Hemotocrit, Lactates, Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>++</sup>, Cl<sup>-</sup>, Glucose. All these parameters should be measured simultaneously.
3. Calculated parameters should include BE, BE ecf, HCO<sub>3</sub>, Anion Gap etc.
4. Sample volume-less than 100 micro litre.
5. Fast analysis time – less than 60 sec.
6. Maintenance free electrodes with individual electrodes ON/OFF facility.
7. Fully automatic liquid calibration of all parameters at user-defined intervals without the use of Gas calibrated reagents, external gases, tanks or regulators.
8. Continuous reagent level monitoring with or without graphic display
9. Data display on well-illuminated, adequate size screen display.
10. Data print out on built in graphic printer.
11. Built in auto Quality control facility.
12. Suitable UPS with at least 30 min backup.
13. Requirement of Reagents for one year to be offered in tabulated form with assumption of 20 samples/day for all test parameter x 365 days – ***(price to be quoted separately and will be added for ranking purpose)***
14. It should be UF-FDA or European CE approved.

**Item Sl. No. 341****OT Table Electro Hydraulic**

1. Multipurpose electro hydraulic with manual override mobile Table with divided leg section suitable for all major surgical procedures, complete with 5 cm mattress and corded handset.
2. Full-length radio-translucent top.
3. Tabletop should be made of a special scratch resistant, hardwearing and easy to clean material. Base column cover to be made of 100% stainless steel alloy and stainless steel.
4. Removable head and leg sections to suit different applications.
5. 100% Kidney Bridge position should be obtained without moving the patient, thru' remote Control by using extension/break function.
6. Battery powered, with facility for connection to mains electricity for immediate use. Battery Exhaustion protection and low battery warning via an audible 'beep'/display indicator should be available.
7. Table should not have a thread/sharp edge for ensuring proper cleaning and user safety.
8. Mattress should be of high quality that spans tabletop break for improved patient support. Its depth should be 50 mm. Mattress must be Latex free.
9. The robust handset should offer 8 controls namely Trend. /Reverse Trend, Lateral Tilt, Flexion/ Extension and Height functions.
10. Table should have a narrow T-shaped base allowing optimum access and greater stability.
11. Table should have offset slim-line column, with S.S. Inverted telescopic covers, for superior imaging and access.
12. It should have a stable construction with 4 nos Wheels of the base with large twin-disk castors for easy motion and manoeuvring (base braking by locking the twin-disk castors at the head end via a central foot pedal/ Hand control)
13. The table top should not be fitted with transverse members casting shadows on the X-ray images except for the release brackets for adjustment on either side.
14. The Table should be operated by the following operating elements: corded hand control, Manual override panel with manual override facility.
15. Dimensions & other features:
  - a) Length : 2000-2100 mm
  - b) Width : 550-600 mm
  - c) Minimum height (without mattress) : 600-650 mm
  - d) Maximum height (without mattress) more than 1050 mm.
  - e) Maximum lateral tilt : 20-30 deg. (either side)
  - f) Trendelenburg atleast 25 deg.
  - g) Reverse Trendelenburg atleast 25 deg.
  - h) Head section adjustment:  $\pm 40-45$  deg.
  - i) Leg section adjustment: +20 deg; to -90 deg.
  - j) Break (extension) position: 200-220 deg.
  - k) Break (flexion) position : 110-130 deg
  - l) Maximum patient weight : 250 kg

**II. Electrical specification:**

- a) Special-design, maintenance-free rechargeable batteries with capacity for about a week's use in the operating room.
- b) Recharging of the batteries and supply of the operating table by means of a mains cord
- c) Input supply: 220-240 VAC via mains cord.

### **III. Technical Specification- Accessories**

- a) Arm board - 1
- b) Lithotomy leg holders "Geopel type" (adult and paediatric)-1 set each
- c) Body strap- 2
- d) Anaesthesia screen- 1
- e) Clamp, rotary- 2 pc
- f) Clamp, circular - 2 pc
- g) Arm support, perplex -2 pc

**IV.** The table should be US-FDA or European CE approved product.

### **Item Sl. No. 342**

#### **Flower Bed**

1. Overall size 2180mm L x 1010mm W x 600mm H.
2. Bed frame: size: 2095mm L x 920mm W.
3. The main frame should be made from 60mm x 30mm x 16 G ERW rectangular tubes.
4. Four sections top should be made from 18 G C.R.C.A. sheets uniformly perforated and should be suitably fitted to the main frame.
5. Back-rest and knee rest should be maneuvered by the screw mechanism with one common handle, welded with 31.7mm dia x16 G ERW M. S.
6. Tube for linear movement in a 38mm dia x 16 G ERW M. S. cover tube which can be smoothly operated on thrust bearings.
7. Detachable Head and Leg Bows: Should be made from stainless steel 31.7mm dia x 18 G tube with laminated panels of approx size 810mm L x140mm wide x 14mm thick on stainless steel bracket.
8. The base frame should be fitted with non rusting swivel castor wheels 125mm dia, 2 with brake, 2 without brakes castors housing and wheels made from high grade non floor staining synthetic materials with integrated thread guards wheel centre having precision ball bearing to run smoothly.
9. The bows should be mounted to the bed frame on welded brackets in such a way that bolt or nut should not appear on top surface of the bed frame.
10. Four IV Rod Locations.

11. A mattress suitable for the bed made of 25mm thick soft 32 density top layer and 75mm thick high 40 density bottom layer for the patient comfort and better pressure care. The upper part of cover of the mattress is made of waterproof breathable fabric separated by zip on three sides with lower cover part made of rexine.
12. All mild steel components should be thoroughly in-house pretreated chemically to remove rust, grease, oil, etc. by dip tank processes, including separate degreasing, pickling, phosphating each followed by water rinsing passivating and hot air drying to give phosphate coating.
13. The treated metal surface should then be coated in-house with epoxy polyester powder with paint film thickness of 60 microns (minimum) and oven baked at 180 deg. to 200 deg. centigrade. All STAINLESS STEEL used should be of 304 grade.
14. Bed should be supplied with following accessories.
15. Bedside rails removable type and Stainless steel Telescopic IV Rods.

### **Item Sl. No. 343**

#### **PAEDIATRIC BED**

1. Overall size: 1480mm L x 840mm W x 600mm H.
2. Bed frame size: Size: 1370mm L x 760mm W.
3. The bed shall have a bed frame made from minimum 18 G. thickness CRCA Sheet double bent of height minimum 50 mm reinforced with two formed channels of size minimum 47mm web and minimum 24 mm flange welded inside the lengthwise frame bends.
4. Widthwise the bed frame should be provided with 2 Nos. angles stiffener of minimum size 2.5 cm x 2.5 cm x 14 G. and 2 Nos. angle supports one at each head and leg end of size of 35mm x 50mm x 2mm.
5. CRCA sheet top should be uniformly perforated at regular interval with 9.5 mm dia. Holes & embossed to give depression downwards. Total 8 holes, 4 in each row.
6. Bed fitted with full length drop side rails of height 545 mm out to out made from 19mm x 18G MS.
7. Round tube and 14 nos. of 9.5 mm dia MS. Round bars.
8. Equal size of head bow & leg bow made of 31.7 mm dia x 18G ERW MS tubes of height 1060 mm having 7 vertical stays of 9.5 mm dia round MS bars welded on one horizontal tube of 25.4 mm O.D. X 18 G tube.
9. The legs fitted with high quality PVC shoes with nylon reinforcement.
10. Mattress suitable for above bed made of 25mm thick soft 32 density top layer and 75mm thick high 40 density bottom layer for the patient comfort and better pressure care. The upper part of mattress is made of waterproof, breathable fabric separated by zip on three sides on lower cover part made of rexine.
11. All mild steel components should be thoroughly in-house pretreated chemically to remove rust, grease, oil, etc. by dip tank processes, including separate degreasing, pickling,

phosphating each followed by water rinsing passivating and hot air drying to give phosphate coating.

12. The treated metal surface should then be coated in-house with epoxy polyester powder with paint film thickness of 60 microns (minimum) and oven baked at 180 deg. to 200 deg. centigrade. All STAINLESS STEEL used should be of 304 grade.

### **Item Sl. No. 344**

#### **Bedside Locker**

1. Over all approx size: 40 cms x 40 cms x 82 cms H.
2. Body consisting of 2 sides and back is made from one piece made of 20 G MS CRCA sheet.
3. Top shall be fitted with superimposed stainless steel sheet 304 grade with raised edges on three sides. One drawer 100mm H x 350mm W x 390mm D fitted, is provided below the top.
4. Under the drawer is an open storage space and below it is a closed-door cabinet.
5. Door of the cabinet box is pivoted at top and bottom. Base of the drawer is fitted **with four non-rusting swivel castors**. Two buffers shall be provided at rear side of the locker box.
6. All mild steel components should be thoroughly in-house pretreated chemically to remove rust, grease, oil, etc. by dip tank processes, including separate degreasing, pickling, phosphating each followed by water rinsing passivating and hot air drying to give phosphate coating.
7. The treated metal surface should then be coated in-house with epoxy polyester powder with paint film thickness of 60 microns (minimum) and oven baked at 180 deg. To 200 deg. Centigrade.
8. All Stainless Steel used should be of 304 grade.

### **Item Sl. No. 345**

#### **Adjustable Over Bed Table**

1. Size : Top 810mm L x 350mm W . Laminated top should be fitted on mild steel square tubular telescopic stem with geared, handle for height adjustment from. 760mm to 1050mm.
2. Base frame should be of mild steel rectangular tubular base frame mounted on four castors of 50mm dia.
3. All mild steel components should be thoroughly pre-treated chemically to remove rust and foreign matter like Grease, Oil etc. by dip tank process pre-treatment system.

4. The treated Metal Surface should have coating of Epoxy Polyester Powder with paint film thickness of 60 microns (minimum) and oven baked at 180 degree to 200 degree Centigrade to avoid contamination of the clean metal surface from dust particles.

### **Item Sl. No. 346**

#### **Instrument Trolley**

1. Overall size : Size: 680mm L x 450mm W x 900mm H. Stainless steel tubular frame work made of 25.4mm OD x 18 G verticals mounted on 100 mm dia non-rusting swiveling castor wheels two with brakes, two without brakes.
2. Two stainless steel shelves with protective railings on three sides.
3. Only 304 grade stainless steel should be used for trolley frame work and STAINLESS STEEL shelves.

### **Item Sl. No. 347**

#### **Crash Cart**

1. Size 960mm L x 500mm W x 1545mm H . Frame work made of
2. Stainless Steel tube of minimum 25mm dia.
3. Two light weight polystyrene boxes each with three drawers, upper drawer with medicine container of different sizes.
4. Provision to hold Oxygen cylinder and cardiac Massage Board.
5. Six numbers coloured hand out bins to keep important supplies at eye level. Two nos.
6. Stainless Steel shelves to carry monitors, ECG Machine, suction apparatus etc.
7. Provided with corner buffers & Rails. All stainless steel components should be of 304 quality.
8. Crash cart should be movable on four non-rusting swivel casters of 125mm dia two with brake.

### **Item Sl. No. 348**

#### **Dressing Trolley**

1. Overall Size: 1010 mm L x 510 mm W x 900mm H welded stainless steel tubular frame work.
2. Verticals of also 31.7mm OD x 18 G tube horizontal stays of 19 mm OD x 18 G tube on all four sides to support two stainless steel shelves 22 G over with 10 mm dia stainless steel railings are provided on all four sides.

3. The trolley holds stainless steel bucket with STAINLESS STEEL lid at lower level and S.S. bowl at top level respectively.
4. Only 304 grade stainless steel should be used for tubular frame work & STAINLESS STEEL shelves of trolley.
5. The trolley should be in buff finish with 100 mm dia non –rusting swivel castors wheels two with brakes, two without brakes

### **Item Sl. No. 349**

#### **Monitor Trolley**

1. Trolley should be supplied with five mild steel shelves and a mild steel drawer at bottom. Size: 680mm L x 700mm D X 1570mm H.
2. Top Shelf size: 640mm L x 450mmD. Four other shelves & Drawer size: 510mm L x 450mm D Trolley should have two handles.
3. Trolley should be fitted on 125mm swivel non-rusting castors, two with brakes.
4. Trolley should have socket to receive 5/15 Amp; 230V A/C three pin plug.
5. Two input sockets. One of the input socket exclusively for one output connection and another input socket gives 6 output connections.
6. Each output should have ON/OFF switch. Trolley should be supplied with STAINLESS STEEL I.V. Rod and gas cylinder cage.
7. All mild steel components should be thoroughly pre-treated chemically to remove rust and foreign matter like Grease, Oil etc. by dip tank process pre-treatment system.
8. The treated Metal Surface should have coating of Epoxy Polyester Powder with paint film thickness of 60 microns (minimum) and oven baked at 180 degree to 200 degree Centigrade to avoid contamination of the clean metal surface from dust particles.

### **Item Sl. No. 350**

#### **STRETCHER TROLLEY**

1. 2030mmx 560mmW x 810H mm. Frame work made of 31-75 OD mm x 1.60 mm vertical & 25 mm x 1.22 mm horizontal CRC tubes Trolley mounted on 15 cms dia castors – 2 with brakes
2. Removable stretcher top made of 1.22 mm aluminium sheet with S.S. handle at both end with 25mm thick suitable rubber Mattress covered with good quality rexine.

3. All mild steel components should be thoroughly pre-treated chemically to remove rust and foreign matter like Grease, Oil etc. by diptank process pre-treatment system.
4. The treated Metal Surface should have coating of Epoxy Polyester Powder with paint film thickness of 60 microns (minimum) and oven baked at 180 degree to 200 degree Centigrade to avoid contamination of the clean metal surface from dust particles.

### **Item Sl. No. 351**

#### **Emergency & Recovery Trolley**

1. Overall Size: 1905mm L x 710mm W x 660mm To 910 mm H. Stretcher dimension 1830 mmL x 555 mm W.
2. Two section top. Height adjusted by foot operated maintenance free hydraulic pump.
3. Height adjustment shall be obtained by hydraulically operated mono block type linear actuator pump foot operated actuation having stroke of 140+/- 5mm, push force 10KN at 270 bar, number of complete pump stroke 22 to 24 for full stroke length.
4. X-ray permeable removable stretcher, Backrest raised on ratchet.
5. Quick trendelenburg as well as reverse trendelenburg positions shall be provided with easily accessible operating handle provided with two gas springs for easy action. STAINLESS STEEL saline rod with 12mm dia STAINLESS STEEL rod shall telescope in STAINLESS STEEL socket tube 15.8 mm dia x 18G welded on angular base bracket of 14G STAINLESS STEEL sheet.
6. Nylon bracket provided to prevent colour damage It could be placed at four different locations.
7. Complete with sliding X-ray cassette holder , storage tray.Trolley shall be mounted on 125mm dia non-rusting imported castor wheels two with brakes and two without.
8. Castor housing and wheels made from high grade non floor-staining synthetic materials with integrated thread guards. Wheel centre having precision ball bearing to run smoothly.
9. Complete with corner buffers, one on each corner . covered handles . Oxygen cylinder arrangement.
10. It shall have a pair of Stainless steel tuck down type railings made of 19mm dia x 18G tube fitted with M.S. brackets.
11. Effective railing height above main frame is. 235 mm & length of the railing is 1175 mm.
12. All mild steel components should be thoroughly in-house pretreated chemically to remove rust, grease, oil, etc. by dip tank processes, including separate degreasing, pickling, phosphating each followed by water rinsing passivating and hot air drying to give phosphate coating.

13. The treated metal surface should then be coated in-house with epoxy polyester powder with paint film thickness of 60 microns (minimum) and oven baked at 180 deg. to 200 deg. centigrade. All STAINLESS STEEL used should be of 304 grade.

### **Item Sl. No. 352**

#### **Examination Couch**

1. Overall size: 1890 mm L x 560mm W x 840mm H. Fixed upholstered top 64mm thick in two sections.
2. Body frame work made from 20G. CRCA sheet and 20 mm x 40mm x 16 G MS. Rectangular Tubes, Couch fitted with stainless steel Legs. Headrest adjustable on gas spring.
3. Upper section of box size 1220 mm L x 460 mm W x 630 mm H with three sliding drawers of size 320 mm L x 430 mm W x 75 mm H.
4. Lower section comprises of three cabinets of inside size 350mm L x 440 W mm x 430 H mm with separate doors & lock. B.P.apparatus tray made of 18 G MS sheet of size 350 mm L x 120 mm W X 20 mm H provided on a swinging rod rotating through a bush welded on the body of the couch. Should have Sliding Inbuilt Step Stool.
5. All mild steel components should be thoroughly pre-treated chemically to remove rust and foreign matter like Grease, Oil etc. by dip tank process pre-treatment system.
6. The treated Metal Surface should have coating of Epoxy Polyester Powder with paint film thickness of 60 microns (minimum) and oven baked at 180 degree to 200 degree Centigrade to avoid contamination of the clean metal surface from dust particles.

### **Item Sl. No. 353**

#### **Solid Linen Trolley**

1. Overall size: 910mm H x 510mm dia. SS tubular framework fitted with three swivel castors, 100mm dia.
2. Framework made of 25.4mm dia x 18G verticals, upper ring made of 19mm dia x 18G tube and support stays of 19 mm dia. X 18G stainless steel tubes.
3. Should be supplied with canvas bag. All SS components should be of 304 quality.

### **Item Sl. No. 354**

#### **WASH BASIN STAND TWO TIER**

1. Five legs plastic base mounted on 5 cms dia castors. With two. 375 mm S.S. basin.

2. Vertical CRC tube made of 25.4 mm x 1.2 mm and basin holder tube made of 16 mm x 1.22 mm MS tube
3. All mild steel components should be thoroughly pre-treated chemically to remove rust and foreign matter like Grease, Oil etc. by dip tank process pre-treatment system.
4. The treated Metal Surface should have coating of Epoxy Polyester Powder with paint film thickness of 60 microns (minimum) and oven baked at 180 degree to 200 degree Centigrade to avoid contamination of the clean metal surface from dust particles.

### **Item Sl. No. 355**

#### **KICK BUCKET**

1. Stainless steel bowl of dia 375 mm. SS tubular framework fitted three 125 mm diameter non-rusting imported castor wheels, all without brake.
2. Castor housing and wheels made from high grade non floor-staining synthetic materials with integrated thread guards. Wheel centre having precision ball bearing to run smoothly.
3. Frame work made of 25.4 mm dia x 18 G verticals stainless steel tubes, upper ring made of rod dia 10 mm.
4. S.S. rod and tubes shall be of 304 grade.

### **Item Sl. No. 356**

#### **SALINE STAND with SS ROD**

- Five legs Stainless Steel stable base made of 20 mm x 40 mm x 18 g tubes fitted with 50 mm Dia non rusting Castor, STAINLESS STEEL rod with double hooks made from 304 Grade STAINLESS STEEL 10 mm Rod. Working in nylon buffers.
- Height adjustment from 1620 mm to 2340 mm.

### **Item Sl. No. 357**

#### **REVOLVING STOOL**

1. Overall Size: 480 mm to 670 mm H.
2. Tubular tripod base of 25.4 x 14 g ERW tube. STAINLESS STEEL top. Height adjustment by screw. 300 mm dia.

3. The legs fitted with high quality PVC shoes with nylon reinforcement.
4. All mild steel components should be thoroughly in-house pretreated chemically to remove rust, grease, oil, etc. by dip tank processes, including separate degreasing, pickling, phosphating each followed by water rinsing passivating and hot air drying to give phosphate coating.
5. The treated metal surface should then be coated in-house with epoxy polyester powder with paint film thickness of 60 microns (minimum) and oven baked at 180 deg. to 200 deg. centigrade. All STAINLESS STEEL used should be of 304 grade.

### **Item Sl. No. 358**

#### **BED SIDE STOOL/ALL PURPOSE STOOL**

1. Size: 300 mm square 18 G double bent top of MS, Height 510 mm.
2. Framework of 25 mm x 1.22 mm and horizontal support of 19 mm x 1.22 mm CRC Tube.
3. Leg fitted with PVC Stumps. All mild steel components should be thoroughly in-house pre-treated chemically to remove rust, grease, oil, etc. by dip tank processes, including separate degreasing, pickling, phosphating each followed by water rinsing passivating and hot air drying to give phosphate coating.
4. The treated metal surface should then be coated in-house with epoxy polyester powder with paint film thickness of 60 microns (minimum) and oven baked at 180 deg. to 200 deg. centigrade.

### **Item Sl. No. 359**

#### **DOUBLE STEP STOOL**

1. Overall Step size 505 mm L x 305 mm W. First step height 230
2. mm. & second step size 450 mm.
3. Step made of 18G CRCA sheet. Welded on MS. tubular frame of 25.4 mm x18 G fitted with aluminium tread flats of size: 500 mm L x 32 mm W x 3.4 mm thick, fitted by aluminium pop rivet. Legs fitted with PVC.
4. Shoe with nylon reinforcement.
5. All mild steel components should be thoroughly pre-treated chemically to remove rust and foreign matter like Grease, Oil etc. by diptank process pre-treatment system.
6. The treated Metal Surface should have coating of Epoxy Polyester Powder with paint film thickness of 60 microns (minimum) and oven baked at 180 degree to 200 degree Centigrade to avoid contamination of the clean metal surface from dust particles.

**Item Sl. No. 360**

**BIRTHING BED (Motorized)**

1. Over all Size: 2155mm L when extended x 1010 mm W x 520 mm To 880 mm H (Without Mattress).
2. Three section high pressure laminated top. It shall have detachable laminated top for middle section and leg section for ease of cleaning.
3. Leg section can be telescoped under backrest for lithotomy position.
4. Backrest ,trendelenburg & reverse trendelenburg and height adjustment position operated by Electro mechanical adjustment thro hand control box; battery back with inbuilt battery charger shall be provided.
5. The hand control box shall have indications for power on and the battery charge.
6. All electro mechanical actuators need to be compatible with class of IP 54.
7. The bed shall have work simultaneously on two actuators system for raising and lowering height.
8. Bed frame made mainly from 60 x30mm x 1.6mm mm thick ERW tube with proper support. This frame shall be fitted on the base frame mainly made of 60 x 30 x 1.6mm ERW tubes on various supporting links.
9. The base frame shall be mounted on 125mm dia non-rusting imported castor wheels with central and directional locking mechanism and pedal operated at the head end of the bed.
10. Castor housing and wheels made from high grade non floor-staining synthetic materials with integrated thread guards.
11. Wheel centre having precision ball bearing to run smoothly.
12. The bed shall have easily detachable moulded head & foot side panels and four corner buffers.
13. Bed shall have swing down type railings, Railing shall be made from non-rusting moulded material.
14. These shall be fitted to the mattress support sections and should be able to raise and lock through spring lock mechanism through an operating lever.
15. S.S. saline rod with 12mm dia S.S. rod shall telescope in STAINLESS STEEL socket tube 15.8 mm dia x 18G welded on angular base bracket of 14G STAINLESS STEEL sheet. Nylon bracket provided to prevent colour damage It could be placed at four different locations.

16. Patient's bearing down handgrips should be made of 22mm dia 18 G stainless steel tube fixed with PVC handle and should have location adjustability for patient's convenience.
17. A pair of upholstery aluminum lithotomic crutches mounted on S.S. rods. Waste collecting stainless steel tray shall be provided at perennial recess. It shall have foot support for high / low chair position.
18. The backrest and middle section shall have 75 mm thickness foam mattress P.U. 40 D. with rexine cover and zip. The leg section shall have 130mm thickness for propose alignment with other adjacent sections.
19. The PU foam shall have high resilience and radiolucent property. All MS parts are passed through 8 tank Pretreated & powder coated process.

### **Item Sl. No. 361**

#### **WHEEL CHAIR**

1. Overall approx size: 670mm W x 1120mm D x 920mm H.
2. Welded frame construction of round tubes.
3. Two solid rubber tyred bicycle wheels with brakes & self-propelling
4. Stainless steel hoops. Minimum Frame size of round steel 22.2 x 18 G tubes and 19.05 x 18 G tubes. Mild steel tubular construction fitted with cushion seat and back. Wheel chair is fitted with minimum 24" dia rim of bicycle wheel fitted on specially developed and heat treated axle with solid tyre in the rear. In the front minimum 150mm dia castor wheels are fitted. In front of castor wheels, aluminium foot paddles are provided on adjustable brackets. Two handles are provided with the hand grips. Brakes are provided on rear wheel to hold the chair to stop in 5 degree ramp.
5. All mild steel components should be thoroughly pre-treated chemically to remove rust and foreign matter like Grease, Oil etc. by dip tank process pre-treatment system.
6. The treated Metal Surface should have coating of Epoxy Polyester Powder with paint film thickness of 60 microns (minimum) and oven baked at 180 degree to 200 degree Centigrade to avoid contamination of the clean metal surface from dust particles.

### **Item Sl. No. 362**

#### **THREE FOLD BEDSIDE SCREEN**

1. Bedside Screen Three Fold with curtain. It should be fitted with six swivel, twin wheel non-rusting castors, 50 mm dia with M.S body frame. Overall approx. size:

1680 mm H X 2450 mm W. Middle span 1210 mm wide. Side spans 610 mm wide each with hooks, springs and curtains.

2. All mild steel components should be thoroughly in-house pretreated chemically to remove rust, grease, oil, etc. by dip tank processes, including separate degreasing, pickling, phosphating each followed by water rinsing passivating and hot air drying to give phosphate coating.
3. The treated metal surface should then be coated in-house with epoxy polyester powder with paint film thickness of 60 microns (minimum) and oven baked at 180 deg. To 200 deg. Centigrade. All Stainless Steel used should be of 304 grade.

### **Item Sl. No. 363**

#### **CYLINDER TROLLEY**

1. Cylinder Trolley (Push Type) fitted with 2 castors, 100 mm dia. With M.S. body frame. Suitable for 1320 ltrs. Size gas cylinders. Trolley with SS base.
2. All mild steel components should be thoroughly in-house pretreated chemically to remove rust, grease, oil, etc. by dip tank processes, including separate degreasing, pickling, phosphating each followed by water rinsing passivating and hot air drying to give phosphate coating.
3. The treated metal surface should then be coated in-house with epoxy polyester powder with paint film thickness of 60 microns (minimum) and oven baked at 180 deg. To 200 deg. Centigrade. All Stainless Steel used should be of 304 grade.