ANNEX 01

1. AED (Automated External Defibrillator)

Quantity required	1
Features	• Should be compact, Lightweight, easy to use, Bi-Phasic Defibrillator with Manual and AED. • Should monitor ECG and display them. • Should be able to print the ECG on thermal papers. • Should be capable of doing synchronized cardio version. • Can be operated from mains as well as battery.
Technical Specifications	• Should be a Low Energy Biphasic Defibrillator monitor with recorder, having capability to deliver shocks from 2 Joules to 200 Joules or better. • Should monitor ECG through paddles, pads and monitoring electrodes and defibrillate through pads and paddles. • Should compensate for body impedance for a range of 25 to 150 ohms. • Should have a built in 50 mm strip printer. • Should have charging time of less than 5 seconds for maximum energy. • Should have High resolution more than 8-inch Color display for viewing monitoring. • Parameters like ECG and SpO2 with 3 waveform capability of 4 seconds. • Both Adult and pediatric paddles should be available. • Should have event summary facility for recording and printing at least 55 events. • Should have a battery capable of usage for at least 5 hours of monitoring. • Should be capable of printing Reports on Event summary, configuration, self-test, battery capacity etc. • Should have facility for self-test/check before usage and set up function.

System configuration accessories, spares and consumables:	Accessories to be Supplied (Other than Standard Accessories to be Supplied with each Machine.) • Additional 1 battery • 10 Roll Paper • 2 Set Lead Wire with ECG trunk cable + Limb clamps + Chest bulbs (Adult) • 2 Set Lead Wire with ECG trunk cable + Limb clamps + Chest bulbs (Pediatric) • 2 EA Reusable SpO2 Finger Sensor with Interface cable Adult • 2 EA Reusable SpO2 Finger Sensor with Interface cable Pediatric • 2 EA Reusable SpO2 Finger Sensor with Interface cable ear-clip
Power Supply:	• A 220-240AC, 50Hz single-phase electrical source with a 13amp, plug type G. • Should have a battery, capable of usage for at least three hours.
Standards/Cortication and Safety:	• Should be a CE / FDA Approved product and should have ISO standards.
Trainings and Warranty:	• The unit and the accessories must be supplied with one year warranty. • End users should be trained by the company application personnel.

2. Ambulatory BP monitor

Quantity required	1	
Technical specifications for Ambulatory BP monitor		
1. Measurement Method	Oscillometric	
2. Pressurization	Internal Micro Pump	
3. Display Range & Display	0 - 320mmHg, LCD Display	
4. Measurement Range	a. Systolic	60 - 280mmHg (min. division: 1mmHg)
	b. Diastolic	40 - 160mmHg (min. division: 1mmHg)
	c. Pulse	30-200bpm (min. division: 1bpm)
5. Accuracy	a. Pressure	±3mmHg or ±2% measurement, whichever is greater

	b. Pulse Rate ±5%
6. Clock Display	24 hour (1997-2096 and auto leap year setting)
7. Memory Capacity	300 measurements maximum
8. Power Source	Three AA Alkaline or NiCd (Batteries not included)
9. Temperature & Humidity	a. Operation 50°F to 104°F (10°C to 40°C), less than 85%RH b. Storage & Transportation -4°F to 131°F (-20°C to 55°C), less than 95%RH
10. Dimensions	2.8"W x 1.1"H x 3.9"D
11. Weight	0.5lbs (215g)
12. Data Output & storage	RS-232C (direct), internal solid-state memory
13. Pressure Sensor	Stepwise deflation
14. Confirmatory Certificates	CE, FDA
Scope of supply:	1. Cuffs a. Adult Cuffs, Left Arm (7.9" - 12.2" (20-31cm)) b. Large Cuffs, Left Arm (11" - 14.2" (28-36cm)) c. Small Cuffs, Left Arm (5.9" - 8.7" (15-22cm))
Warranty specification	Should have One year on parts and services.
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory

3. Baby warmer

Quantity required	8
Features	1. The unit should be made of mild steel tubular structure pretreated and powder coated. 2. Heater Rotation ±90° to the side to facilitate X-ray procedures. 3. The heater should automatically shut off when in this position.

	4. Bed Tilt should be ±15° Trendelenburg and Reverse Trendelenburg, continuous tilt 5. Mattress density should be approx. 21-25 kg/m3 and removable, washable, water proof cover 6. Should have plastic molded storage drawers under baby's bed 2-3 in number.
Technical Specifications	1. Should have microprocessor-based heater control and manual modes of operation 2. Should have user friendly touch sensitive control panel with large easy to read LED displays for actual (patient and air temperature) and set temperatures. 3. LED indicator for selected mode. 4. Should have Quartz Infrared Heater with parabolic reflector for uniform heat Radiation. 5. The heater unit should be protected by a suitable grill. 6. The heater unit should be swiveling type and should be swiveled effortlessly. 7. The probes should be detachable type. 8. Should have memory back up to retrieve set data against power failure. 9. Should have calibration free temperature sensors. 10. Should have alarms with visual indicators for the following 10.1. Temp high 10.2. Temp low 10.3. Probe failure 10.4. Power failure 10.5. Heater failure 11. The heater should automatically cut off at 38 degrees Celsius irrespective of the set parameters. 12. Should have an examination light with ON/OFF switch. 13. Should work with input 200 to 240Vac 50 Hz supply. 14. Should have 0-650 W heater output. 15. Should have Integrated resuscitation unit & baby weighing scale unit. 16. Heater output should be adjustable from 0 - 100% in 5% increments

	17. servo Control should be between 30 - 38°C in increments of 0.1°C 18. Manual Mode should Indicate manual mode heat selection range from: 0-100% in 5% increments 19. Temperature Measurement Accuracy specification: ±0.3°C @ 30°C to 40°C 20. Temperature Display Resolution specification: ±0.1°C 21. Temperature Probe Accuracy specification: ±0.1°C @ 30°C to 42°C 22. Operating Temperature Range: +18 to +30°C 23. Humidity range: 30 to 95% RH
Regulatory Compliance specification	• Should have safety certificate from a competent authority CE / FDA (US) /STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL. /Test report from ETDC. • Copy of the certificate / test report shall be produced along with the technical bid.
Warranty specification	Should have One year on parts and services
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory

4. Fiberoptic phototherapy (Biliblanket)

Quantity required	1
Features & Technical Specifications	1. The equipment should be LED phototherapy system utilizing Fiber optic-based technology to treat neonatal jaundice. 2. The irradiance level in the fiberoptic pad should be between 40 – 70 microwatt/cm2 /nm 3. Should provide phototherapy light of wavelength between 430 – 490 nm with peak of 440-460, 445 – 470 nm, and should be free from UV and IR radiation. 4. It should have Fiber optic Light Pads as below: • Size A 15 X 30 cm (light emitting area)

	• Size B 25 X 30 cm (light emitting area) 5. Light intensity should be adjustable (low to high). 6. It should have LED module life of more than 50000 hours. 7. Should run on power supply 100V – 240V AC, 50Hz to 60Hz and should be supplied with electric cable. 8. It should comply IEC safety standards 9. It should weigh less than 5 kg 10. It should be X Ray compatible 11. It should have noise level of less than 44 dB at 1 meter 12. It should have European CE and US FDA 510K certifications or its or equivalent National Certifying Authority 13. Onsite physical demonstration/training of the equipment to all the end users with all the requested facilities 14. Comprehensive warranty for at least 2 years 15. Company should ensure the supply of consumables and accessories for the period of warranty 16. Documentation • User/Technical/Maintenance manuals to be supplied in English • Certificate of calibration and inspection from factory 17. General requirement for Electrical safety of Medical Equipment 18. Accessories to be provided with each unit: 1. LED Lamp box with in built control unit – 1 No 2. Small size fiber optic pad – 1 No 3. Large size fiber optic pad – 1 No 4. Extra LED bulb – 10 Nos 5. Disposable pad covers – 200 Nos of each size 6. Disposable baby nests – 200 Nos of each size
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English.

	• Certificate of calibration and inspection from factory

5. Bubble CPAP with air-oxygen blender

Quantity required	4
Features & Technical Specifications of Bubble CPAP with air-oxygen blender	
1. The instrument should be suitable to provide respiratory care in both term and preterm neonates weighing 500 g to 5000 g. 2. Light weight, portable and sturdy. 3. Stainless steel stand - corrosion-free, dust resistant, stainless steel 4. CPAP pressure with oscillations should be generated by creating resistance in water column and bubbling of exhaled gas in the water column. 5. The system should be suitable for both CPAP and high flow nasal cannula therapy. 6. CPAP generator a. Pressure: 3 to 12 cm H2O b. Has detachable overflow container c. Delivers intended pressure constantly and accurately (+ 1cm) d. Easy to clean/sterilize e. Gradations on the sliding rod should be easily visible from a distance of 4 feet 7. Safety features a. Limiting the delivered pressure in the event of an occlusion b. A stand or arm support for holding the circuit in support 8. Humidifier It should be servo controlled heated humidifier with following features: a. Temperature and flow sensor with feedback mechanism. b. Monitoring temperature of gas at chamber end and near patient end additionally temperature of airway, chamber and heater plate. c. Display for temperature of saturated gas. d. Modes: intubated and mask mode. **Alarms** e. High temperature and low temperature.	

f. Water out alarm / POP off pressure adjustment.

g. Heater adaptor faulty/ disconnect.

h. Temp cum probe faulty / disconnect.

i. Hardware faults.

j. Heater wire with adapter to be provided

9. Delivery system

The patient heating circuit should have integrated heated coil for uniform heating.

The delivery system should have Maximum Input Flow- 15L/min and maximum mean CPAP15cmH20.

Humidification chamber should be auto feed with dual float system

Chamber Compressible volume 260- 300 ml

Compliance of chamber 0.4ml/cm/H20

Max peak flow should be 180 L/min.

10. CPAP Bubble generator should have adjustable probe for pressure settings 3-10 cm of H2O.It should have detachable overflow container to maintain constant water level. Volume for generator ~ 500 ml.

11. Air-oxygen blender

a. The instrument should be suitable to provide air-oxygen mixture to neonates

b. Should be compatible with bubble CPAP system

c. FiO2 concentration will be adjustable (21-100%) and accurate

d. Should be High & Low Flow (Flow rate of 3-30 L/m), accuracy of +/- 3 percentage and bleed flow of 2.5-3.5

e. Should have stand & pole assembly to incorporate Air & O2 blender with flow meter

f. Should be supplied with connecting tubes and adapter to be attached with oxygen and compressed air source

12. The system should have safety mechanism with pressure relief valve and ports for pressure and FiO2 monitoring. Pressure relief should be 17 cmh20 and above @8L.

13. Interface

a. Nasal prongs/ masks of silicon of at least five different sizes useful for babies weighing between 750-1250g, 1250-1750g, 1750-2000g, 2000-2500g. Where the resistance to flow at pressure port of nasal tubing should be 0.4 cm H20, 0.6 cmH20 or 0.2 cm/H20.

b. Flexible nasal tubing with glider technology from block and fixing guide with sizes ranging from 50mm to 100mm where resistance to flow should be 0.49 cm/H20,0.53cm/H20, 0.55 cm/H20 respectively flow of 6 lit/min.

c. Infant caps of following sizes: 17-22, 22-25, 25-29, 29-36 cm Circumference.

d. Nasal cannula of preterm and term sizes. Cannula should be kink proof and have hydrocolloid based adhesive to secure on skin and facilitate kangaroo mother care.

e. Nasal masks suitable for preterm and term babies.

f. Nasal masks should be interchangeable to nasal prongs.

g. The mask should be soft and anatomically shaped.

14. It should have mobile trolley to fix Humidifier, CPAP generator and monitor and pole with castors & IV hook and mounting brackets Gas supply lines to blender.

15. Documentation

a. User/Technical/Maintenance manuals to be supplied in English

b. Certificate of calibration and inspection from factory

16. General requirement for Electrical safety of Medical Equipment

17. Onsite physical demonstration of the monitor with all the requested modules will be mandatory

18. Patient circuits

a. Disposable circuits should be readily available and reasonably priced

b. A single patient circuit pack should contain ALL the necessary tubing/connectors needed to assemble a complete circuit

c. Should have all connections /connecting tube with standard wall fittings /air-oxygen outlets

d. Should have heater wire in inspiratory limb

e. Should have water trap in expiratory limb

f. Should be compatible with available interfaces including nasal masks

19. The entire system including Air oxygen blender should be approved by US FDA or its equivalent National Certifying Authority

20. Each unit to be supplied with: a. Disposable circuits: 25 b. Nasal interface: 25 c. All size nasal prongs: 10 sets d. All size head bonnets: 10 sets 21. Comprehensive warranty for at least 2 years. 22. Company should ensure the supply of consumables and accessories for the period of warranty.

6. Cardiac Monitor (7 parameter)

Quantity required	10
Features & Technical Specifications	• Easy to use, lightweight and suitable for adult, pediatric and neonatal patients, capable of operating on dual power supply, mains and built-in rechargeable internal batteries. • Battery capacity should be 6 HRS in full battery capacity. • User friendly interface. • Should be able to see the review of trend, events and storage in the system and must have integrated system that can connect with a centralized monitoring using a wired LAN connection. • Digital SP02, high-capacity resistance against interface of ESU, motion & low perfusion index. • Isolated against defibrillation effect. • Audible and visual alarms. A full function physiological and technical alarms with adjustable options. • Built in thermal printer. (optional) • Ability to measure parameters. ○ ECG (3 or 5 lead) ○ Respiration ○ Oxygen Saturation (SP02) ○ Temperature (TEMP) ○ Blood pressure (NIBP)

	○ IBP ○ EtCO2 ○ St segment, arrhythmia detection • Touch screen operation, Rotating switch and LCD monitor size range: 5.5 to 6 • Operating modes must be multi lingual interface user configurable displays with adjustable color and position of waves. Also, must have multiple display options with standard, large numeric, 12 lead dynamic or 7 lead ECG, oxy CRG and bed to bed view. • A certified Biomedical training for preventive maintenance, Repairing, troubleshooting and necessary technical aspects in the part of manufacturing standards should be provided. • All the accessories must be provided with the machine. • Should consist of an authorized simulating, testing and calibrating device with all the necessary connector and adaptor cables to attach and check with the system should be provided. Calibrating device not required. • Should perform Preventive maintenance with all the necessary spares, document and check list with respect to the manufacturer standards in the warranty period. • All necessary accessories for the start and functioning of the equipment needs to be supplied (Accessories of adult, pediatric and neonatal patients shall be included) ○ Power Cable ○ ECG Cables. ○ Sp02 Sensors. ○ NIBP cuffs. ○ NIBP lead. ○ IBP Cable. ○ EtCO2 Cable. • Monitors must be with baskets to put the accessories and portable monitor. must be with a stand with wheels or wall mount bracket with basket.

Power Supply:	• Line voltage 220-240AC, 50-601-lz and fitted with a I3amp plug as well as DC charging facility.
Standards/Cortication and Safety:	• Should be a CE I FDA Approved product and should have ISO standards, LEC Standards, RTCA DO- I 60 standards.
Trainings and Warranty:	• Minimum 12 months from the date of handing over/installation and commissioning • Must provide user training (including how to use and maintain the equipment).
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory

7. High Frequency Ventilator

Quantity required	1
Features & Technical Specifications	1. Ventilator suitable for pediatric age group including new born 2. Modes: dedicated high frequency oscillator 3. The following settings should be permitted: 4. Mean airway pressure: up to 45 cm H20 5. Frequency: 3 to 20 Hz 6. Amplitude: 4 to 180 mbar 7. I.E ratio 1 :1 to 1:4, Adjustable I:E ratio 8. Should allow active expiration 9. Heated wire humidifier with servo temperature control 10. Standard patient circuits for all age groups. Circuits and tubing's should be reusable. Two additional circuits and humidifiers should be provided for each age group, 11. Audible and visual alarms for low & high values of respiratory parameters, oxygen concentration, and power failure should be provided.

	12. Battery backup of at least 60 minutes. 13. Real time data display of set and measured values: Mean airway pressure; amplitude, % inspiratory time, frequency, bias flow and piston displacement. 14. Should work on 220- 240 V AC. 15. Device is produced by IS0 9001 certified manufacturer (Certificate to be submitted) 16. Device is safety certified according CE 93/42, FDA 510k or equivalent (Certificate to be submitted) 17. PEEP valve should be built in. 18. Patient circuit should have a separate inspiratory and expiratory limb with water traps 19. The rate of Flow sensor shall be quoted separately which will not be taken for evaluation. The rate offered will be freeze for a period of 3 years. 20. At least 2 flow sensors should be provided along with the unit.
Scope of supply:	a. Mobile Trolley b. Air connecting Hose- 5M c. Oxygen connecting Hose -5M d. Humidifier and Patient Chamber- Pediatric-1No e. Dual Airway temperature sensor-1No f. Reusable pediatric and neonatal patient circuit- 2Nos each g. Test lung – 2nos.
Warranty specification	Should have One year on parts and services.
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory

8. Intracranial Pressure Monitoring System

Quantity required	1
Features & Technical Specifications of Intracranial Pressure Monitoring System	
1. Intra cranial pressure monitoring system for measuring the mean, systolic and diastolic intra cranial pressure, with backlit display to view the readings from a distance. 2. The monitor should be mountable on an IV pole, with built in battery backup which runs at least for 3 hours to use during transport of the patient 3. The monitor should be capable of interfacing with standard invasive pressure channels for wave from display and analysis studies. 4. The unit should weigh less than 2.5 kg. 5. It should have subdural, parenchymal and intra ventricular sensing. 6. It should have adjustable LCD/LED lighting display. 7. It should have integral pole clamp. 8. It should have user programmable mean ICP alarm and two minutes alarm suspend function. 9. Monitor should be supplied along with direct link module along with compatible extension cable to connect with patient specific transducer. 10. Should have additional facility for simultaneous drainage of CSF as well as ICP recording. 11. Module should be connected to patient's bedside monitor and display intra cranial pressure in numeric values along with continuous wave form: distal and should be connected to transducer / sensor to measure ICP 12. It should have facility for zeroing with bed side monitor and transducer / sensor. Should be provided free of cost. 13. Should be provided with the following consumables – a. Micro sensor kit with skull – bolt (quantity: 5) The transducer should be sterile, strain gauge, tip size of 1.2 mm and catheter size of 0.7 mm. The skull bolt should be winged, supplied with leak proof compression cap, spacing washer, obturator durapiece , 2.7 mm. drill bit and hex wrench. b. Basic micro sensor kit (quantity: 15) The transducer should be sterile, strain gauge, tip size of 1.2 mm and catheter size of 0.7 mm.	

c. Intra ventricular Micro sensor kit (quantity: 5) The transducer should be sterile, strain gauge, tip size of 1.2 mm and catheter size of 0.7 mm. 14. Essential accessories to be provided 15. Free Installation should be done by qualified personnel only along with adequate hands-on training. 16. Only latest model should be quoted and year of introduction should be mentioned. 17. Should be USFDA approved or CE approved certificate should be attached. 18. Warranty for 2 years from principal manufacturer

9. Multipara Monitor with Invasive Monitoring

Quantity required	1
Features & Technical Specifications	1. Advanced high end patient monitor having integrated non-invasive measurements & features suitable for Neonate, Pediatrics & Adult patients. 2. Monitor must have bright, highly visible minimum 10'' or more color TFT display with full touch screen facility. 3. Monitor should be portable type with weight not more than 5 kg including battery. 4. Monitor must have the facility of displaying minimum 5 waveforms along with related numerical parameters on single screen. 5. Monitors should have facility to monitor ECG, SpO2, NIBP, Respiration, & temp as standard parameter 6. Monitor should have facility to monitor IBP/EtCo2. 7. Should measure and display perfusion index. 8. Should have facility to measure NIBP automatically in case of sudden blood pressure. 9. Should have facility to measure and display pulse pressure variation from arterial pressure. 10. EtCO2- Mainstream for intubated & non intubated patients

	11. Monitors should have ST segment calculations with all latest advanced arrhythmia detection for at least 96 hours. Asystole, VF, VT, Extreme Tachycardia, Extreme Bradycardia, VPC Run, Bradycardia, Sinus Tachycardia, Tachycardia, Couplet, Early VPC, Bigeminy, Trigeminy, VPC, Irregular RR, Prolonged RR, Pacer Non-Capture, No Pacer Pulse 12. Should have ECG waveform full disclosure facility as standard for last 96 hours. 13. Monitors should have facility to monitor last 96 hours or more graphical and numerical trends along with event review facility including NIBP 14. Should have internal rechargeable battery for 2.5 hours or more operation along with battery charge indicator 15. Should have an optional facility for Bed-to-Bed communication 16. Monitors must have ESU & Defibrillation protection 17. Monitor should be ISO/FDA/CE Certified.
General Specifications and Scope of Supply	18. Each monitor should be supplied with following accessories a. 3 lead ECG/Respiration cable- 1 no b. NIBP Cuff Adult, Pediatric & Neonate 1 each c. SpO2 Sensor Adult & Pediatric 1 each d. SpO2 sensor disposable for infants/neonates 5 nos e. Rectal Temp Probe 1 No f. IBP Cable with transducers 4 Nos g. ETCO2 Cable 4 Nos h. Noninvasive Adaptor for ETCO2 20 each
Warranty specification	All supplies will have 2 yrs. warranty. Should have One year on parts and services.
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory.

10.Neonatal incubator

Quantity required	4
Features & Technical Specifications	1. Should confirm to IEC -60601-1 electrical safety standard for medical equipment. 2. Should be a servo-controlled incubator with a rise time of not more than 45 minutes and a temperature stability of +/- 0.2°C at steady state. 3. Should have the large baby access doors at both sides. 4. The double wall incubator canopy should be largest at least length 80 cm, width 50 cm, and height 45 cm to accommodate tubing and oxygen hood. 5. Should have four elbow operated access ports. Should also have one iris port for ventilator tubing and easy head access. 6. Should have at least four small ports for IV tube and one big iris port hole for other probe sensor cable. 7. Should be able to tilt the baby bed to 10 ° on either side without opening the canopy/doors of the incubator. 8. The mattress and its internal airflow path should be easily disassembled for cleaning 9. The internal of the incubator should be molded, rounded without any devices for easy cleaning and inhibiting bacterial growth. 10. Should have audio & visual display of alarm conditions. 11. The water level should be visible and should be able to refill water without opening the incubator. 12. Should have two temperature probes for patient skin temperature and axillary temperature measurement. 13. Baby bed should be withdrawable from both sides. 14. Should have optional in-built baby weighing scale to measure the baby weight without disturbing baby. 15. Unit should be height adjustable. 16. Should have optional oxygen saturation set range from 21 to 60 %.

	17. Should have humidity set range from 40 to 90%. 18. Should have trend display facility for temperature, humidity and oxygen 19. Should have provided with X-Ray tray holder. 20. Controller specification: a) Modes of operation: air mode, baby mode (servo mode) b) Temperature measurement Range: c) Air temperature: 10 -40 °C d) Skin temperature: 20-42°C e) Accuracy: +/-0.2 °C f) Resolution: 0.1 °C g) Interchangeability: +/- 0.1 °C 21. Display: should have color display with control for Air temperature, patient temperature 22. Set temperature a) Should display heater power in digital forms. b) Should have alarm facility for different parameters. c) Temperature control range: d) Air mode: 30 to 39 °C with a provision to override above 37 °C e) Servo mode: 35 to 38 °C 23. Humidity setting range: 40 – 90 %. 24. Display range: 0-100 % 25. Oxygen control setting range: 21-65 % 26. (Optional) display range :21-100% 27. Temperature alarms: a) Baby set temperature: +/- 0.5 °C b) Air set temperature: +/- 0.5°C c) High / low air temperature d) Air probe failure e) Skin probe failure/ disconnect

	f) Air flow failure/disconnect g) Oxygen low/high h) Humidity low/high i) System failure alarms j) Fan failure k) Power failure l) Air heater failure m) Door opening n) Water reservoir empty o) Water heater failure (automatic heater should be cut off if the temperature inside the incubator exceeds 39.3° C 28. Should have an override facility to increase the temperature more than 37° C in the incubator. 29. Should use low noise blower for circulation of air inside the incubator less than 60 dB. 30. Should be provided with a big drawer for keeping essentials for the baby and 3 small trays. 31. Should be provided with height adjustable IV stand. 32. Should have ISO 9001:2008 & ISO 13485 certified manufacturer
Warranty specification	Should have One year on parts and services.
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory.

11.Neopuff

Quantity required	3
Features & Technical Specifications	1. The device should be ideal for use in Labor room, NICU and during transportation. 2. It should be powered by gas flow with no electrical or battery operation. 3. It should be light weight and easy to handle. 4. In-built Pressure Gauge (manometer) to set & indicate delivery of PIP & PEEP a. Manometer range -10 to 70 cmH20 (mbar) b. Manometer accuracy: +-2.0 % full scale deflection. 5. Peak Inspiratory Pressure (PIP) at 8 lpm: 3 to 59 cmH20 6. Positive End Expiratory Pressure (PEEP) at 8lpm: 0 cmH2O to 8 cmH2O 7. Safety provision with adjustable Pressure Relief Valve for maximum limiting 8. Maximum pressure relief at 8LPM: 5 to 70cm H2O 9. Delivered oxygen up to 100% depending on gas supply. 10. Unit should be compatible with neonatal mask & endotracheal tube 11. The patient T –Piece should have port for surfactant delivery 12. Should be compatible for use with heated humidifier. 13. Spiral Heated wire circuit with integrated T-Piece compatible for use with heated humidifier should be supplied with system. 14. Operating and storage limits -10°C to 50°C and Up to 90% relative humidity 15. Certification: Manufacturer should have US FDA Approval. 16. It should meet safety standards IEC 60601-1, EN 60601-1. ISO standards for medical devices: ISO 13485 & ISO 10651-5 17. Supplies with each unit of Infant T-piece Resuscitator Unit • Supply line – Two sets with each • Test lung- One • T Piece Resuscitation Circuits with PEEP valve – 10 pieces

	• Resuscitation Masks of Premature size (medium) - 10 Piece • Resuscitation Masks of Micro Premature size (small) - 10 Piece
Warranty specification	Should have One year on parts and services.
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory.

12. Phototherapy Unit Double Surface

Quantity required	2
Features & Technical Specifications	• It should be LED based only • LEDs should last for at least 100,000 hours • Light unit should have white LEDs for examination purpose (Optional) • Light unit should be made of easily cleanable plastic material • Spectral Irradiance of minimum 30 $\mu W \cdot cm^{-2} \cdot nm^{-1}$ at 45 cm distance between bed and light unit. (For effective PT through closed incubator) • Should have multilevel intensity control to a minimum intensity adjustment of 30 $\mu W \cdot cm^{-2} \cdot nm^{-1}$ • At the tilted position, the irradiance should be at least 30 $\mu W \cdot cm^{-2} \cdot nm^{-1}$ at 45 cm distance between bed and light unit. • Wavelength should be of 450 – 460 nm, and should be free from UV and IR radiation. • Effective surface area should be at least 175 *3750 mm • Digital (LCD) Timer for monitoring therapy hours & lamp usage hours • Should have visual and audible alarms for the following, a. If internal temperature exceeds b. If cooling fan fails • Cooling Fan to be provided to dissipate the heat created by LED's

	• Light head should be compact to use along with the Radiant warmer & should be provided with tilting facility so that the unit is not coming directly under warmer.
	• Smooth Height adjustment mechanism & Adjustable height
	• Minimum height should be at least 1200 ± 20 mm from the floor to use near the mother bed
	• Maximum height should be at least 1700 ± 20 mm from the floor to use with the incubator
	• Coating: Epoxy/powder coated body for scratch and rust prevention and
	• PU (Poly Urethane) coating for plastic
	• Mobility: Three castors; two rear castors provided with brakes
	• The base of the unit should be such that it will go beneath any Incubator/bed/trolley, with minimum of 100 mm floor clearance
	• The manufacturer should be ISO 9001:2008 and ISO 13485:2003 certified
	• Product should be USFDA or European CE certified and certificate should be submitted
	• The specification for bottom unit should confirm to the following
	  ○ Irradiance: > 30µW/cm2/nm
	  ○ Lamp Type: LED's
	  ○ Power rating: Maximum – 60 W
	  ○ Time totalizer: Digital, Compact and noise free
	  ○ Bassinet dimensions: Approximately 75 cm x 50 cm x 15 cm
	  ○ Weight of lamp unit: Less than 25 kg
	  ○ Bassinet: Transparent acrylic bassinet
	  ○ Coating: Epoxy/powder coated body for scratch and rust presentation
	  ○ Should conform to IEC-60601 safety standards
	  ○ Should occupy only very little bedside space for convenience in observation and procedures.

	○ The unit should be mobile with 4 swivel castors and at least 2 castors with brake • Power supply - Power input to be 220-240VAC, 50Hz • Items covered under warranty/CMC ○ Prices of consumables and accessories should be quoted separately in the bid. The company should ensure the supply of consumables and accessories for the period of warranty/CMC. • Environmental factors ○ The unit shall be capable of being stored continuously in ambient temperature of 0-50deg C and relative humidity of 15-90% ○ The unit shall be capable of operating continuously in ambient temperature of 10-40 deg C and relative humidity of 15-90% a) User manual and technical manual with trouble shooting guidance in English should be provided b) Company should certify that model quoted is latest and not obsolete c) Onsite physical demonstration/training of the equipment to all the end users with all the requested facilities will be mandatory
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory.

13. Transcutaneous Bilirubinometer

Quantity required	1
Features & Technical Specifications	1. Measuring method should measure the optical density difference at two wavelengths to determine the yellowness of the subcutaneous tissue. 2. The instrument should be suitable for non-invasive bilirubin measurement of neonates with gestational age 27 – 42 weeks and 1-month post-natal age; body weight 900 grams to 4000 grams.

	3. Measurement range: 0.0mg/dL to 20mg/dL or 0 µmol/L to 340µmol/L 4. Error of estimate (SEE): ± 1.5mg/dL or ± 25.5µmol/L 5. It should measure readings at sternum and forehead. 6. Should have alarms when measurements are greater than 20mg/dl or 340µmol/L 7. Can be used in all skin colors, >35 weeks gestational age, prephototherapy. 8. Light source should be Pulse xenon arc lamp 9. Light source should have life of more than 150000 measurements. 10. Light source checker should be built in to the charger base. 11. Should have detectors with Silicon photodiodes. 12. Should have Ni-MH battery as power source. 13. Protection type and level Internally-powered instrument, BF type 14. It should measure at least 250 single measurements when fully charged. 15. It should have operating temperature range from 100° C to 400° C 16. It should be light weight; less than 250 g. 17. It should be supplied with: Charger unit with a checker, AC adapter, Carrying case and wrist strap, Power cable adapter set.
Documentation	• User (Operating) manual in English. • Service (Technical / Maintenance) manual in English. • Certificate of calibration and inspection from factory.