REQUEST FOR BUDGETARY ESTIMATE

Ref.: HSCC/PUR /MEA-AFGHANISTAN/Med. Eqpt./2023/01 dated 17.07.2023

HSCC (India) Ltd. intends to invites **On-line bids/GeM** from eligible bidders, in single stage two bid system for supply, installation, testing, commissioning & handing-over of various Medical Equipment for **Afghanistan** for items listed at **Annexure-I**. The Technical Specifications are annexed at **Annexure-II**.

It is requested to submit the Budgetary Estimate of the Equipments in Company Letter Head, as per the single page format enclosed at Annexure-III, in both Hard & Soft Copy latest by 24.07.2023 at following address:

General Manager (Projects)
HSCC (India) Ltd.,
E-6(A), Sector-1,
NOIDA (U.P.) – 201 301.

Please note that MII guideline shall be followed while procuring the items and soft copy may be send on following e-mail ID:

t_nath@hsccltd.co.in
pc_jena@hsccltd.co.in

GM (Projects),
HSCC (I) Ltd,
(A Govt. Of India Enterprises)

Annexure-I

A. MEDICAL EQUIPMENT

No.	Item	Qty (Nos)
1	Fiberoptic Laryngoscope (Paediatric)	2
2	Foreign Body Forceps (Paediatric)	20
3	Rigid Bronchoscope light source	4
4	Paediatric Tonsillectomy Set	50
5	Paediatric thoracotomy Set	2
6	Esophagoscope	2
7	Over bed warmer (Room Heater)	10
8	Baby Incubator	10
9	Baby Warmer	10
10	CT Scan Machine 128 slice with Injector	1
11	Hematology analyzer	2
12	Microscope C x21	4
13	Biochemistry analyser	1
14	Centrifuge	2
15	Centrifuge	2
16	Electrolyte analyser Machine	2
17	Immuno Analyzer with 3 With reagent	1
18	Laptop	2
19	Motor Dermatom	3
20	Mesh	2
21	Digital Radiography and Fluoroscopy System	2
22	Wire Cutter steel made orthopedic	5
23	Elastic Nail size 4mm length	200
24	Neck Protection for fluoroscope for children	10
25	Pelvic Protection for fluoroscope different paediatric size	10
26	Gown for fluoroscope	10
27	Gloves for fluoroscope	10
28	Eye Protection glass for fluoroscope	10
29	Anaesthesia Machine	6
30	External fixation set orthopaedic paediatric	100
31	Ventilator Machine	20
32	X-Ray Unit Mobile	02
33	MRI Machine	01

B. CARDIAC SURGERY

No.	Items	Qty (Nos)
1	Heart Lung Machine (Perfusion)	1
2	ACT Machine (Activate clotting time machine)	2
3	Paediatric Cardiac Surgery Set	2
4	Paediatric and infant laryngoscope	2
5	Heart catheterization simulator	1
6	Electro cautery Unit	2
7	Washer and Disinfector	1
8	Sterilizer Dryer	1
9	Sealer	1
10	Plasma Machine for Sterilization	1
11	ABG Machine	1
12	OT Table	1
13	OT Light (cold light)	1
14	Multi Parameter Cardiac Patient Monitor With IBP &Capnograph and with built printer	6
15	Defibrillator	1
16	Syringe Pump	20
17	Infusion Pump	20
18	Dockinq Station Infusion System	6
19	Ventilator Machine with humidifier support for neonatal and Paediatric	6
20	ECG Machine 12Chennels	2
21	Baby Incubator	2
22	Portable Suction Machine	6
23	Paediatric Bed with mattress and pillow	20
24	Bed Side Cabinet	20
25	Medicines Cart	4
26	Emerqency/Crash Cart	4
27	ER Stretcher	2
28	Procedure Trolley	6
29	Over Bed Table	20
30	Sphygmomanometer Mobile Type with Paediatric BP Cuff	15
31	Stethoscope Paediatric	30
32	Pharmacy Refriqerator Glass Door	2
33	Patient Warmer (Child)	6
34	Trolley for dirty linen and waste	6
35	Clean Linen Trolley	4
36	Nebulizer for child and neonates	6
37	Dressing sets	6
38	Dressing Trolley	6
39	Blood warmer	4
40	Instrument Trolley	4
41	Cardiac Monitor Clinical	10
42	Immunoassay analyser	2
43	Central Patient Monitoring System	1
44	Electric Power Stabilizer	1
45	Ceiling Pendent System for Operation theatre Room	2
46	Pendent System for ICU	6
47	Pendant (BHU) for Ordinary Beds	20

ANNEXURE-III

Ref.: HSCC/PUR/MEA-AFGHANISTAN/Med. Eqpt./2023/01 dated 17.07.2023

BUGETARY QUOTATION FORMAT

	Particulars	Remarks
1)	Sr. No. of Equipment:	
2)	Name of Item:	
3)	Model No.:	
4)	Name of manufacturer & Address:	
5)	Contact Details of the Firm submitting Budgetary Quotation:	
6)	Budgetary Cost of Equipment(Incl. GST):	

The Budgetary Cost of Equipment includes the following:

1) All Taxes & Duties and transportation up to IGI, Delhi Airport.
2) Insurance till Delhi Airport.
3) Inclusive of Warranty one year as per mentioned/as per available with equipment.
4) Delivery - within 30 days from the date of issue of Purchase Order
5) Installation within 30 days from the date of Delivery
6) Cost inclusive of 3rd Party Inspection by reputed Agencies i.e. SGS / Llyod / TUV etc.
7) Equipments to be installed by OEM/bidder in Afghanistan & conduct training to end user.

NOTE:

1. **Please enclose a copy of Last Purchase Order for the same Model (preferably from a Govt. Institute).**

2. **Copy of Catalogue / Brochure / Product Data Sheet etc to be submitted.**

3. **Please provide separately, the cost of transportation of each Equipment (Incl. Marine / transit insurance) from Airport Delhi to Afganisthan.**

A. MEDICAL EQUIPMENT

1. Fiberoptic Laryngoscope (Paediatric)

LARYNGOSCOPE ADULT AND PEDIATRIC

- Should supply 4 different size (1,2,3,4) standard blades and one handle for adult and pediatric separately and one short stubby handle
- Should be stainless Steel matt finished.
- Should provide curved blades for both adult and pediatric.
- An extra-large blade should be supplied along with each scope.

2. Foreign Body Forceps (Paediatric)

- Stainless Steel
- Size- Child and infant

3. Rigid Bronchoscope light source

- LED Light source with fibre optic cable

4. Paediatric Tonsillectomy Set

1 Dennis Brown Tonsil Holding Forceps (1)
2 Backhaus Towel Clips (3)
3 Pillar Retractor (1)
4 Negus Artery Forceps (4)
5 Birkets Artery Forceps (1)
6 Waugh's Dissecting Forceps (2)
7 Mcindoes Scissors (2)
8 Beckman Adenoid Currete (2)
9 Ligature Scissors (1)
10 Yanker Suction Tube (1)
11 Dennis Brown Mouth Gaga (1)
12 White Tonsil Holding Forceps (2)
13 Kidney Dish (1)
14 Galipots (2)
15 Paediatric Adenoid Curators (3)
16 Dissecting Forceps (1)
17 Tongue Tie Probes (6)
18 Hanke Tonsil Dissector (1)
19 Packed in instrument Container (1)

5. Paediatric Thoracotomy Set

S. NO.	ITEM	QTY
1	Duval Lung Holding Forcep 8"	2
2	Farabeuf Raspatory Curved	1
3	Mallet Large	1
4	Rib Shear Giertz	1
5	Rib Spreader Finochietto Medium	1
6	Rib Approximator Bailey	1
7	Rib Rapatory Doyen Right	1
8	Rib Rapatory Doyen Left	1
9	Allison Lung Retractor	2
10	Satinsky Vascular Forcep 10"	2
11	Satinsky Vascular Forcep 8"	1
12	Tuttle Forcep	1
13	Mixter Right Angle Forcep 10"	2
14	Robert Artery Forcep Curved 10"	2
15	B.P. Handle No. 4	1
16	Matzenbaum Scissor 8" Curved	1
17	Tudor Edwards Rib Cutter	1
18	SS Instrument Tray with Cover 12 x 10	1

6. Esophagoscope

Direction of view 0°

Angle of view 100°

Working length 75 cm

Outer diameter 2.9 mm

Deflection up 210°

Deflection down 140°

7. OVEBED WARMER

S.No	Specification
1	Should be suitable for intra-operative applications for adult &pediatric patients: Yes
2	Consists of active warming arm-cum shoulder section, pair of leg segments and abdominal segment of cover the entire body: Yes
3	Based on semiconductor polymer foil for precise warming of entire patient body during & after surgery: Yes
4	Size: Patient warming System shall have all sizes for Adult &Pediatric patients.
5	Control unit: Capable of warming minimum four segments at a time and it should have display for easy operation.
6	Control unit Display: Touch Screen Display to select & display temperature of all segments at a time.
7	Control unit have automatically detect the number of segments which are connected to the unit and display the same on the screen.
8	Temperature Control: Precise digital temperature control with selectable temperature range of 37 to 40 degree C in steps of 0.1 degree C.
9	Arm cum shoulder segment: Arm cum shoulder should be divided in two sections capable of being switched ON or OFF independently depending upon the nature of surgery and condition of patient. Temperature Measurement& Display: Have facility to measure & display the real time core body temperature of the patient continuously on the screen. Have on screen graphical display of patient body temperature for the entire duration of surgery, Have facility to independently adjust the temperature of individual segment.
10	Facility to connect with blanket/mattress/pad: With provision to connect whole body blanket, pediatric size blanket, jelly based warming mattress/ pad to the same control unit for future requirement.
11	Safety Features; Have
12	Safety features: Automatic temperature check, precise temperature control between warming system and patient, Auto stop facility on detecting any problem
13	Covers: Have non latex anti-bacterial coated, blood and fluid Resistant, washable and replaceable covers.
14	Control unit should be light weight and small in size, easily attachable to IV rod/OT table with fixing claw: Yes

8. Baby Incubator

- Incubator is ISO 13485 & CE certified.
- Power Source : 230V A, ± 10 %, 50 Hz.
- Three modes of Warming Air, Skin & Manual.
- Easy read alarm message on display.
- high grade acrylic front loading canopy & four port hole.
- Acrylic baby tray & foam mattress.
- Facility to take x-rays.
- Mounted on heavy duty castor wheels for easy mobility.
- Skin High & Low Alarms.
- Air High & Low Alarms.
- Skin > 38 Alarm.
- Air > 39 Alarm.
- Skin / Air Sensor Failure Alarm.
- Safety Cutoff Alarm.
- Power failure Alarm

9. Baby Warmer

- Warmer is ISO 13485 & CE certified
- Power Source : 230V A, ± 10 %, %0 Hz.
- Light Source : 5 watt led lamps to examine babies.
- Heater Capacity: 650 watts.
- Power Consumption : 850 watts at 100% heater power.
- Heating Element : Ceramic Heater.
- Skin and Air temperature Displayed on red bright led Display.
- Separate Set temperature Display For Air & Skin modes.
- Three modes of Warming Air, Skin & Manual.
- Programmable Heater output & warming time in manual mode.
- Easy read alarm message on display.
- Stop Watch.
- Reminder Timer.
- Apgar Timer.
- Convenient working levels with 6 mm thick high grade acrylic collapsible side support accessible from all sides.
- Acrylic baby tray with head up / down facility & foam mattress.
- Swivel warmer source for ease during procedures & while taking x-rays.
- Instrument tray and I.V. pole facility.
- Mounted on heavy duty castor wheels for easy mobility.
- Fixed bassinet cradle in stainless steel with undersurface tray.
- Skin High & Low Alarms.
- Air High & Low Alarms.
- Skin > 38 Alarm.
- Air > 39 Alarm.
- Skin / Air Sensor Failure Alarm.
- Safety Cutoff Alarm.
- Power failure Alarm

10. CT Scan Machine 128 Slice with injector

Number of acquisition channels:	64
Extended Field of View (cm):	50
High-contrast spatial resolution at 0% MTF with full FOV:	>=15 lp/cm
Minimum kW output:	72 kiloWatt
Table Type:	Moveable

Pediatric-specific dose control
Prospective ECG gating
Retrospective ECG editing
Iterative image reconstruction for dose reduction
Overbeaming reduction sliding collimation
Low dose Cardiac axial acquisition
Auto vessel mapping
Quantification
Ventricular output
Myocardial evaluation

Lung nodule assisted reading	
Lung nodule CAD	
Lung function analysis	
Respiratory gating	
Coronary artery calcification scoring	
Virtual colonoscopy CAD	
Vessel analysis (non cardiac)	
Brain perfusion	
Z-axis coverage for brain perfusion	
Auto bone removal	
Body perfusion	
Should have Highest achievable temporal resolution	
Dental CT	
CT Fluoro / interventions with hardware and software	
Neuro DSA	
Metal artifacts reduction	
DICOM Worklist License	
OEM post processing workstation with dual medical grade Monitor	
Server	
If it is server workstation, number of nodes to be provided:	3
Number of concurrent licenses to be provided:	3
Minimum Rendering Capacity of Server :	20,000 Concurrent Slices
Minimum Image storage capacity of Server:	2 terabyte
Minimum Ram Size of server:	64 gigabyte
Monitor Size of Server:	19 inch or more
Monitor Type of Server:	LCD/LED/TFT
Minimum Ram Size of Workstation:	16 gigabyte
Minimum Storage capacity of Workstaion:	1000 gigabyte
Neuro DSA application in workstation	
Cardiac Angio	
Cardiac calcium scoring	
CT angio	
Filming	
Perusion imaging in workstation	
Gout Imaging:	Yes
Calculi Characterization:	Yes
Online UPS for full backup of atleast 30 minutes	
Lead Glass Setup to be provided	
Lead aprons - 5 Nos with Hanger to be provided	
Gonald and thyroid Shield - 5 No each	
Pressure Injector	
Dual head	
Color Printer	
Head Holder	
Patient table accessories	
X Ray Film Viewer	
Variety of phantoms for quality control	
Warranty 1 year standard	

11. Hematologyanalyzer

S. NO	Equipment
1	**3 PART AUTOMATED HEMATOLOGY ANALYZER**
2	Measuring principles:-Impedance methods for cells counting
3	:-Cyanide free colorimetric method for HGB measurement
4	Measuring channels:-Double channel for counting
5	Throughput:-From beginning of a test to completion of the printout: ≤ 60 seconds
6	Counting modes:-Whole blood, Pre-diluted Blood
7	Sample volume:-Whole Blood: ≤ 14 μL
8	:-Pre-diluted Blood: ≤ 20 μL
9	Parameters and Histograms:-21 parameters and 3 histograms:
10	:-WBC, Lymph#, Mid#, Gran#, Lymph%, Mid%, Gran%, RBC, HGB,
11	:-MCV,MCH, MCHC, RDW-CV, RDW-SD, HCT, PLT, MPV, PDW, PCT, P-
12	:-LCR, P-LCC, WBC Histogram, RBC Histogram, PLT Histogram
13	Reference value settings:-Preset five sets of reference values: Man, Woman, Child, Baby and
14	:-General
15	:-Multiple alarms of running status including blank counting abnormal,
16	:-reagents empty, waste full, counting hole clogged, counting area leak or
17	Alarm System:-bubble, recorder abnormal, external printer abnormal and circuit abnormaletc
18	Measures of:-Back flushing, soaking and burning. Automatic unclogging treatment beforeand after the sample analysis
19	UncloggingTreatment:-
20	Printout:-English print report, optional report formats
21	:-Can store more than 10,000 sample results, including parameters, histograms and patient information.
22	Storage:-
23	:-Support multiple conditions combination query
24	Communication:-Open communication protocol. Support connection to LIS
25	Data import and export:-Import or export data via USB port
26	:-Include 9 QC files, automatically draw quality control chart and provide theaverage, SD, CV
27	Quality Control System:-
28	Calibration System:-Support manual and automatic calibration

29	Software Upgrading:-Upgrading software via USB port
30	Display and Touch Screen:-10.4 inch true color TFT LCD and touch screen
31	:-Built-in patented structure thermal printer, paper 80mm wide, easy to loadpaper. Report printing takes only 5 seconds
32	Printer:-
33	Da ta Ports:-One network port, one RS-232 port, four USB ports
34	Optional External Devices withUSB port:-
35	:-Standard 101 keyboards, mouse, barcode, scanner and multiple printers
36	Power:-220V, 50Hz input power: ≤ 150VA
37	Operating Environment:-Environment temperature: 10˚C ~ 30˚C
38	:-Relative humidity: ≤ 70%
39	:-Atmospheric pressure: 70.0kPa ~ 106.0kPa
40	Dimensions:-368mm × 448mm × 475mm
41	Weight:-≤ 23kg
42	Warranty:-One year

12. Microscope

1. Body - Inter changeable, inclined Binocular body, 360-degree rotatable head.
2. Eyepieces - Highest quality 10 X wide field anti fungus field eyepiece, FOV 20 mm or more.
3. Objectives - Par focal, antifungal coated 4x, 10x, 40x and 100x (oil immersion) with plan achromatic correction for FOV of 20 mm.
4. Optical system - Infinity corrected
5. Stage - 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.
6. Sub stage - Abbe condenser N.A 1.25 focusable, continuously variable iris diaphragm.
7. Illuminator - Built-in LED light source with white light.
8. Finish - A durable textured acid resistant finish.
9. Should provide dust cover and immersion oil.
10. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.

13. Biochemistry analyser

FULLY-AUTO BIOCHEMISTRY ANALYZER (200 THROUGHPUT)
Throughput:-Double Reagent : 200 Tests/hour
:-End Point, Fixed Time (2 point), Kinetic Rate A, Kinetic Rate
Analysis Method:-B
:-Colorimetric, Turbidimetry, Single & Double Reagent, Multistandard, Mono & Bi-chromatic
Assay modes:-
Sample Volume:-2 - 35 µl, 0.10 µl step
Sample Dilution:-Dilution ratio of 2 to 40
:-30 onboard cooled reagent positions maintained by water cooled peltier system
Reagent Position:-
Reagent Volume:-100 - 360 µl
Reaction Cuvette:-cuvette 57
Cuvette Washing:-On board laundry with 7 step washing system
Water Consumption:-2.5 - 4 Litres/hour
Optical length of cuvette:-5mm
Reaction Volume:-180 - 550 µl
:-300 to 600 sec (Depending on the designated cycle time and number of reagents)
Reaction Time:-
Reaction Temperature:-37 + 0.20c
Measurement:-Photometry
Light Source:-Halogen Tunsten lamp
STAT:-User defined STAT function
:-9 interference filters: 340, 405, 450, 505, 510, 546, 578, 600,
:-620, 660, 700 nm with Fibre optics (Must have Fibre optics to ensure maximum intensity of light reaches to the detector and also increases the life of filter)
Wavelength:-
Absorbance Range:-0 - 3.0 Abs
Resolution:-0.0001 Abs
Relex:-User defined Reflex testing
STAT:-User defined STAT function
Calibration:-K-Factor, Linear (one, two and multi point), Logit-log, Spline, Exponential, Polynomial (second, third and fourth order)
Calibration Points:-Multipoint curves for up to 6 points
:-Execution by repeat run list or auto execution
:-Auto execution according to abnormal marking or range over
Auto re-run:-Reduced/increased volume repeat run also possible
:-Test results: 1,000,000
:-Reaction curve: 40,000 tests
Data Storage:-Profiles: 20 per sample type
:-Within day as well as day-to-day X and X-R control diagram
:-(L-J Graphs)
:-Real time quality control based on Multi-rule method
Quality Control:-Mean, SD, %CV, R is calculated for all parameters for sample replicates
Power Supply:-AC 220 V ± 10%, 50 Hz or AC 110 V ± 10%, 60 Hz

Temperature:-100C - 300C
Humidity:-40 – 80% free from water dew formation
Operation System:-Windows XP or Windows 2007 or Winfix
Input:-RS 232 interface/computer
Output:-Multi Format Printout
Dimensions:-550 mm (W) x 420 mm (D) x 380 mm (H)
Weight:-Approx 25 kgs
Certificates:-CE,ISO 13485
:-Reagents should be photometric, parameters like D- Dimer, Ferritin procalcitonin and other parameter for covid.
:-All reagents should be manufactured in India and must have its own manufacturing units for reagents in India
Available Certification & Conditions:-The company suppling the Instrument must have more than
:-100 units installation base in India
Warranty:- :-One year.

14. Centrifuge

Centrifuge :

1. Should have a maximum speed of 3000 RPM with steeples regulator
2. Should be supplied with safety lid and lock. (Brushless Motor)
3. Should have digital speedometer and timer.
4. Should have imbalance detector and automatic cut off.
5. Standard mark on quality and safety is Compulsory
6. Should work on a220VAC +/- 10 %, 50Hz AC Supply.
7. US FDA (510K) / European CE(Issued from notified Body) Approved model should be offered.

16. Electrolyte Analyser Machine

TECHNICAL SPECIFICATIONS- ELECTROLYTE ANALYZER
Principle:-Ion Selective Electrode (ISE)
:-Serum, plasma, whole blood, cerebrospinal fluid (CSF) and dilutedurine
Sample:-
Measuring speed:-≤ 25 seconds
Sample:-60 - 300 µl (depends on electrodes)
Storage:-Upto 25,000 test results
Printer:-Internal thermal printer and backup data directly from USB in pen drive, hard drive or directly to PC , should be supply Inbuilt printer &large LCD monitor
Interface:-Quantilyte- RS232
Operating temperature:-10 to 300C
Relative Humidity:-≤ 80% RH
Atmospheric Pressure:-86-106 kPa
Power supply:-220V±22V, 50±1Hz
Power:-≤ 120W
Dimension:-380mm x 270mm x 400mm
Net Weight:-Approx 6-10 kg
Through put:-60 tests / hour

:-Automatic detection and filtering system for tiny bubbles to preventclog
Accuracy:-
Data Backup:-Power failure protection
Reagents:-Saperate reagents set of Standard A , B
Calibration:-2 point user automatic calibration,
Manufacturer:-Only for Indian make
Warranty:-One year

17. Immuno Analyzer with 3 With reagent

Throughput: maximum 200 tests/hour
Continue to reagent kits with perfect compatibility (181 parameters)
Reagent positions: 20
Sample positions: 72
Single reaction cup with integrated packaging

18. Laptop

- I5 processor
- 8 GB RAM
- 500Gb Hard Disk
- 17" inch screen size
- Reputed make

19. Motor Dermatom

Graft Width (mm)	20-50 ,50-80 ,80-110
Graft Thickness	0.05 millimeter
Operating speed range (rpm)	2000-15000
Warranty period	2 year
Accessories and Components	Handpiece Cable ,Power Supply Wall Cord ,Width Clip ,Guard Plate ,Dermatome Screwdriver ,Carrying Case, Plastic

20. Mesh

Shape of mesh	Rectangular
Size of Mesh in cms	7.6x15
Material of mesh	Monofilament polypropylene on one side with absorbable hyrogel on other side
Composition of hydrogel/ORC	[Sodium Hyaluronate (HA) + Carboxymethylcellulose (CMC) + polyethylene glycol (PEG)
Function of hydrogel layer/ORC	bioresorbable layer that physically separates the polypropylene mesh from underlying tissue and organ surfaces during wound healing, to minimize tissue attachment
Burst strength in terms of abdominal pressure for health adults	More than 1.5 Times
Introducer Tool for smooth insertion of Mesh	
Shelf life of item in Years	2 Years

21. Digital Radiography and Fluoroscopy System

S.N.	Features available in equipment
	The high-power radiography & fluoroscopy system should have a high frequency inverter type generator & motorized multi position diagnostic table. The Unit should be over table x-ray tube system compact and occupy minimum space the unit should be AERB Approved **SYSTEM CONFIGURATION:** • 40 KW or more Generator, motorized multi position diagnostic table. • 9" image intensifier, Multi Leaf collimator for Motorized Multi position table for Fluoroscopy. • High speed 150 KHU or more capacity X Ray tube - 2 Nos. • Floor Mount Tube support with Manual Multi Leaf Collimator and Wall Bucky for Radiography. **X-RAY GENERATOR :** • High Frequency X-Ray generator having frequency of 50 KHz or more provided. • Power output of generator should be 40 KW or more. • Radiography KV range should be: 40 to 125 KV in 1 KV Step. • Fluoroscopic KV range: 40 to 125 KV in 1 KV Step. • mA range (RAD): 500 mA or more. • mA output (Fluro.): up to 4.5 mA • Pulse fluoroscopy : up t0 30 mA. • mAs range (RAD) 1 to 500 mAs • Exposure time (Rad.) 2ms to 10 Sec. • The X-ray control should have digital display of KV ,mA &mAs/Time . • The radiography KV with maximum number of steps. • The technique selector switch should be provided for selecting table radiography /bucky etc. • Machine must give 500 mA at 80 KV of 0.1 Sec & 400 mA at 100 KV **CONTROL :** A touch control panel / PC Based Control having following function & Indicators should be provided : • Machine on/Off Switch. • Display of KV, mA &mAs/Time • KV, mA &mAs/Time Increase and decrease Switches. • Ready & X-Ray On switch. • Collimator Lamp/LBD on switch on collimator side. • Bucky selection switch. • Tube focal spot selection switch. • Error should be display on panel with indicators or by error codes. • Anatomically Programming Radiography (i.e. APR) should be provided in which KV, mA &mAs/Time are automatically selected depending upon the physically of the patient and part of the body to be x-Rayed. • Anatomical programming of minimum 220 programmes should be provided. **X-RAY TUBE :** • Two no. Dual focus Rotating Anode X-Ray tube thermally protected. • Small Focus is 1.0 mm & large focus is 2.0 mm

- Anode heat storage capacity of tube should be 150 KHU or more.
- Two pair of 8 meter H.V Cable.
- Two Nos. Collimators should be provided, One Manual for over couch and one motorized for under couch operation.
- Multi leaf collimator with a maximum field size of 43 x43 cm at - 100 cm SlD. Light switch with automatic switch off function should be available
- Both X-Ray Tubes are can be used for radiography procedures.

HV TANK :

- A very compact H.V Tank filled with high dielectric transformer oil should be provided. The H.V Tank should contain H.V transformers Filament, Transformers, H.V rectifies & H.V cable receptacles.

TUBE STAND :

- Floor to ceiling stand with counter balanced tube head (rotatable ± 90 °) 180° rotatable mounted on floor ceiling rails for convenient movement should be provided.
- Should have longitudinal travel of 2100mm
- Lateral travels should be not less than 250mm
- Tube angulation around the horizontal axis ±180° continuous

FLUROSCOPY TABLE :

- Motorized table should have motorized Bucky consisting of Bucky grid with ratio 8:1 or more, 85 lines per inch.
- Motorized Table with +90° and -12°/-15° trendelburg position.
- The Table should consist of motorized reciprocating Bucky with imported grid of size 17¼" x 18¾" & of Ratio 8:1-85 Lines/inch.
- The Bucky should cover the entire length of the table and should be lacked at any desired position by an Electromagnetic lock.
- The table should be made of low radiation absorption, waterproof material.
- Table Accessories like stainless steel cassettes tray, Bucky should accept cassettes up to 14"x 17"
- The table should be offered with built in spot film device & SFD grid should be at least of ratio 6:1 & density of 100 lines per inch (preferably stationary)
- Spot film Device –Semi automatic spot film device, Front loading for all standard cassettes from 8"x10" to 14"x17".

I.I. SYSTEM :

- 9" Inches Image Intensifier should be provided.
- It should be fitted on Table.
- Contrast ratio: Not less than 30:1
- It should have Zoom Facility.
- CMOS Camera: High resolution compact B/W CMOS camera.
- Camera Pixel 1K x 1K
- It should have scanning lines of 600 lines, 40 fields. The horizontal resolution should be 550 lines.
- The acquisition should be made at 14 bits.
- Nominal Entrance Field Size is 200mm.
- Output Image diameter is 23mm.
- Image Intensifier head safety lock is available.

- 2 Nos. 17" / 01 No. 27" Full HD LCD / LED Monitor with split screen.

MEMORY SYSTEM:

Memory system with the following features should be provided.

- Image processing software with Real time image capturing, storage.
- Boosted Fluoroscopy (CINE) up to 30 FPS with real time recording on Hard Disk Drive.
- 10000 or more image storage.
- Length and angle Measurements with Annotation
- Pre Programming for Image setting for different operating Modes.
- Image Flipping and Image rotation.
- Recursive Filters for image smoothening
- Image Zoom with Pan Image Inversion
- The system should be DICOM 3.0 (or higher version) ready (like send, receive, print, record on CD / DVD, acknowledge etc.) for connectivity to any network computed/PG-etc. in DICOM format.

STANDARD ACCESSORIES:

- Monitor cart & Foot switch for examination room.
- Compression cone & Compression band ,compression straps & Foot step
- 45 KVA voltage stabilizers to be quoted along with the system
- AERB approved Two Lead aprons of 0.5mm lead equivalence

POWER REQUIREMENT :

The unit should be operable on 3 Phase, 440 Volts AC, 50 Hz 15 Amps with line –resist less than 0.4 ohms. Line regulation ± 10%.

SAFETY & APPROVAL :

- Equipment should be approved by AERB.
- Company should have ISO 9001:2015, ISO 13485:2016, EN ISO 14971:2012 certificate.
- Company should have MD -9 & MD 13 License from CDSCO.
- X-Ray machine is BIS IS 7620 Part -1 approved for Mechanical & Electrical Safety.
- X-Ray manufacturer is registered in MSME & NSIC Rajasthan state.
- QA/QC must be done as per AERB at the time of installation
- Radiation Symbol to be fixed on the x -ray room
- e-LORA certification must be done by vendor with help of user

WARRANTY:

The bidders should quote guarantee/warranty of 3 years from the date of successful installation & commissioning for complete X Ray machine & IITV system.

22. Wire Cutter steel made orthopedic

Material	Stainless Steel 316
Dia (Max. Cut), Hard Wire in mm	1.5-2.0
Length in Inch	8-<9
Dia (Max. Cut), Soft Wire in mm	0.01-0.5
Warranty Period	1 year

23. <u>Elastic Nail 4mm length</u>

* Material : SS316L AND Titanium

* Durable Standard

* Resistance Against Corrosion

24. Neck Protection for fluoroscope for children

25. Pelvic Protection for fluoroscope different paediatric size

26. Gown for Fluroscope

27. Gloves for fluoroscope

28. Eye Protection Glass for Fluroscope

29. <u>Anaesthesia Machine</u>

GENERAL SPECIFICATION:
The Anesthesia System must be having variety of innovative features, patient safety and user comfort elements.
It should be brand new and should not manufacture before June 2018.
It should be compact; cute and space saving design concept makes it even suitable for small operation room without
any compromises in handling and operating.
The Anesthesia Machine should be suitable for administration of Oxygen - Air - Nitrous Oxide Halothane -
Enflurane - Isoflurane - Sevoflurane - Desflurane mixtures."
Should be electronic gas mixing system applicable from infant to adult with both invasive and non-invasive
It should have
inbuilt turbine for air generation
with flow up to 190 LPM
THE ANESTHESIA UNIT IS SHOULD HAVE FOLLOWING FEATURES:
Electronic
gas mixing system
Electronic lung ventilator with
Valves group: open, semi-closed, closed, heated, with soda lime absorber of 1 Kg. capacity
Rapid connection device, Selectatec compatible for 2 vaporizers (Halothane & Isoflurane)
Gas supply group

TECHNICAL DATA
Structure: Light aluminum alloy and plastic moulds
Wheels Pivoting antistatic wheels, diameter 100 mm (2 with brakes)
Drawer No. 1 full extension drawers
Cylinder support:
No. 2 vertical cylinders should be supported on the back side (for cylinders up to 10 liters capacity) and round rubber pads
Electric power supply 100 - 240Vac / 50 - 60Hz
Battery Backup 2 hours minimum
Battery re-charging time maximum 10 hours
Electric external connections
RS232 for serial connection of Gas Analyzer
USB 1 (connector for CPU programming)
USB 2 (connector for transfer patient data, events, trends)
ELECTRONIC GAS MIXING SYSTEM2
It has the function to regulate the capacity and the concentration of gas mixture (Air, O2, N2O) by displaying them on the right side of the TFT monitor
It allows to select the mixture to be delivered (Air - O2, or N2O - O2) and the oxygen enrichment for delivered mixture in case of emergency. The anesthesia module includes a device which guarantees a minimum concentration of 25% of oxygen with all mixtures set different from air / oxygen (MIX-LIFE device PROTOLOCK system. The exclusive safety device that analyzes the coherence of the gases connected to the machine when the machine is switched on, warning the operator in case of incorrect connections, thus avoiding possible fatal accidents to the patient Through the three pressure gauges on the front panel it allows the continuous control of medical gas feeding pressure coming from the gas pipelines system or from the cylinders.
The flowmeter is electronically controlled with double coupled valves to always guarantee correct delivery even in the event of a fault. An electronic flow meter continuously monitors the correct supply of gases
The electronic flowmeter box provides the option on demand to use an alternative anaesthetic gas in spite of N2O: the Xenon (Xe).
AUTO TEST:
When the electronic flow meter is switched on automatically, various control tests are performed.
FRESH GASES FLOW
From 0.2 to 15 L / min with oxygen and air.
0.2 to 14 L / min with oxygen and nitrous oxide.
Resolution: 0.1 L / min.
OXYGEN CONCENTRATION
From 25% to 100% with mixtures of nitrous oxide and oxygen
From 21% to 100% with mixtures of air and oxygen
Resolution: 1%
SAFETY DEVICES:
AGAINST THE ADMINISTRATION OF HYPOXIC MIXTURES MIX-LIFE: it always guarantees a minimum concentration of 25 % oxygen on mixtures which includes nitrous oxide.
IN CASE OF WRONG MEDICAL GASES CONNECTIONS Acoustic and visual alarm (Protolock)
IN CASE OF LACK OR LOW OXYGEN PRESSURE CUT-OFF: audible alarm with immediate cut-off of nitrous oxide delivery.
AGAINST OVERPRESSURE IN FLOWMETER BOX: pressure sensor for the protection of the flowmeter components
IN CASE OF LACK OR COMPRESSED AIR LOW PRESSURE: all the devices (gas feeding) supplied by compressed air are automatically supplied by oxygen.
AGAINST THE SIMULTANEOUS DELIVERY OF AIR AND N2O:
Selection by only one icon on the touch screen.
LUNG VENTILATOR
Operation principle
Time cycled at constant volume

Pressure cycled
Microprocessor controlled flow
Spontaneous breath with integrated valve
VENTILATION MODALITIES:
APCV, APCV-TV, PSV, PSV-TV, VC/VAC, VC/VAC BABY (integrated NEONATAL ventilation mode), V
SIMV (Volumetric +PS; SPONT), P-SIMV (Pressometric +PS; SPONT).
SIGH, Apnea BACK-UP (NIV PSV, NIV PSV-TV), MAN (Manual).
Breathing rate
VC/VAC: From 4 to 150 bpm
Inspiratory Time / Expiratory Time (maximum, minimum)
Ti min = 0.036sec (minimum inspiratory time) 3
Ti max = 9.6sec (maximum inspiratory time)
Te min = 0.08sec (minimum expiratory time)
Te max = 10.9sec (maximum expiratory time)
Breathing rate V-SIMV e P-SIMV
: From 1 to 60 bpm
SIMV Inspiratory time:
From 0.2 to 5.0 sec.
TIDAL VOLUME:
From 100 to 1500 ml (Adult)
From 50 to 400 ml (Paediatric)
From 2 to 100 ml (Neonatal)
I: E ratio:
From 1:10 to 4:1
Inspiratory pause:
From 0 to 60 % of the inspiratory time
Inspiratory pressure limit: Pinsp
: from 2 to 80 cmH2O (in function of low and high pressure alarm set)
Inspiratory ramp Slope:
1, 2, 3, 4 (acceleration slope) - (4 max. acceleration) (in operative modes by pressure only)
PEEP:
From OFF, 2 to 30 cmH2O
PEEP adjustment
Microprocessor controlled valve
O2 concentration Adjustable
from 21 to 100% with electronic integrated mixer.
Trigger detective method
Through sensor (Pressure or Flow)
Pressure trigger (I):
Pressure adjustable from OFF; -1 to -20 cmH2O under PEEP level (step of 1cmH2O)
FUNCTIONS
MENU function (SETUP
PATIENT DATA)
Alarms Limits
Graphics visualization (Auto-Range)
INSP Block - EXP Block (max 20 sec.)
MAN control (manual ventilation)
USER INTERFACE
Display keyboard: Touch screen controls + keyboard and encoder knob for rapid access to the operative functions selection, set up and confirmation of physiological breathing parameters selection and direct activation of function
DISPLAYING AND SETTINGS
Operative Mode setting

AUT, MAN e Stand-by mode Setting
Display of signals and alarm messages, screen lock
Setting and monitoring of physiological breathing parameters
MENU function for setting operation parameters
Graph function for display of curves, LOOPS, respiratory parameters, gas parameters
Alarm Limits setting function

MENU FUNCTION - SETUP

Display (Brightness, Energy Saving, Sound Volume, Touch Audio)
Date & Time
Language
Units
Default (Default parameters: Erase Trend data, Erase Events data, Erase Patient data, Setting & Ventilation Default)
Other (NIV Enable, Power Failure, Apnea Time N2O / Xe, PASSWORD change, Data saving on USB)
Gas Sensor (IRMA/ISA)
Supplementary Tests (Leak test, O2 Sensor Calibration)

ALARM LIMITS 4

PAW (cmH2O), PEEP (cmH2O), Vte (ml), VM (L/min), O2 (%), RR (bpm)

DISPLAYED GRAPHICS

CURVES: Pressure (PAW) - Flow - Volume (Vte) - Gas
LOOPS: Pressure / Volume - Flow / Volume - Pressure/Flow - Lung ventilation icon
MEASURES: Respiratory parameters, Gas
Events
Trends

PHYSIOLOGICAL BREATHING PARAMETERS SETTING

I:E, Pause (%), PEEP, Pinsp, PMax, Pmin (cmH2O), PS (cmH2O), FR, FRsimv (bpm), SIGH (Sigh. Amp. (%) - Sigh. Int. (b)), Slope, Ti, Ti Max (s), Tr. E (%),Tr. I (L/min - cmH2O), Vte, Vti (ml), BACK-UP parameters.

RANGE OF MEASURED PARAMETERS

Respiratory rate (range: 0 - 200 bpm)
I:E ratio (range 1:99 - 99:1)
% of FiO2 - EiCO2 (range: 0% - 100%)
Tidal Volume: Vte, Vti (range: 0 - 3000 ml)
Minute Volume (range: 0 - 40 l/min)
PAW: peak, mean, plateau, PEEP (range -20 - 80 cmH2O)
Inspiratory Peak Flow: Fi (range: 1 - 190 l/min)
Expiratory Peak Flow: Fe (range: 1 - 150 l/min)
Tinsp., Texp, Tpause (range 0.036 - 10.9 sec)
Static and Dynamic compliance (range: 10 - 150 ml/cmH2O)
Resistance (range: 0 - 400 cmH2O/l/s)
Leak (%)

DISPLAYED PARAMETERS

PAW (cmH2O), FR (bpm), I:E, PEEP (cmH2O), O2 (% - l/min), Vte (ml), VM (L/min), FiCO2 (%), EiCO2 (%)
MAP (cmH2O), Pplateau (cmH2O), Fi , Fe (L/min), Ti , Tpause, Te (sec.), Ri (cmH2O/l/s), Cs, Cd (ml/cmH2O), Leak (%), O2 (L/min)

FLOW SENSOR

Magnetic disturbance (patented), multi-usage type

ALARMS

1. Alarm types:

By MENU: with limits set by the operator
By DEFAULT: the operator cannot set them up

2. Alarms with limits set up by the operator:

Airways pressure High Low

PEEP High Low
Expired tidal volume High Low
Expired minute volume High Low
FiO2 concentration High Low
Respiratory rate High Low
Electric power supply Alarm occurs in case of failure of external power supply
Apnea time Low Rate (function of Apnea BACK-UP)

3. System alarms:

Level (charge): Battery at 50%
Level (charge): Battery at 25%
Battery level (low): 10 Minutes
Disconnected battery: Yes / No
Battery over temperature: Indication of exceeding the temperature limits inside the battery
Battery charger disconnected: Indication of failure in the battery charge 5
Turbine fault: Signa
ls in case of a blower fault condition
Circuit disconnected: Indication of patient circuit disconnected

4. Flowmeter alarms:

Lack or low O2 pressure with consequent cut - off of N2O delivery
Lack or low N2O pressure
Lack or low Xe pressure
Lack or low AIR pressure
Fresh gas occlusion
Wrong fresh gases connection (PROTOLOCK)

STANDARD ACCESSORIES:

Halothane and Isoflurane vaporizer

30. External fixation set Orthopaedic paediatric

31. Ventilator Machine

● General Features:
● ● It should support invasive and non invasive ventilation.
● ● It should have Pressure and Flow waveforms with trends facility.
● ● It should have altitude compensation.
● ● It should have FiO2 Measurement.
● ● It should have following modes: a. Volume Controlled and Pressure Controlled modes of Ventilation, b. SIMV (Pressure controlled, and volume controlled) with pressure support, c. Spontaneous modes like CPAP / PEEP, d. Inverse Ratio ventilation, e. Advanced/Intelligent mode like Closed loop (Adaptive ventilation mode or equivalent mode), f. Airway Pressure Release ventilation, g. Non-invasive ventilation with leak compensation
● ● It should have patient history storage capability.
● ● It should have minimum 4hours battery back up.
● ● It should have 10" or more touch screen as well as knob operation.
● ● It should be shock resistant.
● ● Warranty one year.
● ● Technical Specification:
● ● Parameters : Set Parameters / Measured Parameters / Alarm Status / I:E Ratio.
● ● Waveforms : Pressure- Time, Flow- Time, Volume- Time.
● ● Loops : Pressure- Volume, Flow – volume, Pressure-Flow.
● ● Tidal Volume : 2-2000ml.

● ● Inspiratory Pressure : 5-80cmH2O(Peep+Pins<100cmH2O).
● ● Pressure Support : 0-60cmH2O(Peep+PSV<100cmH2O).
● ● PEEP/CPAP : 0-50cmH2O.
● ● Respiratory Rate : 2-120bpm.
● ● Inspiratory Time : 0.1-9.9 sec.
● ● I:E Ratio : 1:9.9-2.5:1
● ● Rise Time should be there
● ● Apnea Time : 2-60 sec.
● ● Apnea Backup type : PACV,VACV Mode
● ● Trend : 72hrs
● ● Ventilator must have reusable/ autoclavable high sensitive flow sensor based on magnetic disturbance technology for use with adult, pediatrics and neonatal patient.
● ● Same flow sensor & expiratory valve must be capable to be used for neonatal to adult patients.
● ● Exhalation trigger Sensitivity : 10-80% of Peak flow in exhalation.
● ● Should have US FDA or European CE with four digit notified body number certificate and certificate to be submitted
● ● Inspiratory Pressure Limit : 5-80cmH2O
● ● Trigger Sensitivity : Pressure Trigger : OFF, (-)0.5 to (-)20 cmH2O
● ● Flow Trigger : OFF, 0.5 to 20lpm.
● ● FiO2% : 21% - 100%.
● ● Ideal body weight
● ● Altitude Volume Compensation : (-) 100-5000(m).
● ● Alarms :
● ● Airway Pressure
● ● Tidal Volume
● ● Minute Volume
● ● Respiratory rate
● ● Apnea
● ● O2%
● ● Airway Leak
● ● Circuit Open
● ● Battery Indicator
● ● O2 Supply Pressure Failure
● ● Turbine failure

32. X-Ray Unit Mobile

- Compact, lightweight, easily transportable mobile X-Ray units suitable for bedside x-rays, trauma, Intensive care units, Operations theatres and also in the Radiology department.
- The unit should be fully counter balanced and can be positioned to suit different bed heights. The unit should have facility of vertical swing and horizontal rotation of the tube head to ensure X-Ray of any anatomy even with in limited space.
- The unit must have an effective braking system for parking and transport.
- The tube stand must be fully counterbalanced with rotation in all directions.
- The unit must have intelligent graphical LCD display with atleast 60 user-configurable anatomy presets for ease of operation to the operator.
- The exposure release switch should be detachable with a cord of sufficient length (atleast 3 m).
- The unit should have integrated cassette box of size 542 mm (W) x 420 mm(H).

The Generator:

a. Microprocessor controlled high frequency/inverter type of high frequency (40 KHz or more) for constant output. Higher Frequency will be preferred.
b. It should have power rating of 4kWor more
c. It should have a digital display of mAs and kV.
d. KVrange:40 kv to 100kVor more
e. mArange:10 mA to 100mAor more
f. KV selection: 40 kV to 100 kv, selectable in 1 kV steps
g. mAS selection: 0.1 to 250 mAS
h. It should have over loading protection.
i. It should have APR feature

X-Ray Tube and Collimator:

a. Stationary/ Rotating anode having focal spot size less than 2mm.
b. Output of tube should match with that of generator.
c. Light Beam diaphragm/ Double layer Collimator with auto cut off switch. The light intensity shall be at least 160 lux at1mtr distance from focal spot.
d. Collimator rotation +/- 90degrees, Tube Head rotation – Vertical – atleast 280 degrees, Horizontal – atleast 350 degrees should be possible

- The unit should operate on single phase power supply and should have plug in facility to any standard wall outlet with automatic adaptation to line voltage 200 to 240volts,15Ampplug.
- The Leakage radiation level at 1 meter from the focus should be less than 70 mR. Products having minimal leakage radiation level will be preferred. (Please attached relevant test report)
- The weight of unit should be less than 90 kg
- The Systems should be fully safe with respect to
  a. Over current
  b. Over Voltage
  c. Maximum loading of tube
- Power input to be 220-240VAC, 50Hz fitted with Indian plug.
- Manufacturer /supplier should have ISO 13485 certification
- The quoted model should have European CE certification or USFDA approval.
- Should be an AERB approved product.

User/Technical/Maintenance manuals to be supplied in English

33. MRI Machine

Magnet Configuration	Normal bore
Bore diameter at isocenter (cm)	60
Maximum bore length with cover (cm)	190 and above
Type of shimming	Active and Passive
Safe patient transfer cart provided	
Table movements	
Vertical and Horizontal	
Lateral movement in Table	
Peak Amplitude with each axis independently (mT/m)	≥ 30
Standard slew rate, with each axis independently (T/m/sec)	≥ 100
Minimum RF transmitter and receiver power output (KW)	10
Minimum Number of independent / quadrature RF receiver channels (Acquisition in single channel and single FOV)	16

RF system's minimum number of elements that can be connected simultaneously in single FOV and single scan 16
Parallel imaging -uses redundant information acquired by multiple coil elements to significantly accelerate image acquisition The overall image time can be reduced by a factor of two or more
Parallel imaging - Maximum parallel acquisition acceleration factor ≥ 4
Element selection type Automatic
Head and Neck Coil - Number of elements (minimum) 14
Head and Neck coil, Detachable face - a detachable front section is Intended to help reduce patient anxiety
Head and neck Coil, Patient mirror(s) - include a small mirror that enables the patient to see outside the bore, which can reduce patient anxiety
Spine Coil - Number of elements (minimum) 12
Anterior Body coil
Dedicated Anterior body coil with Spine Coil (body imaging at Max FOV) (Single or combination of coils) - Maximum elements used simultaneously 8
Breast Coil
Breast Coil - Number of elements (minimum) 8
Dedicated Breast Biopsy Coil
Spine (CTL)
Head + Neck, Neuro-Vasculature
Whole CNS (Head + Whole Spine)
Chest, Heart
Abdomen, Pelvis
Whole Abdomen
Peripheral Vasculature
Prostate, Colon, Rectum, Cervix
Dedicated Knee coil
Knee coil - number of elements (minimum) 8
Dedicated Ankle coil
Ankle coil - number of elements (minimum) 8
Dedicated Shoulder coil
Shoulder coil - number of elements (minimum) 6
Dedicated Wrist coil
Wrist coil - number of elements (minimum) 8
Multi-Purpose Coils
Temporo-Mandibular Joints
Whole Body
Flex coils small and large at least 4 channel
Standard pulse sequences (Series of RF and gradient pulses used to generate MR signals for image acquisition)
Image acquisition - Patient movement compensated, head and body
Isotropic 3-D (T1) and Isotropic 3-D fast spin echo (T2)
Fat supressed Single breath-hold 3-D body imaging using parallel acquisition of gradient echo pulse sequences
Single-point Dixon acquisition - this technique generates different image contrasts such as water-only, fat-only, in-phase, and out-of-phase
Gradient Echo - An imaging sequence in which echo is created by switching a pair of dephasing and rephasing gradients such as spoiled, rewound and Steady state free precession techniques
Spectroscopy for Breast
Spectroscopy for Prostate
Multi parametric study for prostate
Bilateral Breast imaging with fat suppression with time intensity graph
Non-contrast angiographic imaging technique (time of flight, phase contrast and SSFP) is used to visualize flow within vessels
fMRI tools\

Diffusion Imaging tools
Diffusion tensor imaging tools
Cardiac imaging tools
Image post processing workstation model
Standalone
Number of nodes to be provided
Not Applicable in case of Standalone Workstation
Number of Concurrent Licenses to be provided
Not Applicable in case of Standalone Workstation

B. CARDIAC SURGERY

1. Hear Lung Machine:

Basic equipment should consist of the following unit:

a. 5 pump single head or 3 pump single head + 2 pump double head with base.
b. monitor
c. pressure monitor -arterial Cardioplega transducers
d. timer -at least 3 timer
e. Temperature monitor with at least 2 probes.
f. Cardioplega pump should have display of total volume of each infusion along with delivery time
g. Safety device
h. level sensor
i. ultra sonic air center (optional)
3. Accessories with include:
a. Stainless steel line clamp 10 no's
b. Stainless steel intra cardiac suckers 4 adult 4 pediatric
4. Techinuical specification :
1. Pump console
2. The unit should have five pump console compactly arranged with separate power supply and control modules. Should Have easy access connectors for interchanging the pump
3. Each individual roller pump should be capable of running independently at available voltage
4. It should have spill proof base
5. This unit should be supplied with a battery backup for at least two pumps, all safety systems and accessories will be functioning for 60 min. Switching over from power to battery backup should be automatically done . The battery unit should be built into the pump base and it should be recharged automatically when the system is operating with main power supply
6. Our machine has individual pump head , has Harvey roller pumps with facility for tubing to be used adjustable from 1/4 " to 5/8" through 3/8" and 1/2 " by easily changeable mechanism.
7. Individual pump head should have display in digital - the total infusion in liters and delivery time the flow rate in LPM and in RPM
8. Each pump should have easy mechanism for occlusions system for different thickness of tube available in the market , 1/32" to 3/32 "
9. We provided hand crank facility as critical safety feature hand crank loading from top for fastest access.
10. Four temperature displays for patient monitoring and for Cardioplega monitoring with digital display in Celsius should be available.

2. ACT Machine (Activate clotting time Machine)

Number Of Channels	Single Channel
Measuring System	Photometric
Optical Measurement	Photodiode
Cuvette Volume	150 micro liter
Number of Cuvettes	10 + 1 Test tube holder
Temperature	37 degree C
Timer	2 channels for programming incubation time
Light Source	LED
Memory	35 tests
Power	50 Watts
Voltage	115 - 230 V
Frequency	50 - 60 Hz
Dimensions	300 x 215 x 150 mm
Weight	3 kg

3. Paediatric Cardiac Surgery Set

Operating Scissors (Round Type)	S/S Str/11.5cm
IRIS-Fine Scissors (Round Type)	S/S Str/9.5cm
Spring Scissors (Triangular)	S/S Str/5*0.1mm/8.5cm
IRIS Dissecting Forceps-Large	Cvd, 0.8mm Tips, 10cm
Dressing Forceps	Str, 1.8mm Tips, 9cm
HARTMAN Mosquito Forceps	Str, 1.0mm Tips, 10cm
HARTMAN Mosquito Forceps	Cvd, 1.0mm Tips, 10cm
PGA Sutures w/Needle	o1/2/4×10/90cm/5-0 (50/Box
Sutures w/Needle	∆3/8/2.5×7/30cm/6-0 (50/Box)
STEVENS Hooks, 1 Angled Tooth	(5mm long), 12.5cm
3×3 Teeth Retractors-Blunt	4.5cm
OLSEN-HEGAR Needle Holders with Scissors	Str, 12cm
SS Micro Clamps	Str/L*W 4*0.75mm/13mm
Clip Applicator for R31005- and R31006-Clamps	14cm
Spinal Cord Hook	Tip Dia. 3mm/12cm
Instrument Storage Portfolio	32*22cm

4. Paediatric and Infant Laryngoscope

LARYNGOSCOPE ADULT AND PEDIATRIC

- Should supply 4 different size (1,2,3,4) standard blades and one handle for adult and pediatric separately and one short stubby handle
- Should be stainless Steel matt finished.
- Should provide curved blades for both adult and pediatric.
- An extra-large blade should be supplied along with each scope.
- Should be provided with battery
- Should provide spare bulb – 6 nos.

LARYNGOSCOPE NEONATAL

- Should supply 2 different size (Miller 1 and Miller 2) standard blades and one handle.
- Should be stainless steel matt finished.
- Should provide straight blades - 2Nos each
- Should be provided with battery
- Should provide spare bulb – 6 nos

5. Heart Catheterization simulator

6. Electro Cautery Unit

S. NO	Equipment
1	**Unit should have microprocessor-controlled tissue feedback technology with LCD color touch screen, min 4" screen size.**
2	Unit should have pure sinusoidal output waveform in HF (within 350Khz-490 Khz for all modes) power output in cut and bipolar modes.
3	It should adjust power level automatically depending on tissue type. Tissue sensing frequency 4000/ times per second or higher
4	Self-illuminated accessory socket & blinking of light to indicate activation in selected accessories.
5	It should complete self-testing during power on.
6	Unit should have on screen review of error code & diagnostics
7	Unit should deliver TWO Coagulation output with same power at a time with independent control
8	It should accept dual area patient return electrode. Should give Green Indication if dual area patient plate applied to patient & Red indication with alarm tone if the patient plate is not applied.
9	**It should accept Disposable and as well as Reusable Patient Plate.**
10	It should have RANDOMIZED spray coagulation for larger area coverage.
11	Unit should have separate Bipolar Cut and Coag mode with independent footswitch.
12	It should be upgradeable for Argon delivery module.
13	It should have at least THIRTY USER SETTABLE programs for different surgical procedures.
14	**Unit should be useful for underwater procedures.**
15	It should have Alarm facility after completion of bipolar coagulation.
16	Unit should have adjustable delay activation in Auto-Bipolar.
17	Unit should have time out function for automatic stop the HF output if prolong unintended activation. (Optional)
18	Power Should change 1to 40 by step of 1W, 40 to 100 by step of 5W & 100 to max power by step of 10 W for fast setting of generator.
19	Power and Modes should be adjustable from sterile field with the help of monopolar pencil electrode buttons.
20	Unit should have tissue feedback, pulsed interval-controlled ENDO CUT function.
21	The unit should have natural cooling with heat Sink exposed on rear side for better natural cooling.
22	Unit should operate from 90 V to 270 V without using external stabilizer.

23	It should have auto switching between monopolar and bipolar functions.
24	**It should have separate and isolated sockets for Monopolar and Bipolar.**
25	Unit should have demo mode facility.
26	Both Monopolar and Bipolar modes should be operated using a toggle function double paddle footswitch.
27	It should have following different modes for Monopolar Cutting: LOW CUT
28	**PURE CUT:400Watt at 300 ohms**
29	BLEND CUT:250Watt at 300 ohms ENDO CUT:400Watt at 300 ohms
30	It should have following different modes for Monopolar Coagulation:SOFT:150Watt at 500 ohms
31	SWIFT:120Watt at 500 ohms FULGURATE:120Watt at 500 ohms SPRAY:120Watt at 500 ohms
32	It should have following different modes for Bipolar Cutting: BIPOLAR CUT : 100Watt at 100 ohms
33	**MACRO:100Watt at 100 ohms**
34	It should have following different modes for Bipolar Coagulation: MICRO : 100Watt at 100 ohms
35	STANDARD:100Watt at 100 ohms MACRO:100Watt at 100 ohms
36	It should be supplied with following accessories: -
37	Patient return electrode: -3 No.
38	Cable for return electrode: -3 No.
39	Reusable Hand switching pencil-3 No.
40	Reusable Foot switching pencil: -1 No.
41	Bipolar forceps 20cm Straight 1mm Tip: -1 No.
42	Cable for bipolar forceps: - 1 No.
43	Toggle Function Two Paddle Foot switch: -2 No.
44	Universal adaptor: -1 No.
45	Set of Electrode (Angled, Ball and Needle):-1No.
46	It should be European CE (by a 4-digit notified body) Certified/ BIS / USFDA.
47	It should compliant to safety standards as per IEC-60601-1 -1, IEC60601-1-2, IEC60601-2-2. Should be supported with Type test Report for the quoted model which should be from a NABL accredited test lab or any international testing lab of repute.

7. Washer and Disinfector

Sr.No.	TECHNICAL SPECIFICATIONS
1	The washer disinfector shall be suitable for cleaning and disinfection of surgical instruments/goods. The process shall include pre wash, detergent wash and hot water disinfection, rinse and drying cycles.
2	· The unit shall be suitable for electrical operation and would be complete with water circulation pump, necessary valves & fittings.
3	· It should be microprocessor based so as to ensure correct program sequence and irregularities or deviations which are displayed immediately.
4	· Chamber Capacity: Chamber Volume should be 300 to 350 L carrying 10 Nos of standard DIN trays. The chamber and circulation piping should be made of S.S. 316L quality with electro polished washed surfaces. The chamber edges should not have the pockets & folds so as to avoid bacterial growth. The wash chamber should also be fitted with bright light for clear visibility of the washing process. Chamber dimension should suit the capacity.
5	· Washer should have following features:

6	· For shortest possible filling and draining phases, higher capacity quick opening valves should be used so that short total process time is achieved. The design should focus on saving the environment through reduced consumptions of all utilities. The water consumption should not be more than 125L per cycle.
7	· Cleansable spray arms should be located at the top and bottom of the chamber.
8	· Wash carts should be equipped with cleansable spray arms between each shelf so as to facilitate water to reach all the surfaces which needs to be cleaned.
9	· Injection wash carts should be automatically connected to water and drying air in order to clean and dry the inside of the tubular instrument.
10	· The drying air should be pre-heated.
11	· The washer should be equipped with independent temperature monitoring and validation test port.
12	· Data interface RS232 should be available.
13	· All electrical components should be easily accessible for easy service - ergonomic design.
14	· Washer should have a built in self-cleaning debris filter.
15	· Double door should be made of toughened glass for see through & should facilitate the loading process.
16	· The washer should have 2 dosing pumps with provision for 2 more in addition (detergent, alkaline & lubrication) for process chemicals, instrument lubricants/ enzymatic cleaners
17	· The washer should perform: Pre-rinses with cold water.
18	Main washes with hot water (60C) and detergent.
19	Final rinse with water (55C) d) Disinfection with hot water (85C)
20	Unit to have LCD display and operating console to have membrane key pad for
21	durability.
22	· Unit should feature safety measures such as: Automatic door lock.
23	Automatic temperature regulation. Electronic adjustment of water level. The unit should also have an interface as standard for an optional batch printer. The unit should have storage capacity upto 20 programs.
24	The washer disinfector shall be supplied with universal rack, 5 level racks for instrument tray, full size instrument tray as well as stop valves, anti-suction device and plastic water trap. The necessary quantity of DIN trays should be provided as standard supply for functional purpose. Should ensure essential washing accessories.
25	· Manufacturer should be ISO 13485:2003/ EN ISO15883/ISO9001

8. Sterlizer Dryer

1	Machine: Gas sterilizer
2	Typ: ETO sterilizer
3	Sterilizing Temperature: Minimum: As per user setting Maximum: 55 0
4	Design standard as per
5	Certifications: ISO 9001.205, ISO 13485:2016
6	Chamber Size: 300x300x1200 mm
7	Volume: 3.5 to 4 cubic feet
8	Doors: SS 304 Door with Wing nut secure lock
9	Material of Construction: : Chamber: SS 304, Non-Contact Parts: SS 304, Insulation: 50 mm

	thick Mineral Wool Piping: SS 304, Door: SS 304
10	Door Sealant: High Grade Silicon Gasket
11	Finish: Internal: Mirror External: Matt
12	The equipment ias smooth finish and Is manufactured without any sharp edges or crevices

9. Sealer

Sr.No.	TECHNICAL SPECIFICATIONS
1	Rotary heat
2	sealers should provide validated sealing (as per DIN 58953T7 with manufacturing certificate) of sterilization bags and clear-view pouches
3	(paper/plastic laminate). These through feed-type sealers should be microprocessor-controlled for highest capacity and ease of operation. The rotary heat sealer should give documentation of process parameters via an integrated printer and could be integrated with documentation system. There should be a provision of serial interface for PC (RS 232). The ergonomically design should be tilted forward for increased user convenience and space- saving installation. The sealer housing should be powder-coated and the control panel is of the flat-membrane type, for easy cleaning.
4	It should be operationally simple. When a bag is fed into one side of the machine, the machine should start automatically or by pushing a button, moving the bag through the machine, and applying pressure and heat to form a perfect seal. The warm-up time should not exceed 30 seconds, and the feed speed should be approx. 10 m/min. The temperature should be adjustable from 50–200°C with a tolerance of 1% of the set value. It should be regulated by a heating element that is highly sensitive to temperature fluctuations, assuring even temperature and perfect seals. It should offer a number of additional features, including:
5	· automatic start-up
6	· reverse feed function in case an instrument accidentally enters the sealing area
7	· energy-saving stand-by mode
8	· pre-set temperatures
9	· re-settable counter function
10	Rotary heat sealers come with a port and cable for connection of the sealer to a PC and printer, enabling monitoring and documentation of the entire process.
11	Should have a protection mechanism against overheating and start prevention at temperature deviations outside +/- 5° C tolerance. Rotary heat sealer should be CE-marked. Please provide specifications, features and details of parameters like heating time (sec), Width of seal (mm), speed (m/min), Temperature settings (°C), seal-edge (mm), automatic start of drive-belt, accessories like external label printer with connection cable and paper guide, choice of English language and pressure control, automatic temperature reduction function and re-settable counter etc. of the model offered in the quotation. The unit should be supplied with support made of S.S. during through-feed in the sealer.

10. Plasma Machine For Sterilization

S. No	Specification
	Dimension (W x H x D): 550 mm X 570 mm X 735 mm (apx) - Weight: 100-150 kg
	Chamber - Shape: Cylindrical - Material: SS304-- Volume: 50L-60L
	Cycle time: 28-58 min.
	I/O ports - 6.4" TFT touch monitor (Resolution 640 x 480) - Audible alarm & voice information system - Built-in thermal printer and 100/10 Mbps Ethernet
	Power supply - Voltage: 220-240 VAC, 50/60 Hz - Power consumption: 3.5 kW
	Operation conditions - Temperature: 18 – 35 ? (64.4 - 95 ?) - Relative humidity: 10- 85% (non-condensing)
	Should be 6.4" TFT touch screen
	Up to 14 cycles with one 80ml sterilant bottle (Surface Mode)
	Should be Automatic drain system
	Should be Built-in wheels for easy mobility
	Should be Built-in dot printer
	Should be Self–test function
	Should be Audible alarm & voice information system
	Electronic record management (PC transfer optional)
	Windows 7 Embedded and 100/10 Mbps Ethernet
	4 Modes – Surface / ENDO / Standard / Advance
	Chamber Temperature – 53?~55?

11. ABG Machine

- Fully automatic analyzer, liquid based calibration system technology.
- Both Fully Automatic Calibration and manual calibration should be there.
- The fast and reliable analysis test result will be ready in 90-100 seconds after sample aspiration.
- Analyzer is light weight and should be provided with separate UPS for backup to run few samples.
- Storage-Up to 5000 results.
- Minimal maintenance required
- Sample Volume for Test analysis- 200 µl.
- System having multiples levels of operator access for security features.
- System having integrated barcode scanning or external barcode to eliminate the manual entry.
- System having 3USB ports, having inbuilt thermal printer and LAN for Data management, Availability Operator ID and Patient ID exists in data Storage.
- Multi-Level of operator accesses.
- Test menu include: Multi parameters come in one cartridge ,including blood gases, electrolytes, Hematocrit, lactate of measured parameters and calculated parameters of cH+, HCO3-(P), HCO3-std, BE(ecf), BE(B), ctCO2, So2, Ca++(7.4), AnGap, tHb, pO2(A-a), pO2(a/A), RI, pO2/FIO2, RI.
- Display: 7-inch color LCD display.
- 2USB and LAN connection
- Power Supply: 240 VAC, 50Hz.
- Battery: Suitable Backup UPS.
- Operation temperature: 12◦c to 28◦c
- Relative Humidity: 25%-80% (Non – Condensing)
- Barometric Pressure: 450-800mmHg
- System having the following parameters: Sodium , Potassium, Ionized Calcium, Hematocrit, Lactate, Glucose
- pH, pO2,pCO2, Na, K ,Ca, Cl, Lac .
- Should have supply stand.

12. OT Table

1. Hydraulic Operating Tables are simple tables for performing surgical procedures and it works without electrical power.
2. Operational Requirements OT Table is required for general surgery and shall have X-Ray translucent tops.
3. Four section table top with divided foot section
4. Table top should be constructed from a high-pressure laminate to permit x-ray penetration and fluoroscopy
5. all table positioning, i.e., height, back section, lateral tilt, trendelen burg, and anti-trendelenburg, except foot and head section should be operated hydraulically
6. Should have a manual position selector, whose location should be interchangeable between foot and head end
7. The casings on the frame and centre supporting column should be made of hygienic stainless steel
8. Mattress should be radio lucent and suitable for fluoroscopy
9. Measurements :(all dimensions are approximated to +/- 10 % variations)

a. Height: 730-1040 mm
b. Side tilt: + 15 degrees
c. Back section adjustment: - 15 degrees to 70 degrees
d. Foot section adjustment: - 90 to 0 degree, detachable
e. Trendelenburg: 25 degree
f. Anti trendelenburg: 25degree
g. Head section adjustment: -40 to -30 degree & detachable
h. Maximum width: 555mm
i. Length: 1950 mm

10. Tabletop should be completely detachable and compatible with transfer trolley System Configuration Accessories, spares and consumables Accessories should include,

a. Padded arm rest with straps - pair with damps
b. Anaesthesia screen with clamps
c. Side supports: pair with clamps
d. Shoulder supports: pair with clamps
e. Knee crutches: pair with damps
f. X-ray cassette tray
g. Kidney bridge
h. SS bowl with clamps
i. Infusion rod with clamp .

11. USFDA/European CE (Issued by Notified body) / ISO (NABCB Accredited) approved model should be offered.

13. OT Light (Cold light)

1. Should be a Surgical Light unit incorporating the latest LED technology shadowless operating light field with the following specifications.
2. Should have high-performance LEDs with a lifetime of more than 40,000 hours.
3. Should be a Single dome & follow's.

a. LUX intensity 1,40,000 Lux or above.
b. Light Field diameter shall be above 20 cm or better
c. Colour temperature should be between 3600 to 5000 degree K
d. Colourrenderingindexshouldnotbelessthan95
e. Depth of illumination should not be less than 100 cm.
f. Illumination adjustment 30% to 100%

g. The light dome shall be compatible for laminar airflow.
4. 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.
5. The LEDs must be suitable for long-term maintenance and ease of replacement.
6. Temperature rise at the surgeon's head level should be less than 2 degreesC.
7. Should have a control panel for light focusing adjustment fixed on the dome or arms.
8. Should supply autoclavable handles 3Nos for each dome.
9. The intensity of light should be uniform during the surgery.
10. Minimum spring arm stroke of 500mm and minimum action radius of the complete arm shall be1500mm or more.
11. Unit should function with 200-240Vac, 50Hz input power supply.
12. Should have a 330-degree rotation for dome and Arm.
13. USFDA / European CE (Issued by Notified body) approved model should be offered.

14.Multi Parameter Cardiac Patient Monitor With IBP & Capnograph and with built printer

S NO	Equipment
1	**The patient monitor should have features suitable for all patient categories, i.e. Neonate, Pediatrics& Adult patients.**
2	Patient Monitor should be at least 15 inch TFT Touch screen with resolution: 1366 x 768 (or better)
3	Monitor Should have the facility of displaying at least 10 waveforms along with related numerical parameters on single screen.
4	Monitor Should have facility to monitor ECG, SpO2, NIBP, Respiration, temperature, 2IBP and ETCO2.
5	Monitor should be upgradable to BIS, NMT, CO and AGM
6	Monitor should have facility to review last 120 hours or more graphical and numerical trends.
7	Should have facility to store and display full disclosure of at least three waveforms of last 72 hours as standard feature.
8	Should have LAN: 1 standard RJ45 port; WLAN:IEEE 802.11b/g/n ; 2 USB connectors and 1HDMI connector
9	**ECG should be 5/12 lead. HR range: 15 - 350 bpm**
10	ECG waveform:2 channels,7 channels, 12 channels Display sensitivity(wave gain): 1.25mm/mV(×0.125), 2.5mm/mV (×0.25), 5mm/mV (×0.5), 10mm/mV (×1.0), 20mm/mV (×2.0), 40mm/mV (×4.0), Auto. SPO2 should have Pleth Variability Index (PVI) ,low perfusion 0.2%
11	Monitor Should be onsite upgradable to Masimo Mainstream ETCO2 module
12	Monitor should have handle for hanging on Autoloading Stretcher and Hospital bed.
13	Monitor Should have Drug Dose Calculation, Hemodynamic Calculation, Ventilation Calculation, Oxygenation Calculation and Renal Calculation function
14	Monitor should with MEWS (Modified Early Warning Score)
15	Monitor should have ST & Arrhythmia analysis (26 types)
16	Monitor should have WIFI connection function to CMS system.
17	Monitor should Support Bluetooth connecting function,
18	Monitor should be CE/BIS & ISO 9001:2015 approved.
19	Each monitor to be supplied with following:

20	A.5 Lead ECG electrode cable with connection cord - 01 No
21	B.SPO2 Connection cable with Pediatric/Adult Probe - 01 No
22	C.NIBP Air hose – 01 No
23	D.Adult Cuff – 1 No, Pediatric Cuff – 1 No
24	E.Temp Probe Skin – 01 No
25	F.IBP Cable – 02 No with 5 Disposable Transducer
26	G.ETCO2 Accessories – 1 Set
27	H.Monitor Stand – 1 No

15.Defirillator

S. No.	Technical Specifications
1	Technology of defebrillator Biphasic technology
2	Modes in defebrillator Automated external defebrillation and manual
3	Maximum energy selection in joules - 200
4	Capability of ECG Monitoring ECG leads , multi function electrodes , paddles
5	Number of wave-forms 2
6	Patient compatibility to
7	defebrillate Adult, pediatric patients Type of display TFT
8	Size of display screen in inch 8.4
9	Provision to display ECG
10	wave form on bright high resolution display Yes
11	Facility to have synchronized cardio version Yes
12	Ability to lter out CPR artefacts to see organised rhythms without
13	interrupting chest compression Yes
14	Provision of within built rechargeable battery Yes
15	Battery backup to deliver number of shocks at maximum energy 100
16	Provision of user selectable alarm settings
17	The machine should work on mains as well as on rechargeable battery
18	Ability to select energy rechargeable battery from paddles
19	Ability to charge and discharge through paddles as well as from main unit
20	Charging time for maximum energy in seconds 7
21	Mechanism of self test of unit
22	Automatic and manual Unit should do self test with facility to give printout of defebrillator testing report and also have code ready indicator on unit
23	Defebrillator 9 / Cardiooverter
24	Provision of stainless steel trolley with lockable castors No
25	Suitability of defebrillator for transport on ground (ambulance) Yes
26	Defebrillator suitable to use at high altitudes and in air craft No
27	Defebrillator should display selected energy Yes
28	Defebrillator should display selected energy Yes
29	Suitability of defebrillator for transport on ground (ambulance) Yes
30	Availaibility of suitable protection for dust and water
31	Accessories

32	Li-ion Battery 1
33	ECG cable 1
34	NIBP pediatric cuff with hose Not provided
35	NIBP adult cuff with hose Not provided
36	External defebrillator paddles (pediatric in built in adult) 1
37	Multi FunctionDefebrillator& Monitoring pads/gel sheets 5
38	Recorder paper roll 10

16.Syringe Pump

- The pump should be able to use and automatically sense 5m1, 10m1, 20m1. 30m1 & 50 ml Syringes Sizes or More
- Should have Color 4.0 inch TFT Color touch screen for distant viewing
- Should have short programming sequence that allows quick and simple programming.
- Should have Post Occlusion Bolus reduction.
- Should have the capability to program, Volume to Be Infused,
- Syringe Infusion Pump should have following Alarm Information (audible and visible) - VTBI Infused, Pressure high, Battery empty, KVO finished, Syringe empty, Check syringe, System error, VTBI near end, Syringe near empty, Battery near empty, no battery inserted, Reminder alarm, Standby time expired, No power supply.
- Should be capable of programming infusion rate within the range of 0.1ml/hr to 2000 ml/hr and the infusion rate can he adjusted in increments of 0.1 ml/hr.
- Should have a mechanical accuracy of 2% or better
- Should have at least 4 occlusion pressure settings.
- Should be front loading having Protective cover for syringe holder with rating of IP24 (Water Proof).
- Should be able to store up to 20 Drug names.
- Should have minimum adjustable alarm volume levels.
- Should have dynamic pressure display on the pump.
- Should have Facility of KVO.
- Should have the capability to stack 4 pumps,
- Should have at least 12 hours of battery life @5ml/hr flow rate.
- Should have Independent battery Cabin, Easy to remove for maintenance without any tools, no need to assemble the pump shell to destroy the waterproof glue.
- Syringe Infusion Pump should have Infusion Modes -ml/h (Include Rate Mode, Time Mode), Body weight mode.
- Should have history log of 5000 or more events.
- Should be USFDA/European CE certified model.
- Should be light Weight.
- Should be Confirm to Electric safety IEC EN-60601
- Manufacturer should have ISO certification for quality standards
- Should operate independently on both mains and battery
- Demonstration shall be arranged by the firm, as and when required by the authorities.

17. Infusion Pump

- Should have Color 4.0 inch TFT Color touch screen for distant viewing
- Flow rate range 1 to 2000 ml/h in normal mode (1 ml/h increments) up to 100 ml/h in micro-infusion mode (0.1 ml/h increments).
- Flow rate accuracy + 5% with recommended sets.

- Volume range 1 to 9999 ml in normal mode (1 ml increments). a. to 999.9 ml in micro-infusion mode (0.1 ml increments).
- Should have up and down pressure sensors.
- Should have 7 infusion modes + Micro mode + Relay mode.
- Weight :- Upto 2.5 Kg
- Should have at least 9 hours of battery life.
- Should have rating of IP24 (Water Proof).
- Should support blood transfusion.
- Should have at least 12 occlusion pressure settings.
- Should have the capability to stack 4 pumps,
- Should have Alarms for VTBI Infused, Pressure high, Check upstream, Battery empty, KVO finished, Door Open, Air bubble, VTBI near end, Battery near empty, Reminder alarm, No power supply, Drop sensor connection, System error, etc.
- Should have facility to Change flow rate without stopping infusion.
- Should have Anti Bolus function to Automatic drop line pressure to reduce bolus impact after occlusion.
- Should have DPS (Dynamic Pressure System) facility forReal-time pressure display in graphically and numerically,
- Should have history log of 5000 or more events.
- Should be USFDA/European CE certified model.
- Should be light Weight.
- Should be Confirm to Electric safety IEC EN-60601
- Manufacturer should have ISO certification for quality standards
- Should operate independently on both mains and battery
- Demonstration shall be arranged by the firm, as and when required by the authorities.

18.Docking Station Infusion System

Features
Docking Station
A smart infusion manager at bedside
One power cord
Integration of infusion system for any combination from 2 to 12 pumps.
Mounting on IV Pole, mounting on beds, put on desk, with horizontal and vertical fixing clamp, it is flexible usage in clinical treatment.

19. Ventilator Machine with humidifer support for neonatal and Paediatric

● General Features:
● ● It should support invasive and non invasive ventilation.
● ● It should have Pressure and Flow waveforms with trends facility.
● ● It should have altitude compensation.
● ● It should have FiO2 Measurement.
● ● It should have following modes: a. Volume Controlled and Pressure Controlled modes of Ventilation, b. SIMV (Pressure controlled, and volume controlled) with pressure support, c. Spontaneous modes like CPAP / PEEP, d. Inverse Ratio ventilation, e. Advanced/Intelligent mode like Closed loop (Adaptive ventilation mode or equivalent mode), f. Airway Pressure Release ventilation, g. Non-invasive ventilation with leak compensation
● ● It should have patient history storage capability.
● ● It should have minimum 4hours battery back up.

● ● It should have 10” or more touch screen as well as knob operation.
● ● It should be shock resistant.
● ● Warranty one year.
● ● Technical Specification:
● ● Parameters : Set Parameters / Measured Parameters / Alarm Status / I:E Ratio.
● ● Waveforms : Pressure- Time, Flow- Time, Volume- Time.
● ● Loops : Pressure- Volume, Flow – volume, Pressure-Flow.
● ● Tidal Volume : 2-2000ml.
● ● Inspiratory Pressure : 5-80cmH2O(Peep+Pins<100cmH2O).
● ● Pressure Support : 0-60cmH2O(Peep+PSV<100cmH2O).
● ● PEEP/CPAP : 0-50cmH2O.
● ● Respiratory Rate : 2-120bpm.
● ● Inspiratory Time : 0.1-9.9 sec.
● ● I:E Ratio : 1:9.9-2.5:1
● ● Rise Time should be there
● ● Apnea Time : 2-60 sec.
● ● Apnea Backup type : PACV,VACV Mode
● ● Trend : 72hrs
● ● Ventilator must have reusable/ autoclavable high sensitive flow sensor based on magnetic disturbance technology for use with adult, pediatrics and neonatal patient.
● ● Same flow sensor & expiratory valve must be capable to be used for neonatal to adult patients.
● ● Exhalation trigger Sensitivity : 10-80% of Peak flow in exhalation.
● ● Should have US FDA or European CE with four digit notified body number certificate and certificate to be submitted
● ● Inspiratory Pressure Limit : 5-80cmH2O
● ● Trigger Sensitivity : Pressure Trigger : OFF, (-)0.5 to (-)20 cmH2O
● ● Flow Trigger : OFF, 0.5 to 20lpm.
● ● FiO2% : 21% - 100%.
● ● Ideal body weight
● ● Altitude Volume Compensation : (-) 100-5000(m).
● ● Alarms :
● ● Airway Pressure
● ● Tidal Volume
● ● Minute Volume
● ● Respiratory rate
● ● Apnea
● ● O2%
● ● Airway Leak
● ● Circuit Open
● ● Battery Indicator
● ● O2 Supply Pressure Failure
● ● Turbine failure

20. ECG MACHINE 12 CHANNEL

S.No.	Technical Specification
1	Confirmity to standards European CE Certification European CE/EU/BIS/FDA
2	Confirmity to safety of electromagnetic compatibility IEC-60601-1-2:2001 (or equivalent BIS) Confirmity to safety standard IS - 13450 / IEC60601-1-2005
3	Performance Parameters
4	Purpose ECG machine is primary equipment to record ECG signal with interpretation which is required for recording and analyzing the wave forms with software

5	Operating modes of ECG Machine Automatic, Manual and Rhythm ECG machine should have ECG lead annotation facility Yes
6	Leads which is in ECG machine should be able to acquire simultaneously and interpret them 12
7	Number of channels 12
8	ECG machine should acquire lead ECG for both adult and paediatric patients Yes
9	The ECG machine should have facility to show lead fail indication Yes
10	The ECG machine should have facility to show lead reversal indication Yes
11	The ECG machine should have facility to show the impedance to quality check of connection Yes
12	Acquisition time for ECG Machine in sec 10 sec Digital sampling rate for Pacemaker spike detection 40000 s/sec/channel
13	Recording of digital sampling for pacemaker 1000 s/sec/channel
14	ECG machine should have real time colour back lit display of ECG wave forms with signal qualify indication for each lead Yes
15	ECG machine should have frequency filters Artifact, AC and low and high pass frequency filters
16	Number of ECGs which can be store in ECG Machine 151-200
17	ECG machine should havefull screen preview of ECG report for quality assessment checks prior to print Yes
18	Type of inbuilt screen LCD
19	Display resolution of ECG machine in pixels 640 x 480
20	ECG machine should have interpretation facility of the amplitudes, duration and morphologies of ECG wave forms and associated rhythm for adult and pediatric patient Yes
21	ECG machine should have alphanumeric keyboard for patient data entry Hard keys Size of printing paper A4
22	Resolution of digital array printer using thermal sensitive paper in ECG Machine in dpi 200 dpi x 500 dpi on 25 mm/sec speed ECG machine report format
23	Report formats of 3x4; 6x2, Rhythm for up to selected leads, 12 lead extended measurement, 1 minute of continuous wave form data for 1 selected lead
24	Provision of battery Yes
25	Battery capacity 50 ECG or 1 hour of continous rhythm recording on single charge
26	Connectivity to ECG Machine LAN
27	Storage on external portable memories USB support
28	The individual patient lead should be change without replacing the whole patient cable assembly Yes
29	Noise level in dba 25
30	Weight of ECG Machine in Kg 2.89
31	Frequency in Hz 300
32	Availability of latest interpretation software Yes

21. BABY INCUBATOR

1. Incubator is ISO 13485 & CE certified.
2. Power Source : 230V A, $\pm$ 10 %, 50 Hz.
3. Three modes of Warming Air, Skin & Manual.
4. Easy read alarm message on display.
5. high grade acrylic front loading canopy & four port hole.
6. Acrylic baby tray & foam mattress.

7. Facility to take x-rays.
8. Mounted on heavy duty castor wheels for easy mobility.
9. Skin High & Low Alarms.
10. Air High & Low Alarms.
11. Skin > 38 Alarm.
12. Air > 39 Alarm.
13. Skin / Air Sensor Failure Alarm.
14. Safety Cutoff Alarm.
15. Power failure Alarm

22. PORTABLE SUCTION MACHINE

- Suction machine cabinet made of mild steel with electrostatically powder coated mounted on 4 rubber castor
- Suction machine has stainless steel top
- Suction machine fitter with reusable filter jars 2* 1.5 litres.
- Power of the suction machine - 230v - 50Hz
- Glass jars fitted with synthetic rubber lids with over flow safety device
- Vacuum - 700mm Hg + - 10% which is controlled by knob.
- Suction machine having oil immersed motorised noiseless vacuum
- Vacuum gauge has 63mm diameter graduated in mm Hg

23. Paediatric Bed with Mattress and Pillow

- Should be Frame work made of rectangular/Square M.S tube.
- Should have Top made of welded wire mesh.
- Should have Tubular head & foot bows of unequal height.
- Should have Location for Four I.V Rod.
- Should have Overall size: 198(L)*90(W)*60(H) cm.
- Should be Finish: Epoxy powder coated.

24. Bed Side Cabinet

- Machine pressed CRCA steel sheets enclosed on three sides
- Having one locker and drawer with a side table
- Fitted with superimposed stainless steel top and three side railings
- Mild steel tubular legs with 50 mm Dia wheel with breaks
- Finish pre-treated and epoxy powder coated
- One year warranty

25. Medicine Trolley

- Frame work made from Polished SS Steel Material.
- Flat top of SS &at least 6inch deep removable bucket at the bottom
- Should have multiple long drawers to hold drug strips made of polished SS sheet with corrosion free telescopic channels (At least 30 to 40 separate drawers – in about six to eight rows).
- The front of the each drawer should be half covered on which removable medicine label can be pasted and upper half open to see the contents inside.
- Mounted on four 100mm castors (Front Two with brake locking arrangement).
- Approx. Size: 750(L) x 450(W) x 850(H) mm.
- All the Stainless Steel should be seamless conforming to 304 grade/ 16 gauge and polished finished.
- Manufacturer should be ISO and/or 9000:1 and/or 14000:1 and/or 18000:1 and/or BIFMA certified.

26. CRASH CART

- Overall size shall be more than 900mm L x 500mm W x 1500 mm H.
- The crash cart should be made of SS grade tabular frame and SS sheet grade.
- Should have push handles.
- Should have SS Shelves, Six color removable bins & two polystyrene lockable storage units with three drawers each.
- Facility to carry any Monitors or Defibrillators, etc. On open areas at top and bottom shelves.
- Should have Stainless rods fixed with.
- Two accessory mounting brackets to mount accessories anywhere without the need of pre-threaded holes.
- Crash cart should be mounted on 12.5cms dia non-rusting swiveling castor wheels, two having locking arrangement.
- It should be robustness in quality.
- Device is produced by ISO certified manufacturer
- One Year Warranty

27. ER STRETCHER

- Size : 2000mm (L) x 660mm (W) x 830mm (H)
- Main frame : 32mm OD x 1.6 mm Thick M.S E.R.W
- Supporting frame : 25mm OD x 1.6 mm Thick M.S E.R.W
- Castor wheels with 200 mm dia.
- locking castor wheels
- Stretcher top frame 25mm OD x 1.6 mm Thick M.S E.R.W
- Sheet should be made of CRCA of 1.2mm thickness
- Provision for IV pole.
- Max. Load of 500Kg
- Finish: powder coated with antimicrobial epoxy polyester powder.
- Should supply with Stainless Steel stretcher and removable mattress (washable)
- Should be an ISO certified manufacturer.

28. Procedure Trolley

Material: Stainless Steel
Dimensions: 75 X 45 X 90m cm
Stainless steal top and bottom shelves with 3 side railing on top shelf

29. Over Bed Table

- Over bed table should be made of rectangular frame work mounted on 5cm caster
- Size should be 30'' x 16'' laminated/Membrane
- Pressed top adjustable by Pneumatic gasspring
- Finish should be pre-treated and epoxy powder coated body
- Table top cab be raised or lowered in infinite position between approx. 28'' –45''
- Table top can be raised with slightest upward pressure
- It should be ISO certified Manufacturer

30. Sphygmomanometer Mobile type with Paediatric BP Cuff

Mercury Type
With pediatric cuffs

31. Stethoscope Paediatric

- Dual head chest piece.
- A high quality 48mm diameter chest piece with a floating diaphragm for excellent acoustics.
- Contains internal binaural springs.
- Plastic non-chill sleeves for patient comfort.
- Supplied with a spare diaphragm and spare ear tips.
- Supplied in a foam lined box.

32. Pharmacy Refrigerator Glass Door

Applications	laboratory, for vaccines, medical
Configuration	cabinet
Number of doors	2-door,
Door type	with glass door
Defrost mode	automatic defrost
Capacity	656 l, 1,500 l (173.3 gal)
Temperature range	Min.: 2 °C (35.6 °F) Max.: 8 °C (46.4 °F)
Height	1,885 mm, 1,965 mm (74.2 in)
Width	1,220 mm, 1,800 mm (48 in)
Depth	642 mm, 775 mm (25 in)
Weight	189 kg, 319 kg (416.7 lb)\

33. Patient Warmer (Child)

- Warmer is ISO 13485 & CE certified
- Power Source : 230V A, $\pm$ 10 %, %0 Hz.
- Light Source : 5 watt led lamps to examine babies.
- Heater Capacity : 650 watts.
- Power Consumption : 850 watts at 100% heater power.
- Heating Element : Ceramic Heater.
- Skin and Air temperature Displayed on red bright led Display.
- Separate Set temperature Display For Air & Skin modes.
- Three modes of Warming Air, Skin & Manual.
- Programmable Heater output & warming time in manual mode.
- Easy read alarm message on display.
- Stop Watch.
- Reminder Timer.
- Apgar Timer.
- Convenient working levels with 6 mm thick high grade acrylic collapsible side support accessible from all sides.
- Acrylic baby tray with head up / down facility & foam mattress.
- Swivel warmer source for ease during procedures & while taking x-rays.
- Instrument tray and I.V. pole facility.
- Mounted on heavy duty castor wheels for easy mobility.
- Fixed bassinet cradle in stainless steel with undersurface tray.
- Skin High & Low Alarms.
- Air High & Low Alarms.
- Skin > 38 Alarm.
- Air > 39 Alarm.
- Skin / Air Sensor Failure Alarm.
- Safety Cutoff Alarm.
- Power failure Alarm

34. Trolley for dirty linen and waste

Trolley made of stainless steel.
Size: 950 × 500 × 900 mm.
3 S.S. shelves with guard rails.
Supplied with 1 bag for dirty linen.
4 swivel castors.

35. Clean Linen Trolly

DIMENSIONS (MM)	680x550x1150 H
FEATURES	Door with a 270° opening
Key lock	Top railing also acts as a push handle
WHEELS	Ø 125 mm, 2 with brake

36. Nebulizer for child and neonates

- Method of nebulization - Piston Driven power 240v 50Hz.
- Max Pressure (Compressor -30 psi or better.
- Flow range - 0 -14 litres / min or better.
- Particle size - 0.5 to 5 microns or better.
- Capacity - 5 ml or better.
- Mask combatable - Paediatric , Neonatal

37. Dressing Sets

Material: Stainless Steel
Re-useable:
Grade: Premium OR
Latex : Latex Free
Sterility: Non-Sterile
Tests Performed: Boil Test, Performance Test, Shape Test
Packing: Individually Packed

38. Dressing Trolley

- Should be made of 304 grade steel with thickness of .5 mm
- Should have suitable lid to cover the tray.
- Approximate size 12 x 10 inches.
- Should be ISO certified Manufacturer

39. Blood Warmer

S. No	Specification	
1	Delivers blood and intravenous fluid to the patient at normothermic temperature at wide range of flow rates from gravity flow rates to 5000 ml/hr.	
2	Warming device must be used with disposable triple lumen tubing that eliminates patient line cool down of infusate.	
3	Single step programming of warmer	
4	Displays set point of recirculating reservoir temperature 41deg. Celsius.	
5	Meets AABB standards for blood warming	

6	Disposables must be latex free	
7	Built in safety audio and visual alarms for Check disposables, Add recirculating solution and Over Temperature	
8	Built in over temperature test button and alarm test button	
9	US-FDA approved /CE Marked and ISO Certified	
10	Company Owned Service Centre in India	
11	Price for consumables should be quoted separately.	
12	Warranty one year.	
I	Standard Compliance	Guidelines
	Product Safety	EN 60601-1, UL 2601-1
	EMC	EN 60501-1-2, FCC 47 CFR Part 15, Class B
	Enclosure Protection	IEC 60529 lP Code: lPxl
	Fluid Warmers	ASTM F2L72-O2
II	Physical	Dimensions
	Height, Overall	24.1 cm (9.5 inches)
	Width, Overall	21.0 cm (8.3 inches)
	Depth, Overall	17.8 cm (7.0 inches)
	Weight, Dry	3.5 Kg (7.6 lbs)
	Weight, Wet (with recirculating solution)	5.0 Kg (11.0 lbs)
	Weight, Shipping	3.6 Kg (7.9s lbs)
	Recirculating Solution Capacity	1.4 L (0.37 gallons)
	Maximum Height on l.V. Pole	107 cm (42 inches)
III	Environmental	Temperature Humidity [%]
	Operation	10°C to 45°C10 to 95
	Transportation	Minus 1.8° to 60°C 5 to 90
	Storage	Minus 1.8° to 60°C 5 to 90
IV	Thermal	Temperature
	Temperature Set Point	41.9°C ± 0.1°C
	Over Temperature Set Point	43.1°C
V	MAINS Power lnput:	
	230V	230VAC, 50/60 Hz, 1.5 Amps
VI	MAINS Auxiliary Supply Power Output:	
	230V	230VAC, 50/60 Hz, 0.6 Amps
VII	Electrical	Type
	Protection Against Electrical Shock	Class 1 Equipment, Type BF
	Mode of Operatlon	Continuous
	Type of Current	Alternating
	lngress Protection Rating	IPX1
VIII	Performance	

	Recirculating Solution Temperature	Recirculating solution temperature reaches 37°C from ambient in about 4 minutes
	Normothermic Flow Rates	At gravity flow rates to 5,000 ml per hour

40. Instrument Trolley

- SS tubular frame work made of 25.4 mm OD x18G verticals mounted on 125mm dia. Non rusting castors two with brakes
- Castors to be made of high grade non floor staining synthetic materials with integrated thread guards. Wheel centres having precision ball bearing to run smoothly
- Two stainless steel shelves of 20G thickness with protective railings on 3 sides. The railings shall be made of dia. 10mm SS rod
- Only 304 grade SS should be used for trolley frame work and burr free SS shelves
- SS parts finished with Matt polish and must be supplied in SKD condition
- All process parameters to be as per documented IMS procedures for quality assurance must be compliant to ISO 9001:2008
- Manufacturer should be ISO and/or 9000:1 and/or 14000:1 and/or 18000:1 and/or BIFMA certified

41. Cardiac Monitor Clinical

S.No	Specification
1	**Parameters** – ECG, heart rate, respiratory rate, SpO2, NIBP, Dual IBP (optional),EtCO2 (optional), Dual Temperature.
2	The equipment should come with all standard accessories required to run all parameters.
3	Waveform display: at least 10 channels at a time, user selectable.
4	Digital display: ECG, Heart rate, respiratory rate, oxygen saturation, temperature,Blood Pressure (systolic, diastolic, mean).
5	Should be Modular and capable of being connected to a central station.
6	System should be compatible with HIS.
7	System should be US FDA & European CE approved for quality assurance.
8	Wall-mountable and pivotable.
9	Medical grade, TFT Flat screen, slim size, at least 15” display.
10	Flexible display mode for various monitoring needs.
11	Viewing angle at least 90o
12	Bigger font of numeric should also be available.
13	Should have standby mode for temporary leaving of patients.
14	Adjustable contrast and brightness.
15	Should have facility to record data for individual patients identifiable by their name and hospital registration number
	The following modules complete with their accessories for each monitor:
16	Heart rate
17	ECG
18	Respiration
19	Oxygen saturation
20	Temperature: 2 ports
21	Non-invasive Blood pressure

22	Invasive blood pressure 2 ports (optional)
23	BP Cuffs Adult
24	Equipment should be European CE 4 digit notified body Certified and USFDA Approved

42. Immunoassay analyser

S.No		Specification
	Technical characteristics (specific to this type of device)	· Fully Automated Immunodiagnostic system based on enhanced chemiluminescence technology or Electro Chemiluminescence technology or chemiluminescence
		in magnetic immunoassay (CMIA) technology.
		· The instrument should provide comprehensive process check that performs, monitors, and verifies each step
		throughput sample and assay processing.
		· Continuous loading capacity of 30 or more samples.
		· Throughput of atleast 60 test per hour or more
		· The system should be able to read multiple barcode types or QR code.
		· It should have capability to do the assay in continuous, random, batch & stat mode.
		· Serum, plasma, urine, whole blood (assay-dependent) type of samples handling system.
2.1		· System to use latest mixing probe technology to mix the samples and reagents to have complete uniformity
		with clot detection facility.
		· It should have the facility for clot detection, bubble detection, check viscosity, sample level and short samples to ensure accuracy preventing erroneous
		results due to improper samples.
		· It should have an ability to do on board dilution and reflex dilution for high and abnormal samples.
		· It should have reusable probe or the disposable tips system to avoid reagent carryover.
		· Should have onboard liquid waste container (4 litre), direct drain optional.
		· Should be a microprocessor-controlled device with digital display.
		· 2-point re-calibration facility, switched mode power
		supply, Automated instrument calibration, User friendly and intelligent software
		· System should have software that automatically generates LJ charts for QC and have appropriate alerts.
		· Provision for bi-directional LIS interface should be available.
		· Provision for Bar Code/QR code reading should be available.
		· The equipment should have in-built digital display unit and PC interface facility.
		· External USB storage available
2.2	User's interface	Digital display
	Software and/ or standard of communication	Built - in/Automatic/compatible, windows based with data processing management system with complete back up of data base for calibration, control, patient
2.3	(wherever required)	sample results on daily basis.

3. PHYSICAL CHARACTERISTICS		
3.1	**Dimensions(metric)**	NA
3.2	**Weight (lbs., kg)**	NA
3.3	**Noise (in dBA)**	NA
3.4	**Heat dissipation**	System should have on-board cooling facility to maintain the temperature of the reagents.
3.5	**Mobility, portability**	Stationary lab Installation
4. ENERGY SOURCE (electricity, UPS, solar, gas, water, CO2 ….)		
4.1	**Power requirements**	**Power Supply:** 220VAC +/- 10%, 50 Hz.
4.2	**Battery operated**	Online UPS with minimum 30 min back up
4.3	**Protection**	Internal electrical protection.
4.4	**Power consumption**	To be specified by vendor
5. ACCESSORIES, SPARE PARTS, CONSUMABLES		
	Accessories, (mandatory, standard, optional);	External Printer to take printout of patient results and QC reports.
	Spare parts (main ones);	Online UPS with minimum 30 min backup
5.1	**Consumables/reagents (open, closed system)**	
6. ENVIRONMENTAL AND DEPARTMENTAL CONSIDERATIONS		
	Atmosphere/Ambience (air conditioning,	Operating Condition: Capable of operating continuously in ambient temperature of 15 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances.
6.1	**humidity, dust …)**	
	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
6.2		a single use/disposable cover.
7. STANDARDS AND SAFETY		
	Certificates (pre-market, sanitary,); Performance and safety standards (specific to the device type); Local and/or	1. Should be BIS approved.
	international	2. Should conform USFDA/ European CE, in case of non-availability of BIS Standards.
7.1		3. Should conform to ISO 13485 quality standards.
		4. Should conform to IEC 60601-1-General requirements of Electrical Safety Standards
8. TRAINING AND INSTALLATION		
	Pre- installation requirements:	As specified by manufacturer and compatible electric accessories as per standard Indian set-up.
8.1	**nature, values, quality, tolerance**	
	Requirements for sign-off	1. Supplier to perform installation, safety and operation checks before handover.
8.2		2. Lab In-Charge to affirm completion of installation
	Training of staff	Satisfactory Training of users in operation and basic

8.3	**(medical, paramedical, technicians)**	maintenance shall be provided on installation.
9. WARRANTY AND MAINTENANCE		
9.1	**Warranty**	3 years, including all spares and calibration.
10. DOCUMENTATION		
	Operating manuals, set manuals, other manuals	Should provide 2 sets (hard copy and soft copy) of:
		1. User, technical and maintenance manuals should 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;
10.1		5. Certificate of calibration and inspection,
		6. Satisfactory certificate for any existing installation from government hospital.
10.2	**Other accompanying**	List of essential spares and accessories, with their part
	documents	number and cost;
11. Notes		
	Service Support Contact details (Hierarchy Wise; including a toll	Contact details of manufacturer, supplier and local service agent to be provided;
	free/landline number)	
11.1		
11.2	**Recommendations or warnings**	Any warning sign should be adequately displayed.

43. Central Patient Monitoring System

· It should be software based technology, to connect all the multiparameter monitor via lan network and able view all the parameter in single place.
· It should have 19" screen size or more
· It should have battery backup for at least 30 minutes

44. Electric Power Stablizer

Capacity	Upto 10 KVA
Power	Upto 10 KVA
Application	Domestic
Input Voltage	70-270 Volts/ 90-270 Volts/ 130-280 Volts/ 150-280 Volts/ 170-260 volts/ 160-440 Volts
Phase	Single Phase
Control Type	Digital controller
Output Voltage	230 V +/- 9%
Cooling Type	Air Cooled
Efficiency	As Per IS Standard
Frequency	47-50 hz
Warranty	1 Years
Mounting	Wall Mounting
Display Type	Digital/ LED
Response Time	Instantaneous
Ambient Temp.	55 degree Celsius (Max)

Driven Type	Automatic
Automatic Grade	Automatic
Input Window	70-270 Volts/ 90-270 Volts/ 130-280 Volts/ 150-280 Volts/ 170-260 voilts/ 160-440 Voilts
Type	Relay Operated
Usage/Application	Domestic/ Industrial
Working Range	70-270 Volts/ 90-270 Volts/ 130-280 Volts/ 150-280 Volts/ 170-260 voilts/ 160-440 Voilts

45. Ceiling Pendent System for Operation Theater Room

Single Arm Multi movement Surgeon pendant with 800+800 mm long arm with 1000mm long console, One Single Shelf, 2 adjusted shelf having weight carrying capacity of 120Kg, six electrical sockets 5/15 ampere & Data Point, medical rails, one fix tray and 5 nos. of gas outlets

46. Pendent System for ICU

Functional Column:	1000mm, 1200mm
Bridge Span:	1500mm
Arm Length:	600mm, 800mm
Gas Terminal Units:	Oxygen-2, Air 4 bar-1, Vacuum-1
Electrical Units:	8 sockets with switches,
Shelves	4 no.s
Communication system	RJ 45

47. Pendant (BHU) for Ordinary Beds

Functional Column:	1000mm, 1200mm
Bridge Span:	1500mm
Arm Length:	600mm, 800mm
Gas Terminal Units:	Oxygen-1
Electrical Units:	4 sockets with switches,
Shelves	2 no.s
Communication system	RJ 45