ACU/PS/BGSMCH/Tender/ 135 /2023-24 Date:29.12.2023

TENDER NOTIFICATION

Adichunchanagiri University is inviting **closed tenders** for the supply of Hospital furniture's to BGS Medical College & Hospital, Nagarur, from the competitive firms.

1	Name of the work	Supply of hospital Instruments and Consumables to BGS Medical College & Hospital, Nagarur (BGSMCH)
2	Tender documents available for download	29-12-2023 to 03-01-2024 up to 6:00 PM

Note: Kindly bring quotes in 2 bid formats (Technical and Financial bids sealed separately inside the main envelope for each individual item or list of items) to be addressed to **"The Registrar, Adichunchanagiri University, B.G. Nagara -571448, Nagamangala (T), Mandya(D)" personally on 3rd January 2024 to "Adichunchanagiri Ayurvedic Medical college building, 1st floor,** BGS Vijnatham South campus, No. 112, Dasanapura Hobli, Bengaluru North taluk, Bengaluru Urban district.

- Adichunchanagiri University reserves all the rights to accept, reject, incorporate changes and re-tender without giving any reasons.
- The sealed cover must be duly superscripted with the words "ACU/AHRC/Closed Tendr/Ref no" Or tender details for which company is quoting.
- Attach Brochure, Certification of the product, Bank/account details, PAN, GSTIN and 02 Years of ITR declaration inside the envelope and company contact details with email ID on the main envelope cover for further correspondence.
- Quote for **unit price** with applicable GST (display GST in extra column) and **Equipments warranty** must be **minimum 03 years**.

Jai Sri Gurudev

Adichunchanagiri University
BGS Medical College & Hospital, Nagarur
List of Equipment for Tender

Sl. No.	Equipment	Quantity
1	Major OT Table	total 10
a)	General Surgery	3
b)	OBG	2
c)	Orthopaedics	2
d)	ENT	2
e)	OPH	2
2	OT light pedestal	6
3	Cautery Machine for Major OT	5
4	ENT OPD Unit	3
5	CR System	1
6	Anaesthesia Workstation - High end	1
7	Suction apparatus	10
8	Spot light	10
9	PFT	1
10	BP apparatus Dimond Mercury type	50
11	Flash Autoclave	1
12	Torniquet	2
13	Drill	1
14	ENT Endoscopy	1
15	ENT Microscope	1
16	Vacuum Delivery Unit	1
17	Pure tone Audiometry	1
18	Impudence Audiometry	1
19	OAE	1
20	Labour Cot	6
21	A scan	1
22	Autorefractometer	1
23	Indirect Ophthalmoscope	1
24	Direct Ophthalmoscope	2
25	Plaster cutter	2
26	EEG	1
27	Bio feedback	1
28	NST	3
29	ILR refrigerator	1
30	U V Phototherapy (DERMA)	1
31	Baby Incubator	2

32	Boyle apparatus	1
	CSSD Equipment's	
33	Double Door Autoclave	1
34	ETO	1
35	Ultrasonic Cleaner	1
36	Sealing Machine	1
37	Vertical Autoclave	1
	Laundry Machines	
38	Washer Extractor	1
39	Tumble Dryer	1
40	Flat Work Ironer	1
	Equipment's	
41	Neonatal Ventilator	
42	Patient monitor	1
43	Ultrasound machine	2

2)Portable OT LED Light
It should be flexible and mobile LED's
The design should be seamlessly sealed
The light head should be made up of lightweight aluminum
The LED light should have followingcharacteristics: a). Central illumination (lx): minimum 1lakh Lux b). Color temperature (K):4,500 c). Field size D10 (mm):105-115 d). Color rendering index Ra:90-95 e). Power consumption(W):15 f). No. of LED's Minimum 3 g). LED Life span (h):>50000 h). It should have CE Certification i)Break wheel
3.Cautery Machine Major OT
1. Microcontroller based isolated Electrosurgical Generator having both Monopolar and Bipolar outputs designed for all surgical procedures. 2. Smart generator should be able to monitor changes in tissue impedance continuously and adjusts power. 3. Monopolar outputs should have three cutting modes: a. Low cut for delicate tissue or Laparoscopic cases having maximum power of 300w b. Pure cut for clean, precise cut in general surgery having maximum power of 200W c. Blend mode for cutting with homeostasis having maximum power of 200W d. All cut modes should be able to adjust output power depending on tissue

	density by less than 15% or 5W, whichever is greater
1 a)	**Major OT Table for General Surgery**
	1. Universal Operating table electro hydraulic table for surgical discipline. **2. Dimension: A** • Table top length 2080 mm minimum width 500mm without side rails height 750mm to 1100 mm or equivalent. • The table shall be electro hydraulic operated with integrated color battery and battery charger. • The table shall be provided with a cable connected hand control with battery charge indicator. • There should be an additional operation panel with integrated colored display with battery indicator on the column of the table. • There should be provided with additional manual foot control device for the adjustment of height, lateral tilt and Trendelenburg/reverse Trendelenburg functions. **Central braking system** • Five sectional radio translucent table top shall have detachable head-rest back-section, pelvic/seat-section, detachable split leg section operated on gas spring for up/down. • There should have provision for the guide rails fixed under the table top for X-ray cassettes. It should have antibacterial, antistatic and fluid proof material with high density and soft slow recovery foam so as to prevent pressure points developing during long duration surgeries. • Height- 750mm to 1100mm Trendelenburg -30deg to +30 deg Lateral tilt up to 20deg • Backrest adjustment - 40deg to +70deg Flex/Reflex position by hand control Return to O position by hand control **Accessories** a. Arm board with cushion and clamp -2nos. b. Anesthesia screen I shaped with clamp -1 no. c. Body strap – 1 no. d. Gopel knee crutches – pair. e. Radial setting clamp – 2 no's f. Side Support g. Infusion holder with clamp h. Foot rest – 1 no i. Cassette inserts for X-ray. j. Shoulder Support The table should be so adjustable that there shall be no obstruction to the feet of the surgeon and should allow generous leg room for the surgical team. The rear of the table top shall also be free from any obstructions TUV and DIN EN ISO certified.
b)	**OT Table for OBG**
	3. Universal Operating table electro hydraulic table for surgical discipline.

	4. Dimension: A • Table top length 2080 mm minimum width 500mm without side rails height 750mm to 1100 mm. • The table shall be electro hydraulic operated with integrated color battery and battery charger. • The table shall be provided with a cable connected hand control with battery chargeindicator. • There should be an additional operation panel with integrated colored display with battery indicator on the column of the table. • There should be provided with additional manual foot control device for the adjustment of height, lateral tilt and Trendelenburg/reverse Trendelenburg functions. Central braking system • Five sectional radio translucent table top shall have detachable head-rest back-section, pelvic/seat-section, detachable split leg section operated on gas spring for up/down. • There should have provision for the guide rails fixed under the table top for X-ray cassettes. It should have antibacterial, antistatic and fluid proof material with high density and soft slow recovery foam so as to prevent pressure points developing during long duration surgeries. • Height- 750mm to 1100mm Trendelenburg -30deg to +30 deg Lateral tilt up to 20deg • Backrest adjustment - 40deg to +70deg Flex/Reflex position by hand control Return to O position by hand control OBG Accessories a. Arm board with cushion and clamp -2nos. b. Anesthesia screen I shaped with clamp -1 no. c. Body strap – 1 no. d. Gopel knee crutches – pair. e. Radial setting clamp – 2 no's f. Side Support g. Infusion holder with clamp h. Foot rest – 1 no i. Cassette insert for X-ray. j. Shoulder Support k. Lithtomy parts The table should be so adjustable that there shall be no obstruction to the feet of the surgeon and should allow generous leg room for the surgical team. The rear of the table top shall also be free from any obstructions TUV and DIN EN ISO certified.
c)	**Major OT Table for Orthopedics**
	5. Universal Operating table electro hydraulic table for surgical discipline. 6. Dimension: A • Table top length 2080 mm minimum width 500mm without side rails height 750mm to 1100 mm or equivalent. • The table shall be electro hydraulic operated with integrated color battery

and battery charger.

- The table shall be provided with a cable connected hand control with battery charge indicator.
- There should be an additional operation panel with integrated colored display with battery indicator on the column of the table.
- There should be provided with additional manual foot control device for the adjustment of height, lateral tilt and Trendelenburg/reverse Trendelenburg functions.

Central breaking system

- Five sectional radio translucent table top shall have detachable head-rest back-section, pelvic/seat-section, detachable split leg section operated on gas spring for up/down.
- There should have provision for the guide rails fixed under the table top for X-ray cassettes. It should have antibacterial, antistatic and fluid proof material with high density and soft slow recovery foam so as to prevent pressure points developing during long duration surgeries.
- Height- 750mm to 1100mm Trendelenburg -30deg to +30 deg Lateral tilt up to 20deg.
- Backrest adjustment - 40deg to +70deg Flex/Reflex position by hand control Return to O position by hand control

Orthopedics accessories:

Extension Device with following accessories Pair of Adapters, Countertraction, Post for femur, Telescopic bar long, Telescopic bar short Screw, tension device, Foot Plate support, Side rail Extension, Supporting bars Radial Setting clam, Transport Cart

1. Foot Plate (Pair)
2. Counter traction post for femur
3. Rotation & tilting clamp
4. Traction Stirrup clamp
5. Counter traction Post tibia
6. Condyle Fixation
7. Universal support for positioning lower Leg
8. Pad for disc operations
9. Fixture for body support
10. Lateral Support
11. Shoulder support
12. Back buttocks support
13. Pubis-sacrum-sternum support

15. Allen Arm/Hand table

Radiolucent

The rear of the table top shall also be free from any obstructions ISO certified.

e) Ophthalmology Operation Theatre tables:

1. Extra low height: Generally, all the O T tables start at a height of 32" Tables starts with a low height of 21"
2. Table top slide: A very convenient feature offering very large imaging area during spine surgeries & makes repositioning the patient also very convenient.
3. Dual Control Console: Apart from the Remote control we can also operate all

the controls through another parallel console on the table in case of emergencies
4. Horseshoe head rest on ball joint for high flexibility
5. Surgeons arm rests with adjustable height for comfort
6. Zero Auto Levelling
7. Non-Hydraulic leak proof construction
8. Affordable Indian prices.
9. Future upgradability.

4. It should have three Coag Modes with maximum power of 120W
    a. Desiccate mode for low voltage contact coagulation suitable for Laparoscopic and delicate tissue work
    b. Fulgurate mode for efficient non-contact coagulation in most applications
    c. Spray mode should have randomized spray effect of varying amplitude and frequency for coagulating large tissue areas with minimum depth of necrosis
5. It should have three bipolar modes with maximum power of 70W
    a. Precise mode has fine control of desiccation in delicate tissue.
    b. Standard mode for applications at low voltage to prevent sparking
    c. Macro mode for applications on tissue with high resistance
6. It should have patient plate monitoring facility and should give audiovisual alarm and deactivate output if contact between patient and patient plate is not proper to eliminate the risk of patient burns.
7. The unit should have two hands switching and two Footswitch Monopolar outputs and one hand switching and foot switching bipolar output.
8. It should have membrane keyboard for power settings.
9. The unit should have individual digital display of power for Bipolar, Monopolar cut and Monopolar Coag
10. The unit should not have RF Leakage current more than 150mA.
11. Accessories: -
    a. Monopolar Footswitch: - 02 No
    b. Bipolar Footswitch: - 01 No
    c. Reusable hand switching Pencil: - 02 Nos
    d. Reusable Patient Plate: - 02nos
    e. Bipolar Forceps: - 01No
    f. Forceps Cord: - 02Nos
    g. Universal Adaptor: - 01No
12. Two years of comprehensive warranty including bulbs should be provided along with technical support.
13. It should follow international Safety Standard and requirement with CE Certification or USFDA Approval.
14. Users list with the addresses and contact nos. to be provided.
15. Demonstration Compulsory.
16. Operating and service manual should be supplied.

Tropicalization: operating Temp. upto 40Deg. C;

4.ENT OPD UNIT

1) Built-in Twin Halogen/LED Light Source 150w with Brightness Control.
2) Built-in Suction Machine with Pressure Gauge (Twin Jars)
3) Slim LED X-Ray View Box.
4) Thermal Cautery.
5) Anti Fog Device/Mirror Warmer.
6) LED Pen Light for Endoscope Illumination
7) X2 Stainless Steel Instruments Trays with Cover.
8) X2 Medicine Bottles.
9) X2 Sliding Drawers for Storage
10) Head Light Band Hanger.
11) X2 Endoscope Holders.
12) Otoscope Holder.
13) Waste Container/Cotton Gauze Box.

5.CR SYSTEM (COMPUTED RADIOGRAPHY SYSTEM)

1. S.N. Description of function
2. Radiography system to replace conventional Film/Screen based X-Ray Processing techniques with Photostimulable Phosphor Plate technology based Digital technology.
3. S.N. Operational requirements
4. The system shall be able to record X-Ray images on Imaging Plates (IP) The IP shall be housed in CR Cassettes that have a technology to store demographic data.
5. Operationally and functionally equivalent to and better than the present film-based system
6. Convert these images from the IP into digital values and transfer these values to an image evaluation computer with predefined Image Processing Parameters. Should record Patient Identification data on the on the image.
7. Maintain and manage data bank of all patient and image data.
8. Retrieve and reproduce accurate, high-quality high-resolution images from stored data without loss of image quality.
9. Present CR images on a workstation as well as on hard copies. Show full image in the X-Ray room for preview purposes.
10. Read and Write in CD/DVD for data Storage and review. Appropriate technology to provide uniform and thick slice thickness.
11. S.N. Technical Specifications
12. Image Reader will have the following:
13. Cassette Mechanism to Load and Unload IP.
14. Scanning mechanism to read, erase and process the images from the imaging plate. (IP)
15. Including auto routing newly acquired images to desired preview monitor. IP processing rate> 50 plates/hr.
16. Panel for indicating online status of the CR Reader in case of machine malfunction.

17. Emergency Mode for accepting exposed cassettes without patient demographics for casualty trauma workflow requirements.
18. Capability of retrieving at least 10 scanned images and quick check of the exam
19. data and the image of at least the last four cassettes scanned at the X-Ray room. Verification of the connectivity status of configured image destination.
20. Spatial resolution of digital image 6 pixels/mm or more.
21. Scanning resolution for all the IP Plates should be specified in the quote. Should enable 12 bit and above images
22. S.N. System Configuration Accessories, spares and consumables.
23. IP/Cassette's size- qty
24. 14x 17 =2
25. 10x 12 =2
26. 8 x 10 =2
27. Image Reader system 01
28. CR Workstation 01
29. RIS Interface 01
30. Remote ID and Preview station. 01
31. Achieving System 01
32. Dry View Imaging Printer/Dry Imager/LASER Printer
33. (Film based)
34. Black and white laser jet printer for reporting
35. X-Ray Generator compatibility.
36. CR Workstation will have the following.:
37. Capable of Achieving and printing selected images to a standard DICOM destination in DICOM 3.0 format.
38. Storing images in the local disk for predefined period. Mechanism for accepting new images when the local disc is full. Sorting of patient image based on name, date, exam etc.
39. Advance Processing Software
40. Using predefined parameters or user defined and stored image parameters. Correcting typographical in-patient demographic module, in case RIS connection was down and manual data entry was done.
41. Capability of changing R/L, Flipping, Rotating, Zooming, Collimating, annotating the incoming image.
42. Multi image and slide formats. Capability of storing in CD/DVD.
43. Software for Advance Image processing, applications, display and quality monitoring.
44. Connectivity and compatibility to communicate to RIS/HIS and DICOM Compatible devices such as MR/CT/DSA Work station,
45. Should provide for HL-7 compatible interface.
46. Remote ID and Preview station. Should have the following: Auto detection of cassette.
47. Mechanism of writing /reading data using suitable technology HIS/RIS/DICOM Compatibility.
48. Preview scanned images on predefined preview terminal. Retrieving capacity of last 10 patient ID on the terminal. Identification of overexposure on preview module.
49. Mechanism for user release in case of auto routing images.to

predefined DICOM destinations

50. System should be able to support minimum 5 review terminals Preview display time < 45 sec.
51. Dry View Imaging Printer/Dry Imager/LASER Printer (film based) with the following:
52. Print Images from CR workstation. In DICOM 3 format.
53. Mechanism to print images to 8x10 and 10x12, 11x14, 14x17 film sizes with minimum 2 universal tray online)
54. Resolution> 500 DPI.
55. Multiple Image and slide printing capability

1. The workstation should have a built-in anesthesia ventilator with pressure, volume controlled and pediatric modes.
2. It should be electronically controlled, pneumatically operated.
3. Should provide with adult and pediatric reusable and autoclavable light weight tubing breathing circuit.
4. Should be able to deliver a tidal volume from 100ml to 1200ml.
5. Should have a battery backup for 30 minutes with low battery alarm and over charge protection.
6. Should have monitoring facility of airway pressure, tidal volume, frequency and oxygen concentration.
7. Should have display of at least 6 inches for set parameters and graphical display for measured parameters
8. Should have automatic self-test and leak test.
9. Anesthesia machine should be with 3 gas supply system (O2, N2O, Air) with pipeline connections and reserve cylinder yokes.
10. Gas cylinder (pin indexed) yokes with sturdy clamping bars for easy handling.
11. Pin index yokes for connecting cylinders each for O2, N2O and air through pipeline.
12. Regulator two each for O2 and N2O. N2O should be activated only with oxygen on flow.
13. Should have pressure gauge for all gas inlets including central lines mounted on the front panel for easy visibility
14. Should have audible alarm for O2 failure
15. N2O supply should cut off if O2 supply fails. (Anti-hypoxic guard).
16. Oxygen and Nitrous oxide should be linked either mechanically or pneumatically to ensure a minimum of 25% oxygen delivery at all times to avoid delivery of hypoxic mixture.
17. Should have dual cascade type flow meter for O2 and N2O and air calibrated in multiple scale.
18. The anesthesia machine should have a master control ON/OFF switch.
19. Provision to mount any two selectable vaporizer with interlocking facility to allow use of only one vaporizer at a time.
20. Iso-flurane vaporizer of newer generation having specifications equivalent to tech 7/8 type to be pr
21. non-return cum pressure relief valve when pressure exceeds 120cmof H2O.
22. Should have only one common gas outlet.
23. Should provide with oxygen flush switch.
24. Circle absorber with corrugated reusable breathing circuit for closed circuit system

with each unit. It should be autoclavable. It should be with ventilator selector switch

and circle on/off switch.

25.Should have low flow anesthesia technique.

26.Should have a facility to connect the scavenging system.

27.Should have safety certificate from a competent authority CE / FDA (US) / STQC

CB certificate / STQC S certificate or valid detailed electrical and functional safety test

report from ERTL. Copy of the certificate / test report shall be produced along with the technical bid.

28.Should have a provision for mounting monitors on top of the machine and with

drawers.

29.Paitent Monitor Spo2, NIBP, ECG, IBP, Temperature, ETCO2, AGM MONITOR

MAC values and NMT.

30.Should have fiber wheels and Foot brakes.

31.Standard bains circuit

32.Reservoir bag (2liters)

33.Connectors for bains circuit

34.Should be supplied with driver gas hoses with necessary attachments (colour coded).

35. Should work in 220-240Vac 50 Hz input power supply.

7.Suction machine

1	Should be designed for draining blood and other fragmetic secretions in operation room and emergency room in hospital.
2	Should be fitted with oil immersed noiseless motorized vacuum pump.
3	Cabinet made from stainless steel.
4	Two glass jars on the top of having minimum capacity of 2 Ltrs fitted with rubber air tight lids and overflow safety device.
5	Should be supplied with adequately long pressure tubing providing required pressure.
6	Should have vacuum control by knob.
7	Should be mounted on four caster wheels.
8	Should have motor of 1/4 HP capacity and power consumption not more than 250 Watts.
9	Should have vacuum at least between 100 mm Hg to at least 575 mm Hg (-75 kPa).
10	International standards: the unit should comply with international standards and should have CE or FDA marking.
11	Should perform yearly calibration and preventive maintenance (2 nos) during warranty & if entered into AMC (includes unlimited breakdown calls)/CMC (which will include spare replacement, consumable spares, breakdown calls)/Testing & measuring equipment used should be traceable to SI units through National/international standards (As per NABH norms).
12	Please specify list & cost of consumables/consumable Spares(i.e.spares need to be replaced at regular intervals, maybe quarterly/half yearly/yearly such as annual maintenance kit etc.) if any.
13	Please specify pre installation requirements (electrical, HVAC etc.)
14	Demo of the quoted model, will be required if so desired by the user, after the opening of the technical bid and prior to opening of financial bid. This is for technical evaluation.
15	Local Service Support: Should have local office and service support/service engineer for attending the breakdown calls.
16	Reponse Time: Should not be more than 12 hrs from lodging a breakdown complaint on toll free or by email.

8.SPOT LIGHT

1. Intensity45,000 Lux +/-10%
2. Size of Light Field125mm
3. Colour Temperature4500-5000K
4. Colour Rendering Index93 RA

5. LED Life>50,000 Hrs.
6. Number of LED14
7. Diameter of Light150mm
8. Brightness Control Touch
9. Power Supply220V/50HzAC
10. Color of LED

9.PFT Machine

Technical Specifications- for Spirometer (PFT Machine) –

1. Ultrasonic flow sensor for TOTAL infection control
2. Easy to Operate
3. Calibration free
4. Flow accuracy ± 5 % or 200 ml.
5. Flow range ±16 L/S
6. Volume accuracy ± 3 % or 50 ml.
7. Weight not more than 2 Kg
8. Runs from the USB port of any PC.
9. Meets and Exceeds ATS/ERS Criteria.
10. Bio calibration check feature.
11. Ready to use GDT interfacing possibility.
12. In-and expiratory real-time curve.
13. Should not influence of humidity, barometric pressure contamination.
14. Should be Auto QC.
15. Should be multilingual.
16. Sensor never ever in contact with sample.
20. Should be FDA approval.

10 B P Apparatus

1.Dimond mercury standard type

2.Pediatric bulb and Cuff extra -10 numbers

11.Flash Autoclave

1. Should be a table top autoclave for Dental and ophthalmic applications.
2. Two automatic programmes approx. at 2.2 bar at 134 degrees C and 1.1 bar at 121-degree C. The equipment should have automatic pressure control switch / automatic water control device to ensure that the equipment does not run dry.
3. Should have flash cycle for rapid sterilization and should have an option for liquid cycle.
4. Should have Air Pump for closed door drying.
5. Should have rapid warm up facility. Built in reservoir to store water required to produce steam, and used water separately, for easy decantation.
6. The system should be equipped with required safety features. The door should have double locking safety feature and should open only with atmospheric pressure in the chamber.
7. Should have automatic cut-off to prevent overheating and cut-off for insufficient water, the machine should not start without sufficient water.
8. Should have a minimum chamber capacity of 19 liters or above.
9. Should have pressure display and temperature display.
10. Unit should function with 200-240Vac, 50/60 Hz input power supply.
11. The system should comply with National quality certification or International standardsfor sterilization safety.
12. Following accessories should be supplied along with the equipment.
    - 1 set of 3 removable shelves – stainless steel.
    - 1 instrument basket – stainless steel.
    - 1 set of 2 Drum for sterilization – stainless steel.
    - 1 Roll of sterilization indicator.
    - 1 box paper sheet 100 nos crepe for sterilization packs.
    - 2 spare silicone gaskets.
    - 1 sets of spare fuses.
13. Equipment should be provided with a line cord (power cord) of acceptable durability, quality, length and current carrying capacity and should be compatible with Indian standard power socket.
14. Controls should be visible and clearly defined.
15. Labels and markings should be clear and visible.
16. Should have safety certificate from a competent authority CE / FDA

(US) / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL. Copy of the certificate / test report shall be produced along with the technical bid.

17. Should have air filters.

12. Tourniquet		
1.	Cuff Pressure Range	100 to 450 mmHg
2.	Pressure Regulation	1 to 10 mmHg.
3.	Online Setting	Increase and decrease in pressure settings in the range 1 to ± 10 mmHg.
4.	Timer	Range from 3 hours to 20 minutes
5.	Internal Least Count	20 minutes to 3 hours.
6.	Alarm	Guides audible alarm on timer reaching set value
7.	Quick Release	Pressure is released from the cuff without effecting the timer
8.	Memory	Pressure set in earlier session is stored and displayed when the machine is switched on again
9.	Power	230 V AC 50 Hz + 10% can work on generator and does not require external stabilizer.

11.	Digital Display	Digital display of set pressure and time elapsed
12.	Cuffs	2 sets of different sizes of five cuffs-washable and easy fitting (Paediatric, small, medium, big & large). Big & large cuffs are conical shape. Should be autoclavable.

13.	Should be provided with Dual Channeltourniquet where 2 cuffs can be connected independently.
14.	Safety Deflation mechanism.
15.	Technical support & required spares andconsumable for 8 years after warranty period is over duly supported by principal.
17.	**It should be CE certified (from Notified Body)/ USFDA approval.**
18.	Training to doctors, OT staff and all the users.
19.	Operating and detailed service manual should be provided.
20.	Separate metallic case to keep instrument and accessories and stand with basketshould be provided.
21.	Safety feature- Battery backup should be there for min. 4 to 6 hours.
22.	Power supply: 230V ±15%, 50Hz ± 3%
23.	Tropicalization: Operating Temp. : Upto 40°CStorage Temp.: Upto 60°C Relative Humidity: Upto 90% non-condensing

13.ENT Drill

1.Micromotors Drill for ENT is required for routine ENT surgery work.

2.Should be a high speed micromotor with noiseless and vibrationless operation

3.Demonstration of the system is a must

4.The system should meet all the numerical values given in the technical specifications within a tolerance of +/- 10 %.

5. Brushless Micro motor ensures smooth vibration free with rotation even at maximum speed of 40000 RPM.
6. High torque at all speeds

7.Due to high concentration of ball bearing stable grinding clinical work is possible without any vibration and noise.
Electronic control to ensure speedy start and attains high speed quickly

8.Micro–motor can be operated either by hand or foot control.
Variable speed control by hand. Reverse &forward rotation by hand switch on/off switch
9.Straight and contra angle hand piece (Autoclavable).

14.ENT ENDOSCOPY UNIT

1. Memory storage.
A. Should have Superior Quality High-Definition Vision and VIDEO, STILL storage 500gb hard disk and direct PRINTOUT facility directly from the Camera Control Unit, compatible with video scope.

B. The system should be through and through digital with image capturing in 16.9formatsin the camera head only for true Full HD image re production.
C. Camera function controllable in STERILE /UNSTERILE Area USB Printer connection (Plug & Play)

2. CAMERA CONTROL UNIT SINGLE CHIP CAMERA

a. 1 X Special RGB–Connecting Cable, Length180cm
b. 2 X Connecting cables for remote control of Video Printer
C.USBinterface2NOS

3. Keyboard set for patient information editing and camera control functions
FULLHD Camera Head
4. Inbuilt Electronic Fiber optic Filters
ImageSensor:3*1/3"
Signal to–Noise-ratio:60Db
Min.Sensitivity:1.3lux

5. CompatibleHD24" or26"Flat Screen Medical TFT Monitor
Aspect Ratio=16:10,Desktop/Mountable
Colour System: PAL/NTSC.ResolutionMax:1920X1200SDI, Composite, S-Video, RGB, DVI & VGA Inputs
Vertical/HorizontalViewingAngle:178

6. PICTURE IN PICTURE MODE
Brightness:300to500cd/m2.
Contrast:700to800:1Powersupply:100-240VAC,50/60Hz
Consisting of 24 Supply, Monitor Stand & Mains Cord.

7. LED LIGHT SOURCE AND LIGHT CABLE

A. Specifications:

High intensity LED light source with spare LED lamp

A. Special features:

- High degree of patient safety
- Easy to use
- Clear, adjacent displays for set value and actual value allow easy monitoring of
- Insufflations process
- Optical and acoustic warning signal
- Fully automatic, electronically controlled gas refill

10. Telescope 0 degree
11. Telescope 30 degree

15.ENT SURGICAL OPERATING MICROSCOPE

1. High quality surgical microscope of reputed international make.
2. Floor model, overall approx. dimension: 1730mmx 450/865mm, wheel base640X640mm or better.
3. Manually variable working distance from 200mm -415 mm (continuously variable) without changing the main objective lens internally.
4. Magnification 5 step manual changer in ration 1:6.
5. All the optical components should be apochromatic corrected for all three basic colors.
6. Straight binocular tube with f=170mm focal length.
7. 12.5x wide field push in magnetic eye pieces
8. Illumination system 12V, 100 W Halogen lamp fully automatic lamp changer with 12V 100 W or LED, back up lamp. 9. Spot illumination or full field illumination system
10. Should have lateral hand grips.
11. It should have circuit breaker.
12. All microscope and stand axes with friction brakes
13. For live display and recording, HD Video camera of reputed make along with original beam splitter & C-mount or integrated HD camera should be supplied along with the main unit. It should also be supplied with 32" LED TV.
14. It should have facility of stereo co-observer with straight tube.

15. All wire should be integrated in microscope.
16. It should have facility toupgradetolaser adaptability.
17. Itshould have comfortable hand gripswith removable sterilizable caps.
18. Demo ofmicroscope isrequired.
19. It should be European CE / FDA certified

16.VACUUM, DELIVERY SYSTEM

A. The foot switch operation allows the doctor to increase the pressure steadily without touching the machine
B. The required pressure (600 mm Hg) can be attained with in few Seconds and the Pressure will be maintained
C. The press release fixed above the bottle helps the doctor to release vacuum without touching the machine
D. Electrically operated and the power consumption is very low (40 watts only)
E. Maintenance free oil less pump with absolutely low noise (60 dB)
F. Air filter reduces environmental contamination
G. Compact and light weight cabinet made of ADS Plastic handle for easy carrying

17.PURE TONE AUDIOMETER

1. Should have wide and narrow band masking and speech band masking.
2. Should be supplied with HD-01 as standard and should accept both 8 and 10 ohms' headphones.
3. Tone decay test should be available along with pulse tone warble Tone & + 10dB facility.
4. Special Filter should be in Speech Mode (off / 2K / 4 K & 6 K).
5. Digital calibration should be calibrated from front panel with combination of Keys (no moving any part inside the audiometer).
6. Should be with USB port facility for computer adaptability to operate through computer. Software should be provided free of charge.
7. There should be socket for external battery input.
8. Input voltage: AC 230 Volts – 50 Hz / DC 12 Volts.
9. Pure Tone Frequencies: Air Conduction: 125 Hz to 8 KHz (Maximum 120 dB).
10. Speech: 100 dB.
11. Bone conduction: 250 Hz to 6 kHz (Maximum 70 dB).
12. Noise: Wide, Narrow & Speech Band.

13. Attenuator (masking) in steps of 5dB.
14. Masking Range 0 dB to 100 dB.
15. Weight: 1.5 kg nett. With bag 4 kg (Approx).
16. Dimensions in cm: 20 cm x 27 cm x 8.5 cm.
17. Compliant with ANSI S3.6 1989 standard.
18. Accessories and others: Audio Cups.
19. Supplier should submit Test Certificate for the instrument along with supply. Manufacturer firm should have their own service centre or authorized service centre in nearby Bengaluru, in order to attend breakdown calls IMMEDIATELY after intimation. Detailed address with contact no, mail ID etc of such service centre should be mentioned in the offer.

18.Impedance audiometer/Tympanometer

- Tympanometry in one hardware
- Table Top Model with Wall Mount Facility

Impedance Measuring System

- Probe tone:
- Frequency: 226 Hz pure tones; ±1%
- Level: 85 dB SPL (≈ 69 dB HL) ±1.5 dB

Air pressure:

- Control: Automatic.
- Indicator: Measured value is displayed on the graphical display.
- Range: -600 to +400 daPa. ±5%
- Pressure limitation: -750 daPa and +550 daPa.
- Pump speed: Automatic, Fast 300 daPa/s, Medium 200 daPa/s, Slow 100 daPa/s, Very slow 50 daPa/s.

Compliance:

- Range: 0.1 to 8.0 ml at 226 Hz probe tone (Ear volume: 0.1 to 8.0 ml) and 0.1 to 15 mmho at 678, 800 and 1000 Hz probe tone. All ±5%

Test types:

- Tympanometry : Automatic, where the start and stop pressure can be user- programmed in the setup function.
- Eustachian tube function 1 - Non perforated eardrum
- Eustachian tube function 2 - Perforated eardrum
- Reflex Test : Ipsilateral & Contralateral
- Reflex Decay

Reflex Functions

- Tone - Contra, Reflex: 250, 500, 1000, 2000, 3000, 4000, 6000, 8000 Hz, Wide

Band, High and Low pass.

- THD: Less than 5 until 110 dB, 5 % above 110 dB (supra-aural headphones), less than 5 % until 110 dB, 10 % above 110 dB (insert earphones or probe).
- Tone - Ipsi, Reflex: 500, 1000, 2000, 3000, 4000 Hz wide band, high and low pass.
- NB noise – Contra, Reflex : 250, 500, 1000, 2000, 3000, 4000, 6000, 8000 Hz
- NB noise – Ipsi, Reflex : 1000, 2000, 3000, 4000 Hz
- Stimulus duration: 750 ms
- Reflex Acceptance : Adjustable between 2 % and 6 %, or 0.05 – 0.15 ml change of ear canal volume.
- Intervals : Down to 1 dB step size.
- Intensity max : 90, 100, 120 dB HL.

Outputs:

- Contra Earphone: TDH39 earphone, DD45 earphone, CIR insert and/or EARtone 3A insert, IP30 for Reflex measurements.
- Ipsi Earphone: Probe earphone incorporated in the probe system for Reflex measurements.
- Probe connection : Connection of the electrical and air system to the probe.

19.OAE

Otoacoustic Emissions OAE and Auditory Brainstem Response ABR

- Screening Methods: Presence/Absence (OAE & ABR), Level (OAE), or Latency (ABR)
- Display: Pass/Refer/Noise
- Stimulus calibration
- On screen guidance
- Graphic display and control
- Reports: Simple or Detailed
- ABR tests: Using Comfort Cups or Probe
- Storage: Up to 250 patients
- Data Transfer: Infrared to computer or printer
- Wireless connectivity OAE Operating Specifications:
- Automatic probe fit and noise analysis
- Frequency Range: 3,000 Hz to 5,000 Hz, ±1%
- Level Measurement Accuracy: ± 1 dBSPL
- Dynamic Range parameters selected: 90 dB ABR Operating Specifications:
- Stimulus types: Click 90-100 µsec • ABR waveform capture and display
- History capture and archives for audit
- Stimulus Rate: 40 to 60 per second
- Stimulus Intensity: 0 to 100dB in 5dB steps
- Input Frequency Range: 30Hz to 3,000Hz
- Waveform latency Delay: ±0.4 msec
- Gain: 40-45 dB • Automated Impedance Testing 2 Battery:
- Power supply : 230 V +- 15%, 50HZ+- 3%
- Battery charge indicator • Operating life: Approximately 6 hrs
- Recharge time: Approximately 4hrs Alarms:

20.LABOUR COT.

1.1	Approximate Dimensions 72"L x 30"W x24"-32"H. or equivalent.
1.2	Stainless Steel Tubular Frame work mounted on swiveling castors
1.3	Stainless Steel top in three sections
1.4	Trendelenburg position adjustable.
1.5	Backrest Section adjustable on ratchet.
1.6	Leg end section can slide under the main section.
1.7	A pair of knee crutches which should be adjustable height
1.8	It should have detachable IV Stand – 2 Nos.
1.9	All part of the table should be made of Stainless Steel with rust free materials.
1.10	It should have side railing detachable.
1.11	It should have a pair of rubber padded stainless steel lithotomy rods with ankle straps and stainless-steel Bowl under "V" cut.
II. Standards, Safety and Training:	
2.1	Should be FDA or CE or BIS approved product, etc. .
III. Environmental factors:	
3.1	The unit shall be capable of operating continuously in ambient temperature of 10-40deg C and relative humidity of 15-90%
3.2	The unit shall be capable of being stored continuously in ambient temperature of 0 -50
3.3	C and relative humidity of 15-90%.
IV. Standards, Safety and Training:	
4.1	Should be FDA or CE or BIS approved product Etc.

21. A SCAN

1.Scan Mode: Direct Contact/immersion mode

2. Review A Scan with edit option at each stage.

3. Measurement: ACD, Lens thickness. Vitreous length & Axial Length'

4. Average AXL with standard deviation.

5. A-SC Transducer Probe Type: Solid State l0MHz fixation light.

6. Custom Adjustment of individual Zonal velocity (useful for silicone oil implanted eye)

7. Eye mode: Normal Phakic, Phakic Cataract, Dense Cataract, Aphakic, Pseudophakia & Custom defined for silicone oil implanted eye & other applications'

8. IOL Formulas: SRK-ll, SRK-T, Binkhorst-ll, Holladay, Hoffer-Q & Haigis'

9. Gain: Adjustable from 3OdB to 105dB.

10. Standard Accessory: Foot Switch (if available), Printer with 2 roll Printing Paper, AC Power Cord, US Probe, Preger Cell for immersion biometry & option for computer connectivity.

22 Autorefractometer

1) This equipment should be useful for finding out Automatic reading of Refraction and keratometer.
2) 2) Auto alignment auto focus
3) 3) Refraction
   i) Sphere range- Minus 25 plus 22 Diopters approx
   ii) Cylinder range – Zero to 10 Diopters approx iii) Axis range 1to 180 degrees
4) Keratometry
5) i) Corneal curvature radius 5 mm to 10 mm approx.
   ii) Corneal refraction 66 to 33 Diopters approx
5) Built in Printer facility should be available
6) It should be able to give readings with pupil size min 2 mm
7) Motorized table should be supplied to keep the auto refractokeratometer
8) Digital display
9) UPS backup.

23.INDIRECT-OPHTHALMOSCOPE

1. Available with LED/Halogen light source. (Desirably LED).
2. Magnification up to x5.
3. Red-free, blue and polarization filters.
4. Should have stereo optical system with small pupil feature.
5. Should have synchronized adjustment of convergence parallax.

24.DIRECT OPHTHALMOSCOPE

1. Available with LED/Halogen light source.
2. Magnification up to x15 from direct vision to maximum magnification.
3. Red-free, blue and polarization filters and Anti-reflection lens. 4. Should have small and large spot sizes, fixation targets, slit aperture, hemi-spot and cobalt blue filter.
5. Should be rechargeable battery with Charger / battery/ mains operated.
6. At least 3 apertures and fixation star.
7. Range of lenses not smaller than -30D to +20D with steps not greater than 1D.
8. Dust free sealed optics and aspherical optical system.

25.Orthopedics Plaster cutter

- Blade Material Stainless Steel
- Power Source Corded Electric
- Amperage 5 Amps
- R.P.M. – 2600, R.P.M Controller
- 350-Watt electrical plaster cutter machine
- Comes with 2 Stainless Steel Blades, 1- S.S. Blade – 64mm, 2- S.S. Blade – 45mm
- A Special Patented Lock Nut makes it easy to install or change
- This Coupling Ensures the Low noise level of the saw.

26.EEG MACHINE

1. Should be PC based with minimum following PC specifications I 3, 1 TB DDR RAM, 500GB HDD, CD/DVD RW, 17-25" LCD TFT Display, Key Board, Mouse and UPS.
2. Number of EEG Channels should be 32 with color coding,and another eight channels for Polygraphy. Also any two channels can be configured as Bipolar, AC or DC through software
3. Facillity for simultaneous sampling of all EEG channels and multiple sampling rates.
4. Photic Stimulator with software prorammable for manual or automatic sequences.
5. Networking facility
6. DICOM compatible.

Technical data

1.32 Channel Amplifiers needed.

2. CMRR should be > 110 dB or better

3. Noise < 2uV peak to peak

4. Input Impedance > 100 Mohm

5. 16 bit ADC resolution voltage of 0.153 uV

6. Low filter adjustable between 0.16 to 5 Hz.

7. High Filter Adjustable between 50 to 100Hz.

8. Notch Filter Adjustable to softwares.

9. Acquisition Sensitivity from 1 microvolt per mm to 2000 microvolt per mm.

10. Networking facility

Acquisition Software:

1. Facility to combine all user defined settings into templates or protocol, for use in diffferent applications.

2. Facility forIndividual Channel Control, Customization of Montages, along with Remontage Capabilities.

3. Should display a graphical view of the current montage during the EEG recording.

4. Facility to define New Sensors should be possible as standard i.e assign to amplifier inputs, define traces in a mintage, define calclulated channels (Average, Source/Laplacian), or define trends.

5. Facility to click any point to display corresponding traces & Slide pointer

to change displayed duration of the Overview.

6. Facility for sortable list of all events placed in the recording, both automatically and manually.

7. Facility to review and add events to recorded traces.

8. Facility for automatic time counters and fevent insertion during Hyperventilation.

9. Facility to controlled display Sensitivity for User defined value.

10. Facility to choose Low & High Cut Filters along with facility to enter any user defined value.

11. Facility to file zip.

12. Facility of configurable Time Base.

13. Spike & Seizure software

14. Trend Analysis software.

Review Software:

1. Paging facility as Automatic Paging, Mouse controlled Paging and/ or Keyboard Paging.
2. Playback of EEG for one or more channels.
3. Facility for Zoom/ Magnify EEG trace,
4. Facility for Copy & Paste of EEG or Trends to reports and presentations
5. Facility for Automatic generation of reports.
6. Facility for viewing several recordings in tiled or cascading windows.

27.BIOFEEDBACK UNIT

TECHNICAL SPECIFICATIONS:

1.Unit should have 4 Independent stimulation channels.

2.Current per channel : 1-100mA

3.Frequency: 1 to 1000 Hz (4000 Hz in IFT)

4.Pulse width: 100 us to 1 sec micro.

5.Unit should have constant current and constant voltage mode.

6.Should have 2 bio-feedback channels

7-EMG channels sensitivity 1micro V

8.-EMG range from 1-2000 micro V

9.should have more than 100 modifiable programmers and facility for creating new programmers.

11.Should display stimulation and Bio-feedback on the screen.

Should provide function of progressive sound in Bio-feedback (with multimedia PC)

12.Should provide facility to create patient's file.

13.Should provide display of the Bio-feedback in curve surface or EMG graph.

All standard accessories including electrodes.

28.NST (Fetal monitor)

1. 1 7" wide TFT Colour LCD Screen for Fetal Heart Rate, Uterine Contractions & Fetal Movement.
2. LCD Screen shOuld be tiltable, rotatable and can be fixed at any angle from 0-90 degree
3. It should have display modes of Trend mode, Number mode & Graph Mode.
4. It should have alarm functions in all movement.
5. It should have facilities to increase/ decrease/mute alarm sounds.
6. It should have Automatic track & hold facility.
7. It should have high sensitivity less than 1 MHz.
8. FHR upper limit should be 130-240 BPM & lower limit should be 30-150 BPM.
9. It should have Fetal Heart Rate & Uterine Pressure recording system.
10. It should have automatic & Manual Fetal movement detection.
11. It must have a fetal waker device to stimulate the sleeping fetus for more accurate fetal heart rate.
12. It should have inbuilt thermal recorder.
13. It should have battery backup.
14. It should have a built in memory for 450 hrs to save patient graph data.
15. It should have Twin Fetal Monitoring system.
16. FHR & UC (Uterine Contraction) Probes should have a slot guided connecting mechanism to the main unit.
17. It should have print speed of 1, 2, 3cm/min.
18. It should have automatic paper feeding system.
19. It should have safety standard certificate like CE or FDA.

It should be supplied with standard accessories

- US probe/FHR probe - 1 nos.
- Toco Probe- 1 no.
- Event Maker Jack- 1 no.
- Print paper- 2 rolls
- Power adapter & Cord- 1 no.

- Ultrasound Gel- 2 no.
- Probe Belt- 2 sets

29.ILR Refrigerator

Specifications of item Ice Line Refrigerator -ILR (250-300 Ltr.) 1. Description of Function:

1.1 Ice lined refrigerators maintain temperature of +2°C to + 8°C . Not more than 8 hrs continues or intermittent power should be sufficient per 24 hrs to maintain vaccine temperature below 8°C. 1.2 Ice-lined refrigerators are required at district and regional levels, since electricity suppliers are rarely perfect and standby electricity suppliers may not be available. 2. Operational Requirements:

2.1 Designed for tropical climates.

2.2 Target holdover time should be 20 hrs or more in a continues external temperature of 43°C.

2.3 Hot and Cold compressor starting at 172 Volts (22% below rated voltage).

2.4 Manufacturing process of the product should not use or produce hazardous chemical gases.

2.5 Provision for drainage for the waste water.

2.6 Should have legs in the base with rotating screw type height adjustments to balance the weight on uneven floor.

2.7 The unit should have ground clearance of minimum 100 mm. 3. Technical Specifications:

3.1 Net Storage Capacity: 250-300 liters within basket in place.

3.2 Construction: (a)Internal:-Stainless 304 grade steel/Pre Painted Galvanized. (b)An additional special ice lining consisting of ice packs covered by strong plastic shell.

3.3 External: Corrosion Resistance.

3.4 Chest type with CFC-free insulation.

3.5 Should have horizontal water cool pack covering the top of the basket.

3.6 Solid door with lock and handle

3.7 Type: Compression Cycled, CFC free (both for refrigeration and

insulation). All system tubing (suction tube, freezer tube and condensing tube) should be of minimum 99.97% of copper coil. 3.8 Temperature of a full vaccine and medicine to remain +2 deg C to +8deg C during continuous availability of energy at ambient temperature +5deg C to +45 deg C with intermittent/ continues electricity supply 8 hrs in a 24 hrs cycle. The temperature difference between any two points in the cabinet should not be more than +2 deg C once stabilized.

3.9 Inlet of Capillary should be outside the PUF body.

3.10 ON/OFF Switch and power indicator should be available.

3.11 A Micro Processor based control unit should be provided for setting of temperature and display following features :

3.11.1 3 digit digital display (to one decimal point) of cabinet temperature. The sensor should be placed 25 to 50 mm above base of storage chamber.

3.11.2 Power on LED/LCD indicator

3.11.3 Audio (minimum 65 dBA) and visual alarm against the violation of temperature ranger (less than +2 and more than +8 degree C)

3.11.4 Min. & max. cabinet temperature digital display of 24 hrs. and breaches during last 24 hrs.

3.11.5 The unit should be sealed/protected from dust, moisture or condensed water falling over it.

3.12 Accuracy for digital controller +0.5 degree centigrade.

4 System Configuration

4.1 Programmable Micro-processor control unit child lock facility. 4.2 Should have provision to set minimum and maximum temperature at 0.1 degree Centigrade to programme the unit for continuous operation.

4.3 Should have provision for defrosting program. 5. Accessories and spares

5.1 Food Storage Basket allowing free circulation of air, having the size to be able to accommodate 4 to 6 of them in them in the unit and suitable to match the net volume requirement. It should be minimum 5 wire basket.

5.2 Stem Alcohol thermometer (specification and standard as per

MOHFW approved Annexure-1) – one piece per unit range of -30 to + 50 degree centigrade.

5.3 The supplier is required to maintain the entire spare throughout the guarantee period.

6. Environmental factors:

6.1 The unit shall be capable of being stored continuously in ambient temperature of 0 to 50deg C and relative humidity of 95%

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

6.3 The plug should be flexible and unbreakable sealed rubber type.

7. Power Supply

7.1 Power input to be 220-240 V AC , 50 Hz as appropriate fitted with Indian Plug . 7.2 Suitable capacity Voltage Stabilizer as per requirement of ILR.

30.UV PHOTOTHERAPY UNIT

1. Whole body unit should have 18 UVA & 18 NB UVB tubes
2. The unit should have oval shape body to suit human contour
3. Unit should be made of Aluminum body with powder coated
4. Unit should have Integrated Dosimeter system
5. Unit should have UV choke system to draw one ampere current to give maximum output
6. Unit should have switching station to avoid inrush current
7. Unit should have facility for automatic calculation of the irradiation time from the recommended joules input
8. Unit should have micro computerized electronic LCD controller to allow to set joules/time for UVA & milli joules/time for NB UVB tubes
9. Unit should have open top unit facility to ensure maximum ventilation which reassures claustrophobic patient
10. Unit should have highly polished mirror type aluminum reflectors to ensure maximum irradiation

11. Unit should have mesh guard to protect the lamps and safety for the patient
12. Unit should have ELCB which ensures maximum safety for the patient
13. Unit should have platform inside the chamber to stand patient comfortably and take the treatment
14. Company should have ISO 13485:2003 certificate
15. Unit should have quality certification, preferably CE/FDA

31 Baby Incubator

1. Incubator with air/skin mode heating
2. Incubator with Double Wall Canopy, Front and Head End Access Doors with Access portholes and Tubing Access Ports. (2 access doors, 2 disposable infant restraint straps, 1 Iris port, 2 Quiet Touch port doors. 6 tubing ports)
3. Digital Displays of Air and Baby Skin Temperatures, set range 22.0° C - 38° C (71° F - 100° F)
4. Indicators for Mains and Battery Modes of Operation :
5. Indicator for Battery Power Capacity : Battery condition status 4 LED indication of battery charge and heater power condition 25-100%. Maintenance free, re-chargeable. Should supportall functions together continuously for at least 2 hours
6. Examination Light.
7. Power mode Illuminates AC, DC, or external DC, AC and 12VDC Connectors.
8. Front mounted gas content display
9. Comprehensive Alarm System: Alarm indicators for High temp, Power fail, Sensor fault, Heatertemp, Air flow, Low DC
10. 2D or 2E size tank mounts the tank mount permits mounting gas cylinders with a diameter ofup to 4.5 in (11.6 cm) and up to 34 in (85 cm) in length
11. Should have O2 concentration range 21% to 58% minimum
12. Should have Noise level <60 dBA
13. Humidity pad Holds 400 ml. (14 oz) sterile distilled water with no significant spillage for up to45° tilt in either direction with relative humidity 50 to 70% for 10-12 hours using humidity pad
14. Air filter Removes >99% of airborne particles greater than 0.5 micron diameter
15. Controller Displays : On/standby Illuminates when "On"
16. Storage temperature -40° C to 70° C ambient.

17. Power : On mains 230V AC ± 10%, 50 Hz ± 3%

18. Should have Optional Features like Accessory shelf, IV pole, High Hood, Pressure Regulatorand Flowmeter
19. In built pressure limited time cycled ventilator preferable.
20. The system should have European CE and/or US FDA approved. Manuals : Operator & Service manual should be provided.

32. BOYLE'S MACHINE

1. AnesthesiaapparatuswithcircleabsorberandSevofluraneTec vaporizer(with provision for Selecta TecBack bar) Must have antistatic castor wheel
2. Shouldhaveprovisionforspares Cylinder with Pressure gauge Must have color coded yoke and ports
3. Must have pin index system
4. Must have touch coded valves
5. Must havelink25mechanisms Must have pop off valve Must have Oxygen failure alarm
6. Must have vaporizer for Sevo/halothane and isoflurane Calibrated vaporizer Pressure compensated Flow compensated
7. Must have provision for Anesthesia ventilator Must have circleabsorber
8. Must have antistatic corrugated tubing Table top for arranging drugs and syringes
9. Should have provision for two inlets for two oxygen cylinders-A type and two inlets for two Nitrous oxide cylinders with pin index system- A type High pressure relief valve in the Back bar system Diaphragm in the pressure regulator- Teflon or Steel with 3

years warranty Breathing circuit with inflation pressure manometer 5 meters of high pressure tubing, color coded for Oxygen and Nitrous oxide with valve attachment and pin index at the machine end.

10. Provisionfortwo 60psiOxygen sourcebuiltinthemachine Should have audible alarm for O2 failure

33.Sliding double door autoclave machine 1-unit

- For Sterilization of glass wares / containers, vessels, linen, rubber articles culture media etc.
- Sliding doors with high temperature resistant silicone gaskets.
- Standard cycles, HPHV cycles, Bowie Dick cycle & leak test cycle.
- Fully Automatic P.L C. based control system covering all parameters with facility for printing. Manual maintenance mode independent to P.L.C.
- Confirming to various international specifications
- Guaranteed precise chamber temperature control with temperature uniformity as perHTM2010.
- On line printing & recording
- Options like electrical steam generator, vacuum pump, carriage, trolleys, chart recorders, data loggers, etc.
- Complete S.S 316 or economic model with only contact parts in S.S 316 For value display & printing option
- Door movement Vertical
- Smooth Noiseless Door Operation
- Aesthetic Full S.S Flush Mounting
- Door Locking System under Pressurized Chamber Condition
- Double Door.
- Electrical thermograph Digital thermograph

- Rapid Heating
- System PC Base Micro Processor Based Controls

Double door Steam Sterilizer, Sliding Door,

Autoclave for HPHV cycle as per General Technical Specifications enclosed. Extra attachment of Bunk washer with PLC control system is also provided

1. CHAMBER:
   Type : Rectangular
   M O C contact parts : SS 316 or economic model
2. JACKET:
   Type : Rectangular
   M O C : SS 304 or economic model
3. DOORS:
   Type : Double Door, Hinged M O C of
   contact parts : SS 316 or economic model
   Sealing : Solid square door gasket provided for effective Sealing.
   Interlock : Safety interlocks provided.
   a) For avoiding possibilities of door opening during the process.
   b) to prevent both doors from opening simultaneously.
4. INSULATION: : Resin
   Bonded Glass wool – 50 mm Outer Cover
   : S.S 304 1 mm or
   economic model

5. OPERATING PARAMETERS:
   Temperature : 134 degree C Max.
   Pressure : 2.1 kg / cm2. Max. Vacuum :
   Full
6. HYDRAULIC TEST PRESSURE :
   Chamber : 3 kg / cm2
   Jacket : 4 kg / cm2

Scope of Supply:-

1) Basic Unit
2) S. S Carriage 1no.
3) S. S Floor Trolley 2 nos.
4) Air compressor as per equipment requirement.

34.Ultrasonic Cleaner-1 unit

1. Ultrasonic cleaner of overall size 530mm L x 330mm W x 350mm H internal dimension 505x 300x 200mm, output frequency 35khz

2.Capacity 30 litres.

3.The Ultrasonic cleaners should be manufactured using solid state technology for the ultrasonic generator and PZT transducers for converting the electrical energy to mechanical vibrations in the cleaning liquid.

4. The unit will be complete with a thermostat and a timer, insert basket for tank and tank cover.

5.The unit is suitable for electrical operation on 220/240 volts, single phase, 50 cycles.AC supply.

35. Sealing Machine – Rotary type

1) Suitable for hospital sterile packing
2) Seals plastic film of various materials such as PE, PP, Aluminum foil etc.
3) Speed control mechanismϖ Temperature control mechanism.
4) Height and width mechanism Sealing speed : 1-12m/min,
5) Temperature Range : 0-300deg, Cutting size : 200 mm (8") ,
6) Sealing width : 6 – 15 mm, Sealing film thickness : 0.02 –0.80mm,
7) Power Supply : 220-240 Volts, 50 Hz, Single Phase Conveyor loading : up to 5 kg

36.ETO STERILIZER

1. Sterilant used should be 100% Ethylene Oxide.
2. Volume (7.9 Cu.Ft) Chamber dimension (18 inc) H x (20 inch) W x (38") - D
3. Chamber should maintain negative pressure throughout sterilization cycle , to theextent of 80 mb.
4. Sterilization cycle - Dual temperature option

should be available. Warm cycle approximately 165 min at 550 centigrade Cool cycle approximately 280 min at 370 centigrade

5. Microprocessor controlled operation. No manual intervention should be required. Manual intervention if required should be restricted by Password access.

6. Video screen to check the cycle status at glance

7. Automatic Inbuilt Aeration Cycle to be available.

8. Built in Alpha Numeric printer to be available to monitor continuously all the vital sterilization parameters like - chamber R. Humidity, Temperature, Vacuum and time.

9. R. Humidity sensor / monitoring probe to be available. Also to be available is facilityto eliminate liquid particle before vapour is injected.

10. Siungle dose Gas Catridge - EO weight - 170g for 7.9 Cu Ft.

11. Chamber gas concentration - 750 mg/ltr

12. Gas exposure time 60 minutes

13. Third part documentation on electrical / Mechanical & Technical safety standardsto available from UL/CSA/TUV. Also to be certified by EPA (Environmental ProtectionAgency) OSHA/NIOSH or CE.

14. Should preferably have FDA registration.

15. The purchase of the machine will be one a buy back basis against the old ETO machine in the Department (4 XL 3 M)

16. The firm will arrange for the full installation within the price quoted.

17. Service personnel to respond to calls within 24 hours.

18. 2 years warranty.

19. The procurement will be on buy back scheme by replacing the defunct sterilizer.

37.VERTICAL AUTOCLAVE

1. Vertical autoclave
2. Working temperature of sterilizer is 121-134 Deg. C and the corresponding pressure is 1.2-2.1 kg/cm2
3. Material of Construction Inner chamber, Jacket, Door: SS 316.(5mm-10mm)
4. The unit shall be capable of being stored continuously in ambient temperature of 0-50 Deg.C and relative humidity of 15-90%.
5. Outer Chamber: SS 304 (Insulated properly)
6. Steam Generator: Non corrosive SS / Chromium plated Brass
7. Heater Plate: Brass / Stainless Steel
8. Pipe Line: Complete with SS
9. Stand: Stainless Steel / High quality non corrosive steel
10. Instrumentation: Temperature, Pressure and Vacuum gauges: Steam traps, vacuum driers, water level indicator on steam generator
11. Safety devices: Pressure switch and safety valve, self-locking of door when chamber is under pressure Vacuum breaker for jacket Steam generator with gauge glass valves and Low water protection with audio visual indicator.
12. Features: The equipment should have ISI mark on quality.
13. Installation: Installation shall be done at free of cost. Water inlet and outlet pipe should be provided and connections should be done on a turnkey basis. Water connection and drainage outlet will made available in the installation room.

38.WASHER EXTRACTOR Qty – 1 No.

CAPACITY: Minimum 90 to 110 kgs dry weight equivalent weight. .

The machine should incorporate the following features:
Industrial washer cum extractor, front loading and unloading, open pocket, soft mount, heavy duty high spin. High speed spinning capability for quick drying of linen, extraction cycle. Machine should be PLC based controlled. It should have at least 24 standard wash programs with minimum 8 variable steps in each program to customized according to the type of the fabric to be processed. It should have a pause & continue feature in case of power loss. LCD displays to visualize the step by step advancement of the cycle and user friendly parameter setting provision for various washing methods. Machine should be single motor with variable frequency inverter drive (VFD) for various speed for wash, distribution and extraction at low, normal and high spin. The machine should be steam heated with the pneumatic controlled water inlet & drain outlet. The parts of machine those are in contact with water and chemical(inner basket and outer drum) shall be of stainless steel 304 grade. Auto door lock should be provided for operational safety. This makes the door

not to open at the time of operation. Machine should be provided with warning sign alarm for completion of cycle.

Technical Specification:

Capacity	Minimum 90-110 Kgs dry or equivalent weight.
Inner Drum Material (Basket)	SS 304, Minimum 3.0 mm thickness
Outer Drum material	SS 304, minimum 3.0 mm thickness
Chemical Compartment	SS 316, minimum 1.2 mm thickness.
Inner drum (basket) volume	Minimum 1100 Ltrs or equivalent
Basket Diameter	Minimum 1320mm or equivalent
Basket Depth	Minimum805mm
Drive Motor	Atleast 25 HP motor, 3 phase, HEM make.
Inverter	Fuji / Schneider, 25 HP, 3 Ph.
Extraction Speed	Minimum 680 rpm
G – Force	Minimum 340
Water Inlet Size	Minimum 50mm dia. x 2 nos. and dia. 20mm water inlet for chemical.
Steam Inlet Size	Minimum 25 mm dia. (1").At 4 -5 bar Pressure.
Compressed Air (Inlet)	Minimum dia. 8mm (PU8)
Drain outlet Size	Minimum 150mm dia.
Bearing	SKF Heavy duty bearing.

39.TUMBLER DRYER Qty – 1 No. CAPACITY:
Minimum 50kg to 60 kgs.

The drier should incorporate the following features:

Industrial tumbler dryer, front loading & unloading, open pocket, forward &reverse cylinder movement with PLC controlled. It should have at least 5 program storage capacity with automatic cool down features. Inner basket to be of stainless steel and outer body powder coated. Safety features should include manual heavy duty latch lock with door limit switch, which stops machine drum rotation when the door is opened at the time of operation. Machine should have two motors, drive motor & blower motor. The machine should be steam heated with high efficiency heater. Should be provided with a self-collecting lint mesh prior to hot air exit.

Technical Specification:

Capacity	Minimum50 kg- 60 Kg or equivalent
Heating type	Steam
Inner Drum	SS minimum 1.2 mm thickness
Lint Screen	SS Lint filter mesh
Outer body	MS Powder coated with good finish
Cool down feature	Automatic cool down feature
Inner drum volume	Minimum 1200 ltrs
Basket Diameter	Minimum 1210mm
Basket Depth	Minimum 1045mm
Drive motor	At least 2HP AC motor HEM make
Blower Motor	At least 2HP AC motor HEM make
Steam Inlet Size	Minimum 1 inch dia. At 4 - 5 bar pressure.
Condensate Outlet Size	Minimum 1 inch dia.
Power supply	3-Phase, 415v 50Hz
Hot air exhaust size	Minimum 200x200mm

40.FLAT WORK IRONER Qty – 1 No.

Roller Size: Dia. 400 x 1600mm length or equivalent
The ironer should incorporate the following features:

Machine is steam and roll heated type. The machine should be of front feed and front return type. Standard safety features include fingerguard protection device incorporated in the machine. Machine should have emergency stop button at either side of machine for operator's safety. The flat work ironer should be inverter driven to provide smooth and variable speed control for ironing. Digital indication for speed in meters per minute and temperature in degree Celsius to be provided. Machine should have SS tray for feeding and receiving linen. Machine should have high quality feeding and heating belts.

Technical Specification:

Heated Roll dia.	Minimum 400 mm or equivalent
Heated Roll length	Minimum 1600mm (Working width) or equivalent
No. of Roll	01
Ironing Speed	Minimum 1-5 mtr/min.
Drive Motor	Minimum 1 HP
Blower Motor	Minimum 0.75 HP
Steam Inlet Size	Minimum 1/2" dia.At 5 bar pressure.
Condensate Outlet Size	Minimum 1/2" dia.
Power Supply	3-Phase +N+E, 415V, 50Hz
Hot Air Exhaust Size	Minimum dia. 100 mm
VFD	1 Hp, Fuji / Schneider make variable control
Roller	Roller shall be made of mild steel – outer surface is fully polished and hard chrome plated for better ironing quality. Large contact area of roller for increased productivity.
Feeding & ironing	Superior quality Oblical polyester feeding and ironing belts for longer life.
Safety	Front feeding side should be provided with emergency finger guard, which automatically stops the machine. Emergency stop buttons shall be provided on both side of the machine.

41.Neonatal Ventilator

Technical characteristics	
1.	Should have facility for Invasive and Non-Invasive ventilation.
2.	Microprocessor Control suitable for Neonatal ventilation;
3.	Should have modes of ventilation equipped with newer modes of ventilation: 3.1) Assist/ Control 3.2) Volume control 3.3) Pressure control 3.4) Pressure support 3.5) SIMV with pressure support (Pressure and volume control)

	3.6) PEEP 3.7) Inverse ratio Ventilation 3.8) Non-invasive ventilation-BIPAP, CPAP 3.9) Apnea ventilation, user selectable, volume & pressure control;
4.	Should have built in color screen TFT/LCD display of minimum 8″ (inch) for display of waveforms and monitored value;
5.	Should have inbuilt facility to upgrade with EtcO2.
6.	Should have facility to measure and display of the following parameters: 6.1) Airway Pressure (Peak & Mean) 6.2) Tidal volume (Inspired & Expired) 6.3) Minute volume (Inspired & Expired) 6.4) Respiratory mechanics 6.5) Spontaneous Minute Volume 6.6) Total Frequency 6.7) FiO2 6.8) Intrinsic PEEP 6.9) Plateau Pressure 6.10) Resistance & Compliance 6.11) Use selector Alarms for all measured & monitored parameters 6.12) Occlusion Pressure 6.13) Pressure Flow & Volume curves;
7.	Automatic compliance and leakage compensation for circuit and ET tube;
8.	Should have facility of log book, for events and alarms with date & time;
9.	Should have following setting; • Tidal volume (Minimum 10ml, Maximum up to 1500ml); pre-set range for paediatric modes to be provided • Inspiratory pressure (up to 60cm of H2O) • Respiratory rate 1 to 80 bpm • Apnea back up rate • CPAP/PEEP • Pressure support • FiO2 setting range between 21% and 100% • Pause time • Pressure/flow Trigger; • Inspiratory flow up to 120 Lpm;
10.	central pipeline connector (to be supplied along with the machines) should be compatible with ventilator;
11.	Disposable Heat Moisture Exchanger, Qty 10 to be supplied with the unit.
12.	User's interface: Manual and Automatic.
13.	Software and/or standard of communication (where ever required) : Inbuilt software;
Physical Characteristics.	

14.	Weight (lbs, kg): <50kg including trolley.
15.	Configuration: • Compatible hanged arm for holding the circuits • Should have caster with braking system;
17.	ENERGY SOURCE (electricity, UPS)
18.	Power Requirements: Input voltage 220 VAC, 50Hz;
19.	Battery operated: • Battery powered alarm for power failure. • Battery charger to be integral to mains power supply, and to charge battery during mains power operation of unit. • Internal, replaceable, rechargeable battery allows operation for at least four hour in the event of power failure.
20.	Tolerance (to variations, shutdowns): Voltage corrector / stabilizer to allow operation at ± 10% of 220V AC. Use of SMPS to correct voltage.
21.	Protection: • Electrical protection, resettable over current breakers or replaceable fuses (fitted in both live and neutral lines) • Leakage.
22.	Power consumption: To be declared by the supplier.
	Accessories, Spare Parts.
23.	Accessories & Spares: • Full face mask pedantries - 5 Nos each of 0,1 and 3 • Nasal cannula for pedantries /neonates- 5 no's • Reusable breathing circuit of silicone material (2Nos) Disposable breathing circuit (No.s) • Air & oxygen hose- 1 each • Servo controlled Humidifier-1
	Environmental And Departmental Considerations.
24.	Atmosphere / Ambiance (air conditioning, humidity, dust ...) : • Operating condition: Capable of operating continuously in ambient Temperature of 10 to 40 deg C and relative humidity of 15 to 90% in ideal circumstances. • Storage condition: Capable of being stored continuously in ambient temperature of 0 to 50 deg C and relative humidity of 15 to 90%.
	Standards And Safety.
26.	Certifications: • FDA (US) & CE (From Notified Body) from authorized third party and BIS/ISO 13485. • Relevant IEC-60601-Part 1 & 2, certificates by a notified agency

27.	Local and/or international: Manufacturer / supplier should have ISO certificate for quality standard.
Training And Installation.	
28.	Training of staff (medical, paramedical, technicians): • Training of users in operation and basic maintenance shall be provided; • Advanced maintenance tasks required shall be documented
Warranty And Maintenance	
29.	Warranty: 3 Years.
30.	Maintenance tasks: • Maintenance manual detailing; • Complete maintenance schedule;
31.	Service contract clauses, including prices : • The spare, accessories & consumables list required for maintenance and repairs in future after guarantee / warranty period should be attached • Free servicing during warranty period;
DOCUMENTATION.	
32.	Operating manuals, service manuals, other manuals: Should provide 2 sets(hardcopy) of :- • User, technical, maintenance and service manuals to be supplied along with machine diagram • List of equipment and procedures required for routine calibration and maintenance.

42.Patient Monitor -

- Monitor should be Modular design and flexible monitoring in compact
- Monitor should be capable for monitoring ECG, SPO2, RESP, NIBP simultaneously as a standard.
- Capability to upgrade in future to Depth of Anesthesia Monitoring, Level of Neuro Muscular monitoring, Anesthesia Gas Monitoring.
- Screen Size 15 inches color Touchscreen display with Trim knob or remote control and highly visible alarm light
- Monitor should have 12 waveforms capability
- optimized user modes, Standard Adult, Pead & Neonate mode with

configurable for different care areas

- Monitor should have different screen layout to view big font size in numeric and waveforms
- Monitor should have trending facility for up to 168 hours of both Graphical & Numerical
- Monitor should be capable to monitoring 12 lead ECG by connecting 10 lead wire.
- Monitor should have Simultaneous four-lead analysis to optimize the detection and analysis of arrhythmias
- Monitor should have smart lead fail detection to monitor uninterrupted ECG.
- Should have ST segment Analysis with ST Trend for Adult, Paed and Neonates
- Monitor should have Full Arrythmia detection for Adult, Paed and Neonates including Atrial Fibrillation detection
- NIBP technology utilizing "smart cuff" pressure control to improve measurement time, patient comfort, and artifact rejection
- SpO2 should have ability to reject motion artifacts and detection even at low perfusion, Display plethysmography and perfusion index number and SPO2 value.
- should display - 6 waveforms and numeric with remote alarms
- Monitor should have full disclosure feature for upto 72 hours for all parameters waveforms.

43.Ultrasound Machine

Technical Specifications for Ultra Sound Machine Doppler Equipment for TWO ULTRASOUND MACHINES	
TENDER TECHNICAL SPECIFICATION	**SUGGESTIONS FOR AMENDMENT**
The system must be a premium machine and should be latest and state of the art with fully digital technology equipment to incorporate the facility of 2D, M-Mode, PW Doppler, CW Doppler, Power Doppler, bidirectional power Angio, Contrast Imaging(CEUS), real time strain & shear wave Elastography imaging, Real time 3-D(4-D), Imaging for abdomen, obstetrics &Gynae, Peripheral vascular, adult trans-cranial & superficial parts imaging like breast, scrotum, thyroid, musculoskeletal prostate, pediatric and small parts.	

The system should be able to support at least 4 active and universal ports allowing any Transducer to be connected to any port	
System must be offered with minimum of 1,000,000 digital processed channels per image frame.	
System must be offered minimum 21.5 inches LED medical grade monitor for high contrast & high resolution with additional touch sensitive monitor minimum 10 inch or more with minimum contrast ratio of 1000:1 and 1280 x 1024 resolution or more.	
Proven Keyboard control panel should have up down hydraulic height adjustment, swivel movement with single button for both height & swivel.	
The system should have 256 grey shades (8 bits) or more.	
The broadband beam former should be capable of simultaneously processing ultrasound signals from 1 MHz to 18 MHz or more.	
System must be offered with frequency compounding facility.	
The system should have a fast boot up time of less than 150 seconds, when switched on from 'OFF' position, and less than 60 seconds from 'STANDBY' position.	
System must be offered with 2D, M-mode, color flow, pulsed wave Doppler, Directional color power Doppler. All these must be standard. Power Doppler& directional color Doppler for perfusion study should be available for visualization of flow in small vessels without over flow and very sensitive for transient flow	
System must be offered with speckle reduction imaging Image processing technique to remove speckle, and clutter artifacts	
System must be offered with dynamic range of at least 220 db to pick up subtle echoes.	
System should have Pan Zoom & Hi Zoom display magnification of minimum 8 times.	
The system should truly compound the image and steer up to 9 beams steered line of sight. The system should also speckle noise reduction, compounding, auto gain / optimization, trapezoid/virtual convex imaging, Panoramic imaging, dual imaging, dual/quad split display and edge enhancement feature.	
System must be offered with independently selectable gain control in latest position	
System should be capable of full needle visualization during biopsy and this feature to be offered as standard.	
System must be offered with acquisition frame rate of at least 1200 frames/sec. System must be offered with cine loop review facility	
The system should have Contrast Harmonic Imaging and should have optimization settings to detect the Contrast Agents.	

System should be upgradable to other advanced Technologies to perform better Contrast Harmonic Imaging.	
Triplex Imaging should be standard on the system.	
System must be offered with single button control for automatic optimization and adjustment in 2D, color and Doppler to achieve optimal uniformity of images and faster scan.	
Automatic/semiautomatic Fetal Biometry should be available and it is required for high patient throughput.	
System should be capable of scanning depth of minimum of 30cm or more. Scanning Depth should be clearly mentioned in the technical quote.	
B mode & B colour simultaneous should be available side by side real time display of B Mode & Colour flow. Digital zoom facility for region of interest in real time and frozen images.	
System should allow us to take 10 pair distance measurement at a time on a frozen image. System should support Baseline Shift and angle correction in both real time and after freeze. System should be able to measure vessel area stenosis and diameter stenosis by different methods and must be user friendly.	
Storage – Min 1 TB or more in the system hard disk drive. Faster booting time preferred. Archive – should have facility to transfer images to PC or Pen Drive.	
System should be capable to transfer reports & clinical images to PC via network	
Equipment to have optional upgradability 4D/5D imaging including virtual light source, with rendering, multi slice viewing, TDI. Supported by original data sheet.	
In all probes 4 different frequency selection should be available.	
Cine loop as well as cine scroll facility in B mode with storage Max 10000 or more storage capacity. Technical data sheet should be enclosed in technical bid.	
Omni Directional M Mode with 3 Cursors both in real time & on frozen image in all the probes, with M Mode cursor rotation of Complete 360 Degree, system should have provision of getting M-mode image from the stored B-mode image.	

System should be upgradeable to allow user to take 3D image using routine convex probe and Free hand 3D should be available in both Convex probe	
The real time shear wave elastography mode should be there and be capable of performing:	
i) Real time 2D Shear Wave / point shearwave tissue elastography imaging should be available preferably on all probes. System should have both Shear and Strain elastography.	
ii) The Shear wave elastography should be real time and fully automatic; requiring no manual / automatic compression with reproducible results in KPa or m/s for Liver, Breast, Thyroid, Renal, prostate, MSK and other applications.	
iii) System should be able to generate a color coded real time shearwave elastogram with a reference. Adjustable Numerical elasticity scale for all the applications.	
iv) System should be able to display simultaneously both color coded Shear wave elastogram and corresponding B-Mode image in real time.	
v) There should be User adjustable elasticity-box size with a Display Depth of 0 - 12cm	
vi) Shearwave Elastography Quantification tool should be able to provide multiple elasticity values of the tissues inside the ROI both in m/s and kPA (KiloPascal) on all transducers.	
vii) System should have integrated report worksheet for Liver elasticity assessment.	
viii) The system should have qualitative evaluation of relative tissue stiffness of focal changes in tissue compared to surrounding tissue with enhanced border definition using ARFI / equivalent in both convex / linear transducers.	
ix) The system should permit the display of a color-coded tissue stiffness map as well as shear wave velocity measurements.	

x) The system should recognize tissue strain analysis solutions, providing a single image presentation of both qualitative and quantitative assessment of tissue stiffness.	
xi) Endocavitatory transducer probe should support reusable biopsy guide.	
xii) Real time Shearwave elastography package should be FDA approved	
xii)The system should have state-of-the-art features for improving the resolution in images, reducing artefacts and improved signal / noise ratio. The user should be able to adjust the SWE box size, compare 2 ROI's, draw a freeform ROI and should be able to place the quantification box on single or multiple images for average calculations of mean, median, SD and IQR values.	
The system should have the capability of displaying continuous B-mode, Color Doppler mode and SWE in a real time triplex mode.	
Advanced directional color Doppler to pick the difficult & small vessels without blooming artifacts.	
System should be capable of Fusion Technology and attach technical data sheet and shown in the broacher.	
Power Consumption of the machine should not be more than 800VA	
The successful tenderers have to impart on-site training to Doctors on the operation and preventive maintenance of the equipment at the time of installation and anytime during warranty period if demanded by the User Institution to the satisfaction of the Tender Inviting Authority and User Institution.	
All probes should have tissue harmonic imaging.	
Thermal printer 1 no	
2 KVA Online UPS with 1 hour backup	

Should have safety certificate from competent authority European CE & FDA (US).Copy of certificate /test report shall be produced along with technical bid.	
The system should have Fusion Technology with CT, MRI, and PET-CT & Elastography. All necessary hardware and soft ware should be provided with system for optimal performance of fusion imaging. Technical team should be provided whenever necessary for training in fusion imaging. Any additional modality purchased in future should be intergrated with fusion imaging. Any additional accessories necessary for functioning of the fusion imaging should be provided.	
The system should have a full suite of OB measurements and fetal growth charts.	
1. The system should have CD-DVD and USB archival (DICOM and PC format).	
2. 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, PC / computer etc. in DICOM format and should have options of DICOM modality worklist, Query and retrieve, Compression and export to media.	
3. The system should have facility of direct storage and retrieval of B / W and color images (both frozen and cine loops) in the in-built hard disk drive. Inbuilt hard disk of 1TB or more. The device should store images in DICOM, JPG, WMV and AVI formats for maximum flexibility.	
4. System shall have image management features that store images by patient and include the ability to review images from different exam dates.	
5. System shall support the ability to store digital data in complete Raw Form, that allows to optimize imaging parameters such as B Gain, Dynamic Range, Speckle Reduction levels, Doppler Gain, Doppler Base Line on old Images & old loops recalled from the image archive.	
6. Unit should have a four Castor design with central braking system or equivalent system.	
7. The systems shall have to be networked by the vendor in future when the PACS is installed; as well as with the main HIS server at the Institute for post processing	

and review of the images at work stations in various locations.	
Transducers: Following 3 transducers should be mandatorily offered with the system: **Transducers provided must have a latest crystal technology and must support elastography.** **Should support strain &shear wave elastography preferably on all probes.** **3D/4D Volume probe & Matrix linear MSK probe should be quoted separately.** 1. Curved array transducer: 1 - 6 MHz +/-2MHz. 2. Matrix Linear array transducer: 3 – 12 MHz +/-2MHz. 3. Endocavitary transducer with 3D/4DVolume: 3 – 12 MHz +/-2MHz at least a 175 degree field of view.	
OPTIONAL: **Volume probe & Matrix linear MSK probes should be quoted separately.** 1. **Matrix Linear array transducer for MSK**: 5 – 18 MHz +/-2 MHz. 2. **3D/4D Volume transducer**: 2 - 9 MHz +/-2 MHz.	
Pre-installation requirements: nature, values, quality, Tolerance: 1. Availability of 5 amp socket. 2. Safety and operation check before hand over. 3. **Machine to be installed only when PCPNDT registration is obtained from health care facility. The supplier should get all the registration process of PCPNDT.**	

Requirements for sign-off: Certificate of calibration and inspection from the manufacturer	
Training of staff (medical paramedical, technicians):	1. Training of users on operation onsite and basic maintenance for two weeks. 2. Advanced maintenance task required shall be documented.
Maintenance tasks	CMC for 5 years 2 PM Visits Annually. All Breakdown calls to be attended within 24 hrs of registration.
A free comprehensive software upgradation guarantee for 5 years of the ultrasound unit must be provided.	

29/12/23

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