ADICHUNCHANAGIRI
UNIVERSITY
(Estd. under Karnataka Act No. 18 of 2013)
B.G. Nagara - 571448

ACU/PS/AHRC/Closed-Tender/ 189 /2021-22 **09.09.2021**

TENDER NOTIFICATION

Adichunchanagiri University is inviting **closed tenders** for the supply of Medical equipment and General surgical instruments to "Adichunchanagiri Institute of Medical Sciences (AIMS)" and its hospital – "Adichunchanagiri Hospital and Research Centre (AHRC)", B.G. Nagara, from the competitive firms.

1	Name of the work	supply of Medical equipment and General surgical instruments to AIMS and AHRC
2	Tender documents available for download	09-09-2021 to 24-09-2021 up to 05:00 PM

Sl. No.	Name of the Medical Equipment/Instrument	Provisional Qty. (In No's)
1.	B scan	1
2.	CPAP Machine	6
3.	CTG machine	1
4.	Delivery sets	20
5.	Electrocautery	3
6.	Electro-surgical cautery unit	5
7.	Fatal Monitor for Antepartum Surveillance	3
8.	Focus light	2
9.	Fumigation machine	3
10.	Whole body cooling system	1
11.	Patients controlled analgesia system (portable)	1
12.	Pulse oximeter	30
13.	Pure tone audiometer	1
14.	High speed Mastoid drill	1
15.	Radio frequency ablation machine	1
16.	Flexible Bronchoscope	1
17.	Vacuum Extractor and suction machine	5
18.	Blood and Fluid warmer	1
19.	Ultrasonic nebulizers	3
20.	U S G machine 3 probes	1
21.	Ultrasonography equipment with colour Doppler	2
22.	Portable ultrasound with multiple probes including CARDIAC probe (Including probes for paediatric/infant evaluation)	2
23.	Static X-ray units (Direct digital/CR)	1
24.	Portable X-ray unit	1
25.	Major Operation Theatre Table	11
26.	Minor O T table	2
27.	O2 cylinder with trolley B-type	5

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Note: Kindly send 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)".**

- 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 Tender/Equipment/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 at extra column) and **warranty** must be **minimum 03 years for equipment**.
- After warranty AMC & CMC rates should be quoted separately.
- Technical Specifications mentioned below are of minimum parameters; Products offered must meet these or exceed all requirements herein.

Dr. C.K. Subbaraya
Registrar
Adichunchanagiri University
B.G.Nagara-571448

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Technical Specifications

1. B Scan

B SCAN

Probe type:	contact probe
Frequency:	12.0MHz (optional: 10MHz and 20 MHz)
Scan angle:	20° to 60°
View zone:	30 to 60 mm
Axial resolution:	0.15 mm
Depth range:	20 mm
Gain:	43 or 50 mm from the probe tip
Dynamic range:	adjustable 1-128dB
Auto TCC zone depth:	Linear 1-128dB

MEASURMENTS

Distance calipers:	on 8-scan display

A SCAN

Probe:	10MHz/06mm / in-built red LED
Measurement rang:	12 TO 38 mm
Scan mode:	manual/ auto
Scan method:	contact / immersion

2. Continuous Positive Airway Pressure (CPAP)

1. Should be light weight, easily portable, reliable and sturdy
2. CPAP generator:
   - Option of pressure setting from 3 to 12 cm H2O
   - Should have a detachable overflow container
   - Should deliver the intended pressure constantly and accurately
   - Easy to clean/sterilize
   - The gradations (on the sliding rod) should be easily visible from distance of 6 feet.
3. Air Oxygen Blender
   - Fi0 2 concentration should be adjustable (21-100%)and accurate
4. Humidifier

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	• Should automatically regulate the required temperature • Should be a closed system for filling up water • Should have ports for heater wire as well as temperature probe • Should display the chamber temperature and temperature at the patient end. 5. Patient circuits • Should have the option of using both disposal and reusable circuits • Disposal circuits should be readily available and reasonably priced. • Should be able to accommodate a heater wire: heat loss should be minimal along its length. 6. Battery back up • Should have a battery back-up for at least 45-60 min. 7. Safety Features • Limiting the delivered pressure in the event of an occlusion 8. Device is produced by ISO 9001 certified manufacturer 9. Device is safety certified according CE93/42 FDA 510k or equivalent **Supplied with: -** 5 reusable / disposal to be included. Soft, Pliable nasal prongs- in at least 3 sizes (15 each)
3.	**FOETAL MONITOR/CTG**
	1. The system should be Microprocessor based Fetal Monitor providing continuous monitoring of fetal heart rate (FHR) along with maternally sensed fetal activity during antepartum testing for NST (Non-Stress Test) and for intensive monitoring of active labor, with twin fetal monitoring facility at the same time.
	2. **Transducer** a. Type: Multi-crystal wide –beam transducer. b. Technique: Autocorrelation. c. Quantity :2 no's (FHR 1, FHR 2) d. Frequency: 1MHz to 2 MHz. e. Intensity: Less than 10mW/Sq cm. f. Resolution: 1BPM. g. Heart Rate counting Range: 30 to 250BPM.
	3. **Printer:** Facility to print on Inbuilt thermal printer (On thermal paper) as well as on plain paper via any Deskjet/Laser printer (Should provide connectivity for Deskjet/Laser Printer). a. Paper: Z –fold Pre-printed chart scale. b. Speeds: 1 to 3cm/ minute.
	4. **Features:** a. Twin fetal monitoring with TOCO transducers –01 No. b. It should have clinical event marker. c. It should have monitoring of Bradycardia &Tachycardia alarm events. d. It should have battery backup of 4-6 hours

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	e. Power Supply: 230Vac, 50/60Hz
	5. **Accessories:** a. Should provide rechargeable battery along with recharging unit (Charger/ Adaptor). b. Should provide a pre-cut non-fray elasticized belt with buckle shall enable easy transducer positioning for more accurate traces. - 03Nos. c. Vibro-acoustic stimulator – 01 No.
	6. **Display:** a. Display Minimum 5". b. Actual FHR1 & FHR2 in BPM. c. Uterine Contraction/Activity in %. d. High / Low FHR limits. e. Alarm Message Display f. Battery charging and Low indication g. Blinking corresponding to each beat
	7. **Patient Database:** It should store more than 10 hours, memory to store all the data. In case the printer goes out of order, machine should continue monitoring and then download to printer afterwards for printing or be viewed.
	8. Computer interface through RS232 connection.
	9. Unit quoted should have unique model number.
	10. Units supplied should hold a unique Serial/Identification number.
	11. Two years comprehensive warranty.
	12. **Should be CE (Should be from Notified Body) or US FDA Approved**
	13. Should quote Standard Accessories separately.
	14. Should Provide Extra Ultrasound Transducer- 01 No. & TOCO Transducer – 01 No., pre-cut non- fray elasticized belt- 17Nos.
	15. Demonstration is compulsory
	16. Should Provide Training to the end user and Biomedical Engineer.
	17. **Tropicalisation:** a. Operating room temp. 40 deg. C b. Storage room temp. 60 deg. C c. Relative Humidity 90% Non-condensing
	18. Should quote Cost of AMC and CMC separately.
	19. Should Provide Service, Spare parts and consumables support for Ten years.
4.	**Delivery sets (Instruments)**

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	Normal standard delivery set
5.	**Electro Cautery Machine – Indian make**
	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 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 hand 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. Three 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.

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	16. Operating and service manual should be supplied. Tropicalization: operating Temp. upto 40Deg. C
6.	**Electro Cautery Machine – Imported**
	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: e. Low cut for delicate tissue or Laparoscopic cases having maximum power of 300w f. Pure cut for clean, precise cut in general surgery having maximum power of 200W g. Blend mode for cutting with homeostasis having maximum power of 200W h. All cut modes should be able to adjust output power depending on tissue density by less than 15% or 5W, whichever is greater 4. It should have three Coag Modes with maximum power of 120W d. Desiccate mode for low voltage contact coagulation suitable for Laparoscopic and delicate tissue work e. Fulgurate mode for efficient non-contact coagulation in most applications f. 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 hand 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. Three 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.

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	15. Demonstration Compulsory. 16. Operating and service manual should be supplied. Tropicalization: operating Temp. upto 40Deg. C;
7.	**Fetal Monitor for Antepartum Surveillance**
	1.The system should be Microprocessor based Foetal Monitor providing continuous monitoring of foetal heart rate (FHR) alongwith maternally sensed foetal activity during antepartum testing for NST (Non-StressTest) and for intensive monitoring of active labor, with twin foetal monitoring facility at the same time. 2. Transducer a) Type: Multicrystal wide –beam transducer. b) Technique: Autocorrelation. c) Quantity :2 nos (FHR 1, FHR 2) d) Frequency : 1MHz to 2 MHz. e) Intensity : Less than 10mW/Sq cm. f) Resolution: 1BPM. g) Heart Rate counting Range: 30 to 250BPM. 3. Printer : Facility to print on Inbuilt thermal printer (On thermal paper) as well as on plain paper via any Deskjet/Laser printer (Should provide connectivity for Deskjet/Laser Printer). Paper: Z –fold Pre-printed chart scale. 4. Features: a) Twin fetal monitoring with TOCO transducers 01 No. b) It should have clinical event marker c) It should have monitoring of Bradycardia &Tachycardia alarm events d) It should have facility to control the volume of FHR sound e) Battery back up of 4-6 hours f) Power Supply: 230Vac, 50/60Hz 5. Accessories a) Rechargeable battery along with recharging unit (Charger/ Adaptor). b) Pre-cut non-fray elasticized belt with buckle shall enable easy transducer positioning for more accurate traces.- 03Nos c) Vibroacoustic stimulator-1 6. Display a) Display Minimum 5” b) Actual FHR1 & FHR2 in BPM. c) Uterine Contraction/Activity in %. d) High / Low FHR limits Alarm Message Display.

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e) Battery charging and Low indication.

f) Blinking corresponding to each beat

7. Patient Database: It should store more than 10 hours, memory to store all the data. In case the printer goes out of order, machine should continue monitoring and then download to printerafterwards for printing or be viewed

8. Should be CE (Should be from Notified Body) or US FDA Approved

8. Focus light

Usage/Application	Operation Theater
Light Source Type	LED
Number Of Domes	1
Positioning	Mobile
Color	White
Illumination Intensity	50,000+ LUX
LED Life	50,000 hrs
Spot Light Diameter	120mm-140mm
Brightness Control	50% - 100%

9. Fogger Machine/Fumigation machine

1. Device should be made for hospital use only. (operation theatre or intensive care unit sterilization)
2. Device should be portable, electrically operated.
3. Machine weight at least 6 kg.
4. Tank capacity at around 5liters.
5. Area covered should be around 7500 cubic feet
6. Tank should be metallic made and sturdy.
7. Droplet size generated by nozzle should be submicron size. Validation of droplet size by a governing body will be preferred.
8. Timer function should be present. Integrated timer is preferred.
9. Particle throw in a closed room should reach up to 3 to 4 meters
10. Output should be less than or equal to 3 liters per hour.
11. All parts should be compatible with acidic or alkaline liquids.
12. Medical grade silicon tubing and stainless steel internal parts. complying to FDA & UPS CLASS VI
13. Should have intake air filter uniquely designed of two layers for dust and fog separation
14. Device motor should be high speed.
15. Should have Precision Metering System: 0-70ml/minute
16. Should be of nozzle assembly – non clogging design – Engg. Plastics
17. All the companies who have quoted for the fogger machine, should come and

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	demonstrate their Fogger machines within 15 days after being contacted. Purchase of the machine will be decided only after seeing the demonstration.
10.	**Whole body cooling system**
	Environmental • Operating Temperature: 15 to 35 C (59 to 95 F) • Humidity - 0 to 95% RH • Atmospheric Pressure: 500 hPa to 1060 hPa • Storage: Temperature: -5 to +50 C (23 to 122 F) • Humidity: 0 to 95%RH ▪ non-condensing Atmospheric Pressure: 500 hPa to 1060 hPa • Performance Light Band 400 to 550 nanometres; infrared and UV • Width: filtered with dichroic reflector and filters • Irradiance High setting: 45 11.25 W/cm2/nm* • Level: Low setting: 19 4.75 /W/cm2/nm* • (*Light output is the average measurement of 6 points on the pad; 25%) • Fan Noise: Sound level less than 54 dBA measured at 1 meter with environmental sound level 10dBA below measured value • Mode of Operation: Designed for continuous operation Illuminator Bulb : o Type: 12 volts, 100 watt quartz halogen o Life: 800 hours' average at 25 C (77 F), at high intensity setting and continuous operation Physical • Light Source: Size: 10.5 x 4.5 x 11.0 in • (26.7 x 11.4 x 27.9 cm) (W x H x L) • Weight: 7 pounds (3.2 kg) • Light Pad: Overall pad size: 4.0 x 8.0 in (10.2 x 20.3 cm) • Illuminated area: 4.0 x 6.0 in (10.2 x 15.2 cm) • Fibre Optic Length: 48 in 2 in (122 cm +5 cm) • Cable: At least 2400 optic fibres woven into a mat • Electrical input: 2.2A at 100/120 volts AC 1.1A at 220/230/240 volts AC 100, 120, 220, 230, 240 volts AC, 50/60 Hz • Wattage: 200 watts' maximum Overheat Thermal cut-out switch near the lamp actuates Protection: at 110 C (230 F), cutting power to the lamp Chassis Less than 300 microamperes at 100/120Leakage volts AC • Current: Less than 500 microamperes at 220/230/240 volts AC **Trans illuminator Option** 9000 lux +25% -35% Infinitely variable light adjustment 48 in (122 cm) cable Bili Blanket Plus High Output Phototherapy System with Trans illuminator
11.	**Patient controlled analgesia infusion pump**

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1. Must accommodate any syringe of: a) 10 ml b) 20 ml c) 50 ml.
2. Automatic detection of syringe size & proper fixing. Must provide alarm for wrong loading of syringe such as flanges out of slot; disengaged plunger, unsecured barrel etc.
3. Flow must be adjustable between 0.1 ml to 650 ml/hr.
4. Dosage adjustments should be possible in mg and ml/hr
5. It should have system to give Bolus volumes of 5ml or more than 5ml during infusion.
6. Bolus rate adjustable from 0 to 1000ml/hour.
7. Accuracy +/- 2%.
8. The dosing modes: PCA, CBI, PCA + CBI and loading.
9. It should be providing security against tampering with ability to record and retrieve drug pump/Microprocessor malfunction.
10. Graphic LCD or LED display to denote infusion & alarm status & keypad. The display should remain visible in any light condition
11. Set flow rate and volume infused should be digitally displayed.
12. Delivery rate should be preset on Delivery rate and on volume and time pre selection.
13. Volume infused should be displayed.
14. Must have a fast mode of infusion independent of set flow rate.
15. Clearly recognizable bolus button is differentiated from nurse call button
16. Should not allow change of flow rate or fast delivery without stopping the pump.
17. Should have audio and visual alarms for:

- Occlusion
- Syringe almost empty
- Syringe Empty
- Very Low Battery
- Syringe paused too long
- End of Infusion
- Illegal Syringe
- Cover Unlocked
- Patient Handset Disconnected
- Limit Dose Reached
- Accumulated Dose
- Log Memory Full
- No Mains
- Low Battery

18. Internal Error Occlusion sensitivity should be adjustable by the operator
19. Occlusion pressure adjustable from 100 to 1500mmHg. Max actuator force 50N (5Kgf)
20. Operating conditions 10 C to 45 C, 30-90% RH
21. Should work on a/c. mains (220V , 50/60 Hz) and on Battery
22. Should have a built in rechargeable battery
23. Battery charging should be automatic when connected to an AC power source
24. Should provide clamp for fixing on IV pole
25. Should be stackable so that one pump can lock into another
26. It should be upgradeable

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	27. It should provide printer capability 28. To be supplied with standard 50ml syringe/tubings:200 Nos each
12.	**Pulse oximeter**
	Finger pulse oximeter
13.	**Digital 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. 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.
14.	**High speed Mastoid drill**

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	• International Standards for a High Speed Micro Motor drill for use in ENT • High Speed Micro Motor System with motor control display with Hand pieces Straight & Contra angled to be used in Sinus Surgery, Otology, Ethmoid, Mastoid & Temporal Bone surgeries with foot control, integrated irrigation system, speed greater than 50,000 rpm, burrs for special applications • Burrs: Cutting 0 to 5 number -1 each, Polishing 0 to 5 number – 1 each, Diamond 0 to 5number- 1 each. • Certification : USFDA/European CE approved
15.	**Radiofrequency Ablation Machine (RFA)**
	1. The machine should be US FDA approved with details of previous sales to reputed institutions. 2. Adequate safety to operator, patients, attendants and other medical apparatus connected. 3. Device should have both the output frequencies- Monopolar and Bipolar. 4. Device should have output frequency: 4 MHz for Monopolar and 1.7 MHz for Bipolar. 5. Device should have a minimum output power of 90 W. 6. Device should have Cut (90W or above), blend (65 W or above), Coag (45 W or above), fulgurate(35 W or above) and bipolar (90 W or above) output waveforms. 7. Device should come with a dual frequency footswitch and cable. 8. Device should have an option of both reusable and disposables consumables. 9. Device should have Digital Control Panel for easy operation and clear view of settings. 10. Device should have Solid State Circuitry for dependable and consistent energy emission. 11. Device should have auto-cut facility. 12. Device should have safety indicators to provide visual and auditory alerts. 13. Device should have parameter recall for rapid set-up. 14. Device should have an audible alarm for neutral plate dislodgement. 15. Device should be able to produce very sharp and precise cutting, negligible lateral heat production, and adequate hemostasis. 16. Device should come with a foot-controlled hand piece. 17. Device should come with a hand piece clip. 18. Device should come with a three-button finger switch hand piece. 19. Device should be a quieter system, small, lightweight generator for easy portability. 20. Weight of the machine should not be more than 10kg. 21. Device should come with a reusable medical electrode kit. 22. Device should come with a reusable neutral plate that does not require skin contact. 23. Device should come with an instantly ready to use hand piece. 24. Device should have platform to use multiple electrodes, for various surgical procedures. 25. Device should be able to treat following indications –moles, verrucae vulgaris, rhinophyma, nevus, papilloma or flat warts, seborrheic keratosis, hemangioma, venous lake, benign lesions of scalp, soft fibroma, telangiectasia, keloids. 26. Standard accessories should include: 1. Neutral plates

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2. Two sets of surgical electrodes (loops, balls, knives, pin, fine wire, needle, sharp pointed electrodes, scalpel, coagulation ball). Loops should be round, oval, triangular and diamond shaped. Electrodes' proximal diameter should be 1.6 mm and 2.4 mm, to accommodate standard hand piece connection.

RF Surgipens Bipolar forceps with cable.

16. FLEXIBLE VIDEO-BRONCHOSCOPE, MONITOR, HD VIDEO PROCESSOR WITH LIGHT SOURCE (ADULT)

BRONCHOSCOPE (01 Nos.)

Channel Inner diameter	2.8mm or more
Field view	1100 or More
Depth of field	3 – 50 mm
Distal End Outer Diameter	Less than 6.3mm
Insertion tube outer diameter	Less than 6.3mm
Working length	500-700mm
Bending Angulation range	Up-1800 Down-1200 or more
Total length	800-900 mm
Bronchoscope should be fully immiscible in disinfectant and cleaning solution	

- HD Video processor and Cold light source (both from original manufacturer)
- Compatible 300 Watt Xenon light source with coloured temperature around 6000 kelvins and Led lamp as auxiliary / back up.

1. Automatic light adjustment to maintain optimum brightness.
2. It should have a coloured system CCD
3. 2 spare bulbs (same quality)
4. It should be compatible to all scopes and ULTRASOUND endoscope and transmit image digitally
5. It should have automatic as well as manual brightness control mode.
6. It should have facility of extra illumination for more light apart from brightness control.
7. Processor should be able to give images of surface analysis and vessel analysis for identifying lesions and perform improve pit pattern classification.
   - Monitor: - High resolution monitor (minimum 19 inch) HC-LED medical grade.
   - Video Recording and reporting system: - (personal computer from standard manufacturer with latest processor and operating system, recording software, color laser printer)
   - Accessories: - All standard accessories (Leakage tester, valves, bite block

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	cleaning brush, cytology brush, biopsy forceps, and maintenance kit) from original manufacturer must be provided. • UPS: - UPS with 1 hour back up Others: - The Bronchoscope along with standard accessories and other accessories (other than supplied with the scope) should be quoted separately
17.	**Vacuum Extractor and Suction machine**
	1. Vacuum extractor with digital diaplay. 2. Microprocessor controlled digital/anolog display(led) with precise indication up to 1 mmhg accuracy whicj may not be seen in the conventional analog boutdon vacuum gauge. 3. Vacuum indication can be preselected in the digital display either in mmHG OR IN Kg/cm2 4. Portable suction unit: size 38x17x28.5cm, weight 5.1kg 5. SUCTION MACHINE with pump: Power supply: 230-240V/50Hz, Vacuum capacity: 18 litres/mm and Maximum depression: -75kPa (-563mmHg) 6. Vacuum is created by a plastic piston and cylinder system, with four vacuum-creating 7. Soft silicon cup: Medical graded silicon rubber ensures absolute biocompatibility and high durability with all four sizes 8. Suitable for occipital anterior (OA) positions and outlet presentation 9. Caesarean AID CUP all 2 sizes.
18.	**Blood and Fluid warmer**
	1. Intended for use in operation theatre and ICU to deliver norm thermic and warm blood and fluids at a very high infusion rate 2. Fast flow fluid infusion system 3. Fluid warming integrated 4. Air detection system integrated- ultrasonic air detection technology preferable 5. Automatic stoppage of flow when air is detected 6. Minimum 500 ml/minute flow 7. Rigid pressure chambers should accommodate standard blood and crystalloid bag (one litre bag optional) 8. Providing a constant pressure for rapid infusion 9. On/Off toggle switch to quickly and easily pressurize chambers 10. Dual bag connection facility 11. Pole mounting facility/wheel facility 12. Touch buttons for control.

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	All consumables for the equipment should be provided for 20 usage.
19.	**Ultrasonic Nebulizer**
	1. The unit can be wall mounted with a rail clamp or placed on a movable stand for highest flexibility 2. The integrated timer features the following settings: 15/30/40 or 60 minutes or continuous flow. 3. A heated tube with a heating capacity of up to 37 degrees Celsius provides high comfort for the patient during use. 4. Nebulizer performance, adjustable 0-180ml/hr 5. Particle size 0.5-5-micron meter. 6. Air flow, adjustable 0-20 liter/min. 7. Ultrasonic frequency 1.68Mhz or above.
20.	**U S G Machine 3 Probes**
	1. System must be a state of the art model & have all digital beam former technology with super computer processing and clinically proven imaging technologies. 2. System should be offered with the following applications: abdominal, obstetric/ gynaec, small parts, musculoskeletal, TCD, vascular, cardiac. 3. System must be offered with a minimum of 60,000 digital processed channels per image frame. 4. System must be offered with frequency compounding facility. Other equivalent technology can also be offered. 5. System must be offered with Speckle Reduction Imaging: - image processing technique to remove speckles & clutter artifacts. 6. Should have state of the art Transmit Real Time Compound Imaging Technology 7. System must be offered with a very high dynamic range of at least 170dB to pick up subtle echoes. 8. Frequency processing facility for the transducers should be 1-12 MHz. This must be available without the need for frequency switching. 9. Must have at least 3 Active Integrated Transducer Ports with electronic switching. 10. System must be offered with an acquisition frame rate of at least 750 frames/ second. 11. Must be offered with a single button control for automatic optimization & adjustment of TGC and Receiver Gain. 12. System must be offered with a single button control for automatic optimization & adjustment to achieve uniformity of Color Gain/ Spectrum for faster scans. 13. System must be offered with a single button control for automatic optimization for uniformity of Spectral Doppler. 14. System must be offered with 2D, M-mode, Color M-mode, Color flow, Pulse Wave

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Doppler, and Color Power Doppler.

15. Triplex Imaging should be standard on the system.
16. The system should have at least 30 user programmable parameters.
17. The system should have at least 100 seconds of Clip storage facility.
18. The system shall offer both Trapezoid & Panoramic Imaging.
19. System should allow for live image & archive images side-by-side or quad display on a single monitor. This display shall allow any type of image on either side.
20. The system should provide scan depths from a minimum of 2 cm or less to a maximum of 30 cm or better
21. User Interface
22. On/Off task light & Backlit illumination of control panel.
23. Easily accessible, full size qwerty keyboard for text entry, functional keys & system programing.
24. Thumbnail menu provides on-screen thumb-nails of images & dynamic clips during exams.
25. Monitor:

- System must be offered with an above 19-inch high resolution, flat panel, medical grade monitor with wide viewing angles & good color resolution.
- Resolution: 1024x768pixels or better

26. Internal Hard Disk of 250 GB or more. Image storage as raw data & DICOM images. Conversion to JPEG, AVI, and MPEG file formats available.
27. Should have facility to transfer images to an integrated DVD writer and pen drive, without any interfacing.
28. Raw data processing
    - The system shall allow for post-storage image manipulation Doppler Gain, Angle correction, Doppler Base Line, sweep speed & inverted spectral waveform
    - System should provide a display zoom function on frozen images.
    - System should have the facility of performing measurements & annotations on stored images.
29. Cine Function:
    - Cine Review up to 1200 frames
    - Independent Cine Review in 2D/M, 2D/Doppler, 2D/C/Doppler, etc.
30. Measurements & Calculations:

- All general measurements & calculations for all applications with digital calipers for distance, area, volume, circumference and Doppler wave form parameter measurements
- Customizable Anatomy Description.

31. Transducers:
32. The system must be provided with the following transducers: -

- 2-5 MHz Broadband Curved Array Transducer
- 4-9 MHz Broadband Tightly Curved Endocavitory Array Transducer with minimum 140-degree field of view, but if bidder has larger angle available must supply that

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	also. • 5-2 MHz Linear Array Transducer 33. Tissue Harmonic Imaging, Compound Imaging & Doppler Mode should be available on all probes. Doppler cursor shall be user-steerable with linear transducers 34. Upgradeable to 4D (Minimum – 30 vps) 35. System Power: 200-240V, AC, 50Hz 36. The System should have DICOM 3.0 (minimum) as standard. (DICOM ready system) 37. System Interface: 1 no. Ethernet connectivity; 2nos. RS 232C Serial Port Connector; 2nos. USB 3.0 Port; & AC Main outlet. 38. DICOM PUSH/ QUERY/ RETRIVE. Connectivity to RIS/ PACS/ HIS 39. System should be supplied with the following peripheral devices: • 3 KVA Online UPS • USB Colour Laser Printer of reputed brand with built in image management Software FDA & CE (Should be from Notified Body) approval.
21.	**Ultrasonography equipment with Color Doppler**
	1. System must be a state of the art model & have all digital beam former technology with super computer processing and clinically proven imaging technologies. 2. System should be offered with the following applications: abdominal, obstetric/ gynaec, small parts, musculoskeletal, TCD, vascular, cardiac. 3. System must be offered with a minimum of 60,000 digital processed channels per image frame. 4. System must be offered with frequency compounding facility. Other equivalent technology can also be offered. 5. System must be offered with Speckle Reduction Imaging: - image processing technique to remove speckles & clutter artifacts. 6. Should have state of the art Transmit Real Time Compound Imaging Technology 7. System must be offered with a very high dynamic range of at least 170dB to pick up subtle echoes. 8. Frequency processing facility for the transducers should be 1-12 MHz. This must be available without the need for frequency switching. 9. Must have at least 3 Active Integrated Transducer Ports with electronic switching. 10. System must be offered with an acquisition frame rate of at least 750 frames/ second. 11. Must be offered with a single button control for automatic optimization & adjustment of TGC and Receiver Gain. 12. System must be offered with a single button control for automatic optimization & adjustment to achieve uniformity of Color Gain/ Spectrum for faster scans. 13. System must be offered with a single button control for automatic optimization for uniformity of Spectral Doppler. 14. System must be offered with 2D, M-mode, Color M-mode, Color flow, Pulse Wave Doppler, and Color Power Doppler. 15. Triplex Imaging should be standard on the system.

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16. The system should have at least 30 user programmable parameters.
17. The system should have at least 100 seconds of Clip storage facility.
18. The system shall offer both Trapezoid & Panoramic Imaging.
19. System should allow for live image & archive images side-by-side or quad display on a single monitor. This display shall allow any type of image on either side.
20. The system should provide scan depths from a minimum of 2 cm or less to a maximum of 30 cm or better
21. User Interface
22. On/Off task light & Backlit illumination of control panel.
23. Easily accessible, full size qwerty keyboard for text entry, functional keys & system programing.
24. Thumbnail menu provides on-screen thumb-nails of images & dynamic clips during exams.
25. Monitor:

- System must be offered with an above 19-inch high resolution, flat panel, medical grade monitor with wide viewing angles & good color resolution.
- Resolution: 1024x768pixels or better

26. Internal Hard Disk of 250 GB or more. Image storage as raw data & DICOM images. Conversion to JPEG, AVI, and MPEG file formats available.
27. Should have facility to transfer images to an integrated DVD writer and pen drive, without any interfacing.
28. Raw data processing
    - The system shall allow for post-storage image manipulation Doppler Gain, Angle correction, Doppler Base Line, sweep speed & inverted spectral waveform
    - System should provide a display zoom function on frozen images.
    - System should have the facility of performing measurements & annotations on stored images.
29. Cine Function:
    - Cine Review up to 1200 frames
    - Independent Cine Review in 2D/M, 2D/Doppler, 2D/C/Doppler, etc.
30. Measurements & Calculations:

- All general measurements & calculations for all applications with digital callipers for distance, area, volume, circumference and Doppler wave form parameter measurements
- Customizable Anatomy Description.

31. Transducers:
32. The system must be provided with the following transducers: -

- 2-5 MHz Broadband Curved Array Transducer
- 4-9 MHz Broadband Tightly Curved Endocavitory Array Transducer with minimum 140-degree field of view, but if bidder has larger angle available must supply that also.
- 5-2 MHz Linear Array Transducer

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	33. Tissue Harmonic Imaging, Compound Imaging & Doppler Mode should be available on all probes. Doppler cursor shall be user-steerable with linear transducers 34. Upgradeable to 4D (Minimum – 30 vps) 35. System Power: 200-240V, AC, 50Hz 36. The System should have DICOM 3.0 (minimum) as standard. (DICOM ready system) 37. System Interface: 1 no. Ethernet connectivity; 2nos. RS 232C Serial Port Connector; 2nos. USB 3.0 Port; & AC Main outlet. 38. DICOM PUSH/ QUERY/ RETRIVE. Connectivity to RIS/ PACS/ HIS 39. System should be supplied with the following peripheral devices: • 3 KVA Online UPS • USB Colour Laser Printer of reputed brand with built in image management Software FDA & CE (Should be from Notified Body) approval.
22.	**Portable ultrasound with multiple probes including CARDIAC probe (including probes for pediatric/ infant evaluation)**
	The equipment must be capable of operating in B, M, Doppler, Color flow and Power Doppler modes It should support transducers with linear, cardic and convex formats. . Further, it must include a full array of measurement and calculation packages. The specific minimum requirements for this equipment are as follow. 1. The system shall include at least a 19" LCD monitor for both excellent image viewing as well as providing for workflow and productivity features. 2. The LCD monitor shall be mounted on an articulating arm that moves side-to-side, forward and backward. The system shall include a minimum 10-inch Touch-screen LCD with 3. context sensitive menus to facilitate productivity as well as minimize training requirements. 4. The system shall have minimum three universal active probe Ports in a convenient, easy to access location to maximize the availability of needed probes, with pin less connector. 5. System should be portable with wheels. 6. System shall have image management features that store images by patient and include the ability to review images from different exam dates. 7. 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. 8. System shall allow for live image and archive images side-by-side or quad display on a single monitor. This display shall allow any type of image – B-Mode, Color, or power Doppler on either side. 9. The system shall implement a feature, which enables to help streamlining the workflow. In particular, the system should automatically invoke the correct

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mode and imaging parameter and advance to the next step within the examination with a one-bottom operation. Contrast
Ultrasound Capability (CEUS) with Times Intensity Curve Graphs.

10. TVI/TDI advance cardiac package.
11. Raw Data Processing. The system shall allow for Post-Storage image manipulation to provide maximum image flexibility, review and productivity. It shall include the ability to change all following on recalled old Stored Images/Loops :

    Overall B-Mode gain, dynamic range and gray scale maps.

    Overall Doppler gain, base line shift, sweep speed and inverted spectral waveform.
    Anatomical M-Mode
12. The system shall provide a display zoom function on frozen images.
13. Reusable cover for USG machine of good quality.

14. Scanning Parameters

1. The system should have more than 1,00,000 digital system processing channels.
2. The system shall provide scan depths from a minimum of 2 cm to a maximum of at least 30 cm.

15. B-Mode/ M-Mode Imaging

1. The system shall provide the capability for coded tissue harmonic imaging on all offered transducers.
2. The system shall have an "anatomical" M-Mode – allowing the M-Mode cursor to be adjustable in any plane and allow for accurate
3. Unit should be capable of creating a M-Mode from an old recalled CINE loop also.
4. Color flow/Power Doppler.
5. Spectral Doppler (PW)

16. Measurements and Calculations

1. Measurements should be possible on frozen images as well as on images recalled from the image archive.
2. The system shall provide a comprehensive set of obstetrical and gynecologic calculations cardiac and vascular calculations with

   summary reports.

17. Image Archive and Networking

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1. The device should store images onto an integrated DVD-R Multridrive and a USB port storage device.
2. The system shall include at least 500 GB hard drive for large local storage capacity.
3. The device should store images in DICOM, JPG, WMV and AVI formats for maximum flexibility.

18. DICOM Connectivity option should be available

Transducers

Convex Probe, Operating Frequency: 1 - 5 MHz

Cardic probe, Linear probe

System should have CE /FDA (US)/ BIS approved product

Standard Accessories;

a) B/W Thermal printer

b) Free Software upgrade(s) during the period of Warranty & CMC

c) Probe Protection covers / probe connector cover for all probes

Warranty for 3 (Three) years

Patient data and image capture software to be provided

Medical grade UPS of suitable capacity to run the USG machine should be provided

23.	**500 mA Static X – Ray units (Direct digital / CR)**

X-RAY GENERATOR (Multipulse high frequency)

1. The X-ray generator should be high frequency not less than 32KW.
2. The X- ray control panel should be feather touch.
3. The X-ray control should have digital display of KV, mA, Mas & time.
4. The radiography KV should be 40 to 125KV.
5. Parameter combination should be 500 mA. 40 to 125KV, focal spot 0.6/1.5 and 200KHU anode heat storage. (only BEL/Toshiba tubes to be supplied)
6. The exposure time should be from 1 ms to 10s in 38 steps.
7. The radiography mAs should be 0.1 to 500 mAs.

8. The APR should be 216.
9. The Control should have programmer protection for X-ray Tube.
10. It should have automatic line voltage compensation.
11. The control should have anatomical program selection for various body parts with body type.
12. The generator should have microprocessor based electronic overload system.
13. It should have self-diagnostic circuit with error code reporting.

TUBES:

Two in number. One over coach & one under couch. X-ray tube should dual focus, rotating anode, and high speed, compatible with the generator. Anode heat storage capacity 200 KHU or more.

MOTOR DRIVEN TABLE:

1. The table should be all positioned motor operated table i.e. from +90deg. To -12 deg. Trendelenburg.
2. It should have automatic stop at horizontal, vertical and Trendelenburg position.
3. The table should have arrangement for manual operation in case of power failure.
4. The motorized bucky with grid of 17 ¼" X 18 3/4" 8:1/103 lines should be provided.
5. The bucky tray should accept cassettes up to 14x17 size.

SPOT FILM DEVICE:

a) It should be mounted on table.

b) It should consist of 14X14 fluoroscope screen lead glass and grid of ratio 8:1, 103 lines/inches.

c) It should be capable of taking 4 spot on 8" x 10" and 1 spot on 10" x 12" cassette.

d) The spot film device should have lateral parking.

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	COLUMN STAND: It should be floor to ceiling column stand with vertical counter balanced travel. It should have 360 deg. Rotation. **IITV SYSTEM** It should be fitted on X-ray unit. It should be of 9" triple field with field selection on (9"/6"/4.5"). It should have centre resolution of 52 lines/cm. It should have conversation factor of 220. The C.C.D. camera should be of ½" with pixel of 752 X 582. It should have scanning lines of 625 lines, 50 fields, The horizontal resolution should be of 570 lines. 1 no. high resolution monitor should be supplied for viewing the image. It should have reversal function. **VERTICAL BUCKY STAND** Vertical bucky motorized bucky with counter balanced height adjustment should be there. The grid size should be 17 1/4 x 18 ¾, 8:1 ratio, 103 lines/inch. Should be able to accommodate detachable chest stand for taking exposure up to 14X17. **POWER SUPPLY** The unit should run on power supply 3 phase, 440 volts, 50Amps (32KVA). Valid AERB type approval for quoted model. Quoted equipment should be demonstrated in working condition preferably in a large institution. Vendor should have established service centres in Karnataka with adequate installations of quoted or similar equipment. Please provide details of the same. Certified radiation safety lead aprons to be supplied, minimum two.
24.	**100 mA Portable X –Ray unit**

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X-RAY MACHINE: High Frequency (40 KHz) X- Ray Generator suitable for General Radiography.

I. GENERATOR RATING:

a. Output Power: Should be 6 KW or more.
b. KV Range: Should be 40 to 120 KV.
c. mA Range: Should be 140mA or more.
d. mA Range: Should be upto 200mAs
e. Collimator: One Manual Collimator should be provided.

II. CONTROL PANEL:

The Control Panel Should be compact, pleasant and ergonomically designed with soft Touch Switches. Following Switches & indicators should be available on the control panel:

a. Machine ON/OFF Switch.
b. KV & mAs Increase & Decrease Switches.
c. Digital Displays of KV & mAs .
d. Bucky Selection Switch.
e. Collimator Lamp 'ON' Switch with auto shut off facility
f. Standby & Exposure Release Switch.
g. X- Ray on Indicator.
h. Self-diagnostic Program with indicators for:
    - Earth fault Error
    - KV Error
    - Filament Error
    - Tube head Thermal Error

III. A Hand Switch with Dual action for exposure release with Retractable Cord should be provided for Radiation Protection to the operator.

IV. X-Ray TUBE: Should be Rotating Anode X- Ray Tube with Rating of 11/32 KW or comparable in KHU/min (better will be preferred). It should have dual focal spots of 0.6/1.2 mm or better.

V. STAND: Should be Floor to Ceiling Stand with Counter Balanced Tube Head, 360o rotation and mounted on Floor Ceiling Rails for convenient movements.

VI. TABLE: Manual Hand Tilt, 5 Position Table, having angulations of Trendelenburg - 12o ,0o ,30o, 60o and 90o The Table should have fully balanced Bucky Diaphragm with Grid. The Grid ratio should be 8:1 (or better), 85 lines/inch (or better) and the Grid size should be 17 ¼ " X 18 7/8". Following accessories should be provided along with the Table.

- Stainless steel Cassette Tray.
- Foot Rest.

VII. Accessories:

- Two sets of Green based High speed cassettes of 12"x15",10"x12 and 8"x10"
- One set of spare Screens for each supplied cassette.
- Stainless steel Hangers 6 per each cassette size.
- Two sets of Film Processing Tanks 3 nos. Lead Alphabets and numbers 3 sets.
- Safe light to be provided in the dark room. BARC Approval light weight lead gowns with lead equivalent of
- 0.5 mm or better 2 no's with hangers.
- Lead partition with viewing lead glass 1 no for Radiography.

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	o Chest Stand. **VIII. Power Supply Requirements:** Should have single phase, 230V, AC, 50/60Hz. 15 Amps with Line regulation of ± 10% Line Resist: <0.4 ohms. **IX. Other Requirements:** **Should be CE & US FDA Approved products.** a) The unit should be approval by AERB. b) The company should be having a local Service center. c) The company should be proven track record in Govt. sector. d) The Company should be approved by BIS. e) The unit and the supplied accessories should be BIS approved for the mechanical and electrical safety norms. Maintenance, guarantee, warranty and AMC/CMC norms as per the general tender conditions.
25.	**OT Table Manual Hydraulic**

	• The table should have minimum 4 sections.
	• The table should have easily detachable split leg and easily detachable head section.
	• The table top should have a minimum height of 765mm or lesser.
	• The table top should have a minimum vertical stroke of 250mm.
	• Should have sealed hydraulic mechanism to avoid oil spillage.
	• Should have at least 25 ° Trendelenburg and reverse Trendelenburg.
	• Should have at least 20"lateral tilt movement.
	• Should have at least 80° back up movement with gas spring mechanism.
	• The head section should have up and down movement.
	• The leg section should have 90 down movement and should move side wards to a minimum of 90 degrees.
	• The table should have a heavy and sturdy base and compact to provide adequate foot room for the operating team.
	• The table should be mounted on heavy duty casters which offer enhanced weight bearing capacity and free mobility.
	• The table should have a single lever foot operated brake pedal.
	• Should have a minimum patient weight bearing capacity of 100 Kgs.
	• Base should be made of cast iron and all other parts and accessories should be completely made of Stainless Steel 304 grade except the cushion, gas spring and hydraulic system which should be made of any non-resting metals like brass etc.
	• The table should be supplied with the following accessories.
	  • Mattress for the complete table top in sections 1 set
	  • A pair of arm boards with pad and fixing clamp -1
	  • A pair of padded shoulder support with clamps -1

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	• A pair of padded lateral support with clamps -1 • A pair of leg crutches with clamps -1 • Anesthetic screen frame with clamp-1 • Patient restraint strap-1 • The table should have the facility for easily detachable kidney bridge attachment and the price shall be quoted optionally
26.	**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. • 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 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 **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.

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	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.
27.	**OT Table for Orthopedics**
	Description of Function: 1. Operating tables provide an elevated surface that supports the patient's body during surgical procedures, stabilizing the patient's position and providing optimal exposure of the surgical field. 2. C-arm compatibility with electro-hydraulic operation table. **Essential technical specifications:** 3. Minimum six section table-top, which should be X-Ray translucent for fluoroscopy with 'c' arm and with radiolucent mattress. 4. The table should have a provision to be operated in the following modes: 5. Electrically by remote control and should have a removable standby handset with roll able cord located on the table column as well as an additional manual auxiliary mode facility. It should have integrated batteries with a capacity for approx. 100 operations and an integrated • High / low approx. 600-1200 mm • Side tilt / lateral left and right approx. 15-30° • Trendelenburg and Reverse Trendelenburg approx. 20-45° • Back section approx. +70° / -40° • Leg section approx. +70° / -90° The leg section must be removable and the leg section interface must allow the alternative attachment of electrically adjustable leg holders or an optional electrically adjustable Back section for shoulder arthroscopy 6. Manual adjustments (hydraulic/gas spring supported). It should have at least the following functions: • Head section up and down approx. +25° / -45° • Divided leg section up & down approx. +20° / -90° • Swivelling of leg sections approx. 70° • Back section up & down approx. +70° / -40° • High / low approx. 600-1200 mm • Side tilt / lateral left and right approx. 15-30° • Trendelenburg and Reverse Trendelenburg approx. 20-45°

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7. The table can be operated manually, electrically on AC mains power or on batteries.
8. The remote control should have a clearly labelled control panel for main adjustments such as height, lateral, Trendelenburg / Reverse Trendelenburg, back section, leg section, return to basic position and reverse mode. It must have an indication of the load control of the batteries. The control unit should have a backlit display and control panel ensuring a safe and easy handling in the darkened operating room when doing minimally invasive surgery.
9. Optional Bluetooth remote control unit may be available.
10. should preferably have Integrated software information system to simplify maintenance and service of the table
11. Radiolucent six section table top in head section, short back section, back section extension, seat section with perineal cut, divided leg section. With quick release facility to remove or interchange head and leg sections (Reverse Mode).
12. Should preferably have antistatic and liquid-tight mattresses with shock absorbing foam for Decubitus Prophylaxis and for reducing the cooling of the patient during surgery. The mattresses must be free from Latex material. Mattress must preferably have a thickness 50- 80mm.
13. All metal components of the table should be made of corrosion resistant and disinfectant- proof stainless steel.
14. Mobile table-base on antistatic heavy duty swivel castors with central brake ensuring a stable base.
15. Should also be suitable for obese patients. Minimum tolerable weight should be 250 kg.
16. Should have stainless steel accessory rails on both sides of the table-top to hold various accessories.
17. Should be supplied with the accessories for orthopaedic traumatology, spinal surgery and shoulder and knee arthroscopy.

Orthopaedic accessories:

1. Extension Device with following Acc.
2. Pair of Adapters
3. Counter traction Post for femur
4. Telescopic bar long Telescopic bar short
5. Screw tension device

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	6. Foot Plate support 7. Side rail Ext 8. Supporting bars 9. Radial Setting clamp 10. Transport Cart 11. Foot Plate (Pair) 12. Counter traction post for femur 13. Rotation & tilting clamp 14. Traction Stirrup clamp 15. Counter traction Post tibia 16. Condyle Fixation 17. Universal support for positioning lower Leg 18. Pad for disc operations 19. Fixture for body support 20. Lateral Support 21. Shoulder support 22. Back buttocks support 23. Pubis-sacrum-sternum support 24. Allen Arm/Hand table (Radiolucent) **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.
28.	**O2 cylinder with Trolley B - Type**

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	Normal standard O2 cylinder with Trolley B - Type

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