Warming Blankets Technical Specification for Patient Warming System for Operation Theatre

1. Should be specifically designed for intra-operative applications.

2. Should be convenient to be used in any position of the patient including lithotomy position.

3. Warming mattress should consist of the following for easy applications: a. Arm-cum-shoulder section - (170-175 cms) x (28- 32cms) b. Pair of leg segments - (40-45) cm X (85-90) cm c. Abdominal segment to cover the entire body - (40-45) cm x (85-90)

4. Control unit should be capable of warming minimum four segments at a time.

5. Should be based on semiconductor polymer foil for precise warming of entire patient body

6. Control display unit should have: a. Touch screen to select parameters b. Colour LCD c. Display temperature of different segment at a time

7. Control unit should automatically detect the number of segments which are connected to the unit and display the same on the screen.

8. Should offer precise digital temperature control with selectable temperature range of 36 to 42º C in steps of 0.1ºC

9. Arm cum shoulder segment should be divided in two sections capable of being switched ON or OFF independently depending upon the nature of surgery and condition of patient.

10. Should have facility to measure & display the real time core body temperature of the patient continuously on the screen.

11. Should also have on screen graphical display of patient body temperature for the entire duration of surgery.

12. Should have facility to independently adjust the temperature of individual segment.

13. Should have safety features such as Automatic check, Precise temperature control between warming system and patient, Autostop on detecting any problem

14. Should have non latex anti-bacterially coated, blood and fluid Resistant covers

15. Mattress covers should be washable and replaceable.

16. The control unit should be light weight not more than 3.6 kg, and easily attachable to IV rod/OT table with fixing claw.

17. Should have noiseless operation 1.

18. Should be CE(European) mark. Terms & Conditions - Preventive machine maintenance four times in a year. - Response time for acknowledgment of complaint 30 minutes. - Response time for physical presence within one working day. - Uptime 355 days in a year. - Downtime 48 hours with a penalty of Rs.1000/- every day after downtime - Demonstration of equipment is compulsory.

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Specification for ICU/ICCU Bed

i) Bed should be fully motorized and all the functions of bed should be electrically operated.

ii) Bed should be 5 sections; PP top, top section should be radiolucent and must be provided with a cassette carrier for inserting x-ray plate of various sizes.

iii) Should have 4 motors/actuator (DC motors for Quiet Operation)

iv) Safe working load should be 200kg or more.

v) Should have electronically operated Backrest, Height, and Kneebreak adjustment.

vi) Should have electronically operated Trendelenberg/ Reverse Trendelenberg tilt.

vii) Should have electrically operated calf section adjustment.

viii) Should have one touch button activated Chair, Automatic Contour, Egress, Trendelenberg/ Reverse Trendelenberg tilt position.

ix) Should have four position IV pole mount.

x) Electro-Static painted metal frame.

Comfort :

xi) Excellent adjustable chair position thus allowing maximum patient comfort.

xii) Retractable back and upper leg sections thus avoiding friction and shear force on the back.

xiii) User friendly separate patient and attendant control panel.

xiv) Should also have sleek user friendly nurse control unit at foot end location. It should have all one touch button position function along with other functions also. It should also have locking mechanism for patient and attendant control. There should be indicators for motion lockouts, power connection and battery charge.

xv) 10% of the total beds should have Bed Extender with mattress desirable to increase a length of the bed not less than 150mm.

xvi) Quick and easily removable head & foot panels during intubation and resuscitation.

xvii) Central and directional lockable castors, Dual wheel type with Diameter not less than 125mm.

Safety:

xviii) Full length split safety side rails, should be lockable and tuck away type also easy to grip.

xix) Wall deflection buffers at all four corner.

xx) Electronic as well as dual sided manual CPR position facility.

xxi) Should have IEC 60601-2-52 certificate.

xxii) Product should have CE (European Conformity) Certificate.

Hygine :

xxiii) Polypropylene (PP) platform tops should be easily removable to allow easy cleaning thus easy to disinfection, fumigation.

Mattress: -

xxix) High density mattress (40kg/m3), X ray translucent, latex, Height 14cm or more, cover material polyurethane coated polyester, Fire retardant mattress system (BS EN 597-1:2015 & BS EN 597- 2:2015)

Over all Approximation Dimension:

xxx) Buffer to Buffer: 2160-2200mm x 1000-1030mm (L x W)

xxxi) Platform frame: 2070-2100mm x 960-990mm (L x W)

xxxii) Mattress platform:1900- 2000 mm x 865-900 mm (L x W)

xxxiii) Extended length :150mm for mattress (6")

xxxiv) Backrest Angle: 650 or more -

xxxv) Minimum height – 450mm or less (without mattress)

xxxvi) Maximum height - 750mm or more (without mattress)

xxxvii) Trendlenburg : 120 or more

xxxviii) Reverse Trendlenburg: 120 or more

xxxix) Backrest Angle : 650 or more

Electrical Specification :

XL) Power in normal 220-230 V AC, 90 to 300 V AC operationg range; 47-63 Hz, max 2A.

XLI) Electrical Shock protection

XLII) class1 - Degree of shock protection

XLIII) Type B - Liquid Ingress protection – IPX4

XLIV) Rechargeable batteries – 2 x 12 Volt Series connected, sealed rechargeable Lead/ acid Gel.

XLV) Duty Cycle – 10% (Two minutes for every eighteen minutes)

XLVI) Battery Back-up (Four hours or more) should have SMPS in mains circuit.

Accessories:

XLVII) Urine bag holder (single)

XLVIII) SS (304) Heavy Duty IV pole (2 Hooks)

XLIX) Oxygen Cylinder Holder

L) Should have long electrical cord not less than 10 Ft.

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Technical specifications of Laminar Air Flow:-

1. Microprocessor controlled system

2. Type of airflow: Horizontal

3. 70% of air should be recirculated to the cabinet work area through HEPA filter and the 30% balance should be exhausted through HEPA. The balance should be dynamic to ensure the 70/30 recirculation/exhaust air

4. The instrument must have HEPA filters on down flow as well as exhaust with an efficacy of 99.99% for particles sized of .(Calibration certificates along with DOP test report shall haveμ0.3 to be submitted at the time of supply of instrument)

5. The dimensions of the working chamber should be in the following range: Length: 90-120 cm Width: 40-60 cm Height: 50-80 cm

6. The main body and working chamber of the cabinet should be made of stainless steel, rigid and rustproof with removable trays

7. The cabinet should have an electrically operated sliding front sash made of safety (UV) glass with a provision for manual operation of the sliding front window. Also, the sliding front sash should have true air and aerosol tight electrical shahs.

8. Front door: clear transparent sturdy material

9. Work chamber should be fitted with a Fluorescent lamp for illumination and should have programmable UV light cycle.

10. The unit should have microprocessor control keys with large icons and a large graphical display with provision for the permanent display of the following key cabinet conditions. i. Inflow and down flow air velocity ii. Exhaust and recirculated airflow volumes iii. Time and date iv. Residual lifetime of filters & total time of cabinet operation (optional)

11. Alarm notification in the following situations: i. Low inflow velocity ii. Low down flow air velocity iii. HEPA filter life iv. Alarms for clogged filters v. Other malfunction

12. Compatible at a power supply of 220 V, 50Hz

13. Noise level: < 65 dB

14. Basic cabinet should be termite and insect resistant and washable

15. Accessories: Manometer, gas inlet, castors

16. The cabinet should be with a stand with lockable castors

17. Operator and technical manual

18. Should be USFDA approved or European CE certified. Certification documents with validity dates should be submitted along with technical bid. In case, no certificate is submitted, the quotation shall be considered invalid.

19. The company should give the certificate that the model quoted is the latest and not obsolete; & spares will be easily available for next 5-7 years.

SPECIFICATIONS of **High Frequency C-ARM**:

Compact C-ARM unit with 9" Image Intensifier Unit,
High Resolution Camera, Dual Flat Panel high resolution monitors, image processing software for unobstructed positioning and enhanced use during gastrointestinal procedures.
The unit must include the following:

1. **X Ray Generator**

i) Dedicated DC Controlled High Frequency X Ray Generator of minimum 100 KHZ Generator Frequency with complete Digital Fluoroscopy
ii) Output power of minimum 3.5 KW or more
iii) Fluoroscopy KV range: 40-110KV or more in steps of 1KV or more
iv) Fluoroscopy mA (Normal) – 0.2 – 8 mA or more
v) Pulse Fluoroscopy mA – 0.2 – 12 mA and pulses from 2 - 8 pps
vi) mAs range in radiography mode: 200 mAs or more
vii) Machine should allow capture of Single Shot Images in Fluoroscopy Mode (SNAP SHOT)
viii) SNAP SHOT mA - 0.2 - 10 mA
ix) Recording of kV and mA for each exposure

2. Digital Subtraction Angiography (DSA) with Road Map facility should be provided as standard.

2. **X-Ray Tube**

i) Dual focus Rotating Anode with focal spot size of 0.6mm or less and 1.5 or less
ii) Anode heat content 40KHU or more
iii) Thermal safety cutoff to be provided.

3. **Specification of C arm**

i) Fully Counterbalanced C ARM with following movements:
ii) Motorized Vertical Travel of 400mm or more
iii) Horizontal Travel of 200mm or more
iv) Wig / Wag Movement - +/- 12.5 Degrees or more
v) Rotation - +/- 180 Degrees
vi) Arc orbital movement of -40 deg / +90 degrees
vii) Depth of the C – at least 750 mm
viii) Source to image Distance – 960 mm or more

LASER AIMER for Radiation free positioning of C Arm

Image Intensifier

i) Should be of Triple field 9" Image intensifier (9"/ 6"/ 4.5")
ii) High resolution CCD camera of minimum 1 K x 1 K should be provided
iii) Camera Frame Rate of up to 30 fps for uncompromised Lag Free Imaging

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6. **Image Acquisition and Image Processing**

i) C Arm should allow acquisition of all images in Digital Fluoroscopy Mode (all kV and mA recorded)
ii) Patient management- Electronic record with name, date, anatomy
iii) Search based on criteria
iv) Machine should allow Gamma correction, Contrast / Brightness setting, Digital Image Rotation in both LIVE and REFERENCE Monitors
v) Machine should allow Image Post Processing features like Zoom & Pan, Edge Enhancement,Virtual Magnification Glass, Virtual Contrast/ Brightness increase
vi) Annotation & basic measurements (Text / Trace / Arrow/ Length) should be allowed in Recorded Images.

7. **Image Storage**

i) System should allow storage of Images in JPEG, DCIM and AVI format
ii) C Arm should allow storage of minimum 1,00,000 Images in Hard Drive
iii) System should be provided with CD/ DVD Writer and USB Connectivity
iv) System should be DICOM and PACS
v) Should have LAN Port

8. **Monitor Trolley**

i) Monitors of High Resolution minimum 19 " should be provided
ii) Radiation Indicator
iii) Should have a suitable Built in Voltage Stabilizer
iv) Built in UPS of 600 VA or more

9. **Radiation Safety**

i) C Arm should come within built DOSIMETER
ii) Preset kV and mA should be provided for All Gastrointestinal Procedures and All Types of Patients.
iii) C Arm should have provision for Automatic Dose Rate Control

10. **Accessories**

i) Standard accessories including Lead Apron -6 pieces
ii) Thyro guard- 05 pieces
iii) Should be supplied with suitable servo voltage stabiliser compatible with C arm

11. The quoted model should be AERB type APPROVED and the vendor should get necessary approvals for functioning of the unit in the department soon after procurement.

Technical Specifications of **Transport Ventilator**:-

1. Should be time-cycled ventilator operating on mains, battery or ambulance/car battery. Battery backup should be for minimum of 4 hours.

2. Ventilator should be of low weight (not more than 6 kg) and with operation range from-20 to +50 degrees centigrade.

3. Should be supplied with autoclavable breathing circuits (Both Adult and Pediatrics): 2 Each.

4. Screen Size 5 inch. Upgradable to ETCO2.

5. Should have integrated display of set and expired data as below

a) Tidal volume: 50 ml- 2 litres.
b) Rate:2-50 breaths/min.
c) PEEP (integrated in main unit):0 to 20 mbar/cmH2o
d) Inspiratory Pressure-20 - 60 cm H2o
e) Flow trigger : 3 - 15 lpm
f) Pressure Support:0 - 35 cmH2o
g) Ventilation Waveforms.
H) FiO2 : 40% to 100%

6. Should have following ventilation modes:

a) NIV
b) IPPV (CMV)
c) Assist Control
d) SIMV
e) CPAP
f) Pressure control
g) Pressure Support
h) PRVC

7. Should have both audio visual alarms for:

a) High & Low Pressure
b) Apnea
c) Setting errors
d) Low battery
e) Low oxygen supply

8. Standard scope of supply to include requirements

a) Main unit with inbuilt battery
b) Breathing hose set with expiratory valve and flow sensor
c) AC – DC adaptor
d) Oxygen high pressure hose

e) Test lung

f) Instruction Manual

9. Quality standards and support requirements

a) The offered unit should have CE with Medical Directive & European standard/ US FDA certificate

b) Vibration standard MIL STD 810F, method 514.5

c) Airworthiness RTCA DO-160 D, section 7,8,21

10. Should have local service facility. The service provider should have the necessary equipment recommended by the manufacturer to carry maintenance manual.

11. Availability of consumables for at least 10 years after the date of installation.

Technical Specifications for **Anesthesia Machine**

1. Should have provision for delivery of oxygen and nitrous oxide with Pressure gauges.

2. Should have independent attachments for connecting central gas supply and pin indexed cylinders.

3. Should have analogue display of cylinder and pipeline gas pressures.

4. Should have provision to attach two cylinder for Oxygen and one for Nitrous Oxide.

5. Oxygen and Nitrous oxide should be linked to ensure a minimum of 25% oxygen delivery at all times to avoid delivery of hypoxic mixture. Lever based anti hypoxic device is not acceptable.

6. Should have depiction of O2, NO2. Twin Cascaded Flowmeters with mechanical hypoxic Guard and should have minimum mandatory flow of 250 ml/min of Oxygen.

7. Should have back bar with ISO pin type to attach vaporisers easily.

8. Should have top shelf and a table top to keep drugs and equipments.

9. Machine should have ventilator with battery backup.

10. Castor wheels should be durable and moisture resistant as well as antistatic.

11. Unlockable oxygen flush to deliver oxygen flow of approximately 40-70 l/min.

12. Should have drawers with easy maneuverability.

13. Compliant with ultra-low flow anesthesia.

14. Colour coded cylinder and pipeline pressure gauges

B. Standard Circle Absorber System

1. Should have adjustable pressure limiting valve & breathing circuit pressure measuring device.

2. Should have bag / vent selecting valve integrated onto the absorber and should automatically turn on the ventilator when positioned to vent mode.

3. Should be suitable to use ultra low flow techniques.

4. Should have facility to attach oxygen sensor.

5. Should have fully autoclaveable CO2 absorbent canisters and bellows.

C .Vaporiser

1. Temperature, pressure and flow compensated.

2. Should provide keyed filler based Halothane/Isoflurane, & Sevoflurane vaporisers.

3. Should be easy to mount and dismount form the back bar.

4. Should have ISO pin type (Selectatec) back bar mount.

5. Vaporiser should be maintenance free for ten years.

D. Ventilator

1. Integrated Ventilator

2 Volume Controlled Ventilation

3. Integrated Compact breathing system

4. Latex-free and autoclavable bellows

5. Compact autoclavable sodalime canister

6. LED Display

7. Audio Visual alarms

8. Pressure, Volume Monitoring

9. Airway Pressure Gauge

10. Monitor shelf

11. Quick changeover from mechanical to manual Ventilation

12. Compatible with open and semi-closed circuits

13. Should have tidal volume range from 20 ml to 2500 ml.

14. Should be able to set TV, RR and I:E ratio.

15. Ventilator should provide all user alarms.

16. Ventilator should provide Fresh gas compensation and Compliance compensation.

17. Ventilator shall have an active proportional exhalation valve to prevent the potential of over delivery during pressure modes of ventilation.

18. Should be supplied with necessary reusable and disposable breathing circuits

Technical Specifications of High End Multipara Monitors:

(i) Patient monitor system should be of modular type and capable of monitoring adult, pediatric neonatal patients with touch screen and rotary knob user interface.

(ii) Monitor should have 18-20" independent flat panel display. Should be capable of 6 traces display.

(iii) Module rack / housing should be independent and shall be able to be placed near to the patient.

(iv) Monitor must be capable of simultaneously monitoring the following parameters which should be present as standard: ECG, NIBP, SpO2, invasive pressures (2), temperatures (2), Capnography and cardiac output monitoring.

(v) ECG should have capability for 3, 5 and / or 10 lead monitoring and should have built in arrhythmia monitoring on all leads.

(vi) Inbuilt ST segment analysis and arrhythmia detection for all the leads should be possible.

(vii) Arrhythmia should be grouped based on classifications – and should show no of arrhythmias occurred.

(viii) Respiration should be available with Cardio Vascular Artifact filter.

(ix) Alarm parameter should flash red in the presence of high priority alarms (e.g ventricular fibrillation and asystole) and flash yellow in the presence of medium or low priority alarms (e.g. noisy signal, etc.)

(x) Minimum 72 hours trend data should be displayed at bedside monitors.

(xi) All monitors including central station should have similar user interface for easy usage among all clinicians.

(xii) Monitor shall provide the capability to interact with alarms at remote bedsides.

(xiii) Monitor shall provide the capability to receive and display real-time waveforms, trended data and alarm status from other bedside or telemetry units on the patient monitoring network.

(xiv) Monitor shall provide the capability enter patient information at the bedside or central monitor.

(xv) On-screen keyboard for entering this data is preferable. Should have USB ports to connect mouse, key board, bar code scanner.

(xvi) Alarm limit status (ON/OFF) must be indicated on-screen for each parameter and actual parameter

(xvii) Alarm settings must be displayed on-screen when alarms are on

(xviii) Position of the displayed waveforms must be user configurable.

(xix) Waveform color changing should be user configurable.

(xx) Monitor shall permit the optional ability to receive and display information from other patient devices such as ventilators, infusion pumps and other standalone devices.

(xxi) All modules should be compatible with all monitors quoted.

(xxii) Bed to bed communication between the monitors should be possible without a central station. Networking to central station should be possible.

(xxiii) Patient monitoring network shall use standard TCP/IP protocol and be capable of residing on hospital's network infra-structure.

(xxiv) Should be compatible with HIS and should be HL7 compliant.

(xxv) Monitor should have capability to accommodate remote viewing of real time waveforms through internet. Complete monitoring system should have US FDA/ European CE certifications.

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ICU VENTILATOR . - Nos)

Sr. No.	Name of Equipment	Specifications Required for the Equipment to be purchased
(A)	General requirements:	1. Should be touch screen. 2. Screen should be minimum of 12" inch or more. 3. Compressed air / oxygen driven. 4. Should have the following modes. a. Volume and Pressure Controlled modes b. SIMV (Pressure controlled and volume controlled) with pressure support c. Spontaneous modes like CPAP / PEEP d. Inverse Ratio ventilation e. Advanced mode like Pressure Regulated volume control mode f. Airway Pressure Release ventilation g. Non-invasive ventilation in all modes

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Sl. No.	Name of Equipment	Specifications Required for the Equipment to be purchased
		5. Should have the facility for following settings: a. Tidal Volume: Minimum 20 ml and maximum of 1500 ml or more in Volume control b. PEEP up to 30 cm H_2O or more c. Pressure support up to 35 cmH_2O d. Flow Patern: square, Decelerating, Sinusoidal e. Respiratory Rate up to 80 bpm or more f. Inspiratory Plateauup to 60% of Inspiratory time g. SIMV Rate up to 60 cycles/min h. Pressure Support Slope: up to 150 cm H_2O/Sec. i. FIO2 : 21% - 100% j. Inspiratory and Expiratory flow and pressure Trigger Sensitivity k. Manual Cycle, Inspiratory Pause, Expiratory Pause and Prolonged 6. Should be able to monitor and measure the following parameters Tidal Volume Plateau Mean Airway Pressure Peak Airway Pressure Intrinsic PEEP RSBI(Rapid Shallow Breathing Index) Resistance and Compliance 7. Should have built – in ultrasonic nebulizer 8. Should have the facility to find (Lower inflection point) and UIP (upper Inflection Point)

TENDER ENQUIRY NO. ADMIN/TENDERICU VENTILATOR FOR HDU/ 1/2014

Sl. No.	Name of Equipment	Specifications Required for the Equipment to be purchased
		9. Compiled trend analysis at least for 24 hours for all measured parameters. 10. Should have the facility to record multiple loops for comparison 11. Should have facility to measure: i. Pressure / Volume loops ii. Flow/volume loops iii. Pressure/flow loops 12. Should display minimum 4 curves/graphs simultaneously on the screen Should have audio-visual alarms for the following parameters: a. FiO2 peak aspiratory pressure –High & Low b. FiO2 – high & low c. Respiratory rate – high & low d. Tidal volume – high &low e. Minute volume – high & low 13. The ventilator should be US FDA & CE certified & approved. 14. Should have facility for high flow nasal oxygen Therapy. 15.Should have battery back up of at least 30 minutes. 16. Should have Ultrasonic / Paramagnetic Cell for 02 analysis.

TECHNICAL SPECIFICATIONS OF HIGH END ULTRASOUND SYSTEM

Sl. No.	
1.	High end system capable of performing Obs-Gyn, Abdominal, Vascular, Cardiac Small parts Musculosketal examinations .
2.	The system should have following modes: 2D, M mode, PW, Color flow imaging, Directional color power angio imaging, Anatomical M mode, Pulse inversion harmonics, tissue Doppler imaging, duplex, Triplex, 3D, 4D imaging. The systems should be upgradable to fusion imaging.
3	Minimum 21" High Resolution non-interlaced flat monitor display.
4	Minimum 10" touch screen.
5	More than 3,00,000 transmission channels.
6	The system should have at least 4 active transducer ports.
7	Cine for 256 frames and Loop review .
8	System should dual live mode or equivalent.
9	System should have Panoramic view.
10	System should have Auto IMT facility.
11	System should have minimum 256 grayscales.
12	System should have minimum 1000 fps frame rae.
	System should have minimum 30 cm scanning department
14.	All transducers should have Broad Bandwidth Beamformer technology for high resolution 2D imaging.
15.	System should have Tissue Harmonic Imaging.
16.	System should have software for noise and artifacts reduction that improves conspicuity and margin definition.
17.	Dynamic rage of 180dB or more.
18.	System should have auto optimization features and auto quatification of Doppler parameters in real time and freeze mode.
19.	Pan zoom on freeze an live mode.
20.	Facility for independent steering on B mode and Color mode.
21.	Easy to use control panel with up-down & sideways movement with alphanumeric keyboard.
22.	System should have image management software. Image should be able to stored, retrieved, transferred and can be viewed in thumbnail.
23.	System should have minimum 500gb image storage facility.
24.	System should have DVD/Cd R-W and USB port for image transfer
25.	System should have DICOM facility.
26.	The system should have measurement package for General Imaging, Obs-Gyn, Vascular cardiac imaging Musculoskeletal imaging.
27.	System should have contrast imaging.
28.	The system should be upgradable to Fusion technology.
29.	The system should be US FDA approved.
30.	Following Probes should be quoted; a. convex prove 2-5 MHz b. Linear prove for superficial imaging 5-16 MHz c. Micro convex d. Phase array mode 2-5 MHz e. TEE probe
31.	System should be upgraded with free software upgrade from time to time.
32.	Data sheet of the system should be provided along with the quote.
33.	System spares and service should be available for next 7 years from the date of purchase.
34.	Thermal printer and a DICOM Color printer to be supplied. Both should be compatible with the system.
35.	Air condition of a good quality of 1.5 ton to be provided.
36.	Examination couch & Operator chair should be supplied.

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Technical Specifications of **Portable color Doppler Ultrasound Unit:-**

A state of art fully digital, compact portable Colour Doppler Ultrasound machine with pin less connector is required with following technical features.

1. The unit must be compact, portable and lightweight, weighing less than 5 kg.
2. Imaging modes Real time 2D, Colour Doppler, Power Doppler, Pulsed wave Doppler, continuous wave Doppler (on all cardiac transducer), Tissue Doppler pulsed Wave Doppler (TDI PW) must be available.
3. Unit should be able to give very high image quality with advance technologies for better tissue differentiation and edge detection, equivalent to high end cart based systems.
4. System should be able to support speckle reduction imaging for better tissue differentiation and edge enhancement.
5. The system shall have the ability to enhance tissue margins and improve contrast resolution by reducing artifacts and improving visualization of texture patterns & needle tip within the image, please specify the technology.
6. System should nave both online (Read)as well as offline (Write)zoom facility
7. Imaging modes of Real time 2D, Colour Doppler, Pulsed wave Doppler, continuous wave Doppler, Power Doppler must be available on all cardiac transducers.
8. System must have fast start up to scanning in less than 30 seconds from off condition, for use in critical and emergency situations.
9. System should support transducer technologies like phased array, convex, linear, TEE etc.
10. Cine memory on all modes.
11. The system shall process a dynamic range that is at least 165db. The system must display at a maximum depth of 35 cm.
12. Unit must be sturdy, resistant to breakage & damage on fall/hit against the wall or hard surface. The certificate must be attached.
13. Flat LCD/TFT/LED monitor of at least 10 inches with flicker free image.
14. Alphanumeric soft keys keyboard with easy access scans controls, facility to sanitize the system keyboard to avoid cross contamination.
15. The system must have the ability to function by AC/DC or battery power with the same degree of functionality , the battery life (run time) shall be at least 2 (Two) hours.
16. The system must have archive capability for storage and
17. Data Transfer facility should be available as standard, to transfer images etc. easily onto another system/computer etc.
18. System should possess software for Enhanced Needle Visualization to track the needle clearly at steep angles during the procedures while maintaining striking image quality of the target structures and the surrounding anatomy with simple On/Off functionality.
19. The system shall support the all DICOM functionality, Storage, Print, and Work List, already to connect to PACS.
20. The equipment should be mountable on trolley & locking mechanism should be inbuilt into the trolley for safety & security of the system.
21. Unit should be USFDA or European CE Certified.
22. The unit, transducers and all accessories should be covered with comprehensive onsite warranty for five years commencing from the date of issue of installation certificate.

Transducers & accessories to be supplied as standard:-

1. 4-13 or more MHz Multi –frequency, broadband Linear array transducer for vascular, nerve imaging with less then 40 mm size for vascular access, small parts, vascular, musculoskeletal interscalene, supraclavicular, Axillary, Musculocutaneous, Higher frequency will be referred.
2. 2-5 MHz multi frequency broadband curved array transducer for general purpose, abdominal, deep nerve access Specially Subgluteal & abdominal application.
3. 5-1 MHz phased for heart examination (Cardiac Transducer)