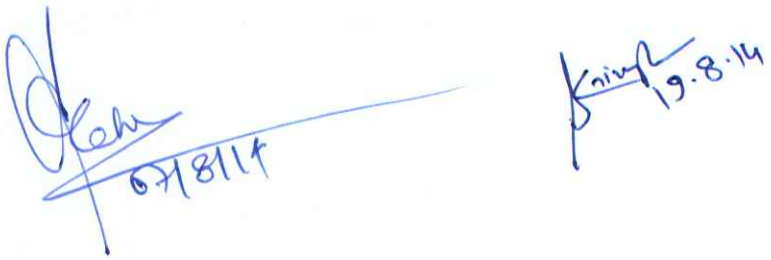
List of equipments for the department of Medicine (MICU)

Sl. No.	Name of Equipments
1	Sryinge pump
3	ICCU Ventilator
4	Nebulizer
5	Biphasic defbrillator
6	Hemodialysis machine
7	Examination couches
8	ABG machine (Reagent based)
9	Non Invasive cardiac support pump with defibrillator
10	Colour doppler ultrasound system
11	CRRT system

Syringe Pump

Sr. No	Specification
1.	Front Loading of Syringe
2.	Flow rate programmable to 0.1 to 2000 ml/hr in increments of 0.1 ml/hr with infused volume display
3.	Graphic LCD display Min size of 35 mm (W) X 70 mm (H) for Rate, Drug name, battery status, occlusion level, syringe size, syringe brand, Actual pressure indicator etc display at a glance
4.	Various modes of infusion (Rate Mode, Volume Target Mode, Volume Time Mode, Body weight Mode (Anesthesia Mode)
5.	Programmable Target time from 10 min to 100 hrs.
6.	Facility to add custom syringes without use of external software. Should store up-to 12 custom brands besides in built syringe library.
7.	Settable Bolus rate from 1 ml/hr to 2000 ml/hr in increments of 1 ml/hr. Should have facility to set bolus volume in the increment of 1 ml.
8.	Keep Vein Open (KVO) available with a facility to set KVO flow rates and option to keep the function OFF.
9.	Should have facility for Manual as well as Auto Bolus.
10.	Should have facility to store the last infusion data.
11.	Facility for data event log. Should store 500 or more data events in real time expandable to 1500 nos.
12.	Pressure monitoring system for Occlusion alarm. Selectable Occlusion pressure trigger levels from 100- 900 mmHg with a choice to select the default setting by the operator in steps of 50 mmHg is must. Facility to display the actual pumping pressure in numeric as well as graphical form is required.
13.	Have comprehensive alarm package including Pre-occlusion & Occlusion limit exceed alarm, Near end of infusion pre-alarm and alarm, Volume limit pre-alarm & alarm, KVO rate flow, Low battery pre-alarm and alarm, AC power failure, Drive disengaged, preventive maintenance warning, Infusion Line disconnection alarm, etc.
14.	Have separate alarm silence key.
15.	Work on standard disposable Syringes of 5, 10, 20 & 50/60 ml sizes of different makes. Volumetric accuracy must be within +/-2 %. Front loading instruments.
16.	Automatic detection of syringe size & proper fixing. Must provide alarm for wrong loading of syringe.
17.	Display of drug name with provision to select the names among commonly used critical drugs (min 64 names desired). On screen facility to add or delete the drug names in the library without use of any external software.
18.	Anti bolus system to reduce pressure on sudden release of occlusion.
19.	Rechargeable Sealed NiMH Battery having 10hr backup for about 5ml/hr flow rate with 50ml syringes. Indication of residual life.
20.	Programmable PAUSE up to 12 hours or more
21.	After selection of parameter key pad locking available for security purpose with option to keep it off. Have facility to set time duration for enabling keypad locking.
22.	Power consumption less than 12 Watts
23.	
24.	
25.	



Sr. No.	Technical Specification for ICU Ventilator
1	Advance technology ventilator for use PICU, suitable for ventilating all categories of patients from pediatric to Adult (5 kg and above)
2	Quoted ventilator should be US FDA and European CE Approved.
3	Operating principle : time cycled, volume, pressure controlled
4	Ventilator should have inbuilt turbine or compressor or external compressor from the same make as of the ventilator. External compressor if quoted, should be US FDA approved for Medical Air Grade quality.
5	External Medical Air Compressor if quoted should have automatic switch over facility.
6	Ventilator should have integrated minimum 10" or more color TFT touch screen for advance ventilation monitoring.
7	The system should have the facility for Pressure or Flow triggering.
8	Should have the following modes of ventilation:
a	Volume control/Assist control
b	Pressure control/BIPAP/PCV+
c	Pressure support with back-up ventilation
d	CPAP + Pressure support
	SIMV + Pressure support
f	PRVC (Pressure Regulated Volume Control) or equivalent.
9	Ventilator should display lung mechanics such as resistance and compliance.
10	Maximum flow for pressure support / spontaneous breathing : 180 LPM
11	Ventilator should have emergency/safety valve which automatically enables spontaneous breathing with ambient air if oxygen and air supply fails.
12	Tidal Volume : 20 ml to 2000 ml
13	Respiratory Rate :minimum 2 to 80 BPM
14	Inspiration Time : 0.3 to 10 seconds
15	PEEP : 0 to 35 cm H2O
16	Inspiration pressure : 1 - 80 cm H20
17	FiO2 : 21 to 100%
18	It should be possible to display at minimum 3 waveforms, Two loops for each breath, 24 hour trends display of lung function parameters. Scroll/Zoom functions. Screen should display following waveform :
.	Flow Vs time, Pressure Vs time, Volume Vs time
.	Loops : Volume - Pressure, Flow - Volume
19	Should be provided with 2 reusable flow sensors and 100 each disposable pediatric & adult circuits, 100 each disposable pediatric & adult HME filter.
20	Should have audio-visual alarms for all vital functions.
21	Should have minimum 5 hours in built battery back up for the Ventilator also including inbuilt turbine or compressor or external compressor.
22	Should have interchangeable expiratory cassette/ Reusable Valves for complete disinfection capability.
23	Should be supplied with 10 disposable expiratory cassette/ expiration valves or 2 reusable valves for highly infections patients.
24	Should have Inspiratory synchronized nebulization port with 2 nebulizer kit
25	Should be supplied with original standard Trolley and support arm.
26	Should have 5 years warranty on the Ventilator and provision of CMC for next 5 years.

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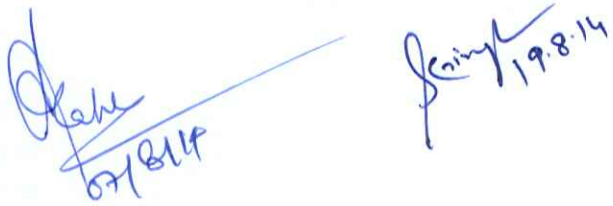
Specifications for BiphasicDefibrillator with Monitor

- Defibrillator should have high resolution colour TFT display min 6" diagonal. Display should show at least 3 waveforms of selected parameters
- Battery: rechargeable Li-Ion battery with Capacity: At least 150 no Full energy shock discharges or more than 120 min of bedside patient monitoring (Vital signs). Battery Indicator: LOW BATT and charge level indicator on main display
- Mode Select: Sync / Async modes should be displayed on the monitor
- Paddles: Adult with built in Paediatric paddles with Charge discharge control should be available on the paddles
- Energy selection: External 1 to 200 Joules
- Technology: Biphasic with truncated exponential waveform
- Energy selection, Charge and discharge buttons should be available on paddles as well as on the machine
- Charging time should be less than 5 sec (to the max. charge level – 200 Jules)
- Built in Automatic External Defibrillator mode (AED) of 150 Jules for adults & 50 Joules for pediatrics
- **Thermal recorder** – built in system, Paper size: 50mm, Paper speed: 25 mm/sec
- **ECG:**
    - Selectable rate, pulse width (20 ms and 40 ms) and current (10mA-280mA)
    - Device should have pacemaker pulse rejection capability
    - 3 Lead ECG Set-1 no to be supplied
- **Pulse Oximeter**
    - Display of plethysmograph with SpO2 values and pulse rate
    - Alarms for SpO2 and pulse rate & De-saturation alarm generation
    - SpO2 Probe: Adult – 1 no to be supplied
    - SpO2 Probe: Pediatric – 1 no to be supplied
- **Non-Invasive BP**
    - Facility to monitor NBP for adult / pediatric or neonatal patients
    - NIBP Hose: 1 No to be supplied
    - NIBP Cuff: Adult: 1 No to be supplied
    - NIBP Cuff: Pediatric: 1 No to be supplied
- **Pacing:** Defibrillator should have external pacing facility with selectable current pulse amplitude (patient specific selection)
    - AED/Pacing pad for adult & Pediatric- Two numbers
- The equipment should be CE & US FDA certified



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Specification for HEMODIALYSIS MACHINE (SLED)-5 NO.

1. Should have facility for slow extended dialysis , hemofiltration and hemodiafiltration
2. Should be easily transportable and mounted on strudy lockable caster wheels.
3. Machine should have tv.o bacterial filters one at water inlet and one before water going to dialyser.
4. Battery back-up for at least 30minutes to run complete machine with beater supply
5. Dialysate temperature selectable between 35 degrees C to 39 deg.C
6. Variable conductivity setting between 12 to 15
7. Should have variable dialysate flow 200-800 ml/mt
8. Should have facility to show trends of all parameters for 15-20 minutes.
9. Heparin pump with syringe sizes up to 50 ml with pump flow rate from 1-10ml/hr (0.1 ml.increments)
10. Treatment parameter should be displayed by graph and digitally.
11. Should have integrated heat (800C) and chemical disinfection facility.
12. Should have accurate feedback control conductivity mixing technique.
13. Should have accurate UF control by flow measurement technique.
14. Should have facility for using bicarbonate cartridge and blood volume sensor (essential) and monitoring solute clearance (optional)
15. All important data should be present so that machine can be used anytime without feeding data every time.
16. Should have automatic self test facility.
17. Also quote for a single-station water treatment compatible with the machine
18. Should have auto ON/OFF facility.
19. Machine can be connected to computer to feed all data and trouble shoot whenever any problem.
20. Blood pump rate from 0-500 ml/min adaptable to all standard A-V blood lines.
21. Ability to monitor pulse rate and NIBP with graphic and tabulated trends.
22. Audio visual alarms on limit violation of conductivity, blood leak, air leak, transmembrane pressure alarms, Dialysis temperature alarm, dialysis can empty alarm end of disinfection alarm, bypass alarm and blood pump stop alarm.
23. Alarm for reverse Ultra filtration.
24. All consumables required for installation and standardization of system to be given free of cost.
25. The unit shall be capable being stores continuously in ambient temperature of 0-50 deg.C and relative humidity of 15-90%.
26. Power input to be 220-240 VAC, 50Hz fitted with Indian plug.
27. Should be FDA, CE,UL or BIS approved.
28. Manufacturer/Supplier should have ISO certification for quality standards.
29. Shall comply with IEC 60601-2-16 SAFETY requirement s of medical electric equipment Part 2-particular requirements for the safety of Hemodialysis equipments.
30. Comprehensive warranty for 5 years supported by the principal manufacturers.

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31. Quote for 5 years CMC (parts and service, including consumables) aster warranty supported by the principal manufacturers.
32. Comprehensive training for lab staff and support services till familiarity with the system.
33. Should have at Chandigarh service facility. The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual with in 24 hours of being informed.

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Median Dialysis unit

R SPECIFICATION EXAMINATION COUCHES WITH STORAGE FACILITY

1. Overall size of the table should be at least L 1950mm x W 630mm x H800mm
2. The mattress should have PU moulded foam with density of 50-60 with a section thickness of 20-25mm. Two section mattress i.e. body section and head section should be separate.
3. The head-rest should be gas-lift with continuous adjustment from 0-30 degree.
4. The understructure should be made up of MS Square tubes for better strength & stability.
5. A concealable swivel tray for medical instruments should be available
6. At least two drawers at the top, should be provided for general purpose items.
7. One square patient climbing stool (at least 2 steps) made of MS square tubes should be supplied with dimension of at least 480 mm x W 340 mm x H 200 mm. The top of the stool should be made up of textured rubber offering, firm grip for climbing.
8. Patient load should be at least 130 kgs.
9. Facility for Tissue roll holder mounted under the bed-rest. Provided for mounted of Disposable Tissue Sheets, enables to unroll a fresh clean surface sheet for each patient.
10. Leveling screws should be provided at the base to enhance product stability over uneven flooring surfaces.
11. The unit shall be capable of being stored continuously in ambient temperature of 0 - 50deg C and relative humidity of 15-90%
12. Power input to be 220-240VAC, 50Hz fitted with Indian plug
13. Should be US-FDA , CE(EUROPEAN), or BIS approved product
14. Manufacturer/Supplier should have ISO certification for quality standards.
15. Shall comply with IEC 60601-2-16 SAFETY requirements of medical electric equipment part2- particular requirements for the safety of couches.
16. Comprehensive warranty for 2 years supported by the principal manufacturers
17. Quote for 5 years CMC (parts and service) after warranty supported by the principal manufacturers.
18. Comprehensive training for lab staff and support services till familiarity with the system.
19. Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual
20. User/Technical/Maintenance manuals to be supplied in English.
21. Certificate of calibration and inspection.
22. List of Equipments available for providing calibration and routine Preventive Maintenance Support. As per manufacturer documentation in service/technical manual.

Note:

Accessories : Disposable tissue sheets – 5 Rolls per bed

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FOR SPECIFICATION EXAMINATION COUCHES WITH STORAGE FACILITY

1.	Overall size of the table should be at least L 1950mm x W 630mm x H800mm
2.	The mattress should have PU moulded foam with density of 50-60 with a section thickness of 20-25mm. Two section mattress i.e. body section and head section should be separate.
3.	The head-rest should be gas-lift with continuous adjustment from 0-30 degree
4.	The understructure should be made up of MS Square tubes for better strength & stability.
5.	A concealable swivel tray for medical instruments should be available A concealable swivel tray for medical instruments should be available
6.	At least two drawers at the top, should be provided for general purpose items.
7.	One square patient climbing stool (at least 2 steps) made of MS square tubes should be supplied with dimension of at least 480 mm x W 340 mm x H 200 mm. The top of the stool should be made up of textured rubber offering, firm grip for climbing.
8.	Patient load should be at least 130 kgs.
9.	Facility for Tissue roll holder mounted under the bed-rest. Provided for mounted of Disposable Tissue Sheets, enables to unroll a fresh clean surface sheet for each patient.
10.	Leveling screws should be provided at the base to enhance product stability over uneven flooring surfaces.
11.	The unit shall be capable of being stored continuously in ambient temperature of 0 -50deg C and relative humidity of 15-90%
12.	Power input to be 220-240VAC, 50Hz fitted with Indian plug
13.	Should be US-FDA , CE(EUROPEAN), or BIS approved product
14.	Manufacturer/Supplier should have ISO certification for quality standards
15.	Shall comply with IEC 60601-2-16 SAFETY requirements of medical electric equipment part2- particular requirements for the safety of couches.
16.	Comprehensive warranty for 2 years supported by the principal manufacturers
17.	Quote for 5 years CMC (parts and service) after warranty supported by the principal manufacturers.
18.	Comprehensive training for lab staff and support services till familiarity with the system.
19.	Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/maintenance manual
20.	User/Technical/Maintenance manuals to be supplied in English.
21.	Certificate of calibration and inspection.
22.	List of Equipments available for providing calibration and routine Preventive Maintenance Support. As per manufacturer documentation in service/technical manual

Note:

Accessories : Disposable tissue sheets – 5 Rolls per bed

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	MEDICINE	4	ABG MACHINE	3. SPECIFICATIONS OF ARTERIAL BLOOD GAS ANALYZER (REAGENT BASED) 1. Economic and Fast analysis with provision of at least 10,000 patients reports memory and other data management facility. 2. Measurement of PO2, PCO2, PH, total Hemoglobin, Hematocrit, oxygen saturation, sodium, potassium, calcium, chloride. The parameters can be activated and deactivated individually for measurement On screen display (colour) of results and on low noise printer. 4. Maintenance free electrodes. 5. Easy availability of calibration reagents. Should have automatic calibration. Should be liquid calibration based system. Should have high volume reagent container. Should have on board reagent level display system. 6. Should not be a cartridge or cassette based system. 7. Should have facility for flagging high COHb and MetHb. 8. Should require low sample volume (less than 60 microliters). 9. Should be upgradable to auto QC. 10. Barcode reader should be standard accessory. 11. Should be able to accept both syringe and capillary samples. The measurement should start automatically.

Medicos

Technical Specification for: Non-Invasive Cardiac Support Pump Integrated with Defibrillator

1. The unit should produce consistent chest compressions with no interruptions.
2. It should be easy to use for in- hospital and out of hospital during Emergency mainly during transportation.
3. It should be able to provide both 30:2 OR continuous compressions, user selectable by simple pressing of button for switching to either mode.
4. Should be able to provide uniform distribution of load on chest by circumferential compression of chest.
5. The chest compression band should have an ability to do high quality compressions.
6. It should have ability to automatically determine the patient compliance (automatically measures size and resistance of each patient chest) and produce compression force accordingly.
7. It should have facility to provide chest compression to patient even when patient is inclined and being transported from staircase at 45 degree.
8. The CPR device should be battery operated with an extremely simple user interface.
9. It should have a LCD back-lit screen display to show compression modes and battery charge status.
10. The battery should be able to provide continuous compression for a minimum 20 minutes when fully charged.
11. The system should be provided with three (03) lithium ion rechargeable batteries, one (01) battery charger and three (03) LifeBand (load distributing bands).
12. The unit should come with an integrated defibrillator for providing synchronized shock while the device is working i.e. without interrupting the compressions.
13. The defibrillator should have ability to measure chest compression rate and depth in real time and provide both visual and optional audible feedbacks.
14. The defibrillator should be rugged and tough with easy to read tri-mode display in any environment

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15. The defibrillator should have ability that all CPR data can be recorded and reviewed by using software specially designed for doing this. (If needed, necessary software should be provided.)

16. The defibrillator should have ability to filter out CPR artifacts and allowing person to see organized rhythms without interrupting chest compression.

17. The Defibrillator should have facility for ECG Monitoring, defibrillation, rectilinear external pacing (transcutaneous) & recorder.

18. Should be supplied with 5 pair of multifunction pads.

19. The Defibrillator should have rectilinear biphasic technology, having energy selection of 1-200 joules.

20. The Defibrillator should have charging time of unit should be less than 7 Seconds to the maximum energy.

21. The defibrillator should have the option to upgrade to EtCO2, SpO2, NIBP and 12 leads ECG.

22. The cost of all spares/accessories and consumables (including those required for up-gradation) should be mentioned in the financial bid.

23. Complete unit, including defibrillator should be US FDA approved.

24. The whole equipment (excluding load distributing bands and pacing pads) will be under comprehensive warranty. No other exclusions will be entertained.

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Medicare

TECHNICAL SPECIFICATIONS OF COLOR DOPPLER ULTRASOUND SYSTEM

S.NO.	TENDER SPECIFICATIONS
	Latest generation Color Doppler Ultrasound Unit capable of performing Obs/Gyn, abdominal, Vascular, Small Parts, Musculoskeletal, Urology and Cardiac (Adult & Pediatric) with following specifications :
1	System should be offered with following Broad Band width transducers:
(a)	Multi Frequency Convex Array Transducer (frequency range of 2 to 5 Mhz) Abdominal, Ob/Gyn applications.
(b)	Multi Frequency Linear Array Transducer (frequency range of 5 to 12 Mhz) for vascular & small parts applications
(c)	Multi frequency Endocavity Transducer (frequency range of 4 to 9 Mhz) for TV/TR applications.
(d)	Multi frequency Sector Transducer (frequency range of 2 to 4 Mhz) for Adult Cardiac applications.
(e)	~~Multi frequency Sector Transducer (frequency range of 3 to 8 Mhz) for Pediatric Cardiac applications.~~
2	System should have following modes:
a)	2D, M Mode, Color M Mode, PW, CW, Color Doppler Imaging, Power Doppler Imaging, Tissue Harmonic Imaging, Pulse Inversion Harmonic Imaging, Trapezoidal Imaging & 3D/4D Imaging with Volume Probe.
3	System should have Quad Mode Facility (2D, 2D/C, 2D/PW, 2D/M)
4	System should have Digital Processing Channels of 60000 or more. Please specify through Technical Data Sheet.
5	Grey Scale (min 256 or more) please specify through Technical Data Sheet.
6	System should have scanning depth of 2 to 30 CM. Please specify through Technical Data Sheet.
7	Broad bandwidth beam former technology transducers for extreme high resolution 2D image should be available.
8	Should have High Dynamic Range of 200 db or more. Please specify through Technical Data Sheet.
9	System should have a very high frame rate of 700 Hz. or more.
10	System should have facility for gain adjustments using slide pot controls.
11	Should have minimum 3 active ports with direct switching from console.
12	System should have HPRF and CW option.

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S.NO.	TENDER SPECIFICATIONS
13	System should have Spatial Compounding.
14	System should have Speckle Reduction Filter.
15	System should have Auto IMT facility.
16	System should have Cardiac Stress & Strain Evaluation technique.
17	System should be capable of giving additional information on volume data with Multiple slicing on Orthogonal Plain and Variable Plain (5 views simultaneously with variable depth).
18	System should have Volume TV Probe compatibility.
19	System should be upgradeable to Elastography- (Active elastography to be demonstrated in Linear/ TV probes).
20	System should have a high resolution articulating non interlaced flicker free antiglare flat panel 19 inches or more Color LCD Monitor.
21	System should have DICOM 3.0 as standard.
22	System should have built in Image Management software.
23	Image storage capacity through Hard Disc Drive should be 500 GB or more.
24	Image Archival: Inbuilt CD/DVD writer with the facility to transfer images.
25	System should have direct connectivity to color paper printer for printing images & report.
26	System should have extensive calculation software package for General Imaging, abdominal Imaging, Cardiac & Vascular imaging.
27	The quoted model should be European CE & US FDA approved.

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24. Electrical Data

    a. The equipment should operate at a mains supply of 220V, 50 Hz single phase a.c

    b. Should be provided with a battery backup so that the system can operate and monitor the extracorporeal circuit for at least 15 minutes in case of power failure.

25. The successful bidder must provide on-site clinical training to responsible personnel

26. Machine warranty – 1 year from the date of installation

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