EMS MEMORIAL CO-OPERATIVE HOSPITAL & RESEARCH CENTRE
PERINTALMANNA

Technical specifications of Medical Equipment

QUOTATION NOTICE FOR PURCHASE OF MEDICAL EQUIPMENT

EMCH / QTN /GEN / 02 / 2025 1st March 2025

Sealed quotations are invited from reputed manufacturers / authorised suppliers / dealers for the supply and installation of **3 Tesla MRI, 500 mA X-ray machines, OT Table for Orthopaedics, OT Light, Dialysis reprocessor & Various equipment for Blood Bank**

Technical specifications of the equipment can be obtained from www.emshospital.org.in/about/tender

Quotations should be in Two sealed covers

- First cover super scribed " Technical cover" should include technical specifications, list of installations etc
- Second cover super scribed "Commercial cover" should include commercial terms such as Price, Warranty terms, tax if any, AMC / CMC details for next 5 years, cost of consumable / spare parts / consumables regularly required etc.
- Technical quotations will be scrutinized by a technical committee.
- Technically qualified quotations will only be considered for opening of Commercial quotations.

Sealed quotations addressed to The General Manager, EMS Memorial Cooperative Hospital, Perintalmanna should reach the Administrative Office of the hospital on or before **4 PM** on **15th March 2025**

General Manager

March 2025

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3 Tesla MRI

I. GENERAL

1. USE

1.1 Clinical purpose MRI is primarily used to identify diseases of the central nervous system, brain, and spine and to detect musculoskeletal disorders. It is also used to view cartilage, tendons, and ligaments. MRI can also be used to image the eyes and the sinuses. MRI can be used to help diagnose infectious diseases; to detect metastatic liver disease; to display heart-wall structure; to stage prostate, bladder, and uterine cancer. MRI can also be used as a functional imaging tool.

1. 2.Used by Clinical department / ward / Radiology Department

II. TECHNICAL

2. MAGNET

a. Whole Body 3 Tesla Magnetic Resonance Imaging System optimized for higher performance in WholeBody and Vascular examinations with superconducting magnet, high performance gradients and digital Radio Frequency System.
b. 3T active shielded super conductive magnet should be short and non-claustrophobic.
c. It should have at least 70 cm patient bore with flared opening.
d. Magnet length should be less than 170cm.
e. Homogeneity of magnet should be better than 1.5 ppm over 40 cm DSV.
f. The magnet should be well ventilated and illuminated with built in 2way intercom for communication with patient.
g. It should have a built in cryo-cooler such that helium consumption does not exceed 0.01 lit/ hour. Helium refill time should be more than 2year.
h. Emergency Rundown Control at both operator console room and Gantry Room is a must.
i. Fringe Field 0.5 Gauss line radius is essential.
j. Front Panel of gantry should display table and patient position.

3. SHIM SYSTEM **

a. High performance and highly stable shim system with global and localized manual and auto—shimming for high homogeneity magnetic field for imaging. Specify time for shimming. Quote the number of shimcoil used Off-centre shimming should be possible.

b. Auto shim (global and voxel shim) should take minimum time to shim the magnet with patient
c. in position.
d. System should have higher order/ 2nd order shimming as standard

4. GRADIENT SYSTEM

a. Actively shielded Gradient system.
b. The gradient should be actively shielded with each axis having independently a slew rate of atleast 200 T/m/s and a peak amplitude of 44 mT/m or above .
c. The system should have efficient and adequate Eddy current compensation.
d. Effective cooling system for gradient coil and power supply.
e. Duty Cycle- 100% the gradient power amplifier.
f. Usable over 45 cm of FOV in all directions.
g. The gradient and slew rate should be actual & it should not be performance gradient and both peak gradient and slew rate should work simultaneously

5. RF SYSTEM AND COILS ** (specify elements / FOV)

a. A fully digital RF system capable of transmitting power of at least 30 KW.
b. It should also have atleast 64 independent RF receiver channels with each having bandwidth of 1 MHz or more along with necessary hardware to support quadrature ICP array / Matrix coils.
c. Head coil – 32 channels or more for high resolution imaging of brain.
d. Separate coil for Head neck at least 16 channels or more for routine Brain / Neurovascular exams should also be quoted as standard.
e. Spine phased array coil 32 channels or more
f. Body phased array coil with 32 channels or more (single or in combination) in 50 cm in Z-axis coverage for imaging of abdomen.
g. Light weight coils with less than 1.8Kg to be offered as standard.
h. Dedicated Breast Coil capable of performing simultaneous bilateral breast imaging with minimum of 16 elements/ channel (even 3rd party coil for this region is accepted).
i. Dedicated RIGID Shoulder coil at least 16 channel or more should be offered.
j. Dedicated RIGID Knee coil at least 16 channels or more should be offered.
k. Loop flex coils - large and small each 1no. - 16 channels or more for imaging of large regions such as large shoulder, hip and knee & small regions such as small to medium shoulder, wrist, elbow and ankle.

l. Integrated coil technology, latest as available with the vendor to be quoted: Equivalent of TIM /GEM/ D Stream or equivalent to be offered.

m. Multiple coils should be offered to avoid coil repositioning.

n. Vendor shall offer user friendly 4 or more coil acquisition in order to optimize the throughput - increase and increased effective FOV. The coil system shall cover a body length of at least 200cm. This 200cm should be possible with surface coil.

o. The supplier should quote coils or their combinations exclusively for each application. The number of coils should be as per the BOQ. It should be mentioned as independent coils and not having overlapping applications.

6. User's interface **

a. The main Host computer should have a 19 inches 3 MP or more high resolution LCD TFT color monitor with 1024 x 1024 matrix display.

b. The system should have image storage capacity of 100 GB for at least 2,00,000 images in 256x256 matrix.

c. Latest state-of-art computer system with sufficient RAM (32 GB or more) and computational speed to match the single shot Echo Planar Imaging (EPI), interactive angiogram, multi-planar Three-dimensional (3D) reconstruction, surface rendering and dynamic imaging, vascular imaging/angiography, and adequate storage for images and other applications.

d. Complete cardiac suite to see Cardiac Morphology, anatomy, perfusion, viability and functional imaging.

e. Should be offered with full post processing capabilities such as wall thickness, wall thickening, End Systolic and Diastolic Volumes, Ejection Fraction, Cardiac Output, Quantification Flow to be offered as standard.

f. The reconstruction speed should be at least 5000 or more for full FOV 256 matrix.

g. The main console should have facility for music system for patient in the magnet room. The system should have DVD / CD / flash drive archiving facility. The system should be provided with auto DVD writer.

h. Two way intercom system for patient communication.

i. MRI System should be DICOM ready in all parameters with no additional requirement of license for connectivity to any PACS/HIS and Radiotherapy treatment planning system.

j. Software and/ or standard of communication where ever required.

k. A client server work station shall be provided. (optional)

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l. SERVER SYSTEM: A Client - Server Architecture based solution, Minimum 40,000 concurrent slices, 2 no. floating /concurrent user license for all applications.

m. DICOM 3.0 compatibility and interfacing with other modalities must be possible.

n. CONFIGURATION: A single dedicated workstation should be provided with the same user interface with same license

o. Licenses: 2 no's Concurrent license here implies the capability to process all the loaded software to be accessible and usable on all the clients/ nodes simultaneously without any processing delay. The software should also include reputed antivirus software of a perpetual type or renewed by the supplier.

p. Hardware: Client / Node: CPU unit, minimum 16 GB RAM, Medical grade monitor of 2MP resolution & size - 21" or more, mouse, keyboard

q. Hardware Server: The server (single/dual configuration) should have image storage capacity of at least 2.5 Tera bytes, minimum 20,000 concurrent slice processing power and at least 64GB RAM and 2.5 Ghz CPU. 21" or more TFT/LCD monitor.

r. DVD RW drive for writing of images, spectra and raw data along with the necessary software for reading the images and spectra on DVD/CD storing capabilities.

s. The bidder should provide Level 3 network Switch (with 32 nodes) or latest, to integrate the network and should connect to the hospital PACS. (optional)

t. The network speed and cables should match the latest industry standards (e.g. 10 BaseT/100BaseT/ 1GB). (optional)

u. The bidder should provide necessary networking and configuration assistance with existing PACS,HIS, RIS

v. Workstation with same user interface as of main console is required with the availability of all necessary software including:

- Basic post-processing software including MIP, MPR, surface reconstruction and volume rendering technique.
- Advanced post-processing offered applications perfusion quantification, advanced diffusion and DTI processing of 20/30 CSI data, with color metabolite mapping, quantification of CSF flow data, vascular analysis package AS, BOLD, Fast & Ultrafast EPI
- Cardiac package should be available

7. DATA ACQUISITION **

a. The system should be capable of 2D and 3D acquisitions in conventional, fast &ultra-fast spin echo and gradient echo modes so that real-lime online images ran lie observed if needed. All the sequences that are available with the vendor at the time of quote/ delivery should be provided as per their manual.
b. 2D multi slice imaging should be possible in all planes (axial, sagittal, coronal, oblique and double oblique]
c. Up to 1024 x 1024 matrix acquisitions preferred for all applications. Wherever 2048 matrix available, please mention.
d. Half Fourier or other techniques to reduce scan acquisition lime while maintaining adequate SNR.
e. 3D volume, multiple contiguous slabs, multiple interleaved and multiple overlapping slabs
f. Slice thickness in 2D and partition in 3D to be freely selectable.
g. Dynamic acquisition (serial imaging) with capability to initiate scan sequences either from the magnet panel or from the console.
h. Dynamic acquisition; number of repeat scans with delay time either identical time interval or Selectable.
i. Auto slice positioning from the localizer images.
j. Maximum off-center positioning both anterior posterior and lateral direction and should be selectable.
k. Gating: physiological signals like ECG, pulse, respiratory', External signal triggering (interlace for triggering input pulse from external source). The provision should be available at the console also [for FMRI, EEG etc.).
l. Simultaneous acquisition, processing and display of image data in 2D multi-slice mode.
m. Selection of voxels from oblique slices should be possible while doing spectroscopy.
n. Artifact reduction/imaging enhancement/image filtering/ image subtraction / addition / Multiplication / division techniques:
o. Flow: 1st and 2nd order flow artifact compensation
p. Presentation slabs: a number of relocatable saturation bands to be placed either inside or outside the region of interest
q. Graphic prescription.
r. Fat saturation techniques: frequency selective RF pulses to suppress fat signals in the measured image FOV. ROI selective (regional) fat suppression should also tie Riven.
s. Magnetization transfer saturation: Off resonance RF pulses to suppress signals from stationary

tissue in FOV

t. Phase contrast capability in 2D and 3D mode.
u. Image intensity correction
v. Breath hold acquisition
w. EPI mode
x. DTI with MDDW or equivalent with a minimum of 12 and selectable up to 128 direction encoding Data acquisition in all three standard planes (axial, sagittal, coronal| and oblique and double oblique planes or more oblique planes.
y. Higher matrix acquisition capability in single shot EPI. Acquisition time. TR, TE and slice thickness should be clearly mentioned and supported by data sheet reference.
z. The vendor should offer multi coil acquisition in order to Optimize throughput increase and increased effective FOV. Individual acquisition elements of every coil should be mentioned.

8. IMAGING PULSE SEQUENCES **

a. All standard and special pulse sequences available at the time of quote / delivery should be offered and quoted in the bid. If the vendor does not have any particular sequence/s but offers a work in progress (WIP) sequence/s, then it should be provided without any pre-condition like asking the Institute to sign any agreement for this purpose. This also applies to any post processing software that is offered which is WIP.
b. The system should be capable of selecting TR and TEs as per requirement in majority of the pulse sequences.
c. Spin echo (SE): multi-slice single echo, multi-slice multi echo (8 echo or more), SE with symmetrical and asymmetrical echo intervals and fast spin echo. MT-SE imaging sequence. Inversion recovery (IR): including short Tl modified IRSE, FLAIR, DIR (Double Inversion Recovery).
d. Gradient echo (GE): with transverse gradient/RF spoiling, and transverse gradient re phasing, e.g., GRASE or equivalent etc. 3D gradient echo with shortest TR and TE, free choice of flip angle selection, while maintaining SNR.

9. FAST SEQUENCES **

a. Fast spin echo and GE sequences in 2D and 3D mode with T1, T2 and PD contrast capable of acquiring maximum number of slices with a given TR a minimum TE, echo train should be at least 128 or more in fast spin echo mode.
b. Half Fourier acquisition capabilities should be available with/without diffusion gradients and in

combination with/fast spin echo

c. Fast inversion recovery with spin echo
d. Fast gradient spin echo IR multi-slice multi- echo mode with maximum ETL. Sequences should incorporate RF focusing to acquire ultra-fast gradient spin echo.
e. Fast gradient echo sequence should incorporate RF spoiling and other technique to acquire images in ultra-fast 2D and 3D modes.
f. Fat and water suppressed imaging sequences.
g. EPI optimized sequences (with and without fat suppression)
h. For T1, T2, PD imaging, perfusion, regular diffusion values (at least 5b, 3 directions) EPI
i. FLAIR.EP1- IR. EPI FLAIR diffusion tensor, EPI MT FLAIR, tensor diffusion at least 16 b values, and 128 directions) and diffusion studies. Suitable artifact/ fat suppression techniques to be incorporated in the sequence to have optimum image quality.
j. There should be capability of calculating ADC map (isotropic and anisotropy from the regular diffusion and tensor data].
k. Optimized sequences for special applications.
l. Multi-band EPI: Simultaneous Multi Slice Accelerate Advance applications for Neuro & Body.

10. OPTIMIZED SEQUENCE PACKAGES

NEURO **

a. All T1 (2D, 3D), T2 (2D, 3D), IR (2D, 3D), Dual IR (2D, 3D) sequences
b. Sequence for internal ear imaging for visualization of fine structures like cranial nerves (appropriate sequences like CISS, etc. or equivalent. Mention the sequences provided.
c. 3D sequences for internal auditory canal imaging
d. Dynamic imaging of pituitary using appropriate sequence
e. Whole spine T1, T2, IR sequences
f. Whole neuro examination with automatic' planning, scanning and post processing, with single localizer positioning, without changing the coils/ repositioning
g. SMS (Simultaneous Multi Slice Imaging)
h. 2D /3D ASL

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11. ANGIOGRAPHY **

a. MR angiography: 2D/3D TOF, 2D/3D Phase contrast |with and without gating) and magnetization transfer saturation, black blood angiography for cerebral, pulmonary, abdominal and peripheral vessels.
b. For peripheral moving table angiography should he offered covering hip to limbs to be examined in one go with high resolution and high SNR.
c. Bolus tracking software package.
d. Sequences for breath hold angiography with contrast enhancement.
e. Sequences for time resolved angiography with contrast Kinetics.
f. ECG triggered non contrast angiography
g. Contrast bolus tracking (including single shot whole body MRA, interactive and automatic tracking etc.).
h. Perfusion study in organ systems like kidney, brain, etc. with T1 perfusion with permeability maps and quantitation of rCBF/ rCBV, MTT, etc., with color maps.

12. DIFFUSION / DTI **

a. Sequence package for diffusion including DTI (tractography) study in organs like brain, kidney, muscle, heart, spine, breast, etc.
b. There should be capability of calculating ADC map (isotropic and anisotropic from the
c. regular diffusion and tensor data).
d. MR diffusion tensor imaging package with tractography
e. Zoom IT or FOCUS, Application for high resolution for small FOV diffusion imaging

13. BODY IMAGING **

a. Flow quantification in vessels and CSF, hepatobiliary system
b. Fly through facility with Flow analysis including display of various velocity values.
c. Optimized breath hold sequences for abdominal studies including angiogram.
d. MR Cholangiography and Pancreatography: Specialized sequences and processing to perform MRCP.
e. Pulmonary 2D/3D MRA sequence, including single breath hold sequence.
f. MR ventriculography, cisternography, myelography.
g. Single sequence to acquire four different contrast (in phase, out of phase water only, fat only).

h. The same technique should be used in other sequences, for dynamic portography / T1 quantitative analyses.
i. Parallel acquisition techniques including new sequences. Specify the technique used and the factor by which the acquisition time is reduced for similar acquisition with and without parallel imaging technique. Mention the sequences.
j. Flow quantification packages for CSF with dynamic CSF flow imaging, aqueduct and spinal canal.
k. Radial/Spiral pulse sequences for ultrafast imaging.
l. Suitable artifact/fat suppression techniques to be incorporated in all the sequences to have optimum image quality.
m. A sequence for differentiation of fluid and carriage in ortho applications (sequence like DESS or equivalent)
n. Susceptibility artifact correction techniques to be incorporated in all the sequences to have optimum image quality.

14. SWI **

Sequences for susceptibility imaging

15. PROSTATE IMAGING **

Sequences for imaging of prostate

16. WHOLE BODY DIFFUSION AND STIR, ANGIOGRAPHY **

DWIBS OR equivalent, whole body imaging using Inversion recovery sequence, Whole body, MR angiography.

17. m-DIXON **

Provide sequences like m-Dixon for all applicable sequences, m Dixon - HD or 3 Point DIXON.

18. RELAXOMETRY **

Tl mapping and T2 mapping with necessary post-processing's/w.

19. MOTION CORRECTION **

a. Sequence for in-line motion correction for uncooperative patients/ children (with software and acquisition sequences like BLADE. PROPELLAR, Multivane or equivalent.
b. Sequence with ultra-short TE
c. Sequence for nullifying CSK pulsation artifacts
d. Whole body imaging (using body coil and surface coils)
e. Whole body diffusion weighted imaging (using body coil
f. Automated fusion and composing for the above two (without any artifacts)
g. Volume acquisitions for Neuro applications

20. MR SPECTROSCOPY **

a. System should have capability to perform multi planar proton
b. Proton MRS Sequence for single-voxel acquisition, with selectable fat /lipid saturation band options of water saturation (e.g. VAPOR, CHRSS, etc.) with all post-processing software
c. Proton Multi-voxel CSI |2-D and 3-D] acquisition and metabolite mapping with all necessary RF sequences (and post processing algorithms) with all post processing software
d. If separate coils arc needed for carrying out MRS, it should be provided.
e. RF sequences for prostate, liver, musculoskeletal and brain (if there are any specialized / optimized sequence available, the same should be offered)- with all post processing software
f. Water and lipid suppression in automated sequences.

21. CARDIAC PACKAGE **

a. Myo map (T1,T2, T2*)
b. MR Cardiac Ventricular Function
c. MR Cardiac flow
d. Advanced cardiac including PSIR Myocardial tissue charecterisation , Coronary imaging

22. POST PROCESSING AND EVALUVATION **

a. Licenses of all the post processing and evaluation packages should be provided for the main and additional console/ Workstation.
b. Specify clearly number wise the algorithms that need licenses and a statement whether these have been provided in both the main console and the additional workstation (Satellite console/ extended workspace).

23. SPECIAL APPLICATION PACKAGES **

a. The vendor must provide their specialized and optimized imaging sequences In the Main Acquisition Console; Post processing packages in the Main Acquisition Console and additional workstation.
b. Neuro (Smart exam/Ready Suite/ Smart Brain/ etc.),
c. Body
d. Oncology,
e. Angio (including DSA approach, capturing arterial, capillary and venous phases in a single acquisition with a singlebolus)
f. Ortho and MSK, Metal artifact reduction software should be provided as standard for imaging of joints with prosthesis.
g. Liver (including 3D T1 Fat sat for dynamic liver imaging)
h. Pediatric
i. Breast
j. Prostate
k. Necessary composing software for whole body applications. Smart Exam / Smart Brain / Ready Suite/Brain Dot Engine/ equivalent technique should be quoted in all available imaging packages.
l. Knee porto system for knee instability studies - please specify

24. MPR **

a. Multi planar reconstruction (MPR) in any arbitrary plane including curved planes with freely selectable slice thickness tend slice increments.
b. Surf0ace Reco0n0struction and evaluation on reconstructed images with minimum time.
c. MIP in displaying in cine mode 2D and 3D mode, Targeted/segmented MIP in any orthogonal axis with minimum processing lime and capable of displaying in cine mode.

25. ADC, PERFUSION, etc., **

a. Evaluation and display of diffusion images, ADC map, fMRI in reference of EPI optimized sequence.
b. Perfusion image evaluation with time intensity graph and other statistical parameters
c. Evaluation package for calculating rCBV, rCBF, MTT, perfusion map, corrected CBV calculation; Fusion of perfusion map with Contrast enhanced 3D T1 images etc. Mention

the package /software offered with brochure.

d. Flow quantification and evaluation far vascular (high &. low) CSF, bladder outlet and cine display.

26. ARTERIAL SPIN LABELING **

2D / 3D ASL processing and quantification package in main console/additional workstation

27. TRACTOGRAPHY **

Post-processing package for DTI and Tractography, estimation of ADC, FA (Lambda parallel, perpendicular separately and combined), Fiber tracking, fiber statistics, and display of fiber tracts on anatomical images

28. IMAGE STATICS **

a. Measurement of distance, area, volume, angle, mean, SD, image addition, subtraction, multiplication, division, interpolation, segmentation, threshold, histogram.
b. Image filtering and Image fusion software.
c. Software for co registering MRI/ fMRI/ MRS/ Metabolite mapping images with images from
d. CT, PET, and SPECT.
e. Evaluation features like zoom, rotation, scroll, roaming, image synthesis, multipoint Tl and T2 calculation (more than 8) window stretching, text dialogues graphics, sorting, search, archiving, recalling etc.

29. SPECTROSCOPY **

a. Full post-processing for single-voxel MRS, CS1 (multi-voxel MRS), metabolite mapping with color coding (metabolic images) etc., for brain, prostate and for other application.

b. Post processing should include FFT, base line correction, curve optimization, automatic phase correction, metabolite imaging, spectral mapping, magnetic- resonance spectroscopic imaging (molecular imaging) with naming and peak integral values for all in vivo metabolites.

30. ADVANCED ORGAN SPECIFIC IMAGING **

Any advanced organ specific imaging with automatic planning, scanning and post-processing application should be quoted.

31. SILENT MRI **

Silent MRI for neuro protocols including T1W, T2W imaging without any loss of image quality on all sequences (like Neuro Silent/ Silenz, or equivalent), with noise less than 80 db. The quiet scanning should be without loss of SNR.

32. ADVANCED COMPRESS SENSING IMAGING **

System should have the Advanced Compressed Sensing Imaging for high speed image acquisition for brain, body, MSK. Also offer simultaneously multi slab acquisition for diffusion and fMRI of the brain.

33. QUALITY ASSURANCE AND PHANTOMS **

Phantoms for routine quality assurance for all coils(including body coil)

34. MRI ACCESSORIES **

a. Rechargeable Handheld metal detectors (2 Nos.)
b. Walk through Metal detector with multiple sensor and multiple location LED (Zone III tope) - 01 no
c. MR Compatible Dual Pressure injector (minimum 2000 Gauss line) with 100 syringes and patient tubings.
d. Two quantity: Non-magnetic IV stand
e. Two quantity: Digital Patient Weighing Scale (in the range between O to 200 kg)
f. Coil storage cabinets to be provided.
g. Network cable and other required materials for the complete installation to be provided by the supplier
h. MR compatible crash cart 1 no.
i. MR compatible instrument-trolley - 1 no.
j. MR compatible patient trolley (to transfer patient to the magnet table) with both vertical and horizontal movement with hydraulic operation and should take a minimum load of 150 Kg in both vertical and horizontal motion (Model: Adjustable Height Trolley: MR5501 of Wardray Premise Ltd. U.K or Adjustable Height Trolley, Femo, UK or equivalent) - 1 no.
k. MR compatible wheelchair (Wardray/equivalent model) (with cushion, backrest and anti-rest) - 1 no.
l. Uninterrupted power supply (UPS) with sufficient capacity' (appropriate rating as required for MRI and chiller) for 15 minutes back up of the full load MR system and its accessories during patient MR imaging.

m. Two (quantity) MR compatible oxygen cylinders B type with trolley, flow meter and humidifier.
n. Suitable Chiller system
o. Imported RF cabin
p. Dry Film Printer with minimum 16 bits 500 dpi 2 ports, 2 trays
q. MR compatible stethoscope
r. Patient comfort kit
s. Music and PA system with speakers
t. MR compatible fire extinguisher
u. Phantom for regular QA
v. MR compatible Pulse oxy meter and NIBP ECG Monitoring system

35. ANTIVIRUS s/w AND WEB UPDATES **

a. All the Servers and Workstations in the network (MRI console, additional workstation, PACS workstation, fMRI workstation, etc.) that is supplied by the vendor should be provided with antivirus software (periodically updated) in the warranty and CAMC period.
b. The vendor should provide antivirus updates in the warranty and CAMC period and make sure of the updated antivirus every week |using automatic- updates with internet facility by the vendor)
c. The vendor should ensure that all the above modalities include necessary connection, image & work list send/receive, image and data storage, scheduling, patient registration, and synchronization functions as per DICOM standards for smooth and effective integration to RIS/PACS.

36. SAFETY AND CERTIFICATIONS **

Should be of CE issued by a notified body or FDA (US) certificate.

- Standard Warranty:2years
- AMC and CMC rates after warranty period should be quoted in price bid for next 8 years.

MANDATORY DOCUMENTS TO BE SUBMITTED ALONG WITH TECHNICAL BID

- Compliance statement with technical specification
- Product datasheet,
- Details of service division
- Sales authorization letter from Manufacturer.

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- Details of installations
- Company representative should counter sign the purchase order confirming the terms and conditions in the purchase order.
- CE & FDA certificates
- Company representative should counter sign the purchase order confirming the terms and conditions in the purchase order.

- The Model quoted must be latest and most advanced and spare and service must be available for at least 10 years which means company will be responsible for maintaining the equipment all 10 years in full working conditions at least 95 % Up time. AMC and CAMC Rate should be quoted in price bid for 8 years
- The plat form should be able to accommodate all the up gradations required later (as when required) to add on more and more special features with no additional cost
- Should have safety certificate from a competent authority CE issued by a notified body registered in the European commission / FDA (US)/ STQC CB Certificate/ STQC S Certificate or a valid detailed electrical and functional safety test report from ERTL. Copy of the certificate/ test report shall be produced along with the technical bid
- In case of failure of Equipment/Accessories/ Instruments, standby arrangements must be provided within 48 Hours.
- Better preference will be given for user friendliness and better features

**** RATE SHOULD BE QUOTED INDIVIDUALLY / SEPARATELY**

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DIALYSIS REPROCESSOR

Make : pls specify

Model : pls specify

Year of launch : pls specify

Manufacturing Country : pls specify

1. Fully automated / computerized dialyzer reprocessing system.
2. High standardization in cleaning, volume measuring, leak testing and chemical disinfecting.
3. No external dilution / minimize chemical contact.
4. Separated mixing and volume tanks to minimize cross contamination.
5. Automatically shutdown after system disinfecting.
6. Simultaneously and independently reprocess two or more dialyzers.

DIALYZER REPROCESSING

7. REPROCESSING PROCESS : Automatic cleaning, volume measuring, leak testing and chemical filling.
8. Should be able to process all types and brands of dialyzers.
9. Volume measuring range = 25-300 ml
10. Volume measuring accuracy + 5%.
11. Leak test method, low limit setting should be specified.

ELECTRICITY REQUIREMENT

12. 100-240 VAC , 50-60 Hz.
13. Temperature 10-35 degree
14. Humidity 10-80 %
15. RO or DI water in accordance with AAMI standard for hemodialysis.
16. Input pressure 25-30 psi.
17. Flow rate 1.5 – 6.0 liters/minute
18. Water consumption 27 liters/dialyzer
19. Quantity consumed to be specified for dialyzers.
20. Dialyzer volume priming failure.

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21. Leak test failure.
22. Empty Solution.
23. Self test and disinfection interlock.
24. Priming volume lower than limit.
25. Incoming water pressure failure.
26. LCD, backlight with auto shut off.
27. Data display, reprocessing data.
28. Failure message.
29. Status
30. Date and time
31. 10-13 minutes / dialyzer
32. Data management system.

Other terms and Conditions

- Standard Warranty:2years
- AMC and CMC rates after warranty period should be quoted in price bid for next 8 years.

MANDATORY DOCUMENTS TO BE SUBMITTED ALONG WITH TECHNICAL BID

- Compliance statement with technical specification
- Product datasheet,
- Details of service division
- Sales authorization letter from Manufacturer.
- Details of installations
- Company representative should counter sign the purchase order confirming the terms and conditions in the purchase order.
- CE & FDA certificates
- Company representative should counter sign the purchase order confirming the terms and conditions in the purchase order.

- The Model quoted must be latest and most advanced and spare and service must be available for at least 10 years which means company will be responsible for maintaining the equipment all 10 years in full working conditions at least 95 % Up time. AMC and CAMC Rate should be quoted in price bid for 8 years

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- The plat form should be able to accommodate all the up gradations required later (as when required) to add on more and more special features with no additional cost
- Should have safety certificate from a competent authority CE issued by a notified body registered in the European commission / FDA (US)/ STQC CB Certificate/ STQC S Certificate or a valid detailed electrical and functional safety test report from ERTL. Copy of the certificate/ test report shall be produced along with the technical bid
- In case of failure of Equipment/Accessories/ Instruments, standby arrangements must be provided within 48 Hours.
- Better preference will be given for user friendliness and better features

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X-Ray Machine 50 KW

1. X-Ray Generator

a. High frequency X-Ray generator

b. Inverter frequency – 20 KHz or more

c. Output power 50KW to 60 KW

d. KV Range – 40 to 125KVp

e. mA range – up to 500 mA or more

f. 500mA @ 100KV

g. mAs range – 2 to 400mAs

h. Over Load Protection

i. Digital Display

2. X-Ray tube

a. Rotating anode

b. Focal Spot : Small 0.6mm x 0.6mm, Large1. 2mm x 1.2mm.

c. One pair of High tension cable (at least 8 meters)

d. Collimator with full field illumination and angle indicator with auto shut off

e. Anode heat capacity should be 300KHU or more

3. Table

a. The table should be horizontal floating type

b. Bucky table with floating table top with immense flexibility and ease in positioning

c. Table top positioning with release of electromagnetic brakes controlled with a foot operated lever d.

Table Height – 75 cm (±5%)

e. Table top – 218 x 80 cm (±10%)

f. Table top should be made up of low radiation absorption, water proof material,stain free

g. Longitudinal Travel: ± 40 cm (±2%)

h. Transverse Travel : ± 12.5 cm (±2%)

i. Electromagnetic locking of the table movement

4. Motorized Bucky:

a. Grid 10.1, 60 lines / cm, focused at 100 to 120 cm / suitable range

b. 50 cm travel; movement arrested by electromagnetic brakes

c. Tube shall be centered to bucky in transverse direction eliminating need for positioning table for every exposure

d. Suitable for cassettes in cm and inch formats and should be capable to accommodate 14”x17”

5. X-Ray Ceiling column/Floor Stand Model

a. Travel range: 195 cm (±10%); movement arrested with electromagnetic brakes

b. Vertical travel: 135 cm (±10%); movement arrested with electromagnetic brakes

c. Column rotation: 360°; from + 180° to -180° in 90° increments

d. X-ray tube rotation: ± 180°; locks at 0° / +90° / -90°

6. Others:

a. The offer should be accompanied by original product data sheet/brochure of the product and AERB type approval certificate or valid No Objection Certificate (NOC) for the model offered. In case of NOC valid type approval certificate has to be submitted prior to submission of invoice for payments.

b. QA test should be done free of cost during warranty period (once in every year) and yearly QA test shall be done in the CMC period (once in every year) also and the rates shall be included in the CMC offered.

7. ACCESSORIES

- The rate for the following accessories are fixed in the tender and shall be ordered separately. The rates of these accessories are not included in the main equipment rate

a. Three fold X-ray protection barrier

b. Light weight Radiation protection Apron of 0.5mm lead equivalence with Thyroid guard and Gonad shield

c. Light weight latest model cassettes with high speed screen 15x12, 12x10, 10x8

d. Free standing chest stand and cone for skull x-rays.

e. X-Ray view box (LED Type) Double

f. Floating table

g. 6 way table

h. Suitable capacity stabilizer

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8. POWER SUPPLY REQUIREMENTS

a. 380 to 440Vac, Three phase, 50/60 Hz.

9. SPECIFICATION OFRADIATION PROTECTION LEAD APRON.(3 numbers to be supplied)

a. Should be AERB approved.

b. Should be light weight 0.5mm lead equivalent.

c. Should be hook and loop type (Velcro).

d. Should be supplied along with thyroid guard.

e. Heavy duty wall hanger should be supplied

10. SPECIFICATION FOR THREE FOLD LEAD PROTECTIVE BARRIER.

a. Should be a threefold mobile lead protective barrier.

b. Should be a mounted on heavy duty casters.

c. Should have a viewing window size 8”x8” of 1.5 mm thick lead equivalence.

d. The centre part should have 3 feet width and 6 feet height. The sides should be 1.5 feet width and 6 feet height.

11. 6 WAY TABLE:

a. The table should be horizontal 6 way movements, motorized height adjustment with foot switch lock and having a weight bearing capacity of 200 kg.

b. Motorized Bucky with immense flexibility and ease in positioning

c. Foot switch control

d. Table Height – 75 cm (±5%) up/down travel at least 20 cm

e. Table top – 218 x 80 cm (±10%)

f. Table top should be made up of low radiation absorption, water proof material, stain free

g. Longitudinal Travel: ± 40 cm (±2%)

h. Transverse Travel : ± 12.5 cm (±2%)

12. VERTICAL BUCKY:

a. In built Motorised Bucky

b. Tiltable Bucky

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13. X- Ray Lobby (LED)-Double Film

1. Should have double film size(14" x 17") capacities.
2. The equipment should have high level of control luminance, without flicker, from a unit that is easy to clean and maintain.
3. The X-Ray viewing screen illumination should dimmable LED of minimum 60000 hours life and shall works on single phase power supply.
4. Should have minimum 10000 Lux output adjustable.
5. Should have individual brightness & ON/OFF controls.
6. The front panel diffuser should be of a glare free type.
7. Should have clipless mechanism to hold & secure the X-Ray negative film when in use.
8. LED Lamps should provide a uniform level of illumination across the entire front panel diffuser and should be controlled by electronic step-less dimming controls to provide flicker free dimming from maximum brightness to off.
9. Individual light controls for each plates.
10. Equipment shall be elegant & compact.
11. Body should be made up of mild steel / Aluminum powder coated
12. Should be grounded properly.

14. The equipment should be rodent proof.

The supplier shall install the machine and undertake rodent proof activities during the warranty period

15. Suitable capacity matching the power output of the machine with input voltage range of 360Vac to 450Vac automatic servo stabilizer .

Other Terms and Conditions

1. Should have safety certificate from a competent authority CE issued by a notified body registered in the European commission / FDA (US)/STQC CB Certificate/ STQC S Certificate or valid detailed electrical and functional safety test report from ERTL. Copy of the certificate/ test report shall be produced along with the technical bid.

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2. The Model quoted must be latest and most advanced and spare and service must be available for at least 10 years which means company will be responsible for maintaining the equipment all 10 years in full working conditions at least 95 % Up time. AMC and CAMC Rate should be quoted in the price bid for 8 years.

3. Standard warranty: 2 years

4. In case of failure of Equipment/Accessories/ Instruments, standby arrangements must be provided within 48 Hours .

Copies of following documents to be attached in Cover 1

- CE & FDA certificate if any
- Compliance statement with technical specification
- Product datasheet
- Details of service division
- Sales authorization letter from Manufacturer.
- Details of installations
- AERB Type approval certificates
- Company representative should be signed In purchase contract

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Technical specifications of Medical Equipment

OT table for Orthopedics

Make : Pls specify

Model : Pls specify

Year of launch : Pls specify

Manifacturing country : Pls specify

1. The table should have a minimum of 4 sections ie. head section, leg section, a seat section, and back plate section with additional accessories which can be used for Ortho purpose - Inbuilt Ortho provision
2. Table should be sliding type having lithotomic facility with lithotomic pole, Arm boards with additional C Type arm support, board arm with stump support
3. The table should be electro-hydraulically operated having the following hand switch operated electro-hydraulic functions (all the dimensions will have a permitted deviation of +/- 10 %)

    a) Up / Down 680-1000mm
    b) Trendelenberg & Reverse 30deg
    c) Side Tilting (Lateral) 20deg
    d) Back Plate (Sitting Position) -40 to +80
    e) Top Slide 300mm
    f) Breaking (by hand switch)

4. In addition to the above-hand switch operated functions, the table must have the following manual functions. Description Range i. Head Section Tilting 30deg Up / 90deg Down ii. Split Leg Plate manual movement +10 to -90
5. The table should be supplied with the following accessories.

    a) Mattress for the complete tabletop in sections - 1 set
    b) A pair of arm boards with pad and fixing clamp - 1 set
    c) A pair of padded shoulder support with clamps (SS grade 304) – 1
    d) A pair of padded lateral support with clamps (SS grade 304) – 1
    e) Anesthetic screen frame with clamp (SS grade 304) – 1

f) Patient restraint strap – 1
g) Leg crutches with side rail locks – 1 pair .
h) Back support and chest support

6. The base cover, lifting column cover and side rails should be made of stainless steel grade SS 304
7. Should have the enhanced weight bearing casters fitted with ball bearing.
8. The table should have a heavy and sturdy base and be compact to provide adequate foot room for the operating team.
9. The weight-bearing capacity of the table shall be at least 175kg. Please specify
10. Should have battery backup (better preference for more) please specify
11. Should have inbuilt Auxiliary control unit
12. Should have an emergency manual floor lock releasing option
13. Ortho Accessories:

- Shoulder surgery attachment (Beach chair)
- lateral support
- Traction Device & Attachment for lateral position
- Hand traction Device
- Knee rest with strap
- Accessories cart trolley (for storage and traction device movement)
- Instrument tray
- Hand table
- Raised Arm rest
- Condyle fixation for Tibia / Fibula

Other Terms and Conditions

1. Should have safety certificate from a competent authority CE issued by a notified body registered in the European commission / FDA (US)/STQC CB Certificate/ STQC S Certificate or valid detailed electrical and functional safety test report from ERTL. Copy of the certificate/ test report shall be produced along with the technical bid.

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2. The Model quoted must be latest and most advanced and spare and service must be available for at least 10 years which means company will be responsible for maintaining the equipment all 10 years in full working conditions at least 95 % Up time. AMC and CAMC Rate should be quoted in price bid for 8 years

3. Standard warranty: 2 years

4. In case of failure of Equipment/Accessories/ Instruments, standby arrangements must be provided within 48 Hours.

Copies of following documents to be attached in Cover 1

- CE & FDA certificate if any
- Compliance statement with technical specification
- Product datasheet
- Details of service division
- Sales authorization letter from Manufacturer.
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Technical specifications of Medical Equipment

OT Light LED with Camera & Monitor in third arm

Make : Pls specify

Model : Pls specify

Year of launch : Pls specify

Manifacturing country : Pls specify

1. Should be a Surgical Light unit incorporating the latest LED technology shadow less operating light field with the following specifications.
2. Should have Single Color high performance LEDs with life time more than 40,000 hours.
3. Should be a dual dome and the main light and satellite should have the following specifications
    - Light Field diameter shall be above 24 cm or better
    - Color temperature should be variable and between 4000 to 4500 degree K
    - Color rendering index should not be less than 95
    - Depth of illumination should not be less than 100 cm.
    - Illumination adjustment 30% to 100%
    - The light dome shall be compatible for laminar air flow.
    - LUX intensity 1,40,000 Lux & Satellite 1,40,000 Lux or above

4. Should have stable illumination throughout the life period of the light. If the intensity reduces during the warranty or CMC period the LEDs has to be replaced at free of cost if required.
5. The LED's must be of a single color suitable for long term maintenance and ease of replacement.
6. Temperature rise at the surgeon head level should be less than 2 degree C.
7. Should have control panel for light focusing adjustment fixed on the dome or arms.
8. Should supply autoclavable handles 3 Nos for each dome.
9. The intensity of light should be uniform during the surgery.
10. Minimum spring arm stroke of 500mm and minimum action radius of the complete arm shall be 1500mm or more.
11. Diameter of domes:

    Large: 700mm or more, please specify
    Small: 510mm or more, please specify

12. Total vertical movement: 1200mm or more, please specify.
13. Arm material: Please specify.
14. One of the dome should have the provision to add a detachable camera with the following specification

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- High definition 1080 lines resolution camera with optical zoom and focus adjustment. The camera control functions shall be either with remote control / wall control panel / dome / arm.
- The output of the camera shall be taken out and connected to the monitor / TV provided by the user institution (Maximum distance: 100meters). The rate of camera shall be quoted separately which will be taken for evaluation.
- The output of the camera shall be simultaneously be visible on a third arm of OT Light containing an LED high definition TV monitor, to be provided by the supplier and on another 48 inches high definition LED TV monitor which shall be provided by the supplier with a foot stand and cable of 500 meters (If amplifier is required ten it shall be provided). Both monitors should be quoted as optional.
- There should be a provision for recording of the video and still pictures taken by the camera in a recording device to be supplied by the supplier, in a format playable by any computer/laptop using VLC media player software, with provision for downloading it into an external recording portable storage device using a USB port.
- There should be additional provision for one more USB port in the recording device.

15. Unit should function with 200-240Vac, 50/60 Hz input power supply.
16. Should have safety certificate from a competent authority CE / FDA (US) / STQC CB certificate / STQC S certificate or valid detailed electrical and functional safety test report from ERTL. Copy of the certificate / test report shall be produced along with the technical bid.
17. Standard Warranty – 2years.
18. Please attach a copy of
    - CE & FDA certificate if any
    - Compliance statement with technical specification
    - Product datasheet
    - Details of service division
    - Sales authorization letter from Manufacturer.
    - Details of installations

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Technical specifications of Medical Equipment

BLOOD BANK EQUIPMENT

Sl No	Name of the Equipment	Qty
1	Blood Bank Refrigerator	3
2	Laboratory Reagent Refrigerator	1
3	Blood Collection Monitor	2
4	Blood Donor Couch	2
5	Blood bag Tube sealer	2
6	High Volume Blood centre Refrigerated Centrifuge	1
7	Plasma/Deep Freezer -40 degcelsius	1
8	Ultra low temperature Freezer -80 deg Celsius	1
9	Platelet Incubator	1
10	Platelet Agitator	1
11	Plasma Expresser - Manual	1
12	Blood Bag Compo Scale – single pan balance	1
13	Plasma thawing bath	1
14	Cryo bath	1
15	Laminar Air flow cabinet	1
16	ELISA Reader	1
17	ELISA Washer	1
18	Slide viewing box	1
19	Vertical Autoclave	1
20	VDRL Shaker	1
21	pH meter	1

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22	Needle Burner & Syringe Destroyer	1
23	Donor Weighing scale	1
24	Blood transportation box	2
25	Blood tube stripper	2
26	Blood bank bucket corrector- Double pan balance	1
27	Mobile Fridge cum Freezer for transportation blood and its products	1
28	Digital Hemoglobinometer with strips or cuvettes	1
29	Binocular Microscope	1
30	Micropipettes – Variable volume	10
31	Table top Clinical laboratory centrifuge	1
32	Water bath	1
33	Laboratory incubator	1
34	Laboratory Hot air oven	1
35	Calibrated Thermo hygrometer	3
36	BP Apparatus	3
37	Gel Card technology Blood Grouping & Cross matching Centrifuge with Incubator and its accessories	1

Sl.No	Equipment details
1.	**Blood Bank Refrigerator** **<u>Specifications:</u>** • Blood Bank refrigerator capacity should have a capacity of 300L, 120/150bags • Exterior body should be made of Galvanized MS with white powder coated body and blue panel cover with temperature controller • Interior body should be made of made of stainless steel of AISISS304 grade • Control system should have Microprocessor based LCD Temperature controller with resolution of ±0.1°C • Temperature Range should be 2°C to 10°C with a working temperature

	of 4°C • Temperature Accuracy & Uniformity should be ±1ºC&±0.5°C • User Parameter settings in the display: set point, high alarm point, low alarm point, Temperature in centigrade, sensor failure, compressor ON/OFF. • Audio visual alarm when the temperature deviates from the preset temperature, door open, sensor failure, high & low temp. and various other parameters • Built-in battery back-up for chart recorder and temperature display during power failure • Insulation CFC – Free light density polyurethane foam (PUF) insulation • Closure: Durable magnetic rubber gaskets for leak proof closure • Main door: Right hinged double pane glass door • Transparent inner door for easy viewing of blood bags • Heater Line: Hot air over the front door to prevent moisture condensation • Refrigeration: hermetically sealed compressor with non-CFC, HCFC free eco-friendly Refrigerant(R-134A) • Compressor: Heavy duty hermetically sealed compressor • Cooling by forced air circulation for uniform cooling throughout the cabinet. • Air cooled Condenser by means of continuous rated motorfans that cools the compressor • Unique air flow system with circulating fan to ensure uniform temperature distribution • Built-in 7 days graphic Chart Recorder with Ink pen/Inkless unit having a range of -10ºC to +40ºC. • Probe:FastresponsePT-100RTDsensorforaccuratetemperaturemeasurement • Rollout stainless steel blood bag baskets for perfect and homogeneous distribution of cold air • Provided with door locks • Provided with heavy duty smooth moving Castor Wheels for easy and free mobility • Clear and visible lighting provided inside • Over load protection for compressor with internal / external overload protector • Calibration:TemperaturecalibrationcertificatetraceabletoNationalStandards • Accessories: Supplied with a Power cord with 6A 3 pin molded plug. • Graphic charts should be supplied with machine for the warranty period • Power: 230V/50-60Hz, Single Phase AC • Should comply to standards like ISO 9001, ISO 13485 certified and CE compliant • 3Q and Calibration reports should be provided during warranty
2.	**Laboratory Reagent Refrigerator,** **Specifications** • Capacity in volume : 250L • Exterior body should be made of Galvanized MS with white powder

	coated body and blue panel cover with temperature controller • Interior body should be cabinet made of stainless steel AISISS304 grade • Control system :Microprocessor based LCD Temperature controller with resolution of ±0.1°C • Temperature Range: 2°C to 10°C with a working temperature of 4°C±1°C • Temperature Accuracy & Uniformity : ±1ºC&±0.5°C • User Parameter settings in the display: set point, high alarm point, low alarm point, Temperature in centigrade, sensor failure, compressor ON/OFF. • Audio visual alarm when the temperature deviates from the preset temperature, door open, sensor failure, high & low temp. and various other parameters • Built-in battery back-up for temperature display during powe rfailure • Insulation CFC – Free light density polyurethane foam (PUF) insulation • Closure: Durable magnetic rubber gaskets for leak proof closure • Main door: Right hinged double pane glass door • Heater Line: Hot air over the front door to prevent moisture condensation • Refrigeration : hermetically sealed compressor with non-CFC, HCFC free eco-friendly Refrigerant (R-134A) • Compressor : Heavy duty hermetically sealed compressor • Cooling by forced air circulation for uniform cooling throughout the cabinet. • Condenser by means of air-cooled compressor aided by continuous rated motor fans • Unique air flow system with circulating fan to ensure uniform temperature distribution • Probe:FastresponsePT-100RTDsensorforaccuratetemperaturemeasurement • Rollout/pull out stainless steel reagent baskets for perfect and homogeneous distribution of cold air • Provided with door locks • Provided with heavy duty smooth moving Castor Wheels for easy and free mobility • Clear and visible lighting provided inside • Overload protection for compressor with internal/external overload protector • Calibration:TemperaturecalibrationcertificatetraceabletoNationalStandards • Accessories: Supplied with a Power cord of 6A3pinmoldedplug. • Power: 220V/50-60Hz, Single Phase AC • Should comply to standards like ISO 9001, ISO 13485 certified and CE compliant • 3Q and Calibration reports should be provided during warranty

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3.	**Blood Collection Monitor** **<u>Specifications:</u>** • Should comply standards like ISO 9001, ISO 13485 certified and CE marked • Must have a weighing range of 50 to 700 ml • Must have a automatic tare to zero for the bag weight • Should have adjustable low and high flow alarms • Should have adjustable donation time out up to 20 minutes • The default volume must be adjustable • Should clamp automatically at termination of present volume collection • Should have option for manual clamp for usage in case of emergency • Should have a weighing accuracy +/- 2% • Should have weight less than 6kg inclusive of battery • Should have easily detachable tray for cleaning and disinfection which are compatible with all bag systems. • Should have a LCD / touchscreen display for clear view of programmed volume, collected volume, flow rate, main battery, collection enhancement, manual clamping and pause function • Must have indication on commencement of collection and indication with alarm at the end of collection • Must have indications like power, start pause, debit flow, battery low and battery full • Must have indication of time taken for collection • Must have indication with alarm if blood flow rate is high or low • Must have continuous display of collected volume, flow and time during collection • Tray should oscillate continuously at 12+/-2 rpm during collection and should also be adjustable • Should operate on mains as well as rechargeable battery. It should operate on battery for minimum of 8 hrs or 50 collections • Should have Pause facility to pause during collection • Should comply to standards like ISO 9001, ISO 13485 certified and CE compliant • 3Q and Calibration reports should be provided during warranty
4.	**Blood Donor Couch** **Specifications:** • The couch should be made of a strong and stable platform • Couch should have a head cushion & armrest on both sides • The blood donor couch should be motorized and automated. • Should be able to adjust the position of backrest & leg rest and Trendelenburg positions.

	• Quick conversion to shock position • Mobility with4lockable and sturdy castor wheels • Two programmable preset keys for quick shift to user defined positions • Base body should be galvanized MS with white powder coated body • Provided with a Back rest inclination 100° to 162° • Should have adjustable arm rest for easy movement • Adjustable head rest to suit different donor heights • Provided with Soft & low density PUF foam mattress • Couch should have extra thick, disinfectant resistant upholstery and the supplier may submit color options for upholstery • Initiation of motor movement by wired remote with long lifetime- Up to 4 easy-touch buttons • Should provide a movable BCM Holder, I V Line holder, Rotatable, Additional in-built power outlet if possible • Should have a weight bearing capacity up to 200 kgs • Power requirement : 230V/50Hz • Should comply to standards like ISO 9001, ISO 13485 certified and CE compliant
5.	**Blood bag Tube sealer** **<u>Specifications :</u>** • Should be compatible with all ranges of blood bag systems available in the market • Should be heavy duty radio frequency sealer • Should be for bench-top use • The sealing time should not be more than 2 seconds. • Sealing triggering should be automatic • Should have Automated tube detection • Should have Radiofrequency sealing with no risk of haemolysis of blood in tube segments • Should not be any risk of contamination. • Should have indication lamps detailing the functional status of sealer. • No warm-up time should be required. • Should ensure easy separation of tube segments after the sealing. • Should be operational on 220 to 240 V at 50 Hz • Should comply to standards like ISO 9001, ISO 13485 certified and CE compliant • 3Q and Calibration reports should be provided during warranty
6.	**High Volume Blood centre Refrigerated Centrifuge** **<u>Technical Specification</u>** • Should be used for the separation of blood components like packed cells, platelet rich plasma, platelet concentrate, plasma,

	Cryoprecipitate • Should have microprocessor controller system to make operation automatic. • Should have programmable memory with tamper proof facility. • Stainless steel chamber: easy to clean, corrosion resistant with provision of both drain and condensed water collection container. • Removable plastic cups to hold single / double / triple / quadruple blood bags with partition in every bucket. • Should be equipped with manual/electronic lid lock. • Speed variation: Microprocessor controlled rotor speed to within 10rpm of set value. • Speed and force: Maximum speed at least 4,000 rpm to 4500 rpm; Maximum RCF (Relative Centrifugal force) for blood bags: 6000g-6500g. • Acceleration and deceleration profiles should be independently adjustable • Microprocessor controlled rotor temperature within 1 degree Celsius of set temperature regardless of the centrifuge speed. • Programmable time: 0-99 minutes with minimum resolution of 1 minute. • Digital display of temperature, speed and time • Motor imbalance detection: Automatic shutdown of centrifuge if rotor load is out of balance with appropriate indicator. • Should incorporate alarms for imbalance detection, lid interlock, over temperature, rotor over speed. • Capacity: Swing bucket blood bank rotor, with metal buckets, 6 x 2000ml, wind shielded. • Suitable adaptors for 12 blood bagsof 350 ml & 450 ml • Programmable memory, memory with tamperproof facility • Removable plastic cups to hold, Single/double /triple/quadruple (soft filter) blood bags with partition in every bucket. • Insert with hook adaptor to spin buffy coat or small volume of blood and balancing weights for inserts. • Equipped with automatic lid lock. • Motor imbalance detection. Automatic shut down or centrifuge if rotor load is out of balance with appropriate indicator. • Should have CFC-free refrigerant • Should incorporate alarms for imbalance detection lid interlock, over temperature, rotor over speed. The equipment shall be suitable for operation from 0 to 40 Deg C at 90% relative humidity. • Electronic circuitry shall be tropicalized for this ambient condition. The equipment shall have lockable castors. Protection of data, In event of power interruption or complete data Should remain stored. Should have a provision of external connectivity. • It shall have a security lock to prevent unintentional switch off and unauthorized opening of the equipment. • **Settings**: Manual. • **User's Interface**: Manual

	• **Software and/or Standard of communication: Built in** • **Physical Characteristics: Noise** (in Dba): Noise factor should not exceed 60 decibels. • Energy Source: Power Requirements: Input voltage single/three phase along with a line voltage corrector of appropriate rating. • Should comply standards like ISO 9001, ISO 13485 certified and CE complaint • 3Q and Calibration reports should be provided during warranty
7.	**Plasma Deep Freezer -40 deg,** **Specifications:** • Plasma/Deep Freezer capacity should be approx. of 300 liters and should be vertical type • Temperature : should be up to - 40°C with accuracy of ±1ºC • Temperature control: Microprocessor controller with digital display • User Parameter settings in the display: set point, high alarm point, low alarm point, Temperature in centigrade, sensor failure, compressor ON/OFF. • Audiovisual alarm when the temperature deviates from the preset temperature, door open, sensor failure, high & low temp. and various other parameters • Built-in battery back-up for chart recorder and temperature display during power failure • Insulation CFC – Free light density polyurethane foam (PUF) insulation • Construction : Powder coated Mild Steel exterior finish & AISI SS304 stainless steel interior finish • Adjustable stainless steel shelves of 4 nos. • Door : Separate inner doors to prevent cold loss □ Magnetic closing of at least inner doors. □ Heating line in front to avoid condensation □ Door open/ajar audio and visual alarm □ Door lock should be available • Electrical characteristics : Compatible with Input 240V 50 Hz Single phase AC • Hold-Over Time : A full load of plasma packs at -36 °C takes at least 1 hr to rise to above -20 °C • Cooling Down Time : A full load of plasma packs at +25°C takes a maximum of 5 hrs for all the packs to reach below -25°C • Refrigeration system: Hermetically sealed Imported compressor with non-CFC Refrigerant. • Caster wheels : 2 nos. lockable front wheels and 2 nos. unlockable

	wheels • Built-in 7 days graphic Chart Recorder with Ink pen/Inkless unit having a range of -100ºC to +50ºC. • Probe:FastresponsePT-100RTDsensorforaccuratetemperaturemeasurement • Built in back-up for temperature display and chart recorder during power failures • Should comply with standards like ISO 9001, ISO 13485 certified and CE compliant • 3Q and Calibration reports should be provided during warranty
8.	**Ultra low temperature Freezer -80 deg** **Capacity :300Ltr** **Specifications:** • Should have a Temperature range of -20 to –80ºC • Should have a Temperature control accuracy of ±1 ºC@-35 ºC and ±2 ºC@-80 ºC • Temperature control and monitoring: Microprocessor based controller with digital display of values, alarms and various other parameters. • There should be a Door mounted control panel on the eye-level with the temperature controller for easy access. • Should have the unique Cascading design to maintain the temperature of -80°C • Should be with an intelligent time delay function for dual stage controlling. • Should have PT 100 Temperature Sensor to monitor temp. values more accurately • Dual display for reading actual and set temperature simultaneously, lower display indicates functions and errors. • Should be constructed of double walls, the exterior Epoxy powder coated Mild steel construction • Interior body of stainless steelof grade AISI SS304 having PUF insulation to minimize the heat loss • Should have High-quality triple layered magnetic rubber gasket system provided to the door • Reliable hot gas heated door frame prevents ice build-up near the door opening. • Should be provided with adjustable trays. • Refrigeration: Hermetically sealed Imported compressors(2 nos.) with CFC-free refrigerant for cooling • Should be provided with safety functions for refrigeration system • Audio-Visual alarms for Safety as below should be available: (1) Temperature high/low (2) Power failure (3) Door Open (4) Power on (only visual) • Should be provided with Heavy –duty castor wheels for easy mobility. There should be 2 nos. of wheels with locks in the front and 2 nos.

	without lock at the rear end. • Temperature chart recorder: Built-in 7 days graphic Chart Recorder with ink pen/Inkless, with range of -100ºC to +50ºC • Built-in battery back-up for chart recorder and temperature display during power failure • Should be supplied with suitable single phase Air cooled normal range microprocessor based servo controlled **stabilizer** with complete protection • Power Range – 230 to 240V, 50-60 Hz, Single Phase AC line • Noise Level: Should be less than 65 dBA • Should comply with standards like ISO 9001, ISO 13485 certified and CE compliant • 3Q and Calibration reports should be provided during warranty
9.	**Platelet Incubator** **Capacity required: 125L** **<u>Specifications:</u>** • Temperature range required: 20°C to 25°C • To continuously agitate platelet concentrate in an even suspension in a temperature controlled environment +22 °C ±2 °C in standard platelet bags (random unit or apheresis) • Temperature accuracy required: ±1°C • Exterior make should be of Mild Steel with epoxy powder coating • Interior make should be of AISI SS 304 grade stainless steel • Control system :Microprocessor based digital Temperature controller with digital display • Alarm functions: Controller with safety alarm functions for temp. high and low, door open, sensor failure, comp. ON/OFF etc. • Air Circulation required: Circulating Fan for temperature uniformity • Lighting: Interior illumination inside the chamber. • Glass door with full visibility of units without opening door • Temperature chart recorder: Built-in 7 days graphic Chart Recorder with ink pen/Inkless, with range of -10ºC to +40ºC • Refrigeration System: Hermetically Sealed CFC Free Compressor with Eco Friendly refrigerant • Power : Works on 230V/50 Hz, Single phase • Should comply standards like ISO 9001, ISO 13485 certified and CE compliant • 3Q and Calibration reports should be provided during

	warranty
10.	**Platelet Agitator** **Specifications:** • Should be able to agitate and store 48 Platelet bags. • Make of trays : Should be made of AISI SS 304 Grade Stainless steel Trays • Drawers perforated to ensure good air circulation • The agitator holding the shelves is suspended in such a way as to ensure minimum noise for the life of the agitator. • Suggested Agitator Oscillation: 70±5 cycles/minute • Auto-pause of agitator on opening door • On off switch to pause agitator separately • Mild Steel Powder coated basement • Heavy duty gear motor or similar system for smooth and continuous operation for 24 hours a day 365 days a year • Power input to be 220-240VAC, 50Hz • Should comply standards like ISO 9001, ISO 13485 certified and CE compliant
11.	**Plasma Expresser - Manual** **Specifications** • Mode of Operation: Manual. • Should be portable, simple, lightweight & easy to use. • The base plate of Plasma Expresser should be made of sturdy metal blockt o hold the blood bags in vertical position and powder coated to prevent rusting. • Compression plate should be of transparent acrylic sheet designed to exert uniform pressure on the blood bag. • Base portion and Vertical surface is made to have better strength and long lasting performance. • Should be suitable to extract blood components (Plasma and platelets) from all types of Blood Bag systems • Front panel spring loaded to exert uniform pressure on plastic blood bags for transfer of blood components. • It should be non-breakable with good handle for expresser. • Should comply standards like ISO 9001, ISO 13485 certified and CE complaint
12.	**Blood Bag Compo Scale – single pan balance** **Features:** • External calibration mode • Lightweight & Portable • Display on Graphics LCD while measuring Components

	Volume/weight. • Set Volume of the component in ml. • Process value of the component in ml. • Process value of component in gm. • Plasma, Platelet & RBC. • Set Volume of each component. • Easy conversion of Weight & volume. • Tare provision to account the weight of Blood Bag. • Display volume and weight of Blood Components –Plasma, Platelet, &RBC. • Continues display of selected component by LED. • Audio-visual alarm at the end of process • Polycarbonate exterior body • Should comply standards like ISO 9001, ISO 13485 certified and CE complaint • Calibration reports should be provided during warranty
13.	**Plasma thawing bath** **Capacity : 12 bags** **Specifications:** • Should be a bench Top type model • Capacity : Should be able to thaw a minimum of 12 plasma bags • Operating Temperature should be of 37°C with accuracy of ± 1 ºC • Programmable Temperature range : 37°C to 60°C • Temperature control: Should have a microprocessor based digital controller to control temperature with LED digital display • Temperature sensor: should be dipped directly into the water for sensing • Exterior body should be made of Power coated Mild Steel • The inner tank should be made of stainless steelAISI SS 304 • Should have removable SS 304 make holders to hold 12 plasma bags which can be easily removed • Should have a uniform and optimum thawing mechanism – pumping mechanism by high capacity circulating pump that should be in directly inside the inner tank • Inner tank should be devoid of heaters for safe hanging of bags • Power: 220-240V, 50-60Hz • Power Consumption in Watts : 1500W • Should comply standards like ISO 9001, ISO 13485 certified and CE compliant • 3Q and Calibration reports should be provided during warranty
14.	**Cryo bath** **Capacity : 12 bags**

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	Specifications ➢ Should have the Capacity (in terms of bag) of 12fresh frozen plasma bags ➢ It should have an operating temperature of 3.7°C to4.3°C with a temperature accuracy : ±0.5ºC ➢ Should have the Programmable temperature range of3°C to 56°C ➢ Should have the removable tray of Stainless steel for the holding of plasma bags. ➢ Exterior body should be made of Mild Steel with powder coating ➢ Inner tank should be of AISI SS304 grade stainless steel ➢ Insulation: CFC -Free Poly Urethane foam ➢ Refrigeration System: Hermetically Sealed CFC-Free Compressor with Eco Friendly refrigerant ➢ It should have the Temperature Controller of Microprocessor Based Digital Controller. ➢ User Parameter settings: set point, high alarm point, low alarm point, Temperature in centigrade. ➢ Audio visual alarm when the temperature deviates from the preset value ➢ Should have high quality circulation pump (which should not be directly inside the tank) for temperature uniformity ➢ Inner tank should be devoid of heaters for safe hanging of bags ➢ Should comply standards like ISO 9001, ISO 13485 certified and CE compliant ➢ 3Q and Calibration reports should be provided during warranty
15.	**Laminar Air flow cabinet** **Working area re** **Specifications** • Type : Horizontal model • Exterior body should be made of Mild Steel with powder coating • Working Surface: AISI SS 304 grade Stainless steel • Side panels should be of transparent Acrylic material • Main Filter: Mini pleat HEPA 1. Filtration Size: up to 0.3 microns 2. Filter Efficiency: HEPA filter, 99.997% • Pre Filters: Fine Filters ▪ Filtration Size: up to 10 microns ▪ Filter Efficiency: 90% • The unit should have UV – germicidal lamp of 254nm wavelength with long working hours • Should have an extra electrical point • Should have fully foldable, clear Acrylic sash with handle • Should have a nominal Airflow velocity of 100 fpm • Should have differential pressure indicator, a magnehelic gauge • Noise level should be less than 70db

	• Power requirement: 220V, 50Hz, Single phase • Should comply standards like ISO 9001, ISO 13485 certified and CE compliant • Calibration reports should be provided during warranty
16.	**ELISA Reader** **Product Features:** • Wavelength Range: 400 to 750nm with a dynamic measurement range of 0.0 to 4.0 O.D • 100 user-programmable test storage • Inbuilt thermal printer for reports & graphs • Auto self-check on start-up & external printer connectivity • Compatible to various plate geometrics-96 well micro plates (Flat, U & V bottom) • Wavelength selection: Monochromatic, bi-chromatic & multi-chromatic* • Reading time 8 sec. for single wavelength using 4-channel optics • User-friendly inbuilt operation software with 7000 sample test results storage • User interface: High-Resolution LCD display with 20 Keys Rugged waterproof & membrane panel • Computer linked ELISA data management software • CE marked • Inbuilt shaking facility, Three Linear Speeds - Low, Medium and Fast • Reports can be printed using internal thermal or external printer • No need of manual calculations and documentation • Documentation ease – Reports can even be stored using optional Eli-LIMS software • Computer can be connected • Extensive ELISA data management
17.	**ELISA Washer** **Product Features:** • Fully automated, easy operating system and friendly software with large-screen display • 50 user programmable protocols to customize washing • Easily removable 8- or 12-way manifolds • Liquid level detection and alert function • Low residual volume: <3 µl • Soak time programmable up to 24 hrs. • Compatible for flat-bottom, U and V bottom type microplates or microstrip • High-efficiency ELISA washing with automated monitoring of Vacuum. • Choice of 2 wash buffer bottles, 1 distilled water & 1 waste container with sensor • Dispense pressure and the volume adjustable, so as to reduce the air bubbles and ensure thorough Washing • Waste-bottle sensor to detect high-waste liquid levels

	• Standard aerosol protection cover • Easy maintenance • CE marked • Calibration reports should be provided during warranty **Specifications:** • Wash Head: 8 and 12 head manifold compatible • Wash Mode: Row and Plate • Wash Row: 1-12 rows Flat Bottom • Plate Type: 96 or 48 well plate or strip (Flat, U & V - bottom) • Wash Programs: 50 • Moving Cycle: up to 12 cycles • Dispensing Volume: 50 - 3000µl in 50µl increments • Dispensing Precision: < 2% at 350µl • Prime Volume: 50 - 1000µl • Aspiration Pressure: Automatic • Soak Time: 0 – 24 Hrs • Residual Volume: ≤ 2µl for V/ U bottom plates, and ≤ 3µl for per well Flat bottom plates • Nos. of Bottles: 2 wash, 1 Rinse/DI, 1 waste with level sensor, 2L each • User Interface: 5 Inch LCD (90 x 53 mm), with Keypad • Bottle Capacity: > 2 L Operating Environment • Power Supply: AC 220 V/ 110 V, 50/60 Hz • Input Power : < 80VA • Operating Temperature: 10°C - 30°C • Relative Humidity: Up to 95% relative humidity without condensation • Storage Temperature: -10°C - 40°C • Weight: 9.5 Kg
18.	**Slide viewing box** • Microscope slides box should be horizontal type for full visibility. • It should be robust construction & portable. • Should have built in temperature indicator for easy and accurate monitoring of viewing area. • Viewing area temperature adjusts easily to compensate for ambient temperature changes (Range:45 degree C to 50 degree C) • Soft, LED, glare free light provides uniform illumination of slide contents • View box can be gently rocked using large knob on support cradle. • Sturdy, easy –to-clean Metallic powder compact case. • Utilizes minimal bench space. • Meets Rh slide test standards set by the AABB • Unit conveniently includes three wire cord and plug • Material : Mild Steel with powder coating • Usage/Application: Blood Typing, RH Determination, Warming Slides For Gram Stain, Tissue Typing

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	• Voltage : 220-230V • Frequency : 50 Hz • Weight should be approx.5 Kg • Temperature Display: 37 Degree C +/- 2 Degree C With Micro Processor Indicator • Surface Finish: Powder Coated • Should comply standards like ISO 9001, ISO 13485 certified and CE complaint
19.	**Vertical Autoclave** • It should be approx. 25literswithdigitaltemperaturedisplay • Temperature range: 100-122ºC • Should have a digital display for temperature and timer • Pressure Display : Dial type pressure Gauge • Double walled construction fully made of stainless steel 304. • Filled with joint less rubber gasket • Hydraulically dye pressed lid from SS plate with a pressure gauge, safety release valve, and safety valves • Pressure range : 5-30 psi • Control Accuracy : ± 2 psi • Lid operation : Manually and foot Operated • Electrically heated by means of ISI quality immersion heaters with working pressure up to 15 PSI • Water filling and removal manual type • Power : 220-240V/50-60Hz, Single phase • Meets ISO & CE standards • 3Q and Calibration reports should be provided during warranty
20.	**VDRL Shaker** • Mode of MS body duly power coated with a platform size of 300 mm x 300 mm for handling small flasks or reactor trays. The shaker platform rotates in a horizontal plane and allows a wide variety of rotary and mixing application. • Weight:12 Kg • Voltage: 220 V • Capacity: 25 L • Display Type: Digital • Frequency: 60 Hz • Speed Range: 210 RPM • Material: Mild steel
21.	**pH meter** • Measures pH & mV • Highly Stable and Accurate • 3½ Digit Display • Auto Polarity & Decimal Indication • Display : 3 ½ Digit LED • Range (1) pH : 0 to 14.00 (2) mv : 0 to ±1999

	• Resolution (1) pH : 0.01 (2) mv : 1 • Accuracy i) pH : ± 0.01 pH ii) mv : ± 1 mV • Temperature Compensation : Manual : 0 to 100°C • Input Impedence : > 10 ohms • Slope Control : 80 to 120% • Recorder Output : 0 to 10 mV/pH ; 0 to 10 mV/100 mV; Adjustable • Power : 230 V ± 10% AC, 50Hz • Sensor : Combined pH Electrode
22.	**Needle Burner & Syringe Destroyer** • Two-Second Operation • Rust-Free Cutter • Shockproof • High-grade steel cutter: long life. • Extra safety: burning needles eliminates the need for recapping and prevents needle injuries. • Material : steel • Single hole operation • Removal discharge tray • Shock protected, fuse protected, consumes less power • For needle 19 to 35 gauge
23.	**Donor Weighing scale**
24.	**Blood Transportation box (25L) –** Plastic material with coolant bags
25.	**Blood Tube stripper** • It should be easy handling and durable • Should be swift and complete stripping of blood bag tubes. • Should be of SS made stripper with cutter. • Bushes made should be from high grade Teflon rod. • It has roller to match with tube with variable diameter. • Ease of cleaning by wiping or soaking in IPA • Ergonomic design for good grip and stripping • Ease fatigue over prolong use • Self-centering roller system keeps tubing in position • Smooth traction for effective stripping of blood components • Minimize entanglement with blood tubing • Self-Centering Rollers
26.	**Blood bank bucket corrector- Double pan balance** • Accurate simple and easy to use. • Has two independent weight sensors, which display individual weight of each bucket with high degree of accuracy. • Capacity of weighing max. weight of 3000gms.

	• Indicate the weight of each pan separately (A & B) • Has a LCD display. • Stainless steel pan • Display of difference of weight of two buckets, which can be balanced with the help of rubber coins. • Audio buzzer and LCD Display when both the buckets are balanced. • Has a visual indication of overweight (>3000 gms) • Auto Calibration mode. • Polycarbonate exterior body • Inbuilt replaceable fuse for extra safety of the equipment. • Capacity : 3000 gm • Power supply : 12VDC adapter • Should comply standards like ISO 9001, ISO 13485 certified and CE complaint • Calibration reports should be provided during warranty
27.	**Mobile Fridge cum Freezer for transportation blood and its products** • Turbo cooling DC compressor • Operates on 12/24V DC. • Adapter 230V AC supply • Can be plugged into any vehicle 12/24V socket • Extremely low starting current • Sturdy metal body • Digital automatic temperature control with LED display • **Battery back-up provided for the unit.** • GS Safety CE, ROHS complaint • Temp range -20 to 20deg Celsius • Capacity : **75 Litres** • Power : 50W • Calibration reports should be provided during warranty
28.	**Digital Hemoglobinometer with strips or cuvettes** Calibrated to international standards
29.	**Binocular Microscope** • Body: Binocular, sturdy, stable base body with focus adjustment controls. • Eye piece: Paired, high quality, achromatic, wide field, 10x with inbuilt pointer. • Optical system should be infinity corrected. • System complete with illumination system is required. • Objective: Three objectives 10x, 40x, 100x. 10x and 40x objectives should have numerical apertures of 0.25 and 0.65 respectively.100x should have numerical aperture of1.25. • Nose piece: Revolving nose piece to accommodate a minimum of three objectives with click stops. It should be provided with ribbed grip for easy rotation mounted on a precision ball bearing mechanism for smooth and accurate alignment. • Stage uniformly horizontal, mechanical stage having dimensions of length 140 mm (+/-20mm). The stage should be provided with spring

	loaded slide holder for exact positioning of specimen/ slide. • The stage should have ball-bearing arrangement to allow smooth travel in transverse directions i.e. 80 mm (+/-10mm) and front to back direction,50mm (+/- 10mm). • The system should have a build-in variable light source (Illuminator). This light source should have a 20 W, 6 V Halogen lamp.
30.	**Micropipettes – Variable volume** • The Plunger has been carefully designed with a high quality spring mechanism to ensure snag free, soft movement. Simply turn it to adjust the instruments volume comfortably. • Click stop ensures no accidental volume change. • The instrument is fully autoclavable at 121 °C and 15 psi for a duration of 10 -15 minutes. • A universal tip cone enhances the compatibility of the instrument and enables it to easily work with most of the internationally accepted standard tips. • A specially designed large Grippy provides good grip and great ease of use while operating. • The instrument includes a holder that enables easy, efficient and safe storage. • An in-built, streamlined tip ejector enables easy tip ejection and comfortable access to bottles and tubes with narrow necks. • Easy & quick user calibration. • Soft grip for higher ergonomy and comfort. • Volume Ranges**: 0.2-2µl, 2-20 µl, 10-100 µl, 20-200 µl, 100-1000 µl, 1-10ml** • Volume Increment : 1.0 µl • Channel : Single Channel • Operation: Two Step Plunger Operation • Material: Polypropylene
31.	**Table top Clinical laboratory centrifuge** • Desktop electric digital medical lab centrifuge • Microcontroller to control centrifugation speed • Electronic timing, timed precisely • Brushless DC motor for long life and are maintenance-free • The shell is made of high quality PVC plastic • Stepless speed regulation • Max. Speed : 4000 r/min • Max. RCF : 2325 x g • Capacity : 12 x 20 ml tubes • Auto stop in case of lid open during operation • Calibration reports should be provided during warranty
32.	**Water bath** • Water bath should be table top and should have a minimum capacity of 10 – 12 Litres • Temperature range: Should be +5°C above ambient to 100°C • Temperature Accuracy: ±1°C @37°C • Outer Body : should be of Mild Steel with Epoxy Powder coating

	• Inner tank: should be made of Stainless Steel AISI SS 304 • The space between two walls should be packed witht hick Ceramic wool • Controller : Microprocessor based digital Temperature Controller with digital display • Should be provided with high quality immersion type heating elements ensuring long life period • Stainless steel of AISI 304 grade reservoir tank • Should be easy to clean Stainless Steel tank • The unit must be provided with the compatible non-corrosive lid for internal chamber and the equipment must be leakage proof. • There should be provision of replacement of water. • Power requirement: 230V/50 Hz • Should comply standards like ISO 9001, ISO 13485 certified and CE complaint • 3Q and Calibration reports should be provided during warranty
33.	**Laboratory Incubator** • Capacity required is 40 to 45 litres • It should be robust construction & portable,anti- rust coated parts • Temperature Range: 5ºC above ambient to 70 ºC and should have an accuracy of ±1 ºC • Should have Microprocessor based digital temperature controller with digital display for Temperature values. • Should maintain uniform temperature inside the chamber. • Should have easy sample view without door opening • Insulation: Ceramic wool • Interior chamber should be made of AISI SS 304 stainless steel sheet • Exterior body should be made of Epoxy powder coated Mild Steel • Double walled unit with Solid see through Door with Silicon Gasket • Should have adjustable Perforated AISI SS 304 trays • Audio Visual alarm for any temperature deviations • Should have quality heating material to maintain uniform temperature inside the chamber. • It should work on the 220-240V/50-60Hz (5 amps) • Should comply standards like ISO 9001, ISO 13485 certified and CE complaint • 3Q and Calibration reports should be provided during warranty
34.	**Hot Air Oven** • Capacity required is 40 to 45 Litres • Temperature range should be +5°C above ambient to 200°C and should have an accuracy of ± 1°C@80°C& ± 2°C@130°C • Exterior body should be made of Mild Steel with epoxy powder coating • Interior cabinet should be made of AISI SS 304 grade stainless steel. • Microprocessor based digital display Temperature controller for function controls.

	• Provided with air circulating fan for temperature uniformity • Provided with unique quality of heating elements to maintain uniform temperature • Should have removable SS 304 stainless steel adjustable trays • It should have air ventilations. • It should have a provision for monitoring the temperature with a thermometer • Audio Visual alarm for any temperature deviations • Double walled unit with Solid Door with Silicon Gasket lining • Power : 220-240V/50-60Hz • Should comply standards like ISO 9001, ISO 13485 certified and CE complaint • 3Q and Calibration reports should be provided during warranty
35.	**Calibrated Thermo hygrometer**
36.	**BP Apparatus**
37.	**Gel Card technology Blood Grouping & Cross matching Centrifuge with Incubator and its accessories** • Specifically designed to centrifuge column agglutination technology-based cards/cassettes. • Should have electronically regulated centrifuge for the two phase centrifugation of cassettes/cards. • Should have 10- 12 slots to centrifuge any combination of column agglutination card/cassette with “V” shaped button for clarity in results. • Should have digital display of rpm and time. • Automated stop after required time. • Adjustable centrifuge time: 5 to 15 minutes at centrifuge speed 700-1600 rpm. • Should have an auto-lock on the lid while the centrifugation process is on • Calibration report should be provided during warranty and AMC period **Digital Incubator** • Specifically designed to incubate column agglutination technology • Should maintain incubation temperature at 37°C with incubation time of 10-15 minutes. • Should have capacity to incubate 20-24 cards/cassettes. • Should have audible alarm to notify end to incubation period. • Warmup time of maximum 15 minutes. • Calibration report should be provided during warranty and AMC period.

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Other Terms and Conditions

1. Should have safety certificate from a competent authority CE issued by a notified body registered in the European commission / FDA (US)/STQC CB Certificate/ STQC S Certificate or valid detailed electrical and functional safety test report from ERTL. Copy of the certificate/ test report shall be produced along with the technical bid.

2) The Model quoted must be latest and most advanced and spare and service must be available for at least 10 years which means company will be responsible for maintaining the equipment all 10 years in full working conditions at least 95 % Up time. AMC and CAMC Rate should be quoted in price bid for 8 years

3) Standard warranty: 2 years

Copies of following documents to be attached in Cover 1

- CE & FDA certificate if any
- Compliance statement with technical specification
- Product datasheet
- Details of service division
- Sales authorization letter from Manufacturer.
- Details of installations
- Company representative should sign in purchase contract

March 2025