EMS MEMORIAL CO-OPERATIVE HOSPITAL & RESEARCH CENTRE
PERINTALMANNA

Technical specifications of Medical Equipment

QUOTATION NOTICE FOR PURCHASE OF MEDICAL EQUIPMENT

EMCH / QTN /GEN / 10 / 2024 8th November 2024

Sealed quotations are invited from reputed manufacturers / authorised suppliers / dealers for the supply and installation of **3 Tesla MRI, Holter Machine & Dialysis reprocessor**

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 22nd **November 2024 4 PM**

General Manager

October 2024

EMS MEMORIAL CO-OPERATIVE HOSPITAL & RESEARCH CENTRE
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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 perfomance gradient and both peak gradient and slew rate should work simultaneously

5. RF SYSTEM AND COILS **

a. A fully digital RF system capable of transmitting power of at least 30 KW.
b. It should also have at least 32 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 24 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

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.
- 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.
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- 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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Technical specifications of Medical Equipment

HOLTER MPNITOR

Make : pls specify

Model : pls specify

Year of launch : pls specify

Manufacturing Country : pls specify

1. PC Supported System with following specifications
2. Intel I5 processor
3. Windows licensed inbuilt OS
4. 8 GB RAM
5. 1 TB HDD
6. Monitor 21 inch or more
7. Computer table
8. Saved data should be read using integrated reading device
9. Three channel ECG recording facility
10. Supporting hardware with suitable software and laser printer
11. Adult patients
12. 5 or 7 or10 lead cable with minimum 3 & 12 channel recording should be possible
13. Automatic cable type detection
14. Light weight
15. 24hrs, 48hrs,
16. True signal quality check with amplitude indication
17. QT/ST Analysis
18. LCD/LED Screen
19. Shock and splash-proof design
20. Suppress artifacts
21. Available scroll function for the over view (Super page) of the ECG
22. Should be able to reed it individual form classes
23. Should be able to consolidate individual form classes

24. System should be capable of analyzing various arrhythmias like ventricular ectopics, supra ventricular ectopic, ventricular tachycardia, ventricular fibrillation, supra ventricular tachycardia, atrial fibrillation, sinus pause
25. Operator should be able to edit and reclassify beats and arrhythmias
26. ST segment analysis should be available for all three channels
27. Any ECG print out should be possible
28. Report format should include covering page, arrhythmia analysis report, ST segment analysis, automatically and manually selected ECG strips
29. Should provide rechargeable battery and charger for recorders. Each recorder should be provided with 4 batteries and one charger

Other terms and Conditions

- 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?
- 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

Standard warranty : 2 years

- 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

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
- Company representative should be signed In purchase contract