Baba Farid University of Health Sciences, Faridkot

E-TENDER NOTICE FOR supply & installation of Equipments for Radiodiagnosis department at GGS Medical College & Hospital, Faridkot.

E-Tender Form

(E-Tender enquiry for Supply and Installation of *Equipments for Radiodiagnosis department* at GGS Medical College & Hospital, Faridkot

Tender Notification No :	**To be provided by the E-procurement portal of the Govt. of Punjab.**
Requirement	**E-Tender notice for supply and Installation of Equipments for Radiodiagnosis department**
Cost of the tender document:-	Rs.2360/- (Non-refundable) to be deposited through Online Mode Only in favor of Registrar, Baba Farid University of Health Sciences, Faridkot.
Tender Processing Fee	To be charged by Govt. of Punjab as per its norms. (Non- refundable)
Earnest Money Deposit (EMD)	As per scope of supply. The Earnest Money Deposit must be submitted in the shape of Online Payment in favor of Registrar, Baba Farid University of Health Sciences, Faridkot on or before due date (Refundable to the Non-successful bidders, without any type of interest or other charges). In case of successful tenderer, it will be returned after receipt of the security amount as per tender terms and conditions.
Date of start of downloading of tender documents	**Immediately** from the website of the Punjab Government i.e. https://eproc.punjab.gov.in
Website for downloading of the tender document:-	https://eproc.punjab.gov.in **However, the details may also be obtained from the University website i.e. www.bfuhs.ac.in and college website www.ggsmch.org**
Date time and place of Pre-bid Conference of MRI Machine	***03.11.2023 at 12.30 PM in the Committee Room, Baba Farid University of Health Sciences, Sadiq Road, Faridkot.***
Date time and Place of Pre-bid Conference of other Radiodiagnosis equipments	***03.11.2023 at 02.30 PM in the Committee Room, Baba Farid University of Health Sciences, Sadiq Road, Faridkot.***
Last date for downloading of the tender document:-	***28.11.2023 up to 12.30 pm***
Last date & time for uploading of the tender documents:-	***28.11.2023 up to 1.30 pm (through online mode only)***
Date, time and venue for opening of the Technical Bids	Technical Bids shall be opened online through e-procurement site of the Government of Punjab i.e. https://eproc.punjab.gov.in on any working day after due permission of the competent authority.
Date, time and venue for opening of the Price Bids	Financial Bid of the technically qualified bidders shall be opened online through e-procurement site of the Government of Punjab i.e. https://eproc.punjab.gov.in on any working day
Who can be contacted for obtaining more information about the tender.	Principal, Guru Gobind Singh Medical College & Hospital, Sadiq Road, Faridkot. 01639-251111, 90413-88395, 94655-13138 E-mail: procurement@ ggsmch.org ggsmc@punjab.gov.in , (on all working days from 9.00 a.m. to 5.00 p.m.)

Baba Farid University of Health Sciences, Faridkot

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NOTICE INVITING E-TENDER

E-Tenders are invited on or before **28.11.2023** from manufacturers or their authorized agents/distributors **for supply and Installation of Equipments for Radiodiagnosis department required at GGS Medical College & Hospital, Faridkot**. The tender document containing detailed terms & conditions may be downloaded from the E-procurement website of the Punjab Government i.e. https://eproc.punjab.gov.in and its detail may also be seen at the University website www.bfuhs.ac.in and college website www.ggsmch.org

TERMS AND CONDITIONS:-

1. The tender must be uploaded on or before the last date/ time of the submission of tender.
2. The Tender processing fee should be submitted through Net Banking/Credit card/Online mode only and as per Punjab Govt.
3. Technical Bids shall be opened online through e-procurement site of the Government of Punjab i.e. https://eproc.punjab.gov.in on any working day after due permission of the competent authority.
4. Financial Bid of the technically qualified bidders shall be opened online through e-procurement site of the Government of Punjab i.e. https://eproc.punjab.gov.in on any working day
5. The Registrar/Principal reserves all rights to accept or reject any or all the tenders without assigning any reason.
6. **A Pre-Bid Conference of MRI Machine** will be held on ***03.11.2023 at 12.30 PM in the Committee Room, Baba Farid University of Health Sciences, Sadiq Road, Faridkot. Any prospective bidder can attend the pre-bid conference to seek any clarifications about the tender. The proceedings of the pre bid conference will only be uploaded on the website https://eproc.punjab.gov.in and will form integral part of his tender document. Any clarifications/ Modifications/ Changes notified during the pre-bid conference will be mandatory and binding.***
7. **A Pre-Bid Conference of other Radiodiagnosis Equipments** will be held on ***03.11.2023 at 02.30 PM in the Committee Room, Baba Farid University of Health Sciences, Sadiq Road, Faridkot. Any prospective bidder can attend the pre-bid conference to seek any clarifications about the tender. The proceedings of the pre bid conference will only be uploaded on the website https://eproc.punjab.gov.in and will form integral part of his tender document. Any clarifications/ Modifications/ Changes notified during the pre-bid conference will be mandatory and binding.***
8. Corrigendum/Addendum/Corrections, if only will be published on the Website ***https://eproc.punjab.gov.in***

Registrar

Baba Farid University of Health Sciences, Faridkot

E-TENDER NOTICE FOR supply & installation of Equipments for Radiodiagnosis department at GGS Medical College & Hospital, Faridkot.

INSTRUCTIONS/ GUIDELINES TO THE TENDERERS

1. The bidder needs to register himself/ herself on **https://eproc.punjab.gov.in** the bidder is also required to obtain Class III digital signature certificates to complete this process.
2. Please download the Tender document from the website of e-procurement of the Govt. of Punjab **https://eproc.punjab.gov.in** Please fill all the relevant blanks on all the pages of the tender document sign along with a stamp/ seal all pages and then a scanned copy of the same may be uploaded on the website at the time of submission of the tender document.
3. **It should be clearly noted that this tender will be accepted though e-tender mode only.** The tenders submitted through offline mode will not be accepted under any circumstances.
4. **Tender Fee :** as per Govt. and should be deposited through online mode only
5. **Tender Processing Fee:** as per Punjab Govt. (non-refundable) may be deposited through online mode i.e. Net Banking/ Credit Card/ Debit Card only. The tender processing fee will not be accepted through any other mode.
6. **Refundable Earnest Money Deposit (EMD): EMD** to be deposited online mode only in favor of Registrar Baba Farid University of Health Sciences, Faridkot.
7. **Upload** signed copy of Technical Bid Compliance Statement **(Annexure-I)**.
8. **Upload** an affidavit regarding Non-Black listing as per proforma given at **Annexure-II** duly attested by an Executive Magistrate or a Notary Public.
9. In case the Bidder is Authorized Supplier/Agency, the Authorization Certificate as per the Format given at **Annexure-'III'** (duly filled in), **to be uploaded**.
10. In case the Bidder is Authorized Supplier/Agency, an undertaking/certificate issued by their Principal Manufacturer/Supplier that in case dealership/distributorship is withdrawn after supply of the Equipments then the Principal Manufacturer/Supplier will be responsible for Guarantee/Warranty/AMC/CMC of the Equipments/Equipments. **(Annexure – 'IV'), to be uploaded**.
11. **Upload** details of Bank Account for refund of EMD **(Annexure – V).**
12. In addition to this, following **documents are to be uploaded** with Technical Bid:-
    i) Details of registration as Company /Firm/ Establishment.
    ii) **Standard Certification must be uploaded**.
    iii) Copy of Certificate of Registration for service Tax/TIN/TAN/PAN/VAT.
    iv) A certificate from C.A. regarding Annual Turnover with Balance Sheet for the last 3 (three) financial years i.e. 2019-20, 2020-21 & 2021-22 uploaded.
    v) Copy of the IT Returns for three financial years i.e. 2019-20, 2020-21 & 2021-22 uploaded.
15. Price should be quoted and **uploaded** only in Excel Sheet proforma at **Annexure-'VI'**.

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SCOPE OF SUPPLY

Sr.	Name of Equipment	Approx. Qty. Reqd.	Earnest Money to be Submitted (in Rs.)
1	**3 Tesla MRI Machine**	01	75,00,000/-
2	**DR (Digital Radiography System 800 mA)**	02	5,50,000/-
3	**High End Digital Mammography Machine**	01	3,00,000/-
4	**DEXA Scan**	01	1,50,000/-
5	**High Resolution Ultrasound Machine with color Doppler for Fetal imaging**	01	3,00,000/-
6	**High Resolution Ultrasound Machine with Color Doppler for General Radiology**	01	3,00,000/-

Quantity may increase / decrease as per requirement.

Make and Model No. must be quoted in Technical bid

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Technical Specifications of 3 Tesla MRI Machine

	3 Tesla MRI DETAILED SPECIFICATIONS
1.	Gantry: Maximum bore length with cover (cm) 180-189 please specify.
2.	The offered model/version must have been released not earlier than two years.
3.	Magnet: Liquid helium should be supplied during warranty period and Comprehensive CMC.
4.	Magnet: Noise level inside the gantry and examination room should be as minimal as possible and should conform to the standard set by BIS/ISO/FDA/CE. Specify db level. Any specific technique used to reduce noise level and its effect on SNR should be mentioned. Mention availability of silent sequences.
5.	Patient monitoring: Patient monitoring devices for ECG, respiratory, pulse rate at the patient side and appropriate ECG gating system.
6.	Patient Comfort Features should include: Closed circuit TV and CCD video camera for patient monitoring, Standard set of positioning accessories and A music player (CD Player), headphone, microphone and necessary accessories.
7.	Gradient System:
—	Minimum Gradient Strength should be 60 mT / M or more along each axis and a slew rate of 200 T/m/s in each axis.
—	Resolution Parameters: Specify the minimum and maximum FOV achievable for the quoted MR system (preferable to have 10 - 500 mm FOV)
—	Resolution Parameters: Effective cooling system for gradient coil and power supply, for uninterrupted operation during summers also. The system should have efficient and adequate provision for eddy current compensation.
8.	RF Transmitter, Receiver, Coils:
—	RF Receiver : System should have 64 Independent RF receiver channels (which can be demonstrated)
—	RF Transmit Technology: Latest RF transmit system (Iike Multi-transmit/ Multi Drive transmit system/ True shape) with at least two independent output channels should be offered to improve B1 uniformity and signal homogeneity and to reduce patient induced in-homogeneities.
9.	Coils : The minimum channels are specified but the highest available with the vendor should be offered (specially for MSK imaging) :
—	Head coil. The vendor should supply the best available with them (48- channel or more)/ Head Neck , for high resolution brain, brachial plexus, nerve imaging, EPI/ DTI applications, Compatible with fMRI projection device quoted with the system.
—	Separate coil for Head neck at least 20 channels (the vendor should supply the best available with them) for routine brain/Neurovascular exams should also be quoted as standard. An inbuilt shim system in the head coil for improved imaging would be preferred.
—	Spine array coil (32 Channel or more) preferably with built in sensor for motion detection or equivalent for motion detection.
—	Body array coil/ Phased Array coil with combination with spine or combination of anterior coils. Our requirement is at least 44 channel acquisition for 50 cm FOV. The vendor is free to quote the coil combination as deemed fit.
—	Dedicated Shoulder array coil (minimum 16 channels or more), if a dedicated coils is not available with the vendor, then the vendor has to quote equivalent coil (for e.g., if Flex coil is offered, then the number should be in addition to the previously quoted coil.
—	Dedicated Wrist coil (16 channel).
—	Dedicated Knee Imaging Transmit/Receive 15 Channel or more).
—	In Dedicated Peripheral angiography coil. If not available please offer additional coil with similar coverage.
—	Medium and small loop coil for Eye/ear coil if available with vendor.
—	Flex coils in available sizes (minimum 2) for extremity imaging at least 4 channel or more.

—	Dedicated foot/ankle coil, minimum 8 channels or more.
—	Breast Imaging coil 16 channel or more.
—	In case the above breast coil does not have a biopsy facility, aseparate biopsy coil should be offered (with biopsy grid).
—	Flexible wrap or small extremity coil (16 channels).
10.	Table Technology
—	Bolus chasing with automatic/continuous moving table should be offered and should be available with fluoro triggered MR angiography for manual and fast switchover in less than 1 sec for CE-MRA.
—	Latest table technology available with the vendor (globally) should be offered.
11.	Computer Control System :
—	The vendor should supply the latest computer system along with the MR system, to handle all the fastest applications available on the MR platform.
	Host Computer and Array Processors :
—	Total hard disk memory capable of storing a minimum of 2,00,000 (two lakh) Images.
—	Monitor 19" or more Medical grade monitor (3MP) with enhanced graphics accelerator.
—	One measurement (Main) console capable of data acquisition and all online calculation.
	Additional workstation :
—	SERVER SYSTEM: (A Client - Server Architecture based solution, Minimum 20,000 concurrent slices, 2 no. floating / concurrent user license for all applications. DICOM 3.0 compatibility and interfacing with other modalities must be possible.
—	CONFIGURATION: 1 no. Server and 4 nos. Clients/Nodes.
—	Licenses: 2 no. 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.
—	Licenses: 1 no. Concurrent license for advanced cardiac post processing viz heart Function, Flow, tissue characterization, T1, T2 maps, T2 star map, 4D flow, Tissue tracking (circule or its equivalent).
—	Hardware: Client / Node: CPU unit, minimum 16 GB RAM, Medical grade monitor of 2MP resolution & size - 21" or more, mouse, keyboard.
—	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 64 GB RAM and octa-core 2.5GHz CPU. 21" or more TFT/LCD monitor.
	CD/DVD archival
—	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.
—	Provision for archival of k space data and raw (unprocessed) Images.
	Networking
—	The vendor should provide Level 3 network Switch (with 32 nodes) or latest, to integrate the network.
—	Protocol Ethernet TCP/IP standards-based image transfer with DICOM 3.0 over standard Ethernet IEEE 903. (DICOM send, receive and DICOM query modes).
—	The vendor should provide the connectivity to the exiting PACS, with the user departments.
—	The network speed and cable should match the latest industry standards (e.g., 10BaseT/100BaseT/1GB).
—	System should be configured with different IP series, so as not to clash with different equipment already existing in different departments.
—	The vendor should provide necessary networking and configuration assistance with existing

	PACS, HIS, RIS.
	Film Documentation
—	DICOM interface to hook DICOM compatible, dock-able, latest state of art Dry Laser Camera with more than 500 dpi, capable of storing/printing images of 1024 x 1024 (or higher, if available) matrix size in various matrix formats (including 16 format) without loss of digital resolution to be made available on any of the console and on the films (Agfa/Fuji/Kodak), with three online tray system.
12.	Data Acquisition
—	The system should be capable of 2D and 3D acquisitions in conventional, fast & ultrafast spin echo and gradient echo modes so that real-time online images can be observed if needed.
—	2D multi slice imaging should be possible in all planes (axial, sagittal, coronal, oblique and double oblique).
—	UP to 1024 x 1024 matrix acquisitions preferred for all applications. Wherever 2048 matrix available, please mention.
—	Half Fourier or other techniques to reduce scan acquisition lime while maintaining adequate SNR.
—	3D volume, multiple contiguous slabs, multiple interleaved and multiple. overlapping slabs.
—	Slices thickness in 2D and partition in 3D to be freely selectable.
—	Dynamic acquisition (serial imaging) with capability to initiate scan sequences either from the magnet panel or from the console.
—	Dynamic acquisition; number of repeat scans with delay time either identical time interval or selectable.
—	Auto slice positioning from the localizer images.
—	Maximum off-centre positioning both anterior posterior and lateral direction and should be selectable.
—	Gating: physiological signals like ECG, pulse, respiratory, External signal triggering (interface for triggering input pulse from external source). The provision should be available at the console also (for FMRI, EEG etc.)
—	Simultaneous acquisition, processing and display of image data in 2D multi-slice mode.
—	Selection of voxels from oblique slices should be possible while doing spectroscopy.
—	Artifact reduction/imaging enhancement/image filtering/ image subtraction/addition/ multiplication/ division techniques:
—	Flow : 1st and 2nd order flow artifact compensation.
—	Presentation slabs: a number of relocatable saturation bands to be placed either inside or outside the region of interest.
—	Graphic prescription.
—	Fat saturation techniques: frequency selective RF pulses to suppress fat signals in the measured image FOV, ROI selective (regional) fat suppression should also be given.
—	Magnetization transfer saturation: Off resonance RF pulses to suppress signals from stationary tissue in FOV.
—	Phase contrast capability in 2D and 3D mode.
—	Image intensity correction.
—	Breath hold acquisition.
—	EPI mode.
—	DTI with MDDW or equivalent with a minimum of 12 and selectable up to 128 directions encoding.
—	Data acquisition in all three standard planes (axial, sagittal, coronal) and oblique and double oblique planes or more oblique planes.

—	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.
—	The vendor should offer multi coil acquisition in order to Optimize through put Increase and increase effective FOV. Individual acquisition elements of every coil should be mentioned.
	Imaging Pulse sequences
—	All standard and special pulse sequences available, as specification requirement, at the time of quote/delivery should be offered and quoted in the bid.
—	Silent MRI for neuro protocols including T1W, T2W imaging without any loss of image quality on all sequences (like Neuro Silent/ Slienz, or equivalent), with noise less than 80 dB. The quiet scanning should be without loss of SNR.
—	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.
—	The system should be capable of selecting TR and TEs as per requirement in majority of the pulse sequences.
—	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 sequences.
—	Inversion recovery (IR) : including short T1 modified IRSE, FLAIR, DIR (Double Inversion Recovery).
—	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.
	Fast Sequences:
—	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.
—	Half Fourier acquisition capabilities should be available with/without diffusion gradients and in combination with/fast spin echo.
—	Fast inversion recovery with spin echo.
—	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.
—	Fast gradient echo sequence should incorporate RF spoiling and other technique to acquire images in ultra-fast 2D and 3D modes.
—	Fat and water suppressed imaging sequences.
—	EPI optimized sequences (with and without fat suppression).
—	(For T1, T2, PD imaging, perfusion, regular diffusion values (at least 5b, 3 directions), EPI FLAIR, EPI-1R, EPI FLAIR diffusion tensor, EPI MT FLAIR, tensor diffusion (at least 16b valuesand 128 directions) and diffusion studies. Suitable artifact/ fat suppression techniques to be incorporated in the sequences to have optimum image quality.
—	There should be capability of calculating ADC map (isotropic and anisotropy from the regular diffusion and tensor data).
—	Optimized sequences for special applications.
	Neuro
—	All T1 (2D, 3D), T2 (2D, 3D), IR (2D, 3D), DUAL IR (2D, 3D) sequences. Susceptibility weighted imaging.
—	Sequences for internal ear imaging for visualization of fine structures like cranial nerves (appropriate sequences like CISS, etc for equivalent. Mention the sequences provided.
—	3D sequences for internal auditory canal imaging.

—	Dynamic imaging of pituitary using appropriate sequences.
—	Whole spine T1, T2, IR sequences.
—	Whole neuro examination with automatic planning, scanning and post processing, with single localiser positioning, without changing the coils/ repositioning.
—	2D and 3D ASL.
—	Application for characterization of brain tissue quantitively. Estimation of Myelin in the brain. Calculation of brain volume (synthetic MRI or its equivalent)- Prince to be quoted separately .
	Angiography
—	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.
—	For peripheral moving table angiography should be offered covering hip to limbs to be examined in one go with high resolution and high SNR.
—	Bolus tracking software package.
—	Sequences for breath hold angiography with contrast enhancement.
—	Sequences for time resolved angiography with contrast Kinetics.
—	ECG triggered non contrast angiography.
—	Contrast bolus tracking (including single shot whole body MRA, interactive and automatic tracking, etc.).
—	Perfusion study in organ systems like kidney, brain, etc, with T1 perfusion with permeability maps, and quantitation of rCBF/ rCBV, MTT, etc, with colour maps.
	Diffusion/ DTI
—	Sequences package for diffusion including DTI (tractography) study in organs like brain, kidney, muscle, heart, spine (spinal cord), breast, etc, High resolution and latest diffusion technique to be offered.
—	There should be capability of calculating ADC map (isotropic and anisotropy from the regular diffusion and tensor data).
—	MR diffusion tensor imaging package with tractography.
—	MR neuro functional imaging sequences package (incl. Mosaic, etc).
—	Zoom IT/ Resolve or equivalent, Application for high resolution for small FOV diffusion imaging.
	Body, MSK, Breast Imaging
—	Flow quantification in vessels and CSF, hepatobiliary system.
—	Fly through facility with Flow analysis including display of various velocity values.
—	Optimized breath hold sequences for for abdominal studies including angiogram.
—	MR Cholangiography and Pancreatography: Specialized sequences and processing to perform MRCP.
—	Pulmonary 2D/3D MRA sequences, including single breath hold sequences.
—	MR ventriculography, cisternography, myelography.
—	Single sequence to acquire four different contrasts (in phase, out of phase water only, fat only). The same technique should be used in other sequences, for dynamic portography/ T1 quantitative analyses.
—	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.
—	Flow quantification packages for CSF with dynamic CSF flow imaging, aqueduct and spinal canal.
—	Radial/Spiral pulse sequences for ultrafast imaging.

—	Suitable artifact/fat suppression techniques to be incorporated in all the sequences to have optimum image quality.
—	Sequences for differentiation of fluid and cartilage in ortho applications (sequences like DESS or equivalent). Multi-parametric maps should be available. Accelerated imaging techniques for MSK imaging with metal implant to be offered if available.
—	Free breathing dynamics studies of the liver (to be offered if available).
—	Complete package for breast imaging including dynamic evaluation, multi parameter maps etc.
—	Liver Elastography with applicator.
	Cardiac : Comprehensive cardiac imaging with free breathing cardiac cine (if available).
	Prostate Imaging : Sequences for imaging of prostate imaging including T1 perfusion and multi parametric evaluation including spectroscopy.
	Whole Body Diffusion and STIR, Angiography: DWIBS OR equivalent, whole body imaging using Inversion recovery sequences, whole body MR angiography, software for tumor burden calculation.
	m-Dixon: Provide sequences like m-DIXON for all applicable sequences, m-Dixon - HD or equivalent.
	Relaxometry: T1 mapping T2 mapping with necessary post-processing software.
	Motion correction:
—	Sequence for in-line motion correction for uncooperative patients/ children (with software and acquisition sequences like BLADE, PROPELLAR, Multivane or equivalent.
—	Sequence with ultra short TE.
—	Sequence for nullifying CSF pulsation artifacts.
—	Whole body imaging and whole body diffusion imaging (using body coil and surface coils) with automated fusion and composing for the above two (without any artifacts).
—	Volume acquisition for Neuro applications.
	MR Spectroscopy
—	System should have capability to perform multi planar proton spectroscopy.
—	Proton MRS Sequences for single-voxel acquisition, with selectable fat / lipid saturation bands, options of water saturation (eg. VAPOR, CHRSS, etc) with all post-processing software.
—	Proton multi-voxel CSI (2D and 3-D) acquisition an metabolite mapping with all necessary RF sequences (and post processing algorithms) with all post-processing software
—	If separate coils are needed for carrying out MRS, it should be provided.
—	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 as required.
—	Water and lipid suppression in automated sequences.
13.	Post processing and evaluation
—	Licenses of all the post processing and evaluation packages should be provided for the workstation as mentioned.
—	Necessary composing software for whole body applications.
	MPR
—	Multi planar reconstruction (MPR) in any arbitrary plane including curved planes with freely selectable slice thickness and slice increments.
—	Surface Reconstruction and evaluation on reconstructed images with minimum time.
—	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.
	ADC perfusion, etc.

—	Evaluation and display of diffusion images, ADC map, fMPI in reference of EPI optimized sequence.
—	Perfusion image evaluation with time intensity graph and other statistical parameters.
—	Evaluation package for calculating rCVB, 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.
—	Flow quantification and evaluation far vascular (high & low) CSF, bladder outlet and cine display.
	Arterial Spin Labelling
—	2D and 3D ASL processing and quantification package in main console.
	Liver Segmentation:
—	Automatic Liver segmentation and volumetric analysis and automated fat calculation.
	BOLD analysis
—	Evaluation of functional images of brain with appropriate statistical analysis algorithms, colour display and overlay on base anatomical images.
—	Software for evaluation of functional mapping (BOLD Evaluation and Neuro-metabolite mapping.
	Tractography
—	Post-processing package for DTI and tractography, estimation of ADC, FA (Lamda parallel, perpendicular separately and combined), Fiber tracking, fiber statistics, and display of fiber tracts and anatomical images.
	Image statistics
—	Measurement of distance, area, volume, angle, mean, SD, image addition, subtraction, multiplication, division, interpolation, segmentation, threshold, histogram.
—	Image filtering and Image fusion software.
—	Software for co registering MRI/ fMRI/ MRS/ Metabolite mapping images with images form CT, PET, and SPECT.
—	Evaluation features like zoom, rotation, scroll, roaming, image synthesis, Multi point T1 and T2 calculation (more than 8) window stretching, text dialogues graphics, shorting, searching, archiving, recalling etc.
	Spectroscopy
—	Full post-processing for single-voxel MRS, CSI (multi-voxel MRS), metabolite mapping with color coding (metabolic images) etc., for brain, prostate and for other application.
—	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.
14.	Functional MRI accessories and post-processing
—	Functional Imaging with package for BOLD imaging and processing package (capable of real time processing and display of colour overlay (in real time) using 48 channel Head coil/64 Channel Head Neck coil being supplied with the system.
—	Stimulation equipment fMRI System: Should ensure full functionality with software & hardware with following stimulation components. Dual computer with software for experimental control, patient management and functional analysis high end computer (Latest Generation at time of supply) with CD/DVD drive for experiment presentation loaded with E-primeSW80 GB Hard Disk with at least 2TB RAM. Master control interface between computer and peripheral devices Large LCD patient display with Head Coil mount in magnet room, patient headphones, patient microphone and 5*2 keypad

	response unit LCD display should have unrestricted FOV (non-google based system must be quoted). LCD display fixed on top of Head Coil RF detector and console enabled TTL triggered for pulse synchronization Fiber-Optic cable between Magnet and console. Paradigm generator should have pre-set of paradigms for experiment generation and user programmable paradigm generation should be possible as well CD/DVD for patient entertainment. (Nordic or equivalent). Post processing software for f-MRI images. (Give details of the software package offered. 1 client-based MATLAB license (Latest version). *MRI Compatible 256 channel EEG should be quoted separately.
15.	Quality assurance and phantoms :
—	Phantoms for routine quality assurance for all coils (including body Coil)
16	Standard MRI Accessories
—	Rechargeable Hand held metal detectors (2 Nos.)
—	MRI Compatible Patient Monitor It should be a fully Non-Magnetic multi parameter portable patient monitoring solution, designed to be small, easy to use and lightweight. MRI vital sign monitor able to travel with the patient. It should be 5000 Gauss compliant / 1:5 meter from iso centre compliance in MRI room, so that it can be placed anywhere in the MR room (up to 3 Tesla MRI). The unit should come with wireless vital sign 3 or 5 lead ECG with trusted artifact free SpO2 technology. The unit should come with wireless control room light weight monitor with base station having back up charging dock. It should be capable of monitoring ECG, SPO2, NIBP and Full Anesthetic gas module (including ETCo2) and 1 IBP. Clinical features : Standard SpO2 with perfusion indicator : Wireless ECG : 3/5 Lead : Wireless Non-Invasive Blood Pressure Dynamic Trend Indicators Tri-colored alarm indicator light Full gas module with ETCO2. Price to be quoted separately. Invasive Blood Pressure Should be FDA marked Accessories, MR compatible Laryngoscope with 4 sizes blades – Adult, Paeds – 2 sets each. • Vendor should provide the Pediatric & Adult SPO2 probes - 3 each. • Vendor should provide the Pediatric & Adult BP cuff - 3 each. Vendor should also quote the price for SPO2 probes & BP cuff for (adult & Pediatric) separately for further purchase if required.
—	MR Compatible Anaesthesia Machine Description The system should be compatible with 3 T MRI systems (minimum 400 Gauss line) since it will be used with other MRI systems in case of need/emergency. Should be, antistatic, heavy frame & base with good quality casters with front brakes, with following features : Three gas model viz Oxygen, Nitrous oxide and Air. Should be compact, ergonomic, easy to use and easy to maintain. Should have separate fresh gas outlet for use in open circuit. Machine should have flow meters for Oxygen, Nitrous oxide and air. Emergency Oxygen flush should be available. There should be faculty to select oxygen-air or oxygen-nitrous oxide with the help of a separate switch or knob. Flow sensing capability/ poneumatic ventilator at inhalation and exhalation ports.

	Should have paramagnetic/ glavanic cell oxygen sensors. In case of galvanic cell sensors, the firm should supply free sensors for the entire warranty period of 5 years. In case of Paramagnetic sensors, the firm shall ensure that there is no down time during repair of these sensors (if necessary) and provide a standby alternative. Shall have back-up Oxygen Control which provides an independent fresh gas source and flow meter control in case of failure Pressure regulators shall be of modular design. Should have oxygen fail safe device& an auxiliary built in oxygen flow meter. Electronic or Mechanical Hypoxic Guard to ensure minimum 25% Oxygen across all O2-N2O mixtures. Oxygen Failure Warning by audible alarm should be provided. The consumables like appropriate length of circuit, tubings, lines, etc should be provided for adults, Pediatric and neonates for a period of one year. Facility of mounting minimum two Vaporizers, latest technology, key filler, selectatec type, tool free installation, meaning any vaporizer of our choice can be mounted at will with interlocking facility. It should be preferably of the same make as that of machine. Temperature, pressure and flow compensated with high accuracy of delivered concentration of volatile Anesthetic agent. Should be maintenance free. Vaporizers should be supplied (Sevoflurane). The Machine should have an Integrated Anesthesia Ventilator System, facility to vary respiratory parameters and should be able to ventilate adult and Pediatric patients including infants. Ventilator/pneumatically controlled time cycled ventilator should have Controlled, Manual, Spontaneous modes. Tidal volume (inspired and expired) respiratory rate, I:E ratio, minute volume Airway pressure & FiO2. Should have Tidal volume and fresh gas compensation mechanism. Tidal Volume (VT) 20-1500ml (Volume Control), Rate at least 4-80 BPM. Insipiratory / Expiratory ratio (I:E) 2:1 to 1:6 & Peak Flow - 100 to 120 L/min. Ventilator should have at least 30 min rechargeable battery backup for ventilator. Machine should have an integrated breathing circuit with circle absorber of good quality, easy to clean, autoclavable, fewer parts to reduce leaks. Machine should have mounting capability of One O2 and one N2O pin-indexed cylinder. Adult autoclavable (2 sets) breathing circuits & one paediatric circuit to be provided. The Machine should be equipped with AGSS. All the accessories should be provided for 10 years. Anesthesia workstation should be BSI/ISO/USFDA/CE European approved.
—	One quantity: Non-magnetic IV stand.
—	One quality: Patient Weighing Scale (in the range between 0 to 200 kg)
—	MR compatible storage carts and wall mounted cabinets.
—	3T MRI compatible pressure injector along with 200 syringes & PM Line. Price to be quoted separately
—	Two Coil cabinets to be provided.
—	Network cable and other required materials for the complete installation to be provided by the supplier.
—	MR compatible crash cart 1 no.
—	MR compatible instrument-trolley - 1 no.
—	Two (quantity) MR compatible oxygen cylinders (for the anesthesia system)
—	Breast Biopsy consumables for 10 patients.
—	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.

—	MR compatible wheel chair (Wardray/equivalent model) (with cushion, back-rest and anti-rest) - 1 no.
—	Ferromagnetic detector with multiple fluxgate sensors to help detect approaching ferro magnetic hazards and with door ignore function to be installed at entry door of MRI scanner room-01 no, must have continuous detection or alert capability following MRI door opening or following proceeding alert. Must allow patient trolley.
17	Antivirus s/w and Web updates
—	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) for five years.
—	The vendor should provide antivirus updates for five years and make sure of the updated antivirus every week (using automatic - updates with internet facility by the vendor).
—	The vendor should ensure that all the above modalities include necessary connection, image & work lists end/receive, image and data storage, scheduling, patient registration, and synchronization functions as per DICOM standards for smooth and effective integration to RIS/PACS.
18	Other accessories
—	Chairs with arm rest with medium back without casters (Godrej/Geeken Make) as mentioned in turnkey specs.
—	Table for the MRI console, MRI additional console/ Workstation.
—	Patient Couch in the preparation room.
—	All the necessary interconnecting interfaces, cables, modules and other hardware and software to fully integrate the system for full operational status.
—	Uninterrupted power supply (UPS) with sufficient capacity (appropriate rating as required for MRI and chiller) for 30 minutes back up of the full load MR system and its accessories during patient MR imaging.
19	Diesel Generator of 300 kVA capacity with silent enclosure, to support the MRI and all accessories as also mentioned in the turnkey specs, with 5 years warranty. Price to be quoted separately. Training : Advanced training to be provided by the vendor at the site for Faculty, Residents, students and MRI Technicians, so as to benefit the latest applications available of the system. The Training should minimum period of 12 weeks, staggered.
20	Civil Works. *After inspecting the site, vendor should quote price for the turnkey work. The scope of work for site modification for MRI installation shall include examination room, console area, resuscitation room, room patient waiting areas, MRI technician rooms, Faculty rooms, UPS area/rooms and generator area. (if, required additional to existing facility). Renovation of the room for installation of the equipment as per departmental requirement including planning, designing and execution of all the works pertaining to Civil, Electrical, and Air Conditioning etc. While designing the area, the existing rooms should be retained wherever possible and only unavoidable changes should be made. Provisions should be made for placing the various accessories in console room, work-station, UPS, Genset, and printer locations. Complete equipment layout site plan and details of work (BOQ) should be part of technical bid. After sale service to be made available locally in Faridkot. Service through Third party is not allowed. The acceptance of the installation shall be subject to satisfactory handing over of the System to the department and certificate to this effect will be issued by the institute. Warranty of equipment will start from the date of successful handover. • All internal walls of console room, ups room and change room to be finished with 60x60 cm vitrified tiles (make Kajaria/Somani/Nitco/Eq.) from floor level up to false ceiling.

	• Flooring in all rooms of MRI complex to be provided with non-slippery 60x60 cm vitrified tiles (make Kajaria/Somani/Nitco/Eq.) • Good quality Armstrong Make Mineral Fiber or equivalent ceiling tiles 0.5mm thick, false ceiling of panels size 600x600mm with G.I. ceiling • All required trenches to be made by the supplier. • The entire complex will be made rodent/pest proof • Public address system should be provided by supplier along with digital display & two talking system for better communication with patient at patient waiting area Electrical Works • All the electrical wiring (Copper), switches, sockets, plugs, MCBs etc. are to be reputed make and as per ISI standards • 60x60 cm LED Lights (Make Philips/Syska/Wipro/eq.) should be installed in entire DRF Complex • Main electrical cable of adequate capacity from main substation to LT panel room in DRF room to be provided by the consignee • Adequate nos. of earthing for MRI system to be provided by vendor Fire Alarm and Networking • Fire safety measures: A fire alarm system of reputed make with smoke/heat detectors, indicator panels, and wiring to be installed • Two hand held fire extinguishers to be provided • Networking in console room to operate the computers to be done Air Conditioning • 2x 11 TR central air conditioning system units in gantry, equipment Rooms and 2x2 TR split units in UPS room and 1x2 TR split unit in console room to be provided. (Make LG/Daikin/Carrier/Voltas/Eq.) • Iron cage for ODUs to be provided Furniture and Storage • Low level storage rack (Customized) (1x1x0.6m)- 02 • Storage racks with lockers with minimum storage capacity of 8 partitions- 02 • Revolving chairs for operators -04 • Latest configuration two computers along with printer/copier/scanner and table/revolving chair-02 • Comfortable Seating arrangement for the console room. • Wooden Patient couches with matress-02 in the patient resuscitation area. • One - Water dispenser with hot/cold facility . • 45” LED screen for patient waiting area • 10 CCTV cameras/NVR along with LED screen (NVR to be placed in MRI Console) • Biometrics should be installed in the MRI corridor to check unauthorized entry. • 100 TB Cloud storage for MRI data for 10 years (Price to be quoted separately). *Area under scope shall be approx 850 Sq. Ft, will be finalized at the time of physical inspection.
21	Special Conditions :
—	Please refer to procurement guidelines of BFUHS for special conditions, including warranty and CMC. Service through Third party is not allowed.
—	Original Product Datasheet of main unit and all accessories, including third party items to be provided.
—	All items in the supply order should be supplied during the time of installation, No exceptions will be allowed.

—	Research Agreement should be finalized well in advance to start the research program as the unit becomes operational.
—	The MR system should be regularly maintained in the latest version of computing software, including software platform upgrades released for the respective system that can prepare it for future enhancements. If a HW upgrade is required to run the latest software version to its normal performance, the respective HW should be upgraded at no additional costs during the complete life of the system.
—	The MR computing software system should offer built-in security controls to protect the system from vulnerabilities that can result in cyber attacks or inappropriate access to patient data. The built-in security should comply with the latest international standards of data security and encryption, as well as with existing regulations the protect personal and protected health information (e.g. GDPR, HIPAA, any local regulation), during the complete life of the system. All turnkey work proposed by the selected firm will require the approval of competent authorities of the institute before implementation.

When quoting the price, the company can inspect the site wherever turnkey is involved

SPECIFICATIONS OF FULL-ROOM DIGITAL RADIOGRAPHY SYSTEM-800mA

A latest technology Digital Radiography System with a high-frequency solid state type x-ray generator and two integrated Flat panel detectors of Cesium Iodide Scintillator with Automatic Exposure Control (AEC) capable of performing exposure in vertical, horizontal, and oblique positions to perform all skeletal body (Upright and supine) radiography. It should be ready to integrate with PACS/HIS and Medical Hard copy Films Printers available in the hospital for documentation and distribution of results.

Product & Manufacturer Quality Standards:

- Should be AERB type approved and also comply with AERB Guidelines for radiation leakage.
- Manufacturers should have ISO 13485 or ICMED 13485 certification.
- Should be BIS certified.

A. HIGH FREQUENCY GENERATOR:

- Generator should be Solid State type latest technology x-ray generator.
- Generator should be of the high frequency of 450 kHz or more.
- Should have Constant Power output of more than 80 kW.
- kVp range should be 40 to 150 kVp.
- Should have exposure timer range of 1ms to10 sec.
- The mA output should be 800 mA or more at 100KVp and 1000 mA or more at 80 kVp.
- Should have provision to select two-point technique (kVp & mAs) and three-point technique (kVp, mA, and time) from touch screen control panel.
- mAs range should be1 mAs to1000mAs or more.

B. TUBE:

- Dual Focus Rotating anode X-ray tube having focal spot 0.6mm^{2}and 1.2mm^2 or less.
- Multi-leaf collimator having halogen lamp/ bright light source and auto shut provision of the light.
- The unit should have an Anode Heat Storage capacity of 300 KHU or more
- HV Cable: 1 Pair of HV cable (length as per installation requirement).

C. CONTROL CONSOLE:

Should have a large LCD Touch Screen Control Panel for ease of operation with the following functions & indications:

- 8"or more LCD Touch Screen display for easy operation and parameter selection.
- Selection of three-point technique (KV, mA, time) & two-point technique (KV, mAs)
- KV, mA, time, and mAs increase and decrease
- APR program selections through touch screen Graphical user Interface.
- Ready and X-Ray on Indicators.
- Bucky Selection.
- AEC chamber's field selection,
- Should display the percentage of KHU of the X-Ray tube.
- Self-diagnostic Program with easy-to-understand error code on LCD viz. Earth fault or, KV error, filament error &Tube Thermal Overload.

- Should have the provision of a selection of Anatomical programming through a touch screen graphical user interface to select pre-defined exposure parameters based on the body part, examination view, and size of the subject for ease of use and fast operation of the machine.
- It should have 900 or more Anatomical Programming of Radiography.
- It should have Automatic Exposure Control (AEC) with 3 field AEC Ion chambers.

D. TUBE STAND:

- 3D-Ceiling Suspended tube stand should be a new generation stand providing the user with three-dimensional movements of the tube head covering a huge area. Noise less and swift up/down movement of the tube head should be provided.
- Stand should have Auto tracking facility with a table & vertical bucky stand.
- Should have Tube mounted controls with 10"ormore LCD showing SID, tube angle, bucky selections, etc.
- Stand should have motor-assisted movements for easy & fast functioning. It should have Tube Head Rotation along its axis.
- Should have longitudinal movement of 2400 mm or more, Horizontal movement of 1950 mm or more
- Should have Tube rotation (vertical)$\pm 270^{o}$ or more and Tube rotation (horizontal) $\pm 120^{o}$ or more
- Should have a detector lifting range of 1500 mm or more.

E. TABLE:

- Horizontal 6-way motorized table with a floating table top of 200cm x 80cm or more and adjustable height should be provided.
- Table top should have three-dimensional movement, which is easy for patients as it lowers down to a comfortable position.
- Transverse and longitudinal movements of the tabletop should be locked by electromagnetic locks.
- Table should have up/down motorized movement (lowest 550 mm or less to maximum 825 mm or more) and it should be controlled by foot switches.
- Movements of the table should be Transverse movements: 280 mm or more , and longitudinal movements : 500 mm or more. The detector travel range under the bed should be 530 mm or more.
- Maximum weight carrying capacity for the table during up/down movement should be 200 kg or more.

F. VERTICAL BUCKY STAND:

- Floor mounted Vertical bucky stand for lung and skeleton x-ray examinations. It should have a user-friendly design and handling. VB stand should have provision to do chest radiography with and without a grid.
- Should have an Integrated Digital detector with a vertical travel range of 1200 mm or more.
- Vertical Up Down Movement.
- Bucky Stand should have Auto tracking facility with a tube stand for easy positioning.

G. DIGITAL X-RAY FLAT PANEL DETECTOR:

- The system should consist of two Flat Panel Detectors, one for the table bucky and the other for vertical Bucky.
- The detector should latest technology with Cesium Iodide(CSI) scintillator technology.
- The detectors should have high DQE with a minimum of 65% @ lp/mm or more.
- The detector should be able to work at normal room temperature and humidity.
- Detectors shouldbe17"x17"or more in size and should be integrated into bucky.
- The detectors in vertical Bucky should have a minimum spatial resolution of 4lp/mm or more.
- The detector in vertical Bucky should have a minimum resolution of 4K x 4K pixels or higher & the pixel Pitch should be 120 microns or less.

H. DIGITAL RADIOGRAPHY & X-RAY OPERATION AND CONTROL SYSTEM (S):

- The offered console for the DR system should offer the below features.
- Patient Registration
- Selection of exposure Anatomy.
- Image review & post-processing features.
- Fast and quick previews of images in about 5Secs or less.
- Capability of local image storage.
- Capability to push images to location(s) of choice such as:
- Workstations with Stitching software, angle calculation..
- PACS.
- External Storage Devices.
- DICOM Printer(s)

- DR Console should be offered with the latest high-end image processing capability processor with a 19" medical grade Monitor or more.
- Full range of basic Image Processing tools such as Zoom, Pan, Window, Annotation, magnification.
- Storage of 10,000 images or more locally.
- The workstation should have reporting software as standard.
- The workstation should be capable of configuring Multi Format images for DICOM Printers.
- The system should have the facility to burn CDs/DVDs.

I. ACCESSORIES –TO BE OFFERED AS STANDARD:

- Online UPS with 30 mins backup for the DR acquisition console Workstation & printer.
- Dry Laser printer of minimum 500 dpi or more with two online trays offering 14x17, 11x14 & 8x10 film sizes.
- Suitable Voltage Stabilizer for complete DR system.
- Light weight whole body lead free aprons & thyroid shield, lead free gonad shield, lead goggles-3 Nos each
- Slim two film LED X-Ray Viewer– 2 No.
- Lead Glass- 80cms X 100cms or as per AERB requirement.

- DAP meter should be supplied and ensure periodic calibration/checks as per AERB norms during warranty & CAMC period.
- For workstation Latest Apple iMac 24" with minimum 8 core CPU, 7 core GPU and 16 core neural engine, 16GB RAM, 1 TB SSD storage, Magic mouse + Magic trackpad, Portable DVD writer, Photo copier/scanner/printer.

J. POWER REQUIREMENT:

The unit should be operable on 3 Phase, 440 Volts, AC 50 Hz, with line resist less than 0.4 Ohms. Line Regulation + 10%.

K. OTHER REQUIREMENTS:

- Manufacturers should not be blacklisted/ debarred by any State/Central Govt organization in the past 3 years.
- Manufacturers should not be penalized by the court for hampering public procurement in the last three years.
- All software up gradation shall be offered free of cost during 5 years warranty & 5 years CMC contract for the entire system including camera, UPS, stabilizer, Batteries, workstation, CPU, Computer & printer. Third party service is not allowed
- Company shall ensure onsite training to Doctors & Staff on the use of System & DR console software post installation and whenever required.

TURN KEY WORK:

After inspecting the site company should quote its price for the proposed turnkey work.

a. Installation and commissioning of the machine with all accessories mentioned.

b. Turnkey should include

- Planning,
- Normal Civil work including
- Electrical including HT cable, Switches and circuit breaker
- Four 2 Ton AC's two for DR room, one for UPS & battery room and one for console/ printer.
- Furniture works, lead lined doors of console and operation room etc.

c. Care must be taken to address the placement of the equipment, sitting, viewing, and reporting. area, patient preparation space, storage area, Public address system display/announcement, AERB sign board etc.

d. Furniture to be supplied for the console room like table, office chairs (2Nos) etc.

e. Electrical Fittings: Lighting: Philips / Bajaj/ Havells or reputed brand.
Combination: Fluorescent, CFL and LED fitting & Lamp.
Point Switch, Socket, Plug Top: Crabtree/ Havells modular or equivalent brand.

- All turnkey work proposed by the selected firm will require the approval of competent authorities of the institute before implementation.
- Tentative cost of the equipment will be around 4.5 cr.

When quoting the price, the company can inspect the site wherever turnkey is involved

Technical Specification of Full Field Digital Mammography

S.No	Specification for Tender FFDM (Full Field Digital Mammography) at GGSMC&H, Faridkot
	Full field digital mammography system with state of the art facility for detection of breast cancer with lowest possible radiation dose. The machine should have standard facility for Digital Breast Tomosynthesis and stereotactic biopsy. Only Manufacturer / Original Equipment Manufacturer or their authorized subsidiaries areallowed to quote this tender. System should be both FDA and CE approved .
	The equipment should be of latest technology.
	All technical specifications must be supported with technical literature and product data sheet. If the requiredinformation is not available in the Product Data Sheet and printed technical literature, the same has to be authenticated by the competent authority of the principal manufacturer. In case of discrepancy, the decision of the technical committee shall be final and binding on the supplier.
	The detailed specifications that follow shall be understood to be the minimum requirement and any additionalfeature/function required for lowering radiation dose should be specified separately which has to be offered as a standard without any extra cost. Such additional features if beneficial to the department and patients for better clinical application will be given due consideration.
I	**X-RAY GENERATOR:**
a.	High frequency generator.
b.	Power output should be 5KW or more.
c.	mA range at least 100 mA
d.	mAs range 4-500mAs,
e.	kV range, 24 to 35 kV or more. It should be in 1kV steps or less.
f.	Generator should be integrated with offered acquisition workstation capable to display all parameters like KV, mAs, target filter and other exposure parameters for each view.
II	**X-RAY TUBE UNIT:**
a.	Minimum of two focal spots of size 0.1mm and 0.3mm on the anode are required. Please mention the material of anode.
b.	Anode heat storage capacity should be at least 150 KHU.
c.	Specify the Inherent filtration used in the tube.
III	**GANTRY ASSEMBLY:**
a.	The system should have fully motorized rotation and up / down movement.
b.	The angle of C-arm movement should be at least +180° to -165°.
c.	The patient compression device should be motorized, automatic, controlled by foot paddles as well as from gantry and should have multispeed variable system.
d.	There should be provision for motorized and manual compression with digital display of compression force and compression thickness. Mention the compression modes available along with force range.

e.	The compression should be extremely smooth and there should be automatic decompression at the end of each exposure with facility of release of compression force in case of power failure or emergency stop.
f.	Control buttons for adjustment of height and angles should be operable from gantry as well as from foot paddles.
g.	SID should be in the range of 650mm or more.
h.	Programmable auto positioning from acquisition work station should be available.
i.	Magnification factor should be minimum 1.5 or more with Magnification attachment i.e table/stand.
j.	Grid ratio should be 5:1 or more with at least 30 lines per cm.
k.	Motorized installation and removal/ auto retract of grid/ breast support assembly system should be available for geometric magnification.
l.	The following paddles one each of plate size mentioned should be supplied as standard (with allowed variation of ±1 cm along both axis for all paddles) :
	i. Small paddle of 18 cm x24 cm
	ii. Large paddle of 24 cm x30 cm
	iii. Spot magnification paddle of 18 cm x 23 cm
S.No	Specification as per Tender
	iv. Field magnification paddle of 18 cm x22 cm
	v. 2D alphanumeric compression paddle of 18 cm x22 cm.
m.	Wall holder for the compression plate to be provided
IV	EXPOSURE CONTROL
a.	Should have manual, semi-automatic and automatic mode (AEC) techniques with flexibility to select parameters manually, automatically or in combination.
b.	Should have the display facility of all parameters after exposure.
c.	Should display the dose delivered after exposure.
d.	It should be possible to control kV, mAs, and filter parameters from the acquisition workstation control panel.
V	FLAT PANEL DETECTOR
a.	Should have a large flat panel detector of size at least 24 cm x30 cm (with allowed variation of ±1 cm along both axis)
b.	Detector technology and material used should be mentioned.
c.	Image matrix in pixel should be mentioned.
d.	Detector should be able to create images of 100 x 100 µm/pix in both 2D and Tomosynthesis.
VI	DIGITAL ACQUISITION WORKSTATION 3 MP Monitor :
a.	HP Z4 or equivalent compatible with HDD Storage capacity of 2 TB and RAM 16 GB or more should be provided
b.	Mention model of the Acquisition Console Software offered

	The following imaging processing should be possible on the work station:
	i. Measurements, Annotations, Image inversion, Flip rotate inward
	ii. Zoom, roam, magnification, Brightness and contrast
	iii. Filming from acquisition work-station should be possible.
c.	Following DICOM services should be provided standard with offered acquisition workstation for both 2D and tomosynthesis dataset (valid the same with acquisition workstation datasheet or DICOM compliance statement) :
	i. DICOM Connection Software for Modality Worklist Management (MWL)
	ii. DICOM Connection Software for Modality Performed Procedure Step (MPPS)
	iii. DICOM Connection Software for Basic Grayscale Print Management
	iv. DICOM Connection Software for media storage such as USB hard disk/flash memory
	v. DICOM Software for Portable Data for Imaging (PDI)
	vi. DICOM Query Retrieve Software
VII	REPORTING WORK STATION AND ARCHIVING
a.	HP Z4 or equivalent compatible with HDD Storage capacity of 2 TB and RAM 6 GB or more should be provided.
b.	Mention model of the review software offered with multimodality image viewing facility available as standard
c.	The following monitors required are in addition to the acquisition workstation including monitor / monitors (depending on vendor configuration of acquisition console):
d.	One 12 MP Diagnostic Color Monitor with graphic card required.
e.	Dedicated breast reporting module with DICOM SR and DICOM BT support to be provided standard.
f.	The following imaging processing should be possible on the work station also:
	i. Measurements and Annotations
	ii. Zoom, roam, magnification
	iii. Brightness and contrast
	iv. Image inversion
	v. Flip rotate inward
	vi. Filming from acquisition work-station should be possible.
VIII	TOMOSYNTHESIS
	Offered Tomosynthesis synthesis should have FDA and CE approval in all the offered modes by the vendor .
a.	Inclusive of any specific Tomosynthesis compression paddle and face guard if required
b.	Tomosynthesis scan angle should be 25 ° or more
c.	Image reconstruction should be iterative based such that ensuring lower radiation dose and minimizing ghost and lag effect.
d.	It should be possible to take 2D and 3D images in a single compression using combination mode, additionally there should also be a standard option to reproduce (synthesize) 2D image from Tomosynthesis data.
e.	A dedicated static face guard for Tomosynthesis if available should offered as optional; this

	won't be disqualifying criteria for any vendor with no such option
f.	Manufacturer recommended QC Software and Phantoms need to be provided as standard
IX	STEREOTACTIC BIOPSY SYSTEM – POSITIONER KIT
a.	The system should be patient comfortable, efficient and accurate with good image quality.
b.	Should be based on the main imaging detector.
c.	Should have stereotactic biopsy attachment for vertical biopsy approach. Biopsy attachment for both approaches to be quoted.
d.	Tube swivel range minimum of +15 to -15 degree.
e.	Motorized biopsy chair should be offered of reputed make.
f.	It should be possible to select lesion on the tomosynthesis image for biopsy purpose.
g.	Remote exposure hand or foot switch to be provided for easy access in case of the biopsy.
X	CEDM /CESM/CE2D functionality
a.	Offered system should be capable of enhancing the image of highly concentrated contrast agent with sufficient density in the region of findings.
b.	It should also be able to capture images consecutively under two different tube voltage conditions during one compression, and then create and display a subtraction image of the two acquired images.
XI	MISCELLANEOUS
•	Should be supplied with transparent lead radiation shield, user manual, technical documentation etc.
•	Dedicated online UPS for the entire machine and accessories supplied including the work station shall be provided for a minimum backup of 25 minutes.
•	The quoting vendor should have AERB Type approval for the quoted model in its name and its installation must Conform to AERB guidelines and site approval plan from AERB has to be done by the company at no extra cost.
•	Manufacturer must have at least 1 year of track record in digital mammography equipped with Tomosynthesis. Vendor should have at least Five installation sites in India of the quoted system (with the quoted detector make/model configuration) performance certificate needs to be submitted along with the supporting documents.
•	Vendor is required to provide list of trained application specialist on 3D Digital Mammography available in India, with their designation/location.
•	Standard warranty on the entire system with all accessories for 5 years of warranty and during CAMC as well.
•	Onsite Training -The application specialist of the company should stay at the site at -least for 5 days at the time of installation to train all faculty members and technicians in machine operations. This will be followed by similar two visits of 5 days each in the initial 6 months or whenever required. The visits should be scheduled in consultation with the department of Radio-diagnosis.
XII	Turnkey
	Vendor should inspect the installation site for turnkey work and quote its price. Civil modifications (Civil, electrical and AC work) to be done as per the requirement in

	Machine & Reporting Room. All turnkey work proposed by the selected firm will require the approval of competent authorities of the institute before implementation. Tentative cost of the equipment will be around 3.5Cr.

When quoting the price, the company can inspect the site wherever turnkey is involved

Technical Specifications for Dual Energy X-Ray Absorptiometry (DEXA) – One Unit (216 detectors) at GGS Hospital, Faridkot.

Scanner Hardware and Acquisition Technology

i. One pass Acquisition Technique; Multi-Detector Array Scanning Method
ii. 216 Multi elements High-resolution Digital Detector Array. Please specify the technology used.
iii. High Frequency X-ray Generator
iv. Fan beam technology for faster acquisition
v. X-ray System Switched-pulse dual-energy for dual energy scanning.
vi. Indexing Scan Table with Positioning Accessories
vii. Motorized Table and Rotating C-arm
viii. Dynamic Internal Reference System for Continuous Calibration
ix. Computer Console.

Quality Assurance

i. Automatic PASS/FAIL Quality Control
ii. Express BMD in 10-15 Second Acquisition for spine and hip studies
iii. Single Energy Scan Display Capability should be available
iv. Window/Level Control for Image Optimization
v. Express Exam Workflow Management
vi. One Time Auto Analysis with Histogram
vii. Capability to draw outline of vertebrae automatically should be available.
viii. Auto Hip Positioning capability
ix. Reposition/Rescan Feature
x. Automatic Scan Comparison for Serial Exams
xi. Least Significant Change Configuration
xii. Automatic calibration using internal reference system
xiii. Automatic quality control program with multiple system checks.

Radiation Dose

i. < 0.10 mGy

Clinical Applications

i. AP Lumbar Spine with Automatic Low Density Analysis and Scoliosis Analysis
ii. Supine Lateral Spine with Baseline Compensation
iii. Proximal Femur, Automatic Low Density Analysis and Hip Structure Analysis (HSA) Feature
iv. Dual Hip Feature
v. Forearm examination feature
vi. Whole Body BMD
-Advanced Body Composition Analysis with InnerCore
-Visceral Fat Assessment.
viii. IVA HD with Image Pro High Resolution Imaging Capability
-Quantitative Morphometry
-Capability to automatically grade vertebral deformity and communicate this data directly to reporting software.
ix. Atypical Femur Fracture Assessment (AFF) High Resolution Imaging Capability

x. Pediatric Analysis for Spine, Femur and Forearm
xi. Pediatric Whole Body with Body Composition Assessment.
xii. Small animal package.
xiii. Infant whole body.

Connectivity/Reporting Tools

i. Report with Rate of Change Assessment
ii. FRAX 10 Year Fracture Assessment feature
iii. Dual Hip Report capability
iv. IVA/VFA

Reference Data

i. Reference Data m > 18000
ii. Default NHANES III Standardized database
iii. Age, Sex and Ethnic matched reference data

Patient Weight Limit

Minimum 150 kg

Computer Hardware

i. Computer Workstation with Dual Core 3 GHz
ii. Windows® 10 Professional
iii. 19" Widescreen LCD Monitor
iv. Colour laser printer/copier/scanner.
v. Online 3 KVA UPS with minimum 30 minutes battery backup for the entire system including operation of DEXA machine, computer and printer.

Trabecular bone scoring Software

Vendor to supply this software to be used for bone micro architecture evaluation from bone densitometry examinations.

Warranty & C-AMC

- Standard 05 Years Warranty. This will cover all the items including DEXA (including detectors, cable and scanner components), UPS, Computers, Software and all the work done under turnkey. After the warranty over, C-AMC for next 05 years on hospital terms and conditions to be submitted by Vendor.
- Vendor will provide free of cost any new software available for this platform in the next 10 years.

Application Training

- On site application training for 05 days.

Mandatory Requirement:

Offered model should be USA FDA and CE approved.

Turnkey work:

Vendor should inspect the installation site for turnkey work and quote its price.

Civil modifications (Civil, electrical and AC work) to be done as per the requirement in Machine & Reporting Room.

All turnkey work proposed by the selected firm will require the approval of competent authorities of the institute before implementation. Tentative cost is around 1.5Cr.

When quoting the price, the company can inspect the site wherever turnkey is involved

Technical Specification for High End Ultrasound for Fetal Imaging

Technical Specification for High End USG for Fetal Imaging
1. System should be the latest fully digital ultrasound equipment capable of High resolution OBS-GYN scanning & should have Electronic 4D matrix technology with curved surface
2. The system should have the following modes : B-Mode (2D), Conventional M Mode with varying sweep rates, anatomical M-Mode, PW doppler with high PRF (PW), High PRF Doppler Mode , (TD)-Tissue Doppler mode, colour flow doppler mode (CFM), Power Doppler Mode(PD), Directional power Doppler, HD-Flow Doppler Mode and 2D Flow with Auto Corelation, volume modes 3D static , Real time 4D Mode, Thick Slice imaging in both A and C Plane in Real Time, Any Plane imaging , Live Bi-plane in Electronic Probe.
3. Power Doppler angio imaging for perfusion studies for visualization of flow in small vessels and should be supported by all transducers.
4. The System should be having more than 72,00,00,000 system processing channel technology
5. Volume imaging, multislice imaging with variable slice thickness (0.5 - 10 mm) and multiplanar imaging on all types of 3D and 4D modes.
6. Should be capable of performing live 4D imaging with electronic 4d matrix technology volume transducers. 4D imaging should be possible in gray scale, colour mode, harmonic mode and with contrast agent imaging. Instant rendering of MPR images should be possible with similar resolution as that of 2D
7. Elastography analysis &Elastography ratio measurement-should be available into the elastography mode. System should have indicator for compression level with side-by side display of 2D image and 2D with graphical representation, Elastogram images
8. Dynamic range should be 400 dB or more with range adjustability by selecting different dynamic contrast curves. Higher dynamic range will be preferred
9. In 2D mode - depth of scanning should be 50 cm with 256 (8 bits) discrete gray levels or more
10. System should have 23 inches or more high-resolution LED/LCD display with DVI interface resolution of FHD 1920 X 1080 Pixel or more with 12” Touch Panel
11. 2D acquisition frame rate more than 3000 frames/sec, Color Doppler frame rate more than 450/S
12. Real time compounding with Color or power Doppler imaging.
13. Post processing tools for annotation, measurement, baseline, sweep speed should be possible on stored images
14. System should have multivariate Tissue Harmonic Imaging on all transducers
15. It should be able to operate with compound imaging and speckle reduction algorithm
16. System should have real time compounding imaging technology with minimum 9 transmitted lines of sight.
17. Real time compound imaging should operates in conjunction with Tissue Harmonic imaging, volume modes, panoramic imaging, duplex Doppler and speckle reduction imaging
18. Extended field of view imaging should be available on convex and linear transducers
19. System should have facility to adjust 2D performance instantly for different patient types (thin,

average, and obese)
20. Pan and zoom 0.8x to 3.4x (with HD Zoom upto 22x zoom)facility should be available for both live and frozen images
21. The system should have capabilities of HDLive suite of technologies, advanced rendering modes like transparency, HDLive Studio- up to 3 independent light sources with various intensity and hues and freely moveable virtual light source, HDLive Flow- for vascular structures to be displayed with greater depth perception and dimension, advanced Spatio-temporal image correlation (STIC), linear and curved reformatting options on the 3D and 4D volumes.
22. The system should have the facility to take Automatic measurement of the obstetric parameters like AC, BPD, HC, FL.
23. Zoom function should have HD zoom functionality up to 22 x zoom or more.
24. Post processing in freeze mode (dynamic Range adjustment, colour display on / off, colour / Doppler invert, colour / Doppler baseline adjustment, sweep speed, measurement, annotation and pictogram) should be there.
25. The system should have real time automatic and manual Doppler calculations and facility to apply automatic Doppler analysis retrospectively to frozen spectral data or date retrieved from Doppler scrolling.
26. System should have facility to save reports along with patient data which can be retrieved later with facility to directly print measured parameters in from of a report through laser printer or any other standard printers easily available in the market
27. It should provide for different rendering direction to view the volume image with virtual movable light sources.
28. Advanced tool for accurate quantification of irregular regions in 3D and automatic calculation of the number and volume of hypo echoic structures should be there to speed follicular assessments.
29. There should be an advanced tool for selection of slice thickness out of complete volume dataset.
30. Simultaneous visualization of 3 planes to guide the needle to the lesion should be there
31. Should have auto 3D/4D rendering as well as real time 4D with advanced Spatio-temporal image correlation with electronic 4d matrix technology Probe..
32. System should have speckle reduction algorithm for volume imaging.
34. System should have contrast enhanced imaging capabilities on convex, linear and endocavitory probes.
35. System should have Probe port illumination.
36. The system should have atleast 4 universal probe ports with 4 active ports with electronic switching facility.
37. The system should have digital storage of gray scale as well as color images (both frozen and cine loops) with facility of reviewing and exporting in different formats. It should support the ability of optimizing imaging parameters such as B Gain, TGC, Color gain, dynamic range, , Doppler base line on image recalled/live.
38. The system should have on board storage facility for at least minimum 1TB internal storage facility.
39. It should have integrated CD/DVD writing - burning facility and should be able to archive data from previously stored CD/DVD in different formats (TIFF / JPF / AVI / DICOM) / patient reports.

40. The system should be DICOM 3.0 (or higher version) ready (like send, receive, print, record on CD/DVD, acknowledge etc.) for connectivity to any network, PC/computer etc. in DICOM format.
41. Vendor will connect the machine to existing PACS and to local other laser cameras without additional cost.
42. System should have fast, secure data management for efficient communication, integrated software Digital video recording including USB recording, Fast USB 3.0 connectivity, Easy DICOM integration.
43. The equipment should be a wheeled unit with integrated brake, foot rest, transducer, cable and gel bottle holder and with electronic height adjustment facility for control panel and monitor independently. Transducer and gel bottle holders should be removable
44. There should be a full size alphanumeric key board with interactive back - lighting.
45. The system shall provide the ability to sort images stored on board based on patient name, exam date, patient ID and exam types. Patient directory should show network status as print status, archive status, commit status and export to DVD status.
46. The system should be capable of direct export capabilities of 3D printable file formats
47. The system should have Fetal- ability to cconduct an easy and comprehensive evaluation of the size, shape and contractility of the fetal heart from the 4-chamber view using measurements based on 2D imaging and speckle tracking. Should have in-depth report page including z-scores and percentiles for each of the cardiac measurements. Report package should supports both qualitative (visual representation of ventricular contractibility and quantitative (Global Sphericity index, ventricular shape and contractibility(assessed with spekle tracking) results to offer insights based on user preference.
48. Should have Shadow reduction capability for better visualization under difficult to scan conditions
49. Should have Slowflow3D- visualization of micro Vascular structures in HD and 3D
50. Should have 3D print and export capability
II System should be offered with the following transducers (+/-1MHz)(Should attach technical data sheet of transducers to specify details)
1. 1-6MHz XD Clear Convex Transducer.
2. 3-9MHz XD Clear Convex Probe
3. 1-7MHzVolume Convex Probe with Active Matrix Array
4. 4-9MHz Volume TV/TR Probe
5 4-9 MHz TV/Tr Probe.
Optional Probe
1. 2-7 MHz or better Electronic 4D matrix technology with curved surface convex probe. (with more than 8000 elements)-
III Essential Requirements:
1. Machine should be USA-FDA certified.
IV System should be supplied with the following accessories:
1. Biopsy attachment on endocavitary probe
2. Online UPS with capacity for at least one hour uninterrupted backup to support all functions of the equipment i.e. Performing Ultrasound procedure, exposure on to films or copy on a CD.
3. Two 1.5 Ton AC's along should be supplied with the system. One high end all in one desk top with antiglare 19" monitor, high end Colored printer / Copier /scanner should be supplied.

4. Should be supplied with computer table and Revolving chairs.
5. 13 fins, Oil Filled Radiator Room Heater with Fan for color Doppler patients.
6. Any electrical work like Switch,MCB, Earthing, HT cables should be provided by the vendor.
VI Guarantee/Warranty
1. After completion of 5 years warranty, 5 years of CAMC will start which will cover entire ultrasound machine and transducers, UPS & batteries, computer, printers including turnkey work.

When quoting the price, the company can inspect the site wherever turnkey is involved

High Resolution Ultrasound Machine with Color Doppler for General Radiology

The system should incorporate facility for High Resolution B mode, M Mode, PW, CW, Colour Doppler, Power Doppler, Angio, directional power angio, contrast imaging, peripheral vascular, trans-cranial, superficial parts, Duplex and Triplex Imaging modes also peripheral vascular, trans-cranial, superficial parts imaging.
The system monitor should be minimum 23" LED/OLED with Flexible Arm and tilt, swivel and height adjustment facility. A separate touch screen of minimum 12'' should also be available. the keyboard should have a floating console which can electronically adjust height, rotation and forward movements.
The system should have 256 grey shades (8 bits) or more.
The system should have a fast boot up time of less than 150 seconds, when switched on from 'OFF' position.
Dynamic range should be 290 dB or more.
There should be at least 100,00,000 digital processing channels.
The system should have a Frame Rate 2500 Frames per second or more.
The system should have imaging depth of 40 cm or more.
The system should have real-time compound imaging facility
The system should have Tissue Harmonic Imaging (THI) facility. The system should have THI capability on linear, 3D/4D and curved array transducers. THI should be available in color flow imaging, M-Mode and 3D/4d rendering modes with light source.
The system should be able to work in combined mode of Harmonic Image and Real-time Compound Imaging. The system should have Tissue Harmonic Imaging in Power Doppler mode.
Complete contrast imaging package with quantification should be provided. It should be able to detect fundamental as well as second harmonic response of the contrast agent, dynamic contrast imaging with quantification in user selectable region of interest on all probes.
The system should have facility for extended field of viewing, reconstruction / panoramic imaging.
All the transducers are broadband with multi frequency capability. Minimum frequency should be 1MHz and Maximum Frequency should be 24 MHz can be selected depends on Probe.
The system should have 4 active Transducer ports.
The system should be up gradable with compatibility for advanced fusion imaging, capable of review of CT & MRI images alongside real time ultrasound imaging and to be able to use this multimodality data to assist ultrasound guided interventions in real time.
The system should have auto optimization features for ease of use and automatic quantification of Doppler parameters in real time and freeze modes.
The system should have real time panoramic view imaging that operates by sweeping a transducer over the anatomy of interest. Should be possible with all transducers.
System should have option of Shearwave Elastography in convex and Linear probes and preferably Shearwave Elastography in Linear and TVS Probe (Pricing to be quoted as option)
One-touch image optimization should be available in 2D mode with one button automatic adjustment of TGC.
16X Zoom facility with high resolution results and pan capability in both real time and frozen images with facility of pre and post processing.
The system should have Cine loop review facility in individual and mixed modes with memory up to minimum of 400 images and 30 seconds of Doppler.

The system should have semi automated evaluation for fetal CNS & Heart.
Scanning availability of BIRADS & TIRADS correlation.
Nerve tract imaging.
Liver fat quantification
Automatic ovarian follicular counting with TVS probe.
Equipment should be offered with following Electronic Broad Bandwidth Probes. Single Crystal Convex Probe with Bandwidth of 1MHz to 7 MHz for Radiology and OB/Gyn. Applications and should optionally support for Shear wave Elastography Application. 3-9MHz braod band linear probe for abdomen, vascular and small parts with Support for Strain & Shear wave Elastography Application. 6-18 MHz linear smaller footprint and hockey stick linear probe for small parts, MSK, Neonates & pediatrics. TVS Probe with Bandwidth of 4 MHz to 9 MHz with minimum FOV 180 degree and Support to Strain Elastography Application. Single Crystal Convex Volume probe 2 to 8 MHz for 3D/4D with STIC equivalent applications Reusable biopsy guide for TVS, convex & curvilinear Probes. Fetal echo probe. Advanced features like Dual slow-motion display (one half of 2D will be real time and other half of will be user configurable slow. The system should support extensive clinically researched real time Elastography techniques which can be applicable for Liver, Breast, Thyroid, Prostate, cervix, Musculo-skeletal, intra-operative, intravascular application. - Features like Auto NT, Auto IMT should be inbuilt with the system / semi automatic quantification tools. -Guided needle navigation. -Contrast Ultrasound Capability (CEUS) with Times Intensity Curve Graphs. -System should have the capability to compare previous patient images during live scan. -System should have the capability to measure the area/volume of lesions/Cyst automatically.
The system should have facility of direct storage and retrieval of B/W and color images (both frozen and cine loops) in the in-built hard disk drive. Inbuilt hard disk storage for images should be 500 GB or more. Additional portable 4 TB hard disc drive.
The system should have USB archival (DICOM and PC format) facility.
The system should be DICOM 3.0 ready (like send, receive, print, record on CD/ DVD, acknowledge etc.)
Unit to be supplied with suitable thermal printer.
On line UPS (APC/Libert/Amerson) for 60 minutes back up to support all functions of the unit and thermal printer make Sony.
One Color Laser Printer/photo copier to be supplied with machine make HP/Canon.
ESSENTIAL REQUIREMENT: Apple iMac (MXWU2HN/A) Core i5 10th Gen mac OS All-in-One Desktop (8GB RAM, 512GB SSD, AMD Radeon Pro 5300, 68.58cm Key Features: 68.58 cm (27"), LED-Backlit, Intel Corei5 10th Gen, RAM: 8 GB DDR4, ROM: No HDD, 512

GB SSD
AMD Radeon Pro 5300, 4GB GDDR6, Windows 10 Home.
Display Screen Size in CM :68.58 cm Screen Size in Inches: 27 Inches
Additional Screen Specifications : Retina 5K Display, 500 nits Brightness Wide Colour (P3) True Tone Technology Configurable with Nano-Texture Glass.

Processor Details Brand : Intel, Name : Core i5, Generation 10th Generation, Processor Variant :10600, Number Of Cores: 6. Processor Speed: 3.3 GHz, Maximum Turbo Speed : 4.8 GHz, Cache : 6 MB Internal Memory RAM 8 GB, Type Of RAM DDR4, RAM Frequency: 2666 MHz, RAM Expandable Upto 128, RAM Configuration: 2 x 4 GB. Storage Specifications : Type Of Storage:SSD. HDD Capacity No HDD
SSD Capacity 512GB Graphic Processor. Brand AMD, Model: Radeon Pro 5300. Type Integrated
Video Memory 4GB GDDR6, Audio Speaker Type :Stereo Speakers. Audio Technology Studio-Quality Three-Mic Array with High Signal-to-Noise Ratio and Directional Beam forming, Support for "Hey Siri" Connectivity USB, Types Supported USB 2.0 Number Of USB, Ports 4 x USB 2.0 (Type A),
Type Of Thunderbolt Port Thunderbolt 3, Number Of Thunderbolt Ports 2, Ethernet Supported Yes. Ethernet Specifications RJ-45. Ethernet Features : 10/100/1000BASE-T Gigabit Ethernet. Additional Ports & Slots SDXC Card Slot (UHS-II), Product Network Connectivity, WiFi Specifications
IEEE 802.11ac. WiFi Features Wireless Networking, IEEE 802.11a/b/g/n
Compatible. Bluetooth Supported: Yes Bluetooth Specifications: Bluetooth 5.0, Bluetooth Features - Wireless Technology.Access Control And Security : Other Locks , Kensington Lock Slot.
A suitable UPS to support Mac desktop.*Apple portable DVD reader /writer: Mac Mini Apple M2 chip CPU and 10-core GPU*

Ultrasound reporting and imaging softwares like Augnito/ Sonocare, which supports structured reporting for ultrasound and USG Endoscopy scans. The system records the state of the patient over a course of time (the patient EMR), pulls the relevant information from the data, and provides a detailed report for several different types of ultrasound scans. Reports and their contents can be completely customized, and basic and advanced query mechanisms are available to retrieve statistical reports (for administrative purposes) or for narrowing in on a list of patients/scans that satisfy specific conditions. Structured Reports are available in a variety of formats, and are configurable (font, layout, content, and text that appears within the reports). The greatest asset for obstetric scans is the ability to track fetal growth, and to predict/specify the gestational age using several different means (biometry tables, last menstrual period – LMP – and from data originating from earlier scans performed elsewhere). Company should be provided this license till the warranty & CAMC of USG machine with yearly software/hardware up gradation.

After completion of 5 years warranty, 5 years of CAMC will start which will cover entire ultrasound machine and transducers, UPS & batteries, computer, printers including turnkey work.

When quoting the price, the company can inspect the site wherever turnkey is involved.

Certificate (s) regarding **standard** in quality must be uploaded.
GUARANTEE / WARRANTEE SHOULD BE CLEARLY MENTIONED

NOTE: -

- All accessories like UPS / Stablizer or any other which are required for machine should be supplied by the L1 bidder.
- **Price of above accessories should be quoted too separately in price bid. The specific accessories and their quantity will be decided on the basis of actual requirement.**
- Compliance report to be submitted in a tabulated and point-wise manner (as per technical specifications), clearly mentioning the page/ para number with authenticated catalogue / manual, without which it will not be considered. Points not covered in the brochure must be specifically addressed in a separate certificate.
    - User list from Govt sector and good repute private hospitals should be provided.
    - Certificate (s) regarding standard in quality must be uploaded.
    - Expected delivery & Installation time: Within 45 days after issue of supply order.

TERMS AND CONDTIONS

FOR SUPPLY AND INSTALLATION of *EQUIPMENTS FOR RADIODIAGNOSIS DEPARTMENT* REQUIRED AT GGS MEDICAL COLLEGE & HOSPITAL, FARIDKOT.

ELIGIBILITY

- The sole manufacturers of equipments or their authorized agents/distributors may quote their rates.
- In case of Authorized Supplier/Agency/Distributor, the Authorization Certificate as per the Format given at **Annexure-'III**' should be uploaded.
- In case the Tenderer is authorized dealer/supplier an undertaking/certificate issued by their Principle Manufacturer/Supplier that in case dealership/distributorship is withdrawn after supply then the Principle Manufacturer/Supplier will be responsible for Guarantee/Warranty/AMC/CMC. (**Annexure – 'IV'**).

1. This institution reserves the right to reject tenders without assigning any reason and increase or decrease the quantity of the articles tendered.

2. ***If the supply and installation*** is not made within the stipulated period then late delivery charges **@2%** will be imposed on the total amount of Supply Order up to delay of **30 days** and thereafter **@ 4%** for another **30 days** after which Supply Order will be deemed cancelled & security/earnest money will be forfeited and company will be black-listed for future.

3. Payment Terms: 80% Payment will be released after satisfactory Installation of the Equipment and balance 20% will be made after 60 days of the Installation and satisfactory working of the equipment.

4. In-complete or conditional offers incorporating price variation will not be entertained.

5. The firm should have been in existence for at- least **three years** and it should have turnover of **Rs.2,00,00,000/- per year.**

6. The successful bidder shall deposit performance security @ 10% of the basic cost of the equipment/s in the shape of **Demand Draft only** and will be returned after receipt of CAMC agreement.

7. **Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the competent authority as per the GFRs-2017 rules clause 144 sub rule (X1).**

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Annexure-I

TECHNICAL BID COMPLIANCE STATEMENT

Name and Address of the applicant / firm_____

Specify whether Manufacturer/Dealer/Distributor: _____

Sr. No.	Particulars	Remarks
1.	Tender Fee of **Rs.2360/-** through Online Mode only on or before due date.	Yes/No
2.	Tender Processing fee charged by Punjab Govt. as per their norms. (Non-refundable).	Yes/No
3.	Earnest Money deposit in favor of Registrar Baba Farid University of Health Sciences, Faridkot through online mode only.	Yes/No
4.	Technical Bid Compliance Proforma uploaded **(Annexure-I)**.	Yes/No
5.	Whether an affidavit regarding Non-Black listing as per proforma given at **Annexure-II** duly attested by an Executive Magistrate or a Notary Public uploaded.	Yes/No
6.	In case the bidder is Authorized Supplier/Agency, the Authorization Certificate as per the Format given at **Annexure-'III'** uploaded**.**	Yes/No
7.	In case the Tenderer is Authorized Supplier/Agency, an undertaking/certificate issued by their Principle Manufacturer/Supplier that in case dealership/distributorship is withdrawn after supply then the Principle Manufacturer/Supplier will be responsible for Guarantee/Warranty/AMC/CMC **(Annexure – 'IV')** uploaded.	Yes/No
8.	Details of Bank Account for refund of EMD **(Annexure – V)** uploaded.	Yes/No
9.	Price Bid in the prescribed format in Excel Sheet **(Annex – VI** uploaded.	Yes/No
10.	Copy of Certificate of Registration for service Tax/TIN/TAN/PAN uploaded.	Yes/No
11.	A certificate from C.A. regarding Annual Turnover with Balance Sheet for the last 3 (three) financial years i.e. 2019-20, 2020-21 & 2021-22 uploaded.	Yes/No
12.	Copy of the IT Returns for three financial i.e. 2019-20, 2020-21 & 2021-22 uploaded	Yes/No
13.	Certificate regarding standard in quality **as per required in specifications**	Yes/No
14.	Compliance sheet, point wise, as per specifications uploaded	Yes/No
15.	E-mail ID	

Signature & seal of bidder

Place:
Date :

Note: Please upload Catalogue/Brochure/Pamphlets with complete specifications of quoted model only.

Annexure-II

(To be furnished on non-judicial stamp paper worth Rs.100/- duly attested by Executive Magistrate or Notary Public).

AFFIDAVIT

I/We _____

partner/sole proprietor (Strike out which is not applicable) of (Name & Address of Firm) _____ do hereby declare and solemnly affirm:-

a) That the individual/firm/ companies are **not debarred or black- listed** by any department of Union/ State Government or any autonomous institute.

b) That no partner or shareholder, directly or indirectly connected with the applicant who has been debarred or blacklisted by any department of Union Govt./State Govt./Autonomous Institute.

c) And that the terms and conditions for supply and Installation of Equipments at GGSMCH, Faridkot, are acceptable to me/us. I/We shall abide by them in letter and spirit.

Date:

Place:

DEPONENT

VERIFICATION

I/We do hereby solemnly declare and affirm that the above declarations are true and correct to the best of my/our knowledge and beliefs. No part of it is false and nothing has been concealed therein.

Date:

Place:

DEPONENT

Annexure- III

MANUFACTURER'S/PRINCIPAL AUTHORIZATION FORM

TO

The Registrar
Baba Farid University of Health Sciences,
Faridkot -151203

Ref. No…….. Dated:

Sub: Authorization Certificate in favour of M/s…… for supply of ..... (Name of equipment)

We, M/s…….., who are established and reputable manufacturers of …….(name of equipment) having factory(ies) at …… and ……., hereby authorize M/s……..(name and address) to bid, negotiate and conclude the Tender formalities with you against Tender No……. for the above equipment(s) manufactured by us.

No company or firm or individual other than M/s…….. are authorized to bid, negotiate and conclude the tender formalities in regard to this business against this specific tender.

We, hereby extend our full guarantee and warranty as per the conditions of tender for the goods offered for supply against this tender by the above firm.

Yours faithfully,

(Name)
For and on behalf of M/s_____
(name of manufacturer/Principal)

Note: This letter should be signed by a person competent and having authority to sign on behalf of manufacturer, and should be on manufacturer Letter Head and same will be uploaded with Technical Bid.

Annexure - IV

UNDERTAKING BY MANUFACTURER/PRINCIPAL SUPPLIER

TO

The Registrar
Baba Farid University of Health Sciences,
Faridkot -151203

Ref. No…….. **Dated:**

Sub: Undertaking for after sales service

We, M/s…….., who are established and reputable manufacturers of …….(name of equipment) have authorized M/s……..(name and address) to bid, negotiate and conclude the Tender formalities with you against Tender No……. for the above equipment(s).

Further, we undertake that in case dealership/distributorship is withdrawn after supply of equipment then we shall be responsible for after sales service till the date of guarantee/warranty of the equipment and afterwards for a period of 10 years.

Yours faithfully,

(Name)
For and on behalf of M/s_____
(name of manufacturer/Principal)

Annexure- V

Details of Bank Account of the firm who has deposited EMD

Name of the firm: _____

Sr. No.	Particulars	Detail
1.	Account No.	
2.	Name of Bank	
3.	Branch Name	
4.	IFSC Code of Bank	
5.	Name of Operator	

ANNEXURE - VI

PRICE BID

TO BE UPLOADED in Printed/Computerized format in Excel Sheet Attached for all Equipments.