

**ALL INDIA INSTITUTE OF MEDICAL SCIENCES
ANSARI NAGAR, NEW DELHI-29
STORE SECTION(CNC)**

Dated: 22.06.2026

TENDER CORRIGENDUM

The Tender No. 04/CNC/NI&INR/2026-27/St. was published in CPP Portal on 15.04.2026 vide CPPP tender ID: 2026_AIMSD_905368_1 for the purchase of "3T MR Imaging System for Gamma Knife Patient-01No. on turnkey and buyback basis" for department of NI&INR, CNC, AIIMS, New Delhi-29. The pre-bid meeting held on 20.04.2026 in which various vendors have attended the meeting and discussed their issues before the TSEC.

The TSEC has provided revised specification attached herewith at Annexure-I. The bid submission End date and Opening date are also being extended as under:-

Description	Existing	Amended as
Bid Submission End Date & Time	29-06-2026 at 03.00 pm	07-07-2026 at 03.00 pm
Bid Opening Date & Time	30-06-2026 at 03.00 pm	08-07-2026 at 03.00 pm

All remaining terms & conditions of floated bid will remain same. The bidder must see the revised specification attached herewith and quote their product accordingly.

By
23/6/2026

2026
23/6/2026
Stores Officer (CNC)

**ALL INDIA INSTITUTE OF MEDICAL SCIENCES
STORE SECTION (CNC)**

Pre-bid meeting held on 20.04.2026

Subject: Revised Technical Specification for purchase of 3T MR Imaging System (for Gamma Knife) on Turnkey and Buyback basis-01 no. for the Department of NI & INR, CNC, AIIMS, New Delhi-29.

Technical Specification for the latest Whole Body state of the art 3T MRI system for GI facility for department of Neuroimaging & Interventional Neuroradiology & on a Turnkey and buy-back basis.

Sr. No.	DETAILED SPECIFICATIONS
	<p>The 3.0 Tesla Magnetic Resonance Imaging system must be designed for optimal performance in cardiac and neurological examinations, featuring a compact superconducting magnet, high-performance gradients, and a fully digital Radio frequency system. It must also incorporate cutting-edge technology to deliver superior imaging quality and operational efficiency, making it the most advanced system in its segment. Furthermore, the system must be entirely new and free of any refurbished or recycled components. Vendors should quote their latest model.</p>
1	MAGNET
i	3.0T active shielded superconductive magnet with the best homogeneity. Field stability overtime should be less than or equal to 0.2 ppm/hr.
ii	Length should be short with 60-70 cm bore diameter.
iii	It should have facilities of better illumination, ventilation & flared opening. System design should avoid patient claustrophobia.
iv	The homogeneity of the magnet should be mentioned for 10, 20, 30, 40 cm DSV. Automatic shimming in phantom should be better than 0.55ppm in 40 DSV.
v	The magnet must be designed to minimize external interferences, ensuring optimal performance with a smaller fringe field.
vi	The 5 Gauss and 10 Gauss lines should be specified along the X, Y, and Z axes, with exact dimensions or distances provided. The 5 Gauss line must be clearly marked for compliance and safety purposes.
vii	The cryogen vessel should exclusively use liquid Helium with appropriate super thermal shielding and refrigeration facility. Specify the Helium tank capacity and boil-off rate.

Specification of 3T MR IMAGING SYSTEM FOR GAMMA KNIFE

viii	Helium level monitoring equipment in the magnet and facility for appropriate quick shutdown of the magnet in the event of emergency
ix	Liquid helium supply during the warranty period and Comprehensive AMC should be included at no additional cost, except where helium loss is directly attributable to the purchaser's fault, misuse, or negligence.
x	System should be a zero-helium boil-off magnet design.
xi	Physiological signal, coil connections, and table adjustments display should be on the gantry of the magnet
xii	Built-in 2-way Intercom facility to communicate with patient is required.
xiii	Emergency helium release button should be provided at least In two places [inside MR examination room and console room.
xiv	The System should be capable of doing Multinuclear Spectroscopy & can be upgraded in future.
xv	Magnet should be from USA/Japan/ Europe /India
2	SHIM SYSTEM
i	High performance and highly stable shim system with global and localized manual and auto—shimming for high homogeneity magnetic field for imaging. Specify the time regions.
ii	Auto shim (global and voxel-specific) should take minimum time to shim the magnet with patient in position.
iii	System should have higher order/ 2nd order shimming as a standard feature.
3	GRADIENT SYSTEM
i	Actively shielded (AS) whole body gradient system with strength minimum of Actual 60mT/m at a slew rate of Actual 200T/m/sec for each axis simultaneously with rise time should be 300ms.
ii	The Gradient system should be Equivalent/Imaging Performance which is linked with TR/TE values will not be considered
iii	The system must include provisions for eddy current compensation; the compensation level should be specified in percentage (%).
iv	Gradient linearity must be maintained across a specified field of view (FOV); provide the exact linearity specifications for clarity.
v	The field of View should be at least 50 cm in all three axes.
4	RF SYSTEM
i	A fully digital RF system is required, with a minimum transmitting power >40.0 KW, achieved through a single or combination of RF power amplifiers to reduce magnetic susceptibility effects for better B0 homogeneity. Specify transmitter frequency range.
ii	The RF system must include at least 64 independent RF channels, each with a bandwidth of 1 MHz or greater within a single FOV. It must be equipped with the necessary hardware to

	support Quadrature/CP array coils and have the capability to activate all 64 channels within a single FOV.
5	RF COILS
i	The system must include an integrated quadrature/CP body coil built into the magnet design, ensuring high-performance transmit and receive capabilities.
	Transmit/Receive or Receive-only Coils: Coils must support auto-tuning, array, or no-tune designs.
	The system must incorporate measures to prevent dielectric artifacts, ensuring optimal image quality, particularly in high-field imaging (e.g., Quadrature design, EPI compatibility).
	All array coils must support parallel imaging techniques, such as ASSET, SENSE, or IPAT (or equivalent).
	Provide details of the true acceleration factor for each array coil.
	The following coils should be provided, preferably with the number of elements equal to the channels for optimal performance:
ii	Head & neck coil –20 channels or more in a single scannable FOV
iii	A dedicated neuroimaging coil solution shall be provided, comprising either: (a) a dedicated head coil with at least 48 independent receive channels; or (b) a head-and-neck coil with at least 64 independent receive channels, capable of imaging the head and neck in a single scannable field of view using 64 channels. Higher channel configurations shall be accepted.
iv	Tx Rx Head Coil should be offered (Gamma knife frame compatible)
v	Embedded Spine phased array coil should have at least 32 Ch for Thoracic & Lumber Spine.
vi	Body Phased Array Coil: Minimum 46 channels in single scannable FOV (single or combined) covering 45 cm along the Z-axis for abdominal imaging. Coil must be lightweight, with a weight of less than 1.8 kg.
vii	Large and small flex coils /"Multipurpose" with 16 channels or more: Large coils/"Multipurpose" for imaging regions such as the shoulder, hip, and knee. Small coils /"Multipurpose" for regions such as the wrist, elbow, and ankle.
viii	The system must support acquisition from three or more coils simultaneously, enabling efficient throughput and increased effective FOV. The coil system must provide coverage of a body length of at least 200 cm, achievable with surface coils.
6	PATIENT TABLE
i	The table should be fully motorized, MRI Compatible computer-controlled table movement in vertical and horizontal directions Position accuracy should be +/- 1.0 C mm or better.

ii	Should be able to take at least 140 kg load.
iii	The table should have facility for manual traction in case of emergency.
iv	The table should be equipped with cushions and other comfort accessories to ensure patient well-being during scans.
v	All table components must be liquid-spill resistant for enhanced durability and hygiene.
vi	A hand-held patient alarm system must be provided for emergency communication
vii	The table must support automatic bolus chasing protocols for peripheral angiography, with synchronized automatic table movement for seamless imaging.
viii	A two-way communication system must be integrated, including a headphone, microphone, and necessary accessories for effective interaction between the patient and the operator.
ix	Headphone compatible with fMRI setup should be provided.
x	Strap on communication microphone mounting on RF coil with selectable, dual channel, automatic noise reduction; should monitor, record and broadcast filtered speech (FOMRI-III or equivalent). This should also be compatible with fMRI set-up provided. [Optional]
xi	Patient Entertainment system (compatible with supplied headphone and fMRI monitor)
xii	Closed-circuit TV and high-resolution CCD video camera for continuous patient monitoring from front and back of the magnet
xiii	Disposable earplugs (3M or equivalent) for sound protection (2000 quantity).
7	COMPUTER SYSTEM IMAGE PROCESSOR / OPERATOR CONSOLE
i	Computer should be latest in the industry, fast and efficient.
ii	One colour console for acquisition, all calculations, post processing etc. Console must have full colour with user define protocols with programmable inter scan delay. Latest host computer system with sufficient RAM (96 GB or more).
iii	For real-time image reconstruction, the system must have high-end image recontraction with dual core CPU, at least 128 GB of RAM, ensuring ultra-fast processing speeds.
iv	The computational capability must support advanced applications, including: <ul style="list-style-type: none"> · Single-shot Echo Planar Imaging (EPI). · Interactive angiography. · Multi-planar 3D reconstruction. · Surface rendering. · Dynamic and vascular imaging/angiography. · Functional imaging and DTI.
v	The main host computer should have at least 24-inch or more LED type color monitor.
vi	The console must have a music system interface to play music for patient relaxation in the magnet room.

vii	The system must support filming and storage of images and other applications efficiently.
viii	The system must include sufficient hard disk memory to store at least 250,000 images of 256 x 256 matrix data. Systems with larger storage capacity are preferred.
ix	A CD/DVD archiving facility must be included for both the main console and workstations.
x	The system must allow for the retrieval of raw reconstruction data in a user-friendly manner.
xi	It must provide connectivity to PACS through RIS/HIS at no additional cost, with the latest version of DICOM compatibility. PACs to be integrated with existing department system as well as hospital PACs.
8	WORKSTATION
i	Server Based workstation with 5 Clients & 3 No. Concurrent users from the Manufacturer with preferably the same user interface as of main console is required with the availability of all necessary software including basic post- processing software including MIP, MPR, surface reconstruction and volume rendering technique. The Server Hardware should have Storage of 10 TB (Internal/External) in Raid6 configuration & RAM should be 128 GB or more.
ii	Hardware Server: The server (single/dual configuration) should have image storage capacity of 10 TB in Raid 6 configuration, minimum 40,000 concurrent slice processing power and at least 192 GB RAM sufficient to handle 3 concurrent licenses. The server hardware to be included with 24" or more TFT/LCD monitor with dual processor. DICOM 3.0 compatibility and interfacing with other modalities must be possible.
iii	Hardware Workstations (5 workstations)
iv	Client hardware (specification for Each workstation)- HP or equivalent with Xeon processors, Z840 or equivalent CPU unit with 2 six core processors, Minimum 64 GB (16 GB X 4) RAM, NVIDIA 4 GB or equivalent, 1TB X 2 fast SSD hard drive, key-board, mouse, DVD drive with latest window OS etc., it should support the 2 monitors (6 MP + 1 MP) 6 MP (LED radiological grade monitor for images (Barco Coronis or equivalent) and one MP Clinical Grade monitor for RIS
v	Advanced post-processing offered application including perfusion quantification advanced diffusion and DTI, DTT, fMRI, T1 perfusion and T2*perfusion analysis, 2D and 3D ASL analysis, processing of 2D/3D CSI data, GABA MRS, MRI finger printing / equivalent, with color metabolite mapping.
vi	The workstation should enable printing in laser film camera and color printers.
9	Data Acquisition
i	The system should be capable of 2D and 3D acquisitions in conventional, fast and ultra-fast spin echo and gradient echo modes so that real— time online images can be observed if

	needed.
ii	2D multi—slice imaging should be possible in all planes (axial, sagittal, coronal, oblique and double oblique).
iii	Minimum 512 x 512 matrix acquisition for all applications.
iv	Half Fourier or other techniques to reduce scan acquisition time while maintaining adequate SNR
v	The system must support 3D volume imaging with options for multiple contiguous, interleaved, and overlapping slabs.
vi	Slice thickness in 2D and partition in 3D to be freely selectable
vii	Dynamic acquisition (serial imaging) with capability to initiate scan sequences either from the magnet panel or from the console.
viii	Dynamic acquisition number of repeat scans with delay time either identical time interval or selectable.
ix	Auto slices positioning from the localizer images- Automatic planning for Brain and spine imaging; and TOF angiograms for head and head and neck
x	Automatic setting number of slices and the FOV to fully cover the Brain and spine
xi	Automated positioning and alignment of slice groups to the anatomy (brain and spine), relying on multiple anatomical landmarks.
xii	Maximum -off centre positioning both anterior-posterior and lateral direction and should be selectable.
xiii	Gating: physiological signals like EEG, pulse, respiratory, external signal triggering (interface for triggering input pulse from external source).
xiv	Simultaneous acquisition, processing and display of image data in 2D multi—slice mode.
xv	Selection of voxel from oblique slices should be possible while doing spectroscopy.
xvi	The application software for image smoothing and edge sharpness etc. for improvement in image resolution should be quoted.
xvii	Artifact reduction/motion correction techniques/imaging enhancement/image filtering/image subtraction/addition multiplication/division techniques:
xvii	Flow 1st and 2nd order flow artifact compensation.
xix	Presentation slabs: a number of relocatable saturation bands to be placed either inside or outside the region of interest.
xx	Magnetization transfer saturation: Off resonance RF pulses to suppress signals from stationary tissue in FOV phase contrast capability in 2D & 3D mode.
xxi	Breath Hold Acquisition for Cardiac and Abdominal imaging must be possible.
xxii	Fat saturation techniques: frequency selective RF pulses to suppress fat signal in the measured image FO. ROI selective (regional) fat suppression should also be given.
xxiii	Magnetization transfer saturation; OFF-resonance RF pulses to suppress signals from

	stationary issue in FOV.
xxiv	Phase contrast capability In 2D and 3D mode.
xxv	Image intensity correction.
xxvi	Breath hold acquisition
xxvii	MRI fingerprinting or equivalent
xxviii	Single and multi-shot EPI imaging techniques.
xxix	Best diffusion technique available to be offered. This should remove all the susceptibility artifacts.
xxx	Data acquisition in all three standard planes (axial, sagittal coronal) and oblique and double oblique planes
xxxi	Multi-coil acquisition in order to optimize throughput increase and increased effective FOV. Individual acquisition of every coil should be mentioned.
xxxii	Simultaneous Multislice/ Multiband acquisition for brain and spine in EPI and FSE sequences including fMRI, DTI etc.
xxxiii	Compressed sensing for neuro and spine for all available 2D and 3D sequences.
xxxiv	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.
xxxv	Susceptibility weighted imaging with phase contrast information to be provided
10	Imaging sequences
i	The system should be capable of selecting TR and TEs as per requirement in majority of the pulse sequences.
ii	Minimum TE & TR in 2D/3D should be specified in relation to the sequences.
iii	Minimum Slice Thickness in 2D & 3D should be specified in 'relation to the sequences.
iv	Echo Train length in both 'spin echo and Gradient echo should be at least 255 or more.
v	The measurement matrix should be from 128x128 to 1024x1024 in both 2D and 3D imaging as well.
vi	Spin Echo (SE): · Multi-slice single echo and multi-echo (8 echo or more) with minimum TR and TE. · Symmetrical and asymmetrical echo intervals and MT-SE imaging sequences.
vii	Inversion Recovery (IR): Support for short TI, modified IR-SE, FLAIR, DIR (Double Inversion Recovery), and MT-FLAIR sequences.
viii	Gradient Echo (GE): · ultra-fast 2D and 3D gradient echo with shortest TR and TE. · Free flip angle selection while maintaining SNR. · Free breathing rapid dynamic 3D GRE based acquisition with motion correction and compressed sensing

11	Fast sequences
i	Fast spin echo (FSE): 2D and 3D mode with T1, T2, and PD contrast; echo train length \geq 128. Compressed sensing and simultaneous multi-slice acquisition support.
ii	Half Fourier acquisition capabilities should be available with/ without diffusion gradients and in combination with fast spin echo.
iii	Fast inversion recovery with spin echo.
iv	Fast gradient spin echo, IR multi-slice multi—echo mode with maximum turbo factor Sequences should incorporate RF focusing to acquire ultra- fast gradient spin echo.
v	Fat and water suppressed imaging sequences including the sequence which should give 4 contrasts (in phase, opposed phase. FAT and Water) images in a single acquisition to be quoted as standard
vi	TSE-based DWI for high-quality diffusion imaging.
vii	Real time field adjustments/ RESOLVE for eddy current artefacts reduction in DW-EPI
viii	3D Nerve View or equivalent for visualization of the brachial and lumbar plexus
ix	EPI optimized sequences for T1, T2, PD imaging. perfusion, regular diffusion values {5b, 3 directions), EPI-FLAIR. CPI-IR, IPI-FLAIR diffusion tensor
x	EP1-MT FLAIR, tensor diffusion (5b values in minimum in six directions) for diffusion studies
xi	DWI <ul style="list-style-type: none"> · Diffusion weighting with up to 16 different b-values with minimum b value of 7000 or more. · Multiple Direction Diffusion Weighting (MDDW) – measurements can be done with multiple diffusion-weightings and up to minimum 256 directions for generating data sets for diffusion tensor imaging. · 2D selective RF excitation method for DTI/Diffusion to reduce FOV in phase-encoding direction within imaging plane
xii	Suitable artifact/fat suppression techniques to be incorporated in the sequence to have optimum image quality.
xiii	MR ventriculography, Cisternography and Myelography.
xiv	Sequences for MRI imaging of joints with Metal implants like Advanced WARP/SEMAC /o MAR XD should be offered with compressed sensing
xv	Whole body imaging with surface coil should be offered. This should cover at least 200cm
xvi	Internal ear imaging. 3D acquisitions like CUBE. SPACE, VISTA.
xvii	Selective excitation for Zoomed 3D TSE imaging
xviii	Susceptibility Weighted imaging with phase information and acquisition for QSM

xix	Neuromelanin imaging
xx	Motion corrected gradient based 3D T1 using radial k-space filling
xxi	MR Angiography:
	2D/3D and phase contrast modes with or without gating.
	Sequences for breath-hold angiography with contrast enhancement.
	Non-contrast angiography techniques (e.g., Native, Enhance, Trance) for whole-body applications.
	Pulmonary 2D/3D MRA sequence, including single breath hold sequence.
	ECG triggered non-contrast angiography
	4D flow for vascular quantification: acquisition and post-processing
xxii	Contrast Dynamics:
	Advanced contrast kinematic sequences like TWIST, TRICKS, or 4DTRAK.
	Contrast bolus tracking (including single shot whole body MRA, interactive and automated Comprehensive diffusion package, including DTI tractography for brain and spinal cord., etc.
	Peripheral moving table angiography should be offered covering hip to limbs to be examined in one go with high resolution and high SNR.
xxiii	DTI with SMS/multiband imaging
	Comprehensive diffusion package, including DTI tractography for brain and spinal cord.
	DTI with at least 256 directions to be offered as standard
	Automated distortion, motion and eddy current correction
	DTI with compressed sensing and SMS/Multiband imaging
xxiv	Perfusion
	DSC and DCE Perfusion study for brain to be offered as standard.
	2D ASL sequence with quantification
	3D ASL sequence
xxv	Functional MRI (fMRI):
	Enable whole-brain coverage with high temporal resolution T2*-weighted BOLD imaging.
	Support single-shot EPI for multi-slice functional imaging.
xxvi	Flow quantification
	Flow quantification in vessels and CSF. Should be able to run cardiac gated sequences (especially for syrinx-to identify the blockage).
	Flow quantification packages for CSF with dynamic CSF flow imaging

xxvii	Spectroscopy:
	Proton MRS Sequence for single-voxel acquisition, with selectable fat/lipid saturation bands, options of water saturation (e.g. VAPOR, CHESS, etc.) with all post-processing software
	Proton Multi-voxel CSI [2-D and 3-D] acquisition and metabolite mapping with all necessary RF sequences (and post-processing algorithms) with all post-processing software
	Water and lipid suppression in automated sequences.
	Mega-PRESS (for GABA estimation); i.e., GABA estimation sequence
xxviii	Parallel Imaging:
	Techniques like SENSE, SMASH, ASSET, GRAPPA with reduction factor ≥ 4 .
	Specify acquisition time reduction for head, body, cardiac, Angio, and Ortho applications.
xxix	AI and Deep Learning Reconstruction: Incorporate deep learning-based techniques for:
	The system must include, as a mandatory standard feature, a regulatory-cleared (US FDA 510(k) or CE Mark) deep learning-based image reconstruction solution (e.g., Deep Resolve, AIR Recon DL, or fully equivalent) that delivers clinically validated SNR improvement and/or resolution enhancement for all standard clinical sequences.
	This DL reconstruction capability must be a hardware-supported, native feature of the base system – not an optional paid add-on or a future upgrade pathway.
	SNR improvement: Vendor must specify the SNR gain factor achievable with DL reconstruction for neurological brain imaging (should be $\geq 2\times$ at equivalent scan time).
	DL reconstruction must be available inline (on the scanner) without requiring off-line post-processing on a separate workstation.
	Direct resolution enhancement (super-resolution) for neuro applications should be available
	It should extend to acquisition and/or processing of 2D/3D sequences.
xxx	Functional MRI of Brain with artifact reduction package with LCD based Paradigm Generator to be offered. The post processing of fMRI should be available on Workstation Clients.
	Brain Wave Real Time, Pre- acquisition / post processing or inline BOLD or BOLD Specialist
	Ability to fuse high-resolution anatomical images with fMRI activation maps and diffusion

	tensor tractography maps
	Sequence enabling prospective motion correction in quick time and in real time during fMRI
xxxvi	2D and 3D Synthetic MR /Magic or equivalent with offline TE/TR change to get multi-Contrast MRI Images from a Single Acquisition including T1, T2, STIR, and proton density weighted images of the brain. Any hardware required for processing of synthetic MRI should be provided.
xxxvii	Myelin only imaging and quantification
xxxviii	Quantitative liver T2* estimation for iron. quantification
xxxix	Radial/Spiral pulse sequences for ultrafast imaging.
xl	Sequence for in-line motion correction for uncooperative patients/ children (with software and acquisition - sequences like BLADE, PROPELLAR, Multivane XD or equivalent)
xli	Sequence for nullifying CSF pulsation artifacts
12	POST PROCESSING AND Evaluation
i	3D Multiplanar reconstruction (MFR) in any arbitrary plane including curved planes with freely selectable slice thickness and slice increments.
ii	3D Surface reconstruction and evaluation on reconstructed images with minimum time.
iii	MIP in 2D and 3D mode, targeted/segmented MIP in any orthogonal axis with minimum processing time and capable of displaying in cine mode.
iv	Diffusion Imaging:
	Evaluate and display diffusion images, including ADC maps and tract-specific diffusion parameters.
	Support advanced diffusion techniques, including (optional) IVIM should be provided if available or work in progress DS1 should be provided Free of Cost whenever is available
v	Automatic estimation of diffusion-perfusion mismatch analysis of acute stroke patients
vi	QSM analysis of brain should be provided WIP and then Free of Cost whenever is commercially available
vii	Voxel-based morphometry for segmentation and quantification
viii	Proton Density Fat Fraction (PDFF) analysis for liver and muscle fat quantification.
ix	Relaxometry tools for T1 and T2 relaxometry.
x	MRI Fingerprinting/equivalent for advanced quantitative imaging.
xi	Automated brain volumetry and morphometry package - The vendor should provide an AI-enabled neuroimaging post-processing solution for automatic brain MRI segmentation, brain structure volumetry, hippocampal volumetry, normative database comparison, and

	longitudinal follow-up assessment. The solution should generate PACS-compatible outputs including structured quantitative reports, graphical summaries; and DICOM secondary capture/overlay images. The software should be compatible with standard 3D T1-weighted datasets such as MPRAGE/BRAVO/SPACE-equivalent acquisitions and should preferably support white matter lesion burden / follow-up analysis. Equivalent vendor-neutral or third-party FDA/CE-approved software may also be quoted. Quote including software license and server requirements.
xii	Spectroscopy:
	Mega-PRESS (for GABA estimation) post-processing software
	The system should include advanced MR spectroscopy post-processing software with support for single-voxel MRS, MRSI, and edited MRS techniques including MEGA-PRESS for GABA/GABA+ estimation . The software should provide FFT, filtering/apodization, eddy-current correction, frequency and phase correction, baseline correction, spectral fitting/curve optimization, ON/OFF subtraction for edited spectra, peak identification, peak integral values, metabolite quantification/ratios, fit-quality parameters, and export of spectra, quantitative tables, and metabolite maps. It should support metabolite imaging/spectral mapping with colour-coded maps for in-vivo brain metabolites and PACS-compatible output.
xiii	Perfusion
	Full Perfusion imaging with necessary post processing with time intensity graph and other statistical parameters
	Evaluation package for calculating CBV, CBF, MTT, permeability maps etc. Post processing of all perfusion sequences should be available in console also.
	Analysis of DCE data- Ktrans, Kvp, Kp, etc.
	Calculation of normalized perfusion parameters
	Quantitative analysis of 2D ASL
	Qualitative analysis of 3D ASLs
	Fusion of perfusion map with Contrast enhanced 3D T1 images etc.
xiv	BOLD Functional MRI
	Evaluation of functional images of brain with appropriate statistical algorithms, color display and overlay on base anatomical images.
	Software for evaluation of functional mapping [BOLD evaluation] and neurometabolite mapping.
	Real time BOLD fMRI analysis
	Superimposition on Neurotractography geometry and tensor diffusion field on both functional BOLD mapping and neurometabolite (CSI) mapping.

xv	Software for co-registering structural MRI with fMRI, DTI maps and perfusion maps (all four at the same time) to fuse to generate a single set of images and send to surgical neuronavigation system (Brain Suite/Olea/equivalent or better) to be supplied in the additional workstation. Fusion of other modality images (PET, SPECT etc. with MRI) should also be possible.
xvi	Flow quantification and evaluation for vascular [high and low), CSF, bladder outlet and cine display
xvii	Full post processing for SVS, CSI, metabolic mapping with colour coding for BRAIN.
xviii	Image statistics: measurement of distance, area, volume (2D and 3D), angle, SD, mean, image addition subtraction, multiplication, division, interpolation, segmental, threshold, Evaluation features like zoom, rotation, scroll, image synthesis, multi-point T1 and T2 calculation (more than 8) window searching, text dialogues graphics. Sorting, searching, archiving, recalling, etc.
xix	FDA-approved software for automatic hippocampal, regional, and whole-brain volumetry (e.g., Neuroquant or equivalent).
xx	Package for lesion segmentation in white matter and register current imaging with old imaging to detect a change in size and appearance of new lesions.
13	Advanced Applications / technologies
i	<p>Silent/Quiet MRI:</p> <ul style="list-style-type: none"> · The system must include silent or quiet MRI sequences with gradient wave modification, enabling significantly reduced noise levels during scanning. · These sequences should achieve extremely quiet imaging without compromising: <ul style="list-style-type: none"> . Slew rate. . Peak gradient amplitude. . Acquisition time. · The vendor must provide a list of all sequences included in the silent MRI package and specify their corresponding estimated sound levels. · The sound levels for these sequences must not exceed 85 dB, ensuring patient comfort during scanning.
iii	<p>Latest Technology for Respiratory Triggering:</p> <ul style="list-style-type: none"> · The system must include hardware-based technology capable of automatically detecting patient breathing patterns as soon as the patient lies on the table. · Technologies such as BioMatrix or equivalent must be provided for simplified workflow. · This should eliminate the need for manual respiratory sensor placement, minimizing user interaction and enhancing ease of use. · An advanced solution, such as Vital Eye or an equivalent system, must be offered for accurate and automated respiratory triggering.
14	UPS
i	The system must be provided with a suitable UPS to support the complete MRI

	system, including all accessories (excluding the chiller).
	The UPS must ensure a minimum backup time of 30 minutes to safeguard against power interruptions and maintain system operation during critical scans.
15	DOCUMENTATION
i	<p>The following specifications, or equivalent, are required (Carestream/Fuji/Konica)</p> <ul style="list-style-type: none"> • The system must include a digital DICOM 3.0 dry chemistry camera • It should be based on technology - Photothermographic (dry laser), True laser technology • Minimum Printing Resolution should be : 650 laser pixels per inch / 39-micron laser spot spacing • Resolution: 16 bits/600 dpi or higher. • Minimum Pixel depth: 14-bit pixel depth architecture • Minimum Time to first print: 60 seconds • Minimum Speed for 14 x 17 in. (35 x 43 cm): 150 or more per hour • Minimum Films online/trays: Three film packs of any size can be loaded at one time • Film loading should be Daylight. • It should support all film sizes: 14 x 17 in. (35 x 43 cm), 14 x 14 in. (35 x 35 cm), 11 x 14 in. (28 x 35 cm), 10 x 12 in. (25 x 30 cm), 8 x 10 in. (20 x 25 cm) • Connectivity: Integrated DICOM interface supports printing from DICOM modalities • The dry imager must be freely configurable by the user to enable seamless switching between the specified film sizes based on clinical requirements.
16	TRAINING
i	A dedicated storage cabinet must be provided for safe and organized storage of all coils.
ii	One MR-compatible folding wheelchair, should be MR Safe at 3T, trigger the ferromagnetic detection system under routine screening and with the following minimum features : foldable non-ferromagnetic construction, wheel locks/brakes, flip-up or removable armrests and footrests, smooth non-marking wheels, adequate adult load-bearing capacity, and easy-to-clean hospital-grade seat/backrest material.
iii	One MR-compatible should be MR Safe at 3T hydraulic patient trolley with: <ul style="list-style-type: none"> • Dual-pedal pump for height adjustment. • Adjustable cot sides and a removable IV pole.
iv	Chiller (for the cryocooler) and gradient amplifiers

v	Handheld metal detectors (2 units) must be supplied to ensure safety within the MRI facility.
vi	Standard RF Cabin with complete interiors including wall finish, flooring, false roofing, high classroom lighting, A/C ducting, Gas Pipelines and Top up Helium during handing over.
vii	Functional MRI
	Complete fMRI solution with MR compatible LCD 40" UHD display; if patient entertainment monitor is not compatible, please supply an additional monitor)
	Headphone compatible with fMRI setup should be provided.
	<p>Communication Microphone:</p> <ul style="list-style-type: none"> .A strap-on communication microphone mountable on the RF coil must be supplied with: . Selectable dual-channel functionality. . Automatic noise reduction. .Capability to monitor, record, and broadcast filtered speech (e.g., FOMRI-III or equivalent). . If a microphone is included with the patient entertainment system, this specification can be skipped.
	Response Pad System:
	An 8-button MR-compatible response pad (e.g., Cedrus or equivalent) must be provided for use in the examination room.
	The response pad should be integrated with the fMRI paradigm presentation system and include:
	Interface device.
	Necessary cables to connect the response pad with a laptop or PC.
	Installation of cables through the MRI room's filter box must be performed by the vendor.
	Stimulus Presentation Software:
	The system must include a stimulus presentation/paradigm generator software with a permanent license (e.g., Super lab, E-Prime, Presentation, or equivalent).
	The software should support the presentation of various media types, including:
	Audio-visual images.
	Audio files.
	Video formats in multiple codecs.
	Synchronization and Triggering:
	The system must provide an external RF trigger from the MRI console for synchronization with fMRI sequences.
	Triggering options must include compatibility with USB, serial, and other ports, allowing use with any third-party paradigm software installed on the researcher's PC or laptop.

	<p>Physiological Data Integration: The system must enable the availability and recording of physiological data (e.g., ECG, respiratory signals, SpO₂) for time-stamping of functional/resting MRI data.</p>
	<p>Functional Imaging Package: o The system should include a comprehensive package for BOLD imaging, capable of: o Real-time data processing. o Displaying color overlay results in real-time.</p>
viii	<p>MR-Compatible Pressure Injector: A dual-pressure injector or triple-head injector with a minimum 2000 Gauss line rating (e.g., MedRad or equivalent) must be included. It should come with: 500 tubings/syringes for at least 500 cases (one set per case). Unit price to be quoted separately. The price of consumables for the injector must be fixed for a period of five years.</p>
ix	Two quantities: Digital Patient Weighing Scale (in the range between 0 to 250kg)
x	<p>Data Security and Maintenance: All servers and workstations supplied (MRI console, additional workstations, fMRI workstations, etc.) must be equipped with reputed antivirus software for the duration of warranty and CMC. The vendor must ensure weekly antivirus updates during warranty and CMC, either automatically or via the provided internet facility.</p>
	<p>Cybersecurity & Data Protection</p> <ol style="list-style-type: none"> i) The MR system shall incorporate comprehensive, built-in cybersecurity architecture, including: <ul style="list-style-type: none"> • Secure user authentication and role-based access control • Data encryption (at rest and in transit) • Protection against malware, ransomware, and unauthorized access ii) The system shall comply with national data protection standards, including: <ul style="list-style-type: none"> • GDPR (General Data Protection Regulation), where applicable • Applicable Indian data protection and IT regulations iii) The vendor shall ensure: <ul style="list-style-type: none"> • Regular security patches and vulnerability updates throughout the system lifecycle • Compatibility with hospital IT policies, including network security, firewall integration, and audit logging iv) The system shall support: <ul style="list-style-type: none"> • Audit trails for user activity and data access • Secure integration with PACS/RIS/HIS systems

xi	Dehumidifier- two in number, minimum 110 liters
xii	Image archival:
	Image archival must be supplied to store unprocessed data, including DTI, perfusion, fMRI, and MRS data, with:
	A minimum of 200 TB space in SAS drives with RAID 6 configuration.
	At least 2 hot spare discs for every 10 drives.
	Capability to send/ retrieve data to main or additional workstations for future processing.
xiii	Fire Safety:
	Provide three MRI-compatible CO ₂ -based fire extinguishers (minimum 5 kg each) to be placed in Zone 4 and Zone 3.
	The vendor must provide Cat 6 network cables for the entire installation.
17	TRAINING
i	Application support engineer should be assigned for at least 30 days in a quantum of 6 months to train the staffs/clinicians in the department.
18	STANDARD AND SAFETY
i	Should be FDA /European CE approved/BIS/Equivalent to Indian standard certificate product.
ii	Walk through Ferromagnetic detector with multiple fluxgate sensor to help detect approaching ferro magnetic hazards and with door ignore function. It is to be wall-mounted immediately outside the MRI room at the entry door of MRI Scanner Room. It should give both visual and audible warning to approaching threat. It should have continuous detection without breaks. It should be US FDA/CE and ISO 9001 approved.
iii	Entirely passive fluxgate sensor to be installed in Zone 2/3 to detect small ferrous objects and implants inside the body of the patient. It should be US FDA/CE and ISO 9001 approved
19	Hardware Upgrade
i	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.
ii	The MR computing software system should offer built-in security controls to protect the system from vulnerabilities that can result in cyberattacks 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 to protect personal and

	protected health information (e.g., GDPR, HIPAA, any local regulation), during the complete life of the system.
	add in turnkey layout- 3886sq ft with requirement of rooms and other areas
20	Networking
	A single 24 port Layer 3 switch is required for the MRI complex, supporting Gigabit Ethernet, 10G uplinks, VLANs, QoS, and seamless communication with other IP devices.
	Imaging Reporting Workstations - Radiology - QTY 10
	Imaging reporting workstation with 2x2MP FDA Approved Monitor and Single Clinical Monitor- 20 numbers
	RADIOLOGY DIAGNOSTIC DISPLAY (2MP DUAL HEAD x 1 Display + 1 x2MP Review)
	Medical Grade Diagnostic Workstation for CT/MRI/USG/ - 2MP High bright color dual diagnostic display system with 21inch 2MP high bright clinical review navigational display with dedicated Medical Display card to support all 3 displays and Cloud based QA software (All of the same brand)
	The Medical Grade Diagnostic Color Display system should have the following specification and the warranty should apply to the Display, Graphic card and Backlight warranty hours as mentioned.
1	2MP (1600x1200 pixels)
2	Screen size of 21.3 inch
3	Contrast Ratio 1400:1
4	Bit depth 30-bit, response time 10ms.
5	Power consumption 50 W (nominal) @ calibrated luminance of 500 cd/m ² .
6	Maximum Luminance 800cd/m ² and D1C0M luminance 500cd/m ² .
7	System should have front sensor, I guard &ULT.
8	FDA 510(k)
9	2MP diagnostic display should have protective glass cover
10	2 Warranty 5 years, including 40000 hours backlight warranty whichever is earlier for the Diagnostic display.
11	Special features like SPOT VIEW (Configurable size) & CONFERENCE View should be available on diagnostic display. Touch pad to be supplied with the display.
12	Graphic card should be of the same brand, Intel® and AMD architectures,4GB GDDR5 display memory,96 GB/s memory bandwidth,128-bit memory interface,1 Display Port 1.4 & 2 mini Display Port's 1.4 (2 mDP to DP locking adapters included), Maximum power consumption: <50W.
13	21" or more Medical Grade Review Display from the same manufacturer and should run on

	the same card- FDA Class 1, 5 1 0(k) exempt for Clinical display.
14	21" or more Display should have DICOM calibrated luminance of 400cd/m ² & Maximum at 1000cd/m ² . Contrast ratio 1800:1
15	Navigational display for RIS/Worklist - should auto dimming feature.
16	Medical QA web for DICOM calibration with inbuilt test patterns.
17	5 years warranty for complete system including local swap.
18	Company should have direct office in India for more than 05 years
19	All Display should be BIS certified
	Workstation CPU - 10QTY
	One Processor - Intel Xeon 6 Core, Memory - 16 GB, Hard drive - 1TB SSD, NIC - 1GB Display Card - 2GB Card, Operating System - Windows 11 Professional 64 bit, DVD - DVDRW media drive, Power Supply - Single Power Supply, Software License - Necessary software for integration
	Clinical Viewing Stations- 10 numbers
i	Intel Core i7 processor
ii	8 GB RAM
iii	500 GB HDD
iv	Win 10 Pro - 64 bit
v	DVD - DVDRW media drive
21	Optional items (quote price of each item separately)
i	Dual-Tuned RF Coils for Spectroscopy (Optional):
	31P MR Spectroscopy: Provide a dual-tuned RF coil for recording 31P MRS in the head, along with all necessary acquisition software and hardware.
	23Na MR Spectroscopy: Supply a dual-tuned RF coil for recording 23Na MRS, including the required acquisition software and hardware.
ii	Suitable coil should be offered for Peripheral Angio studies. This should at least cover 80cm with at least 32 elements. Multiple coils should be offered to avoid coil repositioning. (OPTIONAL)
iii	Resting-state fMRI- automated processing software
iv	Whole-Brain MR Spectroscopy- Including tools and sequences for whole-brain MR spectroscopy to comprehensively assess metabolic and chemical information.
v.	Dedicated Paediatric Suite: 16-channel dedicated paediatric head coil (Paediatric 16) for neurological and cranial imaging of neonates and children up to 18 months of age.
	Other Items

MRI Compatible Anesthesia Workstation with Remote Monitoring	
Quantity: 01 Nos.	
	The Anaesthesia workstation should be MRI compatible which can be used in 3T MRI room and in MRI environments of at least 400 Gauss.
1	Should have color-coded/audio alarm indicators for monitoring of critical closeness to the MRI machine. Anaesthesia Machine:
2	Should have a three-gas model Anaesthesia machine with flow meters for Oxygen, Nitrous oxide and air.
3	Should be suitable for low and minimal flow anesthesia application with compliance compensation of breathing circuit, and fresh gas flow compensation/ decoupling.
4	Should have pin index yokes for oxygen & nitrous oxide besides a separate connection for the central gas supply for oxygen, nitrous oxide and air.
5	Gas delivery during power failure must be unrestricted.
6	Should have pressure gauges for cylinders & central supply lines.
7	The gas connections should be non-interchangeable
8	Should have separate fresh gas outlet for use in open circuit.
9	Should have Emergency oxygen flush (30 – 70 L/min bypassing the vaporizer).
10	Should have paramagnetic/fuel/ galvanic cell oxygen sensors.
11	Should have an audible oxygen fail-safe alarm.
12	Should have electronic or mechanical hypoxic guard to ensure a minimum 25% O ₂ across all O ₂ - N ₂ O mixtures.
13	Should have optical alarm lights for patient alarms and event log capability.
14	Machine should have an inbuilt color screen display of size 12-inch or more for clear visibility in the MRI room along with the option of remote monitoring facility (slave monitor).
15	Should have battery life of 45-60 minutes or more.
16	Should be heavy frame & base, antistatic with high-quality castor wheels with front/ central brakes.
17	Should be compact, ergonomic design with 3 drawers, easy to use and easy to maintain.
18	Machine should preferably have an inbuilt suction facility (optional).
19	Machine should have an integrated AGM Module.
	Vaporizers:

20	Should have the facility for mounting a minimum of two vaporizers. Vaporizers should be selectatec type, and have the latest technology, key filler, and tool-free installation, with interlocking facility. Vaporizers should be preferably of the same make as that of machine.
21	Vaporizers should have high accuracy of delivered concentration of volatile anesthetic agent and should be maintenance free.
22	Should be provided with a temperature/pressure compensated and flow independent vaporizer for Isoflurane & Sevoflurane.
	Ventilator:
23	Machine should have an integrated anesthesia ventilator system to ventilate adult and pediatric patients including infants.
24	Should be able to deliver a wide range of tidal volume (20 -1500 ml or more) for use in neonates to adults.
25	Should have Inspiratory/ Expiratory ratio (I:E) 4:1 to 1:4
26	Ventilators should have different modes of ventilation such as volume and pressure controlled, pressure support, and spontaneous or manual modes with provision for PEEP.
27	Should have an integrated color screen for continuous display of tidal volume (inspired and expired), respiratory rate, I: E ratio, minute volume, Peak, Mean and plateau airway pressure and PEEP.
28	Audio-visual alarms for high and low settings of pressure, volume and disconnection should be present.
29	Should have at least 60 min rechargeable battery backup for the ventilator.
30	Should have an integrated breathing circuit with circle absorber of good quality, easy to clean, autoclavable, and fewer parts to reduce leaks.
31	Should have a fresh gas de-coupled semi-closed circle absorber system.
32	Should use universal below for all patient categories. Should not require changing of bellows for adults or infants.
33	MRI-compatible disposable adult and pediatric breathing circuits – 20 nos. each to be provided with each machine. The breathing circuit supplied should be at least 3 meters in length.
	Provide the following things additionally – <ul style="list-style-type: none"> • MRI-compatible portable medical oxygen cylinder of minimum 10 L water capacity / approximately 1500 L oxygen gas capacity shall be supplied with MR Safe/MR Conditional trolley or stand. The cylinder tare weight should preferably not exceed 15–18 kg, excluding trolley/stand, to permit easy movement within the MRI suite. The system shall include MRI-compatible pressure regulator, flowmeter, tubing, adult and paediatric masks/nasal cannulas, and all necessary accessories. All components intended for use inside the MRI scanner room/Zone IV shall be MR Safe or MR Conditional for the offered field strength, with documentary proof.

- **MR Safe / MR Conditional suction system** suitable for use inside the MRI scanner room/Zone IV at the offered field strength shall be supplied for emergency airway secretion clearance. The system may be wall-mounted or portable, but shall include suction source, collection bottle/canister, tubing, catheter interface, vacuum gauge/regulator/control, overflow protection, filter where applicable, and all required consumable starter accessories. The system shall provide adequate negative pressure for adult and paediatric airway suction. Documentary proof of MRI compatibility shall be submitted.
- **A fixed oxygen-deficiency monitoring system** shall be supplied and installed for the MRI scanner room to continuously detect oxygen depletion due to helium leakage or quench events. The system shall include MRI-compatible oxygen sensor/probe, real-time oxygen concentration display, audible and visual alarm, alarm panel/display outside or near the MRI control room, adjustable alarm threshold settings, calibration and self-test provision, and battery/power backup. Installation, commissioning, calibration, and maintenance during warranty and CMC shall be included. Documentary proof of MRI-environment compatibility shall be submitted.,
- **MRI Safety training** –The vendor shall conduct annual Level 1 MRI safety training during each year of the warranty period for all relevant staff who may enter or work near the MRI suite. The training shall include MRI safety zoning, controlled access to Zone III/IV, projectile risk, patient and staff screening, MR Safe/MR Conditional/MR Unsafe device labelling, implant/device precautions, RF burn prevention, acoustic safety, contrast/emergency preparedness, quench management, oxygen-depletion hazards, fire/code-blue response in MRI environment, and incident/near-miss reporting. Training material, attendance sheets shall be submitted to the purchaser after every training session.

Monitor:

34	Should have an integrated color TFT touch screen display of minimum 15" for simultaneous monitoring of at least 5 waveforms and 4 numeric parameter fields.
35	The display should have touch functioning with a rotary knob function available.
36	It should be suitable for monitoring adult, pediatric and neonatal patients.
37	Anesthesia gas monitoring and capnography.
38	The monitor should display ECG leads with enhanced ECG performance and removal of MRI gradient artifacts.
39	Should have ECG sensors/modules based on wireless/Bluetooth technology to avoid wire heating issues.
40	Should display one or all the selected leads at a time. Should have an arrhythmia monitoring facility.

41	Should have wireless SpO2 sensors/modules based on wireless/Bluetooth technology to avoid wire heating issues.
42	Should display plethysmographic pulse waveform and digital value of the arterial oxygen saturation. Finger sensor for adult, paediatric and neonatal application to be provided.
43	The wireless sensors should have battery backup of at least 6 hours. Charging module for sensors should be provided, and integrated to allow charging inside MRI.
44	Should have facility for dual invasive pressure monitoring with provision for Interface cable for transducers from different manufacturers.
45	Should have a facility to monitor dual temperatures through fiber optic sensor cables. It should include a surface temperature probe.
46	Should have a multi gas module for measurements of anesthesia gases and volatiles agents and should display MAC values.
47	It should have automatic detection of gases and agents with display for inspired and expired concentrations.
48	It should have a facility to measure EtCO2 (side stream) with a display for both capnography waveform and values.
49	It should have wireless/wired connectivity option to remote monitor for viewing all the patient data outside MRI environment. User should be able to monitor hemodynamic and anesthesia data in control room which will include vital parameters, multigas data, ventilation waveforms & parameters and alarm messages.
50	A slave monitor with a touch screen colored TFT display of size 18" or more to be provided for remote monitoring in the console room. The vendor must ensure the display of all monitoring parameters in the slave monitor
51	Monitor should have a minimum 4 hours of battery backup.
52	It should have a trend facility for vitals parameters (both graphical and tabular) for at least 8 hours.
53	Should have two USB ports interface for software upgrades and data transfer.
54	It should preferably be able to connect with anesthesia machines for viewing the anesthesia data on a patient monitor.
55	Scope of supply 1. MRI compatible ECG sensor-2 Nos. with each machine 2. MRI compatible SpO2 sensor- 2 Nos. with each machine 3. NIBP hoses and cuffs- 1 No. hose and 1 Cuff for different sizes (Neonate, Infant, Small, Medium and Large)
56	The manufacturer should provide compatibility certification for the MRT system.
57	System should confirm to international and European standards (ISO/EN 740 and ISO

	9000/9001) labeled with the CE-approval for all electronic and electrical modules and also conforms to EN 60601-2-13
58	All components (anesthesia machine, ventilator, vaporizers and monitor) should be US-FDA or 4-digit notified European CE or BIS approved.
59	Firm should have more than 5-year experience in the field.
60	Company should have an office/ Service Centre in Delhi/NCR.
	MRI-Compatible Laryngoscope set
	Quantity: 02 Nos.
1	Should be MRI compatible which can be used with up to 3 Tesla Scanner.
2	Should have reusable handle with MRI compatible battery.
3	Should have LED light.
4	Should have both reusable and disposable blades options.
5	Should be supplied with 2 sets of Macintosh reusable blade of size 0, 1, 2, 3 and 4 each.
6	Should be supplied with one MRI Compatible difficult intubation blade of size 4.
7	Should be US FDA/ European CE / BIS approved.
	MRI compatible Syringe Infusion Pump.
	Quantity: 3 Nos.
1	Should be an MRI compatible syringe infusion pump for up to 3 Tesla.
2	Should be lightweight, portable, user-friendly and syringe-based infusion pump.
3	Should be able to load syringes of different sizes ranging from 2ml, 5ml, 10ml, 20ml and 50/60 ml.
4	Should be able to support a wide range of syringe brands both international and local make.
5	Should have a drug library.
6	Should have different drug delivery modes, like ml/h, mg/kg/min, μ /kg/min etc.
7	Should be able to set a bolus rate.
8	Should administer a wide range of infusion rates ranging from 0.01ml/h to >1000ml/h.
9	Should have audio-visual alarms for occlusion, near empty and syringe empty, and battery charge on the display
10	Should have the battery backup of at least 6 hours once fully charged.
11	Should have KVO and post occlusion bolus reduction function.

12	Should have the facility of stacking multiple pumps.
13	Should have integrated Magnetic field indicator and should trigger an optical and acoustic alarm when maximum allowable magnetic field strength is exceeded.
14	Should be European CE/ USFDA/ BIS approved.
15	Original equipment manufacturer should have direct service support office in New Delhi
Terms & Conditions	
1	Demonstration of the offered model is must to confirm all the technical specifications/functionalities of the equipment. The vendor must leave the equipment for use on a few patients so that actual efficiency and safety can be ensured.
2	The vendor should provide satisfactory performance reports from previous installation of equipment.
3	Compliance statement: The vendor must provide a chart (in tabular form) comparing the compliance of the technical specifications of the quoted product with the required technical specifications. The vendor must give the relevant page number and paragraph number in their literature/brochure regarding that technical information in the technical bid. Merely stating complies or meets requirements will lead to the assumption that the quoted product doesn't have the required feature.
4	Guarantee & Warranty- The company should provide 2 year Comprehensive Warranty followed by 8 years of CAMC with all spares. The vendor must provide advance information if any part of the equipment is not covered under warranty.
5	Accessories & Consumable - The cost of all accessories/spares/consumable items should be quoted separately, and it should be fixed for 10 years. from the date of installation of the equipment. If the cost of any item is not mentioned it will be considered free of cost for the lifetime of the machine.
6	Penalty Clause -In situations of malfunctioning of the equipment or its being nonfunctional, the equipment should be repaired/made properly functioning to the satisfaction of the end user within 48 h of making a complaint to the company. If it is not possible then a properly functioning equipment of the same or higher model should be made available for the period for which the equipment is non-functional, otherwise double the number of days for which the equipment is not available will be added to the CAMC.
	The new MR facility will be integrated with MR-guided HIFU (MR guided high intensity focused ultrasound, MRgHIFU)
	The setup will be integrated with existing PACS of the hospital and department.
	DSI and QSMI should be provided FOC whenever commercially available
FULL & PARTIAL TURNKEY SCOPE 3 TESLA MRI AT GAMMA KNIFE FACILITY NI& INR	

AIIMS DELHI

Sr. No.	DETAILED SPECIFICATIONS
1	General:
a	The unit is to be installed on full turnkey basis with Civil Works (Interior & Structural design Build), facade works, plumbing (Internal & External), and Electric works, HVAC Works, Communications, MGPS and Furniture etc. Structural works will be carried out by Consignee along with all regulatory/statutory approvals.
b	Total covered area should be 3886 Sqft approx., including chiller area with shed area.
c	The MRI Centre should comprise the following rooms.
1	MRI Gantry Room
2	MRI Console with Reporting room
3	MRI Equipment Room
4	Patient Preparation area with Toilet (Male/Female)
5	Change Room
6	Chiller area
7	Battery Room
8	Reception
9	General Waiting Area
10	SR Room/Consultant Room with Toilet
11	Staff Room
12	Store Room
13	Male Doctor Rest Room
14	Female Doctor Rest Room
15	Neurosurgery Storage room (at GK unit, space to be given by neurosurgery dept. in their respective area)
d	The toilets will have only western WC and wash basin with tap.
e	All the site hindrances like underground & overlay HT/LT line, water supply lines or sewage lines, communication, or data lines, etc. In case any of the utility service above is encountered during working, removal/relocation will be the responsibility of the consignee.
f	Removal of plantation/trees from the area under scope will be arranged by consignee with required NOC from MOEF.
g	Any PCPNDT/ Statutory/Regulatory approval will be responsibility of consignee.

2	Civil Works
	Turnkey will include the Civil Construction work as under mentioned and shall be as per applicable IS codes & CPWD specification:
a	Preparation of all structural and architectural working drawing, clearing of the site excavation of foundation trenches, construction of foundation footings and superstructure brick walls. Any other regulatory guidelines and duly vetted by the Consignee.
b	Construction should be RCC frame structure/columns/beams to facilitate modifications and expansion later. Foundations of the building should be designed for two floors for future construction. Mixing & use of plain and reinforced concrete shall be in accordance with the provisions of IS: 456:2000.
c	Waterproofing of the roof is to be done with Brick Bat Coba/Polymer based method.
d	All partitioning walls of the MRI Centre will be of brickwork as per Safety Guidelines.
e	The remaining areas/rooms shall have Aluminum section doors/windows which should be having minimum thickness 10 SWG and should have adequate locking mechanisms.
f	The exterior walls should be finished with Texture paint of approved shade/color and the facade should be finished with ACP Cladding.
g	Flooring will be flat and stable with PVC conductive flooring where the MRI scan gantry and table are installed.
h	Flooring in the other areas will be Italian Marble.
i	Floor cable trenches with black board & or Tile covers will be provided for the cables in the MRI and Equipment rooms.
j	Complete plumbing operations including laying of sanitary lines, manholes, wash basins, geysers, white vitreous EWC etc. will be provided and shall be Jaguar/ Kohler.
k	Arrangement of water supply lines for drinking and general use will be made.
l	All water pipes shall be of high-density CPVC of approved and standard make (Prakash/ Supreme). The bathroom fixtures shall be brass chrome plated.
m	The washing and drainage lines should be made of chemical resistant material.
n	An access control wooden door with viewing window is to be installed at MRI dedicated lobby
o	A glass door including locking & accessories is to be installed at the main entrance. It will be wide enough to permit easy entry of trolleys and wheelchairs. The entrances to the MRI scan Centre to be padded at the junction of both the doors to avoid dust and provide insulation.
p	All LED lights and smoke detectors to be accommodated integrated in the false ceiling. All the internal wiring including that of telephone, LAN etc. will be concealed.

q	All rooms will have vitrified flooring 600X600 mm and wall tiles 600 X600 mm (Orient/Kajaria/Somany) up to false ceiling, except main MRI Room which will have PVC conductive flooring and laminated paneling.
r	External finish white cement based wall putty and water proof paint like Apex Ultima/equivalent
s	MRI Room 600x600 mm Acoustical tile Supported on Aluminum suspension and cove with light and other area should have 600x600 mm Acoustical tile Supported on GI suspension Skylight of size 1200x1800mm should be provided in MRI Room.
t	Fire safety measures a fire alarm system of reputed make with smoke detector indicator panels, call boxes, electronic sirens and wiring will be installed.
u	All the rooms in the complex will be signposted. Sun film or venation Blinds will be put-up in all windows.
v	The entire complex will be made rodent/ Pest resistant.
w	Color aesthetics will be kept in mind while matching the paint with the furniture.
3	Electrical Services:
a	The MRI scanner and all connected/required equipment for scanning, post processing and filming are to be connected to the supplied UPS.
b	All the electric wiring (copper), modular switches & sockets plugs, MCBs etc. are to be of reputed make HR FRLS PVC insulated or ZHLS Polymer insulated as per IS codes.
c	Different parts of the complex will have separate wiring for light and power circuits through MCBs of suitable capacity.
d	Dedicated 5 Nos Copper earthings is to be provided for the MRI system and other ancillary accessories.
e	DG backup power supply connection will be provided by consignee hospital to MRI centre Electrical Panel supplied by vendor.
f	Required power up to MRI site will be responsibility of consignee and vendor to provide the required load requirement.
4	Air Conditioning.
a	The complete area is to be centrally air conditioned except toilets/services. (Equipment zone: 22 degrees plus minus 2 degrees, general zone 24 degree plus minus 2 degrees)
b	AC with cooling and humidity control capabilities is to be provided. Air cooled/ Hi wall-Split/Packaged/Ductable Split AC Units of 45 TR capacity should be provided. <i>with Standby</i>
c	Console with Reporting room to have separate 1.5T split AC for working during off working hours. <i>Air conditioning</i>
5	Fire Detection:
a	An addressable fire detection system consisting of the smoke/heat detectors should be provided in the complex integrated in the ceiling and control panel near the reception.
b	5Nos 4.0Kg MR compatible fire extinguishers should be provided at suitable locations to

combat any accidental fire.

6 Communication:

a An internet and telephone connection will be provided by the Hospital authorities and the running cost of the same shall be borne by the Hospital Authorities. Necessary internal

7 Medical Gas Piping.

a A gas pipeline facility comprising of Air, vacuum, Nitrous and Oxygen will be provided in examination room will be connected to nearest available centralized gas facility of the hospital (maximum up to 15-meter distance).

b The supply of medical grade gases will be provided by hospital authorities. The networking in console room for working of Camera and Console monitors.

8 Furniture.

Following Furniture required for proper functioning of the MRI Centre.

Area	Description	Qty
Reception	Reception desk in black board construction with granite top	1
	Overhead Storage 1200x600x450mm	1
	Reception chairs with castors	2
General waiting	General waiting Perforated steel chairs on common steel stand in group 3	6
	Corner Table	2
Staff Room	Low backed chairs with armrests	1
	Overhead storage	1
	Wooden Cupboard	2
	Centre Table	3
Sr. Faculty Room	High backed swinging chairs on castors with armrests	1
	Film viewer (3 films)	1
	Overhead storage	1

		Wooden Cupboard	2
		L-Shape Table	1
	Console with Reporting Room	Workstation Table	5
		Computer chairs	5
		Wooden Cupboard	1
		Low backed swinging chairs on castors with armrests	3
		Film viewer (3 films)	1
	Change Room	Storage Lockers with 03 compartments	1
		Distortion free wall mirror	1
	MRI Room Examination (Magnet)	Storage unit for phantoms	1
		Drug Trolley on castors	1
	Doctors Rest Room(Male & Female)	Bed 1 Seater with Side Stool	2
		Recliner sofa	1 + 1
9	Miscellaneous Equipment:		
	Following Miscellaneous equipment should also be provided at all the sites.		
	Vacuum Cleaner : 1Nos		
	Electronic temp and humidity display units: 3 Nos		
	The Original Equipment Manufacturer (O&M) provide an undertaking affirming their responsibility to ensure continuous service delivery throughout the warranty and CAMC periods, even in the event of a change in the authorized distributor /vendor for any season.		
	The bidder must quote the rates of below mentioned item in the financial bid & BOQ for future purchases as and when required basis. The rates will be freezed and remains valid for 10 years. These rates will also be calculated for ranking purpose.		
	Accessories & Consumable:		
	The price list of all spares parts, accessories, consumable items (required to use on machine) should be quoted separately in the Financial bid section (PDF) and the quoted rates will be valid till the warranty & CAMC period (i.e. 10 years) from the date of installation of equipment. If, the price of any spares, consumables/accessories/ parts not		

	quoted by the firm in the price bid and will required in future to run the system, the same has to be supplied by the firm at free of cost without any further term & conditions.
a	The product or its earlier model should have been marketed in India during last for at least 2 years
b	The parent company should certify that the quoted product is not going to be out of assembly line for at least 10 years from date of quotation.
c	The parent company should give an undertaking to provide the spares/accessories/consumables, required to run the equipment, during the warranty & CAMC period, as and when required basis.
d	If the equipment is software based and new software is introduced within five years, all the updates will be provided by the OEM/Supplier at free of cost.
e	The department may ask for demonstration of actual quoted product or even for trial use.
f	If necessary, training of the personnel for the use of the equipment will be provided by the company vendor at free of cost.
Compliance Statement:	
	The vendor must provide, in tabular form a comparative chart of the required technical specification and technical specification of the quoted product. The vendor must give the relevant page number and paragraph number, in their literature regarding that technical information in the technical bid. Merely stating "complies" or meets requirement" will lead to assumption that the quoted product does not have the required feature.
Important Conditions:	
	<p>The bidder must quote rates of equipment with 02 (two) years onsite Comprehensive warranty (Inclusive all tubes, all other items including all consumables like UPS batteries, printer, ACs, devices, syringes, furniture items, drug trolley etc., all spares, all accessories, batteries, all 3rd party items and labor, for 3rd to 10th years, after expiry of two years comprehensive warranty. In case, bidder has not quoted rates for CAMC, it will be treated included and must be inclusive of 10 years comprehensive warranty within quoted rates of equipment. No CAMC proposal will be considered later on.</p> <p>The cost of equipment + Turnkey work + CAMC (NPV) –Buyback value (inclusive of GST), will be considered for ranking (L-1) purpose, security devices, syringes, furniture items, drug trolley etc., all spares, all accessories, batteries, all 3rd party items and labor) from the date of Installation of equipment. Further bidder must quote rates of Comprehensive Annual Maintenance Contract (CAMC) Inclusive of all tubes, all other items including all consumables like UPS batteries, printer, ACs, security</p>

	All software updates till the period of 10 years to be provided free of cost
	The L-1 bidder must submit copies of previous supply order placed by AIIMS, New Delhi or any other Govt./reputed Pvt. Hospitals/Organizations within one week of receiving the information for ascertaining the price reasonability of quoted equipment/instruments.
	Original Manufacturer or their subsidiary or authorized dealer who is quoting should be present in India having selling experience of at least 02 years in government institutes/hospitals.
	All technical bids comparative statement to the tender specifications must be enclosed along with reference no., paragraph no. from original catalogue of the equipment.
	The principal firm has to certify that spares, consumables, accessories & support shall be available for next 10 years.
	It will be responsibility of the vendor to submit proposal of fixed rate of CAMC at least 6 months before expiry of warranty period and previous CAMC.
	If desired by the TSEC, Demonstration of quoted product would be mandatory at AIIMS, New Delhi premises. Only seven days' period will be given for preparation of demo unit and not further extension will be provided. All bidders are advised to keep ready their quoted product for demonstration. None attending demo meeting/non-demonstration of quoted product, the bid will be summarily rejected. Machine must be provided for 15 days or more so that it can be evaluated by all the faculty members, failing which your bid will be disqualified/rejected.
	Proper training to Technical/related officials for the proper use of the equipment, must be provided by the company/vendor at free of cost.
	Buy-back offer:
	The existing GE MRI OPTIMA MR 450W with GEM System-32, installed in 2011 is to be sold under buy-back basis. The reserve price of this equipment's is Rs.29,35,200/-. The vendors are advised to see this equipment's with prior permission of HOD, NI & INR and must quote their buy-back price (must not be less than Reserve price) in the price bid section & BOQ. The buy-back price will be considered (minus) for ranking purpose.