

BIDDING DOCUMENT

TENDER NOTICE No: 07/ 2024- 2025/ PPP Mode / IGIMS/ Store



**For setting up & operationalising of 3 Tesla MRI Scanner at
Department of Radiology through Public Private Partnership (PPP)**

TENDER NOTICE No: 07/ 2024- 2025/ PPP Mode /IGIMS/Store

Issued to:

Cost of Document: **Rs.2500/-**

Paid By: Cash: Receipt No.:

Demand Draft: No.: Issuing Bank:

(Authorized Signatory)



**INDIRA GANDHI INSTITUTE OF MEDICAL SCIENCES,
SHEIKHPURA, PATNA - 800014.**

IMPORTANT DATES

1.	Name & address of advertiser	:	Director, IGIMS, Sheikhpura, Patna-800014 (Bihar)
2.	Date of issue of Tender notice	:	28/ 08/ 2024
3.	Pre Bid meeting	:	10/ 09/ 2024 at 15.00 hours at Director IGIMS, Patna-800014 (Bihar)
4.	Last date, time and place for submission of complete bidding document along with EMD & Tender Document Fee at Director's office, I.G.I.M.S., Patna by Speed / Registered post / Courier only	:	01/ 10/ 2024 up to 16.00 Hours , at Director IGIMS, Patna-800014 (Bihar)
5.	Date, Time and Place of opening of Techno Commercial bid only	:	03/ 10/ 2024 at 15.00 hours at IGIMS, Patna-800014 (Bihar)
6.	Date, Time and Place of opening of price bid	:	Date & Time will be communicated later on subsequent to acceptance of techno-commercial bid.

INDIRA GANDHI INSTITUTE OF MEDICAL SCIENCES,
SHEIKHPURA, PATNA -800014 (Bihar, India)

Sr. No. of Tender: _____

FILE NO. : Tender No.: _____

Tender form issued in favour of: _____

Dear Sir,

1. I/We hereby submit our tender for the _____

2. I/We are enclosing herewith the Demand Draft No..... dated..... for Rs. /- drawn in favour of **Director I.G.I.M.S. - Patna (payable at Patna)** towards **EMD / Bid Security.**

(EMD AND COST OF BIDDING DOCUMENTS MUST BE SUBMITTED IN SEPRATE ENVELOP. TENDERS NOT ACCOMPANIED WITH EMD / BID SECURITY ALONG WITH THE TECHNO-COMMERCIAL BID SHALL BE SUMMARILY REJECTED).

3. I/We have gone through all terms and conditions of the tender documents before submitting the same.

4. I/We hereby agree to all the terms and conditions, stipulated by the I.G.I.M.S. - Patna including delivery, warranty, penalty etc. Quotations for each group are being submitted under separate covers, and sheets and shall be considered on their face value.

5. I/We have noted that overwritten entries shall be deleted unless duly cut & rewritten and initialled.

6. Tenders are duly signed and stamped.(No thumb impression should be affixed)

7. I/We undertake to sign the contract/agreement, if required, within 15 (Fifteen days) from the date of issue of the letter of acceptance, failing which our/my EMD/Bid deposited may be forfeited and our/my name may be removed from the list of suppliers.

8. **I/we have quoted the price in Indian Rupee only.**

Yours faithfully,

(Signature of Bidder with full name and address)

INTRODUCTION

Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna-800-014 is the premiere medical institute of the state of Bihar- established by the Act of Assembly and functioning under Department of Health, Government of Bihar. Various facilities are being developed at this Institute to cater to needs of patients belonging to the state of Bihar and neighbouring states. It is situated at sprawling 133-Acre campus in the heart of city with important landmarks of the city like Airport, Rajbhawan, Secretariat, Vidhan Sabha, High Court, Patna Junction Railway Station and Bus Stand being located within 6 kilometers of the institute. Being situated at Main Bailey Road, it is easily accessible round the clock.

At present the institute provides clinical services in various disciplines including Nephrology, Urology, Gastroenterology, G.I. Surgery, Neurology, Neurosurgery, Cardiology, Internal Medicine, Reproductive Biology, General Surgery, Paediatric Surgery, Paediatric Medicine, Community Medicine etc. Regional Institute of Ophthalmology and Regional Cancer Centre (Cancer Treatment and Research Centre) are providing specialized services in respective fields. Clinical services are backed by investigative services including conventional radiology, Ultrasound, Biochemistry, Histo-pathology, General Pathology, Microbiology, Video Endoscopy, Urodynamics, Extra Shock Wave Lithotripter, EEG with Video Monitoring System, EMG /EP, Dialysis Services etc. Institute provides emergency services to acutely all patients.

To provide better services and in interest of patient care, institute is willing for setting up and operationalising “3 Tesla MRI Scanner” through “Public Private Partnership (PPP)”.

Project Description

Indira Gandhi Institute of Medical Sciences – Patna is to improve the availability of and access to quality health care for people of State of Bihar as well as neighbouring states.

Tender Bid is invited from Companies/Firms/Agencies/Institutions for Setting Up & Operationalising “3 Tesla MRI Scanner” through **Public Private Partnership (PPP)** at **department of Radiology, Indira Gandhi Institute of Medical Sciences, Patna.**

Background:

- a. Indira Gandhi Institute of Medical Sciences – Patna (IGIMS) has identified several important needs and taken initiatives to strengthening the Health and Medical care services for greater benefit of the people in the State. Amongst various needs, access to advance and state of the art diagnostic facilities at affordable cost is one such important initiative that IGIMS has planned to undertake for the benefit of the population at large.
- b. Along with the above initiatives, with the rapid advancement in the diagnostic field, the IGIMS has also felt the need to upgrade the existing Diagnostic Facilities at the superspeciality health care level, specially for the Imaging Facilities for initiating better treatment protocol with faster pace for the benefit of both the Doctors and Patients. Keeping this in mind, the IGIMS now wishes to engage a competent organization under Public Private Partnership (PPP) for establishment and round the clock operation of **3 Tesla MRI Scanner at the department of Radiology** for the benefit of both the Doctors and patients. Such up-gradation is expected to bring in more precision, speed and advancement in the diagnostic imaging facilities in this institute, a superspeciality in neuroscience and a premier institute in the area of treating critical neurological cases.
- c. The purpose of this initiative under PPP is to engage competent organization in this field selected through Tender Notice with defined criteria and transparent process of selection and utilize their strengths to bring in operational efficiencies of the private partner for **round the clock operation** of the upgraded MRI facility in this institute. The objective of round the clock operation is to cope with the existing load, reduce the waiting period of the patients and provide the facility of the MRI scan to the patients at any point time.
- d. Salient features of the scheme and other relevant information for establishment of the upgraded MRI services are provided in the following sections

Description of the Scheme

a. Partnership Model

1) The partnership would be governed by an **agreement** with detailed terms and conditions to be signed by the selected Private Sector Partner (PSP) with the Director, I.G.I.M.S. – Patna for installation, establishment and running of the 3 Tesla MRI Scanner Unit round the clock.

2) The initial duration of the agreement will be for a period of five years, which may be extended up to next three years subject to satisfactory performance of the Service Provider. There will be an annual review of performance. The renewal of the contract at the end of five years will be subject to satisfactory consecutive annual review reports during the contract period. The firm have to submit the copy of bill of entry before installation of 3 tesla MRI Scanner.

b. Salient Points of the Agreement

1) Under this agreement, the selected **PSP (Private Sector Partner)** will set up the unit in the allocated space provided by the hospital authorities within the hospital premises.

2) The PSP shall procure and install a brand new State of Art latest new 3 Tesla MRI Scanner from reputed manufacturer and credible as well as other accessories and equipments for setting up the unit at their own cost in the hospital for operation and management of the services under PPP. **The specification of the equipment needs to be submitted by the PSP along with the application for approval of the hospital authorities during evaluation of the application. The 3 Tesla MRI Scanner to be supplied and installed by PSP should be latest model and must be US FDA certified. It should be capable for performing application as mentioned in the Annexure – I. Documentary proof is to be submitted towards procurement of 3 Tesla MRI Scanner after signing of the agreement.**

3) As per terms of the agreement, the hospital authorities will provide space as per requirement. The repair, renovation and any modification / alteration works at site to make the space suitable for installation and commissioning of 3 Tesla MRI Scanner Unit and to accommodate other utilities along with patient waiting area is to be done by **PSP (Private Sector Partner)** at their own cost. Water supply will also be provided free of cost. The **PSP (Private Sector Partner)** will be required to install separate electric meter and pay consumption charges directly to the energy supplier (i.e. Patna Electrical Supply Undertaking) as per prevailing rules of the energy supplier.

4) The **PSP (Private Sector Partner)** shall be responsible for the entire operation and management of the unit round the clock through out the year and undertake necessary investigations for all the patients treated in this hospital.

c. Role and Responsibilities of the Hospital Authorities and its various wings

1. The required space as per clinical establishment norms for each of the services and supply of water (including water tax, if any) will be provided free of cost by the hospital authorities to the PSP for running of the services.

2. In case space is not available, the hospital authorities will undertake necessary work to make the space in condition. However, the PSP will be allowed to make modification / alteration, additional painting and refurbishing of the premises if it so desires at its own cost. However, it may be mentioned here that the PSP except with the prior permission in writing from hospital authorities would not carry out any major structural changes or major modifications in the Hospital but shall be entitled to make such minor modifications as may be necessary in its opinion for delivering the standard services, provided, any such modifications are in accordance with the Clinical Establishment Rules..

3. Use of electricity will be allowed by the hospital authorities for whom the PSP will pay consumption charges directly to the energy supplier as per prevailing rules of the energy supplier. Necessary NOC from the competent authority of the concerned hospital will be provided to the PSP for procurement of separate electric meter for which the applicable security deposit and installation charges within the operating rooms under PPP will be borne by the PSP.

4. The hospital authorities will develop SOP, management system as well as quality assurance system to be followed by the Diagnostic Centre under PPP. An appropriate soft ware package shall be installed by the PSP and all kinds of transactions have to be done by the PSP using that software only so that monitoring at any point of time can be done by the hospital authorities.

5. The hospital authorities will fix the price of different investigations for the MRI scan centre. The rate of each of the diagnostic tests will be reviewed as and when required by the IGIMS.

6. The clinical reporting of the MRI investigations will be done by the Radiologist of the I.G.I.M.S. – Patna.

d. Role and Responsibilities of the PSP

1. The PSP shall duly sign the Possession letter (to be incorporated as Schedule in the legal agreement) for the space provided by the hospital authorities for conducting the MRI scan services.
2. Installation of electricity meter in its own name will be undertaken by the PSP.
3. The PSP shall be responsible at its own cost all operation and management of the MRI scan unit including maintenance of equipments and deployment of required medical, technical and other personnel in accordance with the relevant Clinical Establishment Acts and Norms.
4. The PSP shall comply with all statutory requirements as applicable.
5. The PSP shall also comply with the fire safety requirements as per Fire Services Act, 1950 as amended up to date.
- 6. The PSP shall ensure that the MRI scan unit operated by it shall be accessible for teaching and training purposes for undergraduates and postgraduates students as and when required. In addition, the PSP shall ensure installation of multi station monitoring mode for interpretation and review of reports by the Radiology Department of the Hospital. The expenses for LAN etc will be borne by the PSP. PSP should provide additional console (at least four nos. of Workstations) to the room of faculty members. So that they can monitor the examination directly from their room.**
7. The PSP shall ensure that the MRI unit operated by it in this institute will be integrated in the Teleradiology facilities, which is being considered by the IGIMS for implementation in this hospital / Institution for the purpose of review and reports as well as for training and teaching purposes for the radio diagnostic system.
8. The PSP shall ensure that the services would be operational round the clock.
9. The PSP shall comply with the requirements for adherence to pricing policies and reporting system. The PSP shall arrange for submission of all prescribed documents relating to operation and performance of the centre of each calendar month not later than 5th of the next month.
10. The PSP shall arrange a 3rd party insurance policy or similar existing scheme in the market to cover all the patients subjected to MRI investigations, against any mishap at MRI Centre confirming to the provisions of the Consumer protection Act (986) shall be the sole and absolute responsibility of the PSP & IGIMS will share no liability in this regard.
11. The PSP shall comply with the requirements of furnishing Performance at the time of signing the legal agreement.

e. Policy on Rates (User Charges) and Free Services

Rates (User charges)

1. No rates to be charged from the patients by the PSP. The Director, Indira Gandhi Institute of Medical Sciences - Patna shall be free to charge any rate it deems fit from the patients. Revenue will be shared based on the per case basis.
2. The tentative rate (user charges) for various MRI Investigations would be as per rate list attached at the end of the document as Annexure – II.
3. The charges towards diagnosis of the patients will be collected by the Institute. The PSP will require to diagnose the patients and maintain records with essential information's (i.e. Name of the Patient, Age, Registration No., Amount Collected by the Institute etc.) on per day basis. Rates should be prominently displayed by the PSP in the Hospital where these services are provided.
4. All the payment from patients towards MRI diagnosis will be collected by the Institute. For the said purposes, Institute will make facility to open a separate cash counter. The collected amount will be deposited in a separate account to be opened by the Institute & at the end of the each month, on receipt of the Invoice from Service Provider, their share will be released.

Free Services

1. The policy of free services shall be applicable to patients eligible for free services as per guidelines of the IGIMS. These patients will be referred by the Medical Superintendent or his authorized representative recommending for free services with the required hospital prescription of the concerned patients. Such free services will be provided by the PSP in each day to the eligible patients for up to **10%** of the total number of patients per day.
2. Apart from above, atleast up to 30 (thirty) patients per month referred by Head – Radiology or his authorized representative are to be done by PSP for research purposes.
3. The poor quality MRI scan & inadequate study will have to be reported at no extra cost. As far as the doubtful observations or incomplete studies are concerned, a repeat scan will only be carried after review by the consultant (Radiologist) on duty.

e. Monitoring Mechanisms

1. The competent authority of the Hospital shall monitor the day- to-day operational activities of the services undertaken by the PSP. **IGIMS** will demand all the records like maintenance log book, daily collection register, annual report etc. for inspection and verification.
2. Performance review will be undertaken by IGIMS on quarterly basis. Senior Official from IGIMS will be present during Performance Review.
3. The PSP shall be required to submit prescribed documents including monthly reports in prescribed format to concerned officials.
4. **The designated officials of IGIMS** will have unfettered right to enter the facility premise at any time in order to inspect and execute, any Structural additions and alterations or repairs to the said premises, repairs to electric, water and sanitary installations, which may be found necessary from time to time. The time and date for this purpose will be fixed with the mutual convenience of both the parties, as far as possible. However if this is not possible in any exigency, IGIMS authorities may allow entry of other designated officials for the above purpose.
5. The supply, installation and commissioning of 3 Tesla MRI (Magnetic Imaging Resonance) Scanner at department of Radiology of the Institute is to be done within six months from the date of signing of the agreement.

f. Causes for Termination

Any of the following events shall constitute an event of default by the PSPs entitling IGIMS to terminate this agreement:

1. Failure to commence services in the Hospital within six months of signing the agreement.
2. Failure to comply with the requirement of round the clock services
3. Collecting charges from the patients directly.
4. Failure to comply with the statutory requirements, Clinical Establishment Acts, Rules and other applicable norms.
5. Criminal indictment of the promoters, member/s of the Board of Directors, chief functionaries, key personnel engaged by the PSP for operation and management of the services.
6. Engagement of unqualified persons for running of the Services.
7. Use of the allocated space by the PSP for any other purpose other than the approved scheme.
8. Non-compliance of the approved specification in installation of the 3 Tesla MRI scan machine Upon occurrence of any of the defaults, the hospital authorities would follow the procedures of issuing Notice/Show Cause before deciding on termination of the agreement. The decision of the hospital authorities shall be final and binding on the PSP.

g. Duration of services

Initially, the operation time of the MRI investigation facility may be kept as **8:00 A.M. to 8:00 P.M.** In emergency, the operation time is to be increased depending upon the patient load.

h. Eligibility criteria of applicants and selection process

a ELIGIBILITY CRITERIA OF THE ORGANIZATION FOR SUBMISSION OF APPLICATION

The eligibility criteria for application of intending organizations for consideration of selection of the Organization for operation and management of the Hospital under PPP are provided as under:

1. The Organization (Limited Company/Private Limited Company / Partnership or Proprietary Firm / NGO / Trust/ Charitable must be registered under appropriate statutory authority of Government of Bihar / Government of India or under Companies Act
2. The Organization should be operating and managing a Organization (Limited Company/Private Limited Company / Partnership or Proprietary Firm / NGO / Trust/ Charitable for at least last two years and above with facilities for MRI Scanner in the existing facility in any State of India.
3. The annual turnover of the Organization (in Rupees) shall be considered for being eligible to apply are as under:
 - Rs Six Crores in aggregate of last three financial years ending March 2015 (i.e. 2012 – 13, 2013 – 14 & 2014 - 15).
 - Notary certified Certificate issued by Chartered Accountant must be submitted in support of the same.
4. No litigation is pending on date and no penal measures were taken against the applicant under applicable Acts and laws.
5. Possess Service Tax certificate.

Applicant failing to fulfill any of the above-mentioned Eligibility Criteria will not be considered for selection.

I: Tender Fee:- Demand draft of Rs.2500/-- (Rs. Two Thousand Five Hundred Only; Non refundable) in favour of Director IGIMS, Patna

J: Earnest Money:

Demand Draft of **Rs. 10, 00, 000/- (Rs. Ten Lakhs only; refundable)** in favour of Director, Indira Gandhi Institute of Medical Sciences, Patna.

In case, the first selected party is unable to provide the services, Director, Indira Gandhi Institute of Medical Sciences – Patna shall reserve the right to award the bid to the other bidders at the first selected party rate.

K. Submission Requirements:

Interested Agencies/Firms/Institutions/Companies, wishing to undertake the above task on behalf of Indira Gandhi Institute of Medical Sciences – Patna, may submit, **in two sealed large envelopes** marked “**Tender bid for Setting up & Operationalising “3 Tesla MRI Scanner” at IGIMS – Patna - Technical Bid**” and “**Tender bid for Setting up & Operationalising “3 Tesla MRI Scanner” at IGIMS – Patna – Financial Bid**”. If both financial and technical bids are received in the same envelop, the tender bid shall be automatically rejected.

Bidder(s) are requested to clearly indicate each of the submission requirements mentioned below along with the relevant page number in your cover letter/ application accompanying the technical proposal.

The **Technical Bid** should include the following:

- a. Approach to the project.
- b. Detailed **technical specifications** of the system to be offered with US FDA Certificate.
- c. Capability Statement & detailed list of installations in India.
- d. Background of the firm/organization
Demand Draft of **Rs. 10, 00, 000/- (refundable) in favour of “Director – Indira Gandhi Institute of Medical Sciences – Patna”**.
- f. Notary certified Certificate issued by Chartered Accountant of Annual financial turnover during the last three years ending 31st March 2014.
- g. Affidavit to the effect that the bidder is not blacklisted by any Govt. agency or have no pending case either Civil or Criminal against them.
- h. Copy of Service Tax Registration, Certificate for sole ownership / partnership,

Evaluation of Technical Bid: The firm needs to satisfy the Minimum Eligibility Criteria to be considered technically qualified. In case no competent bid is received for providing all the services in any given category, Director – Indira Gandhi Institute of Medical Sciences - Patna reserves the right to relax provisions.

Financial Bid envelope should only contain the percentage of revenue sharing on per case basis being offered to “Indira Gandhi Institute of Medical Sciences – Patna”.

The financial bids shall be submitted in the following format:

Sl. No.	Offered Revenue Share to institute on per case basis in % term
For Setting Up & Operationalising of 3 Tesla MRI Scanner At Department of Radiology Through Public Private Partnership (PPP)	Minimum Revenue Share to the Institute should not be less than 30%. _____ %

Evaluation of Financial Bid: Financial bid will be evaluated based on the highest revenue share offered to IGIMS – Patna.

Submission of Tender:

The tender should reach the office of the “Director, Indira Gandhi Institute of Medical Sciences – Patna” by **4.00 P.M.** on **01/ 10/ 2024** through Registered Post / Speed Post. Tender bids received after this time, shall not be entertained. The **technical bids will be opened on 03/ 10/ 2024 at 3:00 P.M.** in the Conference Hall of the Institute in the presence of bidders or their authorized representatives who desire to be present.

In case the selected Company/Firm/Agency/Institution declines to take-up the project after being awarded the contract, it would be barred from applying for any project of any kind in “Indira Gandhi Institute of Medical Sciences – Patna for a period of 5 (Five) years from the date of award and EMD will be forfeited.

The decision of the “Director, Indira Gandhi Institute of Medical Sciences – Patna (Bihar)” shall be final, and no enquiries, or application for review, shall be entertained. The “Director, Indira Gandhi Institute of Medical Sciences – Patna (Bihar)” reserves the right to cancel or reject any tender without assigning any reason.

**Sd/-
Director,
I.G.I.M.S. – Patna.**

Annexure - I

Technical specification of 3T MRI for PPP mode:

Sl. No.	Technical specifications
	Whole body 3.0 Tesla Magnetic Resonance Imaging system optimized for higher performance in cardiac and neurological examinations with short superconducting magnet, high performance gradients and digital Radio frequency system. The system should have 32 channels RF system. The system should be totally new and should not contain refurbished or having recycled items. Silent scanning (noise level <80dB) to be enabled as standard
1	MAGNET
A	3.0T active shielded super conductive magnet with best homogeneity. Field stability over time should be < or equal to 0.2 ppm/hr
B	Bore diameter should be 70 cm or more.
C	The homogeneity of the magnet should be mentioned in relation to 10, 20, 30, 40 cm DSV.
D	Cryogen vessel to be of Helium only with appropriate super thermal shielding and refrigeration facility for minimum Helium boil-off.
E	The vendor should quote model with physiological signal display on gantry
F	Emergency helium release button should be provided at least in two places
2	Shim system
A	High performance and highly stable shim system with global and localized manual and auto-shimming for high homogeneity magnetic field for imaging. Specify time for shimming. Quote the number of shim coil used
B	Off-centre shimming should be possible.
3	Gradient system
A	Activity shielded Gradient System with strength of at least 44 mT/m at slew rate of 200T/m/sec to be achieved simultaneously for the same FOV & preferably low linearity. The rise time should not be more than 250 micro second to reach the maximum gradient strength.
B	These true slew rates should be available in each axis independently, for overall better duty cycle performance of the gradient.
C	The duty cycle should be 100 percent.
D	The Gradient system should have provision for eddy current compensation. Mention level of Eddy current compensation in %
E	Field of View should be at least 45 cm in all three axes.
F	Echo Train length in both Spin echo and Gradient Echo should be at least 255 or more.
4	RF system
A	A fully digital RF system capable of transmitting power of at least 25 KW or more , Dual RF power amplifiers. System should be capable of Multi Transmit with Multi amplifier driving / True shape for better B1 homogeneity
B	It should also have at least minimum of 32 independent ADC hardware RF channels with each having bandwidth of 1MHz or more along with necessary hardware to support Quadrature/CP array coils.
5	RF Coils
	The system body Coil integrated to the magnet must be quadrature /CP. In addition to this coil, following Coils (preferably be with equal number of elements as the channels) be quoted. RF coils in addition to main body coil (Transmit / Receive or receive coils) auto tune, array or no tune coils. Coils for the following applications should be available with the system. Circular polarized (CP) Array coils should included in the offer. Coil / RF design should support compatibility to coils manufactured by other manufacturers. All array coils should be compatible with parallel imaging techniques.
A	32 channels or more head coil-capable of multi frequency MR spectroscopy (1H)
B	Neurovascular coil of 16 channels or more
C	Spine phased array coil 32 channels or more
D	Body phased array coils 32 channels of more (single or in combination) at least 45 cm z-axis coverage for imaging of abdomen, with at least 32 channels acquisition for body parts.
E	Dedicated coil/coil combination for peripheral angiography of 32 or more channel with coverage of 80cm or more

F	Breast coil 16 channel or more .
G	Shoulder coil: a. Dedicated Shoulder coil – Multi channel - 1 No b. flex coils – 2nos. (One large and one small)
H	High resolution knee coil 8 channels or more; Tx& Rx.
I	High resolution foot/ ankle coil – 8 channels or more
6	Patient Table
A	The table should be fully motorized, computer controlled table movement in vertical and horizontal directions. Position accuracy should be +/- 1.0 mm or better.
B	The table should have facility for manual traction in case of emergency.
C	The table should have patient hand-held alarm system
D	The table should deliver the protocols for automatic bolus chasing in peripheral angio with automatic table movement.
7	COMPUTER SYSTEM IMAGE PROCESSOR / OPERATOR CONSOLE
A	One colour console for acquisition, all calculations, post processing etc Console must have full colour with user define protocols with programmable inter scan delay. Necessary image processor with large RAM for ultra-fast image reconstruction should be provided It should be at least 8 GB RAM.
B	The main console should have facility for music system for the patient in the magnet room.
C	Total hard disk memory to be sufficient to store at least 250,000 images of 256 x 256 matrix data size..
D	DVD write/CD Read/Rewrite 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.
E	The system should be capable to connect to PACS through RIS/HIS at no extra cost. Highest version of DICOM connectivity to be provided.
8	Workstation
A	One server with 2 node with concurrent licenses to be supplied with the system. 2 nos Concurrent license here implies the capability to process all the loaded software to be accessible and usable on all the systems simultaneously without any processing delay. The software should also include a reputed antivirus software of a perpetual type or renewed by the supplier. Hardware: Node: The vendor has to supply the hardware in the form of CPU and Medical grade monitor 18" or more of 2MP resolution. Hardware Server: The server (single/dual configuration) should have image storage capacity of at least 2.5 Tera bytes, minimum 20,000 concurrent slice processing power and at least 64GB RAM. The server hardware to be included with 21" or more TFT/LCD monitor with dual processor. DICOM 3.0 compatibility and interfacing with other modalities must be possible. The workstation shall have the resolution, software and all functionality of a standalone workstation
B	All necessary software including post-processing software for all offered applications including evaluation for fMRI, perfusion (ASL, T1 perfusion and T2* perfusion), diffusion, DTI with fibre tracking, cardiac evaluation, and other associated post processing like MIP, MPR, surface reconstruction should be provided.
	The workstation should have the following features:
	Cardiac perfusion analysis, quantitative T1 mapping, with colour metabolite mapping, quantification of the CSF flow data.
	DSA images should be viewable in Subtraction mode.
	Workstation should also be able to function independent of the main console.
	Cardiac Package: One License: The workstation should have display of Cardiac cine images in movie mode with rapid avi creation and should have comprehensive cardiac post processing software including for coronary MRA with regular free upgrades in future. Calculation of ventricular area and volume, stroke volume, ejection fraction and relative ejection fraction, Time volume diagram generation, filling rates and myocardial wall motion, Graphic display of output calculation of flow and velocity parameter with colour coded display of velocity parameters. Diffusion tensor Imaging, 3D myocardial tagging should be possible. Cartilage mapping should be quoted as standard.
9	Data acquisition

A	The system should be capable of 2D and 3D acquisitions in conventional, fast & ultra-fast spin echo and gradient echo modes so that realtime online images can be observed if needed.
B	2D multi-slice imaging should be possible in all planes (axial, sagittal, coronal, oblique and double oblique).
C	Minimum 512 x 512 matrix acquisition for all applications.
D	Dynamic acquisition (serial imaging) with capability to initiate scan sequences either from the magnet panel or from the console.
E	Gating: physiological signals like ECG, pulse, respiratory, external signal triggering (interface for triggering input pulse from external source).
F	Selection of voxel from oblique slices should be possible while doing spectroscopy.
G	Artifact reduction/motion correction techniques/imaging enhancement/image filtering/image subtraction/addition multiplication/division techniques:
H	Breath Hold Acquisition for Cardiac and Abdominal Imaging must be possible.
I	Phase contrast capability in 2D and 3D mode.
10	EPI mode
A	Single and multi shot EPI imaging techniques.
B	BOLD, SWI, T2 Perfusion (with all post processing licences as standard)
C	Complete Functional MRI of Brain package as standard. It should be a goggle based system.(incl. of patient camera, goggles, headphone and all other related hardware
D	Susceptibility-weighted Phase Imaging to differentiate calcification & haemorrhage.
11	Imaging sequences including fast sequences
	All available imaging sequences must be available. Spin echo (SE); multi-slice single echo, multislice multi-echo (B echo or more) with minimum TR and TE. SE with symmetrical and asymmetrical echo intervals: MT-SE imaging sequence. Compress Sensing & Simultaneous multislice Imaging should be available Inversion recovery (IR) including short TI, modified IRSE, FLAIR, DIR (Double Inversion Recovery) MT and FLAIR. Gradient echo (GE) 3D gradient echo with shortest TR and TE, free choice of flip angle selection while maintaining SNR
	Fast sequences
	a. Fast spin echo in 2D and 3D mode T1, T2 and PD contrast capable of acquiring maximum number of slices with a given TR a minimum TE. echo train should be at least 128 or more in fast spin echo mode.
	b. Half Fourier acquisition capabilities should be available with/ without diffusion gradients and in combination with fast spin echo.
	c. Fast inversion recovery with spin echo.
	d. Fast gradient spin echo, IR multi-slice multi-echo mode with maximum turbo factor Sequences should incorporate RF focusing to acquire ultra fast gradient spin echo.
	e. Fat and water suppressed imaging sequences including the sequence which should give 4 contrast (in phase, opposed phase. FAT and Water) images in a single acquisition to be quoted as standard. EPI optimized sequences for T1, T2, PD imaging. perfusion, regular diffusion values {5b, 3 directions), EPI-FLAIR. CPI-IR, IPI-FLAIR diffusion tensor. EPI-MT-FLAIR, tensor diffusion (5b values in minimum in six directions) for diffusion studies. Suitable artifact/fat suppression techniques to be incorporated in the sequence to have optimum image quality. There should be capability of generation of ADC map regular diffusion and tensor data). Facility of online generation of ADC map should be there. Optimized sequence package for special applications. Small focus DWI should be standard
	f. MR angio; 2D/3D TOF, 2D/3D Phase contrast (with and without gating) magnetization transfer saturation, black blood angiography for cerebral, pulmonary, abdominal and peripheral vessel For peripheral angio moving table angiography should be offered so that complete limb can be examined in one go Bolus tracking software package should be offered. Sequences for breath hold angiography with contrast enchainment should also be offered.
	g. NON Contrast Angiography like Native, Inhance, Trance for whole body applications to be quoted as standard.
	h1. The system should have the Hydrogen, Single Voxel spectroscopy, Multivoxel, multislice 2D, 3D Spectroscopy and also the Chemical shift imaging in 2D/3D. The complete processing / post- processing software including colour metabolite maps should be available. h2. Full comprehensive cardiac sequences which includes, (a) MR cardiology package for evaluation of heart in long and short axis with black blood cardiac imaging, (b) package for- prospective and

	retrospective gating, etc. Advanced Cardiac Applications: morphology, wall motion, perfusion imaging myocardial viability imaging, Myocardial tagging, Cardiac functions including EF, ED/ES volume, Cardiac output, and wall thickness. This processing can be in workstation and console.
	i. Sequence package for diffusion study including DTI (tractography) in organs like brain, kidney, muscle, heart etc if available . Unavailable techniques to be provided as and when available without any additional cost.
	j. Perfusion study in organ systems like kidney, brain, heart etc. Evaluation package for calculating CBV, CBF, MTT, perfusion map etc. Post processing of perfusion should be available in console also.
	k. Sequences for MRI imaging of joints with Metal implants like WARP/Maverick should be offered
	l. Hardware and sequences post processing software for MR Elastography of abdominal organs.
	m. Whole body imaging of 200 cm should be offered
	n. Flow quantification in vessels and CSF, hepatobiliary system.
	o. MRI neurofunctional imaging sequence including BOLD/ Mosaic etc.
	p. Internal ear imaging. 3D acquisitions like CUBE. SPACE, VISTA
	q.MR Cholangiography and Pancreatogram: Both breath-hold and respiratory triggered - Specialized sequences and processing to perform MRCP.
	r. MRventriculography and Cisternography, Myelography.
	s. Flow quantification packages for CSF with dynamic CSF flow imaging, aqueduct and spinal canal In-line motion correction for uncooperative' patients/pediatric applications, that is motions/patient movement correction sequence and algorithm (not just faster scanning or parallel imaging techniques) for non-cooperative/sick patients/children should be provided.
	t.MRS: Proton (1H) MRS- Single voxel (SV), Multi-voxel CSI -2D and 3D- in both short and long TE
	u.Fat and iron quantification of liver: standard
12	POST PROCESSING AND EVALUATION
a	3DMultiplanar reconstruction (MPR) in any arbitrary plane including curved planes with freely selectable slice thickness and slice Increments.
b	3D Surface reconstruction and evaluation on reconstructed images with minimum time.
c	MIP in 2D and 3D mode, targeted/segmented MIP in any orthogonal axis with minimum processing time and capable of displaying in cine mode.
d	Full cardiac evaluation
e	Full Perfusion imaging with necessary post processing with time intensity graph and other statistical parameters
f	Full post processing for SVS, CSI, metabolic mapping with colour coding for BRAIN , BREAST , LIVER & PROSTRATE
13	UPS
	The system should be provided with the suitable UPS system for the complete system (MR + accessories except Chiller) with at least 30 minutes back up.
14	The dry imager system should have digital DICOM 3.0 dry chemistry camera with resolution of 16 bits/ 500 dpi or more.
15	ACCESSORIES
A	MRI Compatible Dual Syringe Pressure injector
B	Rate contract of MRI Compatible ECG electrode
C	MRI Compatible Anaesthesia Machine with integrated Ventilator-Capable of ventilating adult, paediatric and neonates. Should have oxygen, nitrous oxide and air flow meters
D	One MRI compatible multiparmeter Vital Signs Patient Monitor
E	Arrangement of Gas lines in magnet room – MRI compatible high pressure gas outlet for : O2, N2o, air, vacuum suction
F	MRI Compatible 1 set of Laryngoscope :4 sizes blades- Neonatal, paediatrics, adult, extra

Annexure - II

MRI Investigation Charges

The scans to be performed under various sub-categories of MRI investigation as provided in following table, would have to be executed at a pre-decided rate.

Sl. No.	Name of MR Investigation	Charges (Rs.)
1.	ORDERED PRIMARY REGION	A (Rs 3000/-)
	Head	
	Spine (primary one region with screening of other region).	
	Thorax	
	Abdomen	
	Pelvis	
	Joint (primary one region with screening of opposite joint)	
	Limb (soft tissue)	
2.	NAME THE REGION FOR SCREEING	
3.	SPECIAL INVESTIGATIONAS	
	MRCP	
	MRA	
	MRS	
	MRU	
	MR PERFUSION	
	DTI	
	Tractography	
	CSF flow study	
	4.	PROCEDURE BASED INVESTIGATION
MR Arthrography		
CE-MRS		
MR Enteroclysis		

The rate list to be generated as per mutual agreement between the institute and the PSP as per the above mentioned categories and would be decided on the basis of the financial bid, for the “**ordinary primary region**” (Please refer to the Table 1). Additional imaging (requested over and above the “ordinary primary region” shall be charged as under:

- A. Single sequence screening (i.e. consisting on one MRI sequence considered most suitable to answer a clinical question by the referring clinician) of single anatomically contiguous region would be done at $1/4^{\text{th}}$ the cost of ordered primary region (and would be performed only along with another ordered primary region). The question, as to whether adjacent contiguous region be considered as one or as two, would be addressed by the maximum area reasonably coverable by the equipment (i.e. the relevant coil) without any loss of clinical quality. The billing counter shall have preset directives in the rate list to meet any ambiguity in requisition regarding the same.
- B. Special investigations (consisting of MRCP, non-contrast MRA, MRS, CSF flow. MR perfusion study, DTI, tractography) would be done at $1/3^{\text{rd}}$ cost of Ordered primary region (and would be perform only along with another ordered primary region) (Ref. Table 2). The billing counter shall preset directives in the rate list to meet any ambiguity in requisition regarding the same.
- C. Procedure based MRI investigations (like MR arthrography, contrast enhanced MR angiography, MR enteroclysis) would be considered as an ordered primary region, but would attract an additional $1/6^{\text{th}}$ cost as procedure charge. In case the same are requested along with another ordered primary region, an added cost of single region screening (i.e. $1/4^{\text{th}}$ the cost) plus procedure charges (i.e. $1/6^{\text{th}}$ the cost) would be incurred (Ref. Table 3). The billing counter shall have preset directives in the rate list to meet any ambiguity in requisition regarding the same.
 - Still, in case of an un-foresighted ambiguous situation (regarding charges), the matter shall be amicably sorted out by the head of the department, Medical Superintendent and the PSP.
 - The approved rates of various MRI investigations to be conducted by the PSP on MRI machine would

include: (i) Cost of imaging films and (II) cost of disposables of standered & safe brand, and (iii) Eco-friendly carry-bag for keeping MRI films and report.

- **Contrast examination would charged Rs 1500/- + ordered primary region**

Table 1

Sl. No.	Part to be examined	Charges
1.	Ordered primary region	Rs. 3000/- (A)
2.	Single anatomically contiguous region	To add Rs. $A/4^*$ to 1.
3.	Another Single anatomically contiguous region	To add another Rs. $A/4^*$ to 1.
4.	Another Single anatomically contiguous region	To add another Rs. $A/4^*$ to 1.

***P.S: $A/4$ means $1/4^{\text{th}}$ amount of Rs. A**

Table 2

Sl. No.	Part to be examined	Charges
1.	Ordered primary region	Say Rs. 3000/- (A)
2.	Special investigations (As specified above)	To add Rs. $A/3$ to 1. (separately for each of the investigations ordered) plus cost of contrast

***P.S: $A/3$ means $1/3^{\text{rd}}$ amount of Rs. A**

Table 3

Sl. No.	Part to be examined	Charges
1.	Procedure based <i>MRI</i> investigations (As specified above), hereby considered as 'Ordered primary region'	To add Rs. $A+A/6$.
2.	Procedure based <i>MRI</i> investigations (As specified above)+ Any other 'Ordered primary region'	To add Rs. $A+A/4+A/6$.

Table 4

Sl. No.	Part to be examined	Charges
1.	Ordered primary region	Say Rs. A
2.	MRI Contrast media	To add the pre-decided charges contrast media (Rs. 1500) to 1. In this table.

NOTE:

1. The above cited scheme is a broad formula to facilitate the framing of the final rate list in terms of actual anatomical regions and technical procedures. All bidders/vendors are free to discuss the schema with the technical committee to work out the implications and to discuss any ambiguity one has (**with suitable examples**). The technical committee welcomes any suggestions to cover up an inadvertent omission, if any, in this aspect.
2. **It is proposed by the IGIMS that the value of 'A' be kept as Rs. 3000.00 (Rupees Three Thousand only).**

Case Illustration 1

If doctor refers a patient for *MRI of Brain (or any other part as a matter of fact)*, he is charged **Rs. A**. Now if he also wants to get a screening (as defined above) of *Cervical spine* also, the patient pays an additional **Rs. $A/4$** . Now if he also wants to get a screening (as defined above) of *dorsal spine* also (along with cervical spine), the patient pays an additional **Rs. $A/4$ (i.e. add Rs. $A+A/4+A/4$)**.
