Amendment No.4

Date: 25.09.2014

Subject: Amendment no.4 to the Tender Enquiry Document

Ref: (i) Tender Enquiry No.: HLL/PCD/PMSSY-II/05/14-15 dated 20.06.2014.
(ii) Amendment No.1 dtd. 21.01.2014.
(iii) Amendment No.2 dtd. 10.02.2014.
(iv) Amendment No.3 dtd. 24.09.2014

The pre-bid meeting for the referred tender enquiry was held on 27/06/2014. Based on pre-bid discussions following amendments are being incorporated in the referred tender enquiry document.

Section I
Notice Inviting Tenders(NIT)

(1) **For:-**

Sl. no.	Short description of items	Total Qty.	EMD (Rs.)
12	Patient bed - ICU bed (Advance)	18	90,000
13	High definition laparoscopy system with accessories	3	4,50,000
19	Heart Lung Machine (with five pump console with one pump giving pulsatile flow with battery backup of all pump heads)	4	6,40,000
23	Complete Cath Lab	2	14,00,000

Read as:-

Sl. no.	Short description of items	Total Qty.	EMD (Rs.)
12	Patient bed - ICU bed (Advance)	**108**	**5,40,000**
13(a)	High definition laparoscopy system with accessories for **OBGY department**	**1**	**1,50,000**
13(b)	High definition laparoscopy system with accessories for **Surgery department**	**2**	**3,00,000**
19	Heart Lung Machine (with five pump console with one pump giving pulsatile flow with battery backup of all pump heads)	**5**	**8,00,000**
23	Complete Cath Lab	**3**	**21,00,000**

SECTION - VI
LIST OF REQUIREMENTS

Part I

List of items with quantities, warranty & CMC period.

(1) For:-

Sl. no.	Short description of items	Consignee	Qty.	Total Qty.	Warranty (Years)	CMC (Years)
12	Patient bed - ICU bed (Advance)	Aligarh	16	18	5	5
		Rohtak	2			
13	High definition laparoscopy system with accessories	Rohtak	3	3	5	5
19	Heart Lung Machine (with five pump console with one pump giving pulsatile flow with battery backup of all pump heads)	Aligarh	1	4	5	5
		Amritsar	1			
		Tanda	2			
23	Complete Cath Lab	Amritsar	1	2	5	5
		Tanda	1			

Read as:

Sl. no.	Short description of items	Consignee	Qty.	Total Qty.	Warranty (Years)	CMC (Years)
12	Patient bed - ICU bed (Advance)	Aligarh	16	**108**	5	5
		Rohtak	**92**			
13(a)	**High definition laparoscopy system with accessories for OBGY department**	Rohtak	**1**	**1**	5	5
13(b)	**High definition laparoscopy system with accessories for Surgery department**	Rohtak	**2**	**2**	5	5
19	Heart Lung Machine (with five pump console with one pump giving pulsatile flow with battery backup of all pump heads)	Aligarh	1	**5**	5	5
		Amritsar	1			
		Rohtak	**1**			
		Tanda	2			
23	Complete Cath Lab	Amritsar	1	**3**	5	5
		Aligarh	**1**			
		Tanda	1			

(2) For:-

Part V:

Warranty period will be 24 months from the date of installation, commissioning and acceptance or 30 months from the date of last shipment/dispatch, whichever is earlier.

Read as:

Warranty period will be **60 months** from the date of installation, commissioning and acceptance or **66 months** from the date of last shipment/dispatch, whichever is earlier.

SECTION - VII
TECHNICAL SPECIFICATIONS

Item Sl. No.1
MRI 3T

1. **Existing:** *Para 4:RF System:*

   A fully digital RF system capable of transmitting power of at least 25 KW or more (Single/ dual) with a combination of RF power amplifiers. System should be capable of Multi Transmit with Multi amplifier driving /true shape for better B1 homogeneity. 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. (capability of faster reconstruction, please specify). It should support Parallel acquisition techniques like ASSET/SENSE/iPAT with a factor of at least 4. Higher sectors if available should be offered optionally.

   Amended as:

   A fully digital RF system capable of transmitting power of at least 25 KW or more **(dual or more)** with a combination of RF power amplifiers. System should be capable of Multi Transmit with Multi amplifier driving /true shape for better B1 homogeneity. 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. (capability of faster reconstruction, please specify). It should support Parallel acquisition techniques like ASSET/SENSE/iPAT with a factor of at least 4. Higher sectors if available should be offered optionally.

2. **Existing:** *Para 4:*

   32 channels or more head coil-capable of multi frequency MR spectroscopy (H1). Dedicated Multinuclear/ Multi-frequency MR Spectroscopy Coil capable of H-1 and P-31 Spectroscopy should be quoted separately as an OPTIONAL item

   Amended as: 32 channels or more head coil-capable of multi frequency MR spectroscopy (H1).

3. **Existing:** *Para 5f:*

   Dedicated Coil for peripheral angiography 32 channels or more as standard (Price to be quoted separately).

   Amended as: Suitable Coil for peripheral angiography 32 channels or more as standard **(Price should also be quoted separately).**

4. **Existing:** *Para 5g:* Dedicated Carotid coil (Price to be quoted separately).

   Amended as: DELETED

5. **Existing:** *Para 5m:*

   Multi Nuclear Spectroscopy coil(1H, 31P, 23Na, 13C) for Head and Liver as standard (price to be quoted separately)

   Amended as:
   i. Multi Nuclear Spectroscopy coil(1H) for Head and Liver as standard, (Price to be quoted separately).

   ii. Multi Nuclear Spectroscopy coils (23Na, 13C, P31) for Head and Liver (To be quoted as optional). Specify feature upgradability for 23Na & 13C MRS with necessary hardware/coil

6. **Existing:** ***Para 6 – Patient Table****:* 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. Should be able to take at least 140 kg load.

   Amended as: The table should be fully motorized, **Dockable/Detachable,** MRI Compatible computer controlled table movement in vertical and horizontal directions Position accuracy should be +/- 1.0 C mm or better. Should be able to take at least 140 kg load.

7. **Existing:** *Para 8.2.2:*

   Should mention whether software for vascular properties like IAUC, KEP is available

   Amended as:
   Should mention whether software for vascular properties like IAUC, KEP is available (**Optional price should be quoted)**

8. **Existing:** *Para 8.2.3:*

   DSA images should be viewable in Subtraction mode

   Amended as:
   DSA images should be viewable in Subtraction mode **(Optional price should be quoted)**

9. **Existing:** *Para 8.2.8:*
   Output in the form of jpeg, avi / equivalent formats should be possible.
   Cardiac Package (Price to be quoted separately). :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.

   Amended as:
   Output in the form of jpeg, avi / equivalent formats should be possible.

Cardiac Package (Price to be quoted separately). :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 updates** 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.

10. **Existing:** *Para 11:*
    Sequence package for diffusion study including DTI (tractography) in organs like brain, kidney, musce, heart, etc

    Amended as:
    Sequence package for diffusion study including DTI (tractography) in **organs like brain, muscle, heart, etc**

11. **Existing:** *Para 11:*
    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.

    Amended as:

    Perfusion study in organ systems like brain, heart etc. Evaluation package for calculating CBV, CBF, MTT, perfusion map etc. Post processing of perfusion should be available in console also.

12. **Existing:** *Para 11:*
    Programming environment under research agreement should be offered for creating and modifying pulse sequences and working on the system.

    Amended as:
    DELETED

13. **Existing:** *Para 11:*
    Zoom RF Focussed Imaging for clinical application of high SNR even in small FOV should be available. Specify the details (The smallest FOV and the technique)

    Amended as:
    Zoom RF Focussed Imaging for clinical application of high SNR even in small FOV should be available. Specify the details (The smallest FOV and the technique). **Optional price should be quoted.**

14. **Existing:** *Para 11:*
    Specify availability of Automatic planning, scanning and post processing

    Amended as:
    DELETED

15. **Existing:** *Para 12:*
Evaluation and display of diffusion images, fMRI reference of EPI optimized sequence as described in 9.5

Amended as:
Evaluation and display of diffusion images, fMRI reference of EPI optimized sequence.

16. **Existing**: ***Para 16: Accessories*** **m.One MRI compatible monitor in MRI Room and One Slave monitor in console room with following modules provision to monitor –**

Heart rate
ECG
NIBP – Size of Cuffs (adult & pediatric neonatal)
Respiration (Capnograph)
Two IBP – Pressure transducer with the MRI compatible stand.
Oxygen saturation – Pulse oximeter with adult, pediatric probe, and neonatal probes - 2 sets (with the spare probes), Should have plethysmograph perfusion factor.
ETCO2 and ETAA (end tidal anesthetic agents)
Temperature (adult and pediatric)

Amended as:
Accessories m.One MRI compatible monitor in MRI Room and One Slave monitor **(to be quoted as optional item)** in console room with following modules provision to monitor**.**
Heart rate
ECG
NIBP – Size of Cuffs (adult & pediatric neonatal)
Respiration (Capnograph)
Two IBP – Pressure transducer with the MRI compatible stand.
Oxygen saturation – Pulse oximeter with adult, pediatric probe, and neonatal probes - 2 sets (with the spare probes), Should have plethysmograph perfusion factor.
ETCO2 and ETAA (end tidal anesthetic agents)
Temperature (adult and pediatric)

17. **Existing:IMAGING SEQUENCES**
MRS: Proton (1H) MRS- Single voxel (SV), Multi-voxel CSI -2D and 3D- in both short and long TE
Multi nuclear – 31P, 23Na and 13C with compatible necessary hardware (Optional- Price to be quoted seperately).
MRS – 31P – Specify details of sequences and preparatory pulses used.
Specify future upgradability for 23Na & 13C MRS with necessary hardware/coil.
Iron, Elastography Cartilage – Standard
Fat and iron quantification of liver: standard

Amended as:
IMAGING SEQUENCES: **Standard**
MRS: Proton (1H) MRS- Single voxel (SV), Multi-voxel CSI -2D and 3D- in both short and long TE

Iron, Elastography Cartilage – **Standard**

Hardware and sequences for MR Elastography of abdomen: Standard. **(Price to be quoted separately)**

Fat and iron quantification of liver: **Optional -(Price to be quoted separately)**

Specify future upgradability for 23Na & 13C MRS, MRS P31 with necessary hardware / coil. Multi nuclear – 23Na and 13C with compatible necessary hardware . **Optional- (Price to be quoted separately).**

18. **Existing: Para 17 TRAINING**
Qualified personnel nominated by the deptt, should be given application training by the vendor at their cost at site.

Amended as: TRAINING
Qualified personnel nominated by the deptt, should be given application **training by the vendor at their cost at site for 2 times training of 1 month(each).**

19. **Added Para:** Paradigm generator for audio visual hardware & software for fMRI - **Optional item – Price to be quoted separately**

20. **Existing:Turnkey Para 3:** The cost of Turnkey for the area of 1500sq.ft and Air-conditioning of Tonnage 15 TR will be considered for Ranking / Evaluation purpose

    Amended as: The cost of **Turnkey for the area of 2500sq.ft and** Air-conditioning of **Tonnage 21 TR** will be considered for Ranking / Evaluation purpose

21. **Existing:Turnkey:** The MRI SCAN CENTRE shall consist of the following rooms:
    a) MRI Room
    b) Console room
    c) Equipment room
    d) Patient preparation room
    e) Reporting room
    f) Patient waiting area
    g) Radiologist room

    Amended as: The MRI SCAN CENTRE shall consist of the following rooms:
    a) MRI Room
    b) Console room
    c) Equipment room
    d) Patient preparation room
    e) Reporting room
    f) Patient waiting area
    g) Radiologist room
    h) Store room
    i) Reception area
    j) Toilets-3

22. **Existing:**
    Furniture:

a. Revolving chairs height adjustable, medium-back with hand-rest in the Control room, Radiologist room and viewing area. – **4 Nos.**
c. Cupboard with laminate door shutters for storage of spare parts and accessories and records as per requirement. – **3 Nos.**
g. Tables for Workstation and Radiologist in reporting room.- **2 NO.S**

Miscellanous

1. Reporting room should have LED X-ray Film viewer with adjustable brightness; capable of holding 3 films of 14"x17" size. – 2 no.s

Amended as:

Furniture:

a. Revolving chairs height adjustable, medium-back with hand-rest in the Control room, Radiologist room and viewing area. – **12 Nos.**
c. Cupboard with laminate door shutters for storage of spare parts and accessories and records as per requirement. – **6 Nos.**
g. Tables for Workstation and Radiologist in reporting room.- **6 NO.S**

Miscellanous

1. Reporting room should have LED X-ray Film viewer with adjustable brightness; capable of holding 3 films of 14"x17" size. – **6 no.s**

23. Added Para: Furniture

Almirah – 4 Nos.

Item Sl. No.2
CT Scanner 128 Slice

1. **Existing:** *Para* Power output : 70 kW or higher. The generator with the higher power output would be preferred. Also the bidder should mention whether the system would be capable of tackling the dual energy applications if there is an upgrade

   Amended as: 70 kW or higher. The generator with the higher power output would be preferred.

2. **Existing: Workstation client server architecture** It should be a high speed (minimum post-processing frame rate of 16 frames/sec) CPU with a speed of 3.0 GHz or better and with an independent Hard disc storage capacity of 512 GB or more, with 19 inches or more high resolution medical grade colour LCD monitors capable of simultaneously viewing and performing all post processing functions and filming independently without the help of main console

   Amended as: Workstation client server architecture:

   1. The server of at least 10 terabyte storage capacity with expansion slot of additional tera bytes. CPU of 3GHz or better, with 19" or more high resolution medical grade colour LCD monitors capable of simultaneously viewing and performing all post processing functions and filming independently without the help of main console
   2. Two way data transfer between the operator console & the server should be automatic and standard.
   3. Four nos of client nodes with concurrent license for 20000 slices rendering capacity & it should be high speed (minimum post processing frame rate of 16frames/sec) CPU minimum

3GHz, 19" monitor, 16GB RAM with an independent Hard disc of 1TB. The necessary connectivity (wifi/Lan) etc for proper functioning should be provided by the vendor.
4. All post processing facility and data archiving should be available independently at all server/client nodes.

3. **Existing:** Data Acquisition System:Detector- Capable of acquiring 64 slices per 360 degree of rotation.

   Amended as: Detector- Capable of **acquiring 128 slices per 360 degree of rotation**.

4. **Existing: Para j. 4 (iv):** Advanced cardiac package including Coronary Artery Imaging, Calcium Scoring, Myocardial Viability software, Cardiac functional analysis and advanced Vessel Analysis including stenosis assessment. Facility for prospective and retrospective ECG gating, facility for automatic selection of rotation speed according to heart beat and step and shoot for low dose acquisition should be available.

   Amended as: Advanced cardiac package including Coronary Artery Imaging, Calcium Scoring, **Myocardial Perfusion, Arrythmia rejection,** Myocardial Viability software, Cardiac functional analysis and advanced Vessel Analysis including stenosis assessment. Facility for prospective and retrospective ECG gating, facility for automatic selection of rotation speed according to heart beat and step and shoot for low dose acquisition should be available.

5. **Existing: Para j. 4 (ix):** Bone Mineral Densitometry software with BMD Phantom.

   Amended as: DELETED

6. **Existing: Para j. 7:** One similar independent post processing stations (workstations, total no.2) with all the software as in the main console should be available. . The necessary connectivity etc. for proper functioning should be provided by the vendor with the supply of standalone server of atleast 10 tera byte storage capacity with expansion slot of additional tera bytes. All post processing facility and data archiving should be available independently at both the workstations

   Amended as: DELETED

7. **Existing: Para m.** System Configuration Accessories, spares and consumables: A free comprehensive software upgrade guarantee for entire life of scanner must be provided.

   Amended as: System Configuration Accessories, spares and consumables: A free comprehensive **software update guarantee** for entire life of scanner must be provided

8. **Existing: Para m.** System Configuration Accessories, spares and consumables: Real time CT Fluoroscopy with at least 6 to 8 frames per second with dedicated 21" color LCD monitor. Facility table side controls and foot switch for biopsy to be quoted separately. (optional).

   Amended as: System Configuration Accessories, spares and consumables: Real time CT Fluoroscopy with at least 6 to 8 frames per second with dedicated **19" color LCD monitor**. **Facility table side controls and foot switch for biopsy to be quoted as standard**

9. **Existing: Para 4 Post Processing Soft-wares vii)** Lung nodule evaluation software. CAD for Lung nodule evaluation software should be quoted as optional.

   Amended as: Lung nodule evaluation software. CAD for Lung nodule evaluation software should be quoted as standard

10. **Added Para:** Vendors will get the QA of the CT done as per AERB guidelines during warranty as well as CMC period without any additional cost

11. **Added para:** Radiofrequency Generator (RF): **Price to be quoted separately**

12. **Added Para**: **Turnkey**

Scope of work for turnkey CT

1. The Supplier should inspect the proposed site offered by the Consignee Institute in which the CT system has to be installed and they are required to submit the plan for the complete CT Scan Centre on a turnkey basis. The scope of work includes complete Civil work, Electrical, Plumbing, Furnishing, Air-conditioning and Fire fighting for the construction of CT Scan Centre.
2. While preparing the plan, the following aspects have to be addressed.
   a) Care should be taken to provide easy negotiation of the patient stretchers/ trolleys through corridors and doors.
   b) Radiation shielding for doors, walls, glass viewer etc.
   c) Furniture like desk, chairs, shelves etc.
   d) Patient stretcher and other furniture/ accessory to make the scan centre functional.
3. **The cost of Turnkey for the area of 2500sq.ft and Air-conditioning of Tonnage 21 TR will be considered for Ranking / Evaluation purpose.**
4. Moreover Bidders will have to quote the Unit Rates of the following components of turnkey work.
   a) Civil works
   b) Electrical work
   c) Public health (plumbing and sanitary fittings).
   d) Air Conditioning (HVAC)
   e) Interior Furnishing & Furniture
   f) Miscellaneous
5. The supplier should inspect the proposed site and submit all the detailed structural and architectural drawings and BOQ for the proposed CT Scan Centres along with technical bid of the tender.

   The CT SCAN CENTRE shall consist of the following rooms:

   a. CT Gantry Room
   b. Console room
   c. Equipment room
   d. Patient preparation room
   e. Reporting room
   f. Patient waiting area
   g. Radiologist room

h. store room
i. reception area
j. toilets

The actual area of turnkey works done will be considered for payment, based on the site measurements.

Civil work

a) Civil construction work including construction of brick wall if any, plastering, flooring as per the approved plan and equipment layout plan.
b) Concrete bed at CT equipment area.
c) Platform for unloading and shifting the CT should be provided if necessary.
d) Cable tray, trench & channel – necessary trenches, cable tray and channels at required location would be provided.
e) All the construction work to be done as per the final plan approved by the Consignee.
f) Active and passive room shielding for magnetic, fringe field should be provided as per the requirement of the equipment.

a) Flooring

1 600 x 600 mm vitrified tiles with 100mm tile skirting to match in console room, lobby and patient preparation areas, Radiologist room etc.
2 50 mm thick cement concrete flooring with Vinyl flooring in CT equipment / UPS room.

b) Painting

1 Two coats Plastic Emulsion Paint over 2 coats of wall putty including primer in patient preparation area, Lobby area, console room, CT Gantry & Equipment room etc.

c) False Ceiling

1 Acoustical tile for ceiling with light weight insulating material of high quality supported on grid or finished seamless with support above ceiling. Finished with white paint or powder coated with white paint, if metallic. Ceiling height to suit the equipment mount and clearances.

Plumbing work

1 All water pipes and fittings shall be of high density polythene of approved and standard make. The gratings shall be brass chrome plated. All plumbing accessories should be of standard make.

2 Hot water service to be provided if required.

Electrical work

1 The supplier shall be required to specify the total load requirements for the CT scan centre including the load of air conditioning , room lighting and for the accessories if any. The supply line will be provided by the Institute up to one point within the CT Scan centre area. The distribution panel shall be provided by the vendor. Few lights in each room shall be connected to the UPS to provide emergency lighting.
2 The electrical work shall include the following:
a. Wiring – All interior electrical wiring- with main distribution panel board, necessary MCBs, DB, joint box, switch box etc. the wires shall be of copper of different capacity as per the load and should be renowned make as listed below.

b. Switches light and power points should be of modular type and of standard make as listed below.
c. General lights – Mirror optical type 1X28 W or 2X28 W/CFL fittings 2X36, 3X36 W with electronic ballasts

3 AIR CONDITIONING:

Ductable package air conditioners and split AC units may be used according to room requirement and suitability. Humidity control should be effective to eliminate moisture condensation on equipment surface. The Air conditioning should be designed with standby provision to function 24 hours a day.
The outdoor units of AC should have grill coverings to prevent theft and damage.
Ventilation is required in toilet.

2 Environment specifications:

a) Humidity range: Relative humidity 60% and 80% in all areas except equipment room which shall be as per requirement of the equipment.
b) Temperature ranges: 22± 2° C in all areas except equipment room which shall be as per requirement of the equipment.
c) Air conditioning load: The heat load calculations and maintaining the desired temperature and humidity shall be the responsibility of the bidder.

Furniture:

a) Revolving chairs height adjustable, medium-back with hand-rest in the Control room, Radiologist room and viewing area. – 12 Nos.

b) Chairs for patient waiting area – Three seater (chrome plated). - 10 Nos.
c) Cupboard with laminate door shutters for storage of spare parts and accessories and records as per requirement. – 6 Nos.
d) Drug trolleys 1 numbers for patient preparation area.
e) Patient trolley with rubber foam mattress to be kept in the patient preparation room.
f) Name boards for all rooms
g) Tables for Workstation and Radiologist in reporting room.- 6 Nos
h) Changing rooms should have change lockers and dressing table.
i) Dustbins (plastic with lid) to be provided as required.
j) Any other furniture item as per requirement.
i) Almirah – 4Nos

All furniture items should be of standard make as mentioned in the table below.

Miscellaneous:

1 Reporting room should have LED X-ray Film viewer with adjustable brightness ; capable of holding 3 films of 14”x17” size. – 6 no.s
2 Cabling of Network (LAN) connectivity for camera system, console system, workstation and computers etc.
3 Broadband connection: for REMOTE SERVICE of CT system.
4 Fire extinguisher Dry CO2 type as required for the building safety.

LIST OF ITEMS AND SUGGESTED MANUFACTURERS.

SL NO	ITEMS	PREFERRED MAKES
A	FLOORING VITRIFIED TILES	-Somany, Kajaria , H&R Johnson, RAK india
B	PAINT -	Dulux, Asian Paints , Nerolac
C	PLUMBING	- Kohler, Jaguar , Grohe , Roca
D	SANITARY ITEMS	- CERA, Hindware, Parryware
E	**ELECTRICAL**	
1	CABLES	- Finolex, Havells ,V-Guard

2	SWITCHES	- Legrand, L&T, Crabtree , Roma
3	DISTRIBUTION BOX , MCB	- Legrand, L&T, Siemens, Havels
4	LIGHT FITTINGS	- Philips / Crompton / Kesselec-Schreder / Wipro.
F	AIR CONDINTIONING	- Daikin, Hitachi, Blue Star, Voltas,
G	FURNITURE	- Hermen Miller , Godrej , Featherlite

Item Sl. No.4
Digital Radiography 1000mA

1. **Existing:** *Para 2* **Flat Panel Detector:** *(ii)* Detector Panel should be made of amorphous Silicon **with CsI or Gadox.**
   Amended as: Detector Panel should be made of amorphous Silicon **with CsI.**

2. **Existing:** *Para 15:***Warranty/After Sale Service**

   Five year comprehensive onsite warranty of entire system (Spares and labour) including X-ray tube, civil, electrical and air conditioning works and all accessories (including dry chemistry camera, UPS etc.). This will be followed by 5 years comprehensive AMC.
   Amended as: DELETED

3. **Existing:** *Para 20:***Product Data Sheet**

   All specification to be provided with original product data sheet. All technical specification should be supported with original data sheet highlighting the page number in the compliance sheet. Photocopy/computer print will not be acceptable.
   The equipment quoted should be the main equipment of the principal manufacturer. Two main components of the equipment i.e generator and X Ray tube should be of the same make and name as of the participating vendor. The x-ray machine and its main components should find a place in the manufacturer's website and the copy of the webpage showing the same should be enclosed in the tender document. The bidder to mention its principal manufacturer's website address.

   Amended as:
   All specification to be provided with original product data sheet. All technical specification should be supported with original data sheet highlighting the page number in the compliance sheet. Photocopy/computer print will not be acceptable .

4. **Existing:** *Para 4(iii) :* Please mention tube loading for small focus and large focus, should be atleast 30KW or more for small focus and at least 80KW for large focus

   Amended as:
   Please mention tube loading for small focus and large focus, should be atleast 30KW or more for small focus and **at least 70KW for large focus**

5. **Existing:** *Para 13:* **Accessories**

   Dry Chemistry Camera. Should have minimum 500 DPI or more and should print at least 3 sizes of films on line out of 10x12,10x14,11x14, 8x10 and 14x17 inches.
   Amended as:
   Dry Chemistry laser Camera. Should have minimum 500 DPI or more and should print at least 3 sizes of films on line out of 10x12,10x14,11x14, 8x10 and 14x17 inches

6. **Existing: Para 8: Filter & Collimation: II**

   Square collimation: manual 85 motorized, should be controllable by organ programming.

   Amended as:
   Square collimation: **manual & motorized**, should be controllable by organ programming.

7. **Existing:** *Para 8: Filter & Collimation: V :* Display of collimation, filter 86 SID

   Amended as: Display of collimation, **filter & SID**

Item Sl. No. 05
High End Colour Doppler System

1. **Existing:**

   Para 1.5: The unit shall have gel warmer as attachment for the comfort of the patient.

   Amended as:
   Para 1.5: Deleted.

2. **Existing:**

   Para 7 : Blood flow visualization Technique /Mode should be available , which should be independent of velocity and angle that displays the Blood flow echoes in gray scale imaging, with different intensities according to reflectors Speed and Dynamics.

   Amended as:
   Deleted.

3. **Existing:**

   Para 20: Patient couch with 6 way movement and ergonomic operator chair. (Price to be quoted separately).

   Amended as:
   Para 20: Patient couch with 6 way movement and ergonomic operator chair **(Optional Price should be quoted)**

   Added para:
   1. **Para 16 :** Transducers **(frequency tolerance of +/- 1 MHz applicable to all transducers)**
   2. Linear Probe of at least 9-18 MHz (**Price should be quoted separately**).

Item Sl. No.6
Anesthesia Machine with Ventilator

1. **Existing:** *Para14* Should have independent paramagnetic oxygen sensor for FiO2 monitor and flow sensor for spirometry.

   Amended as: Should have independent **Paramagnetic (should be covered under warranty & CMC)** or **Galvanic Oxygen cell (should be covered under warranty & CMC)** for FiO2 monitor and flow sensor for spirometry. Flow Sensor should also be covered under Warranty

2. **Existing:** *Para7* Should be able to hold two seletatec vaporizers (Isoflurane, Sevoflurane & Desflurane) simultaneously. Vapourizers should be maintenance free. Cost of vaporizers to be quoted separately. The anesthesia machine should provide desflurane compensation

   Amended as: Should be able to hold **two seletatec vaporizers (Isoflurane & Sevoflurane)** simultaneously. Vapourizers should be maintenance free. Cost of vaporizers to be quoted separately**.**

3. **Existing:** *Para16* Should have battery backup of atleast 60 minutes

   Amended as: Should have **battery backup of atleast 45 minutes or more**

4. **Existing:** *Para17.11* **Trends – Upto 48 Hours or more, trend analysis, upto 24 hours full disclosure.**
5.

   Amended as: Trends – Upto 24 Hours or more, trend analysis, upto 24 hours full disclosure.

6. **Existing:** *Para17.12* Battery Back- up – Li-ion Battery of 1 hour or more.

   Amended as: Battery Back- up – Li-ion Battery of 45min or more.

7. **Existing:** *Para17. 12.2* Bidder must ensure regular supply of medical grade Sodalime with rate quoted separately.

   Amended as: DELETED

Item Sl. No.7
Ventilators High End

1. **Existing:** *Para18* Should be supplied with 2 nos Reusable Silicon adult the 1 no Pediatrics tubing‟ s and imported humidifier and 2 nos ultrasonic nebulizers chambers

   Amended as: Should be supplied with 2 nos Reusable Silicon adult the 1 no Pediatrics tubing‟ s and imported **humidifier servo control** and 2 nos ultrasonic nebulizers chambers

2. **Existing:** *Para5a* Tidal Volume: Minimum 5ml and maximum of 1500 ml or more in Volume control

Amended as: Tidal Volume: Minimum 20ml and maximum of 1500 ml or more in Volume control

3. **Existing:** *Para22* Oxygen sensor should be paramagnetic and covered under warranty.

   Amended as: Oxygen sensor should be **Paramagnetic/Ultrasonic/Galvanic** and covered under warranty.

Item Sl. No. 8
Central station for ICU with 10 Bed Side Monitoring System (1+10)

&
Item Sl. No. 9
Central Station for ICCU with 8 Bed Side Monitoring system (1+8)

1. **Existing:** *Para4* Monitors must be able to monitor ECG, SpO2, NIBP, Respiration, dual temp, dual IBP, modular ETCO2 and minimally invasive Continuous Cardiac Output

   Amended as: Monitors must be able to monitor **ECG, SpO2, NIBP, Respiration, dual temp, dual IBP, modular ETCO2.**

2. **Existing:** *Para* Two modules of NMT, EEG and spirometer, BIS/Entropy
   Amended as: Two modules of **NMT, EEG and BIS/Entropy**

3. **Existing:** *Para 5* Monitor must be ready to connect for CO (Thermodilution), BIS/Entropy, NMT, ICP monitoring, three IBP, 4 ch EEG, module.

   Amended as: Monitor must be ready to connect for **BIS/Entropy, NMT, ICP monitoring, three IBP, Four channel EEG module.**

4. **Existing:** *Para* CNS of 21" LED to be provided with one laser printer and one 21" slave monitor. The cabling has to be done by bidder in the ICU One CNS with 16 monitors

   Amended as: CNS of 19" LED to be provided with one laser printer and one **19" slave monitor**. The cabling has to be done by bidder in the ICU One CNS with 16 monitors

5. **Existing:** *Para* Advanced high end modular patient monitor having integrated non-invasive, invasive measurement & features suitable for neonate, pediatrics & adult patients

   Amended as: Advanced high end **Modular/New Modular** patient monitor having integrated non-invasive, invasive measurement & features suitable for neonate, pediatrics & adult patients

6. **Existing:** *Para* Two Modules of minimally invasive CO monitor

   Amended as: DELETED

7. **Existing:** *Para* To provide suitable facility for sending and receiving DICOM compatible radiological images like Ultrasound, X-ray etc to and from monitoring network to and from HIS, RIS etc for integration of various information (Optional-Price to be quoted separately)

   Amended as: DELETED

8. **Existing:** *Para* To provide suitable facility for sending and receiving DICOM compatible radiological images like Ultrasound, X-ray etc to and from monitoring network to and from HIS, RIS etc for integration of various information (Optional-Price to be quoted separately)

   Amended as: DELETED

9. **Existing:** *Para* It should be possible to see data of other patient on the monitor in the same ICU and patients of other ICU's or the monitor by LAN cabling. The cabling should be done by the bidder.

   Amended as: DELETED

Item sl. no. 10
Multiparameter Monitor/Patient monitor - 5 Parameter/3 Parameter/Vital Sign Monitor

1.Existing: - Para

Modular monitor High – resolution colour TFT display of minimum 10" or more

Amended as:

Modular/New Modular monitor High – resolution colour TFT display of minimum **12" or more**

2.Existing: - Para

Plethysmograph with perfusion indicator (optional – price to be quoted separately)

Amended as: Plethysmograph with **perfusion indicators as standard.**

3 . Existing: - Para

Monitor should monitor at least three channel

Amended as:

Monitor should monitor **at least five channel**

4. **Existing: - Para**

Should have inbuilt three channel recorder

Amended as:

Should have **inbuilt two or more channel recorder**

5. Existing: - Para

Battery backup for at least 3 Hrs.

Amended as: -

Battery **backup at least 60 minutes.**

Added para: 1. Price of basic 5 Parameter module should be quoted separately.
Added Para: 2. Price of two invasive (IBP) modules with its accessories should be quoted separately

Item Sl. No. 11
Defibrillator

1.Existing:

Para 3.8: Should have event summary facility for recording and printing at least 250 events and 50 waveforms. Patient data storage 90 mins of ECG and events.

Amended as: Should have event summary facility for recording and printing **at least 120 events** and 50 waveforms. Patient data storage 90 mins of ECG and events.

2. Existing:

Para 3.13: Should be capable of delivering energy in increments of 1-2 joules up to 30J and increments of maximum 50J thereafter.

Amended as: Should be capable of delivering energy in **incremental steps from 1 to 200**.

3. Existing: Para 3.17: Optional noninvasive pacing/ transcutaneous pacing

Amended as: Noninvasive pacing/ transcutaneous pacing as standard

4. Existing: Para 4.3: Paddles –Internal (pair) -01

Amended as: Paddles –Internal (pair) -01 **(Optional – price should be quoted separately)**

5. Existing: Para7.1: Should be **USFDA and European CE** approved product

Amended as: Should be **USFDA or European CE** approved Model

6. Existing: Para 7.4: Should meet IEC 529 Level 3 (IP3X) (spraying water) for enclosure protection, water ingress.

Amended as: Should meet IEC 529 Level 3 (IP3X) (spraying water)**/Level (IPX1)** for enclosure protection, water ingress.

7.Added Para: Demonstration is must

For: Item Sl. No.13

High definition laparoscopy system with accessories

Read as:

Item Sl. No.13 (a) (Qty:1)
High definition laparoscopy system with accessories for OBGY Dept

No change in existing technical specification against item Sl.No.13

Technical Specification for separated item as under:

Item Sl. No. 13(b) (Qty:2)
High definition laparoscopy system with accessories (For Surgery Department only)

Technical Specification of Laparoscope
1 Description of Function
Laparoscope is used for minimally invasive surgery and comprises of telescope and associated instruments and units

2 Operational Requirements
All offered items should be from **compatible with unit** and USFDA or European CE approved products.

3 Technical Specifications

3.1 TELESCOPES

a) 5 mm forward oblique, **0 degree** – 1 no
b) 10 mm forward oblique, 30 degree – 1 no
c) 10 mm straight forward 0 degree – 1 no
d) All telescope should have following:
Low risk of object bum
Colour coded for identification
Autoclavable
Fibreoptic light transmission incorporated

3.2 HAND INSTRUMENTS & OTHER ACCESSORIES

1. Reusable Veress Pneumoperitoneum Needle- Spring loaded blunt stylet luer lock length 10/15cm/12cm - 4 each
2. Reusable Trocar:- 5mm – Multifunctional , insuflation stopcock and threaded sleeves, pyramidal tip, length (10.5cm) ,Flapper valve - 4 nos
3. Reusable Trocar:- 10/11mm & 12 mm-Multifunctional valve, insufflation stopcock and threaded sleeves, pyramidal tip, length (10.5cm) Flapper valve - 4 each
4. Suction and Irrigation cannula-Size 5mm, length 36cm, used with suction and irrigation handle, size 10 mm also, Reusable suction irrigation tubing set, Multifunction suction irrigation handle with provision for using 5/10mm diameter auxiliary instruments - 2 each
5. Grasping forceps curved - toothed 2x4 teeth-2 each-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility, size 10mm - 2 each(5 & 10mm)
6. Grasping forceps straight- toothed 2x3 teeth-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility, size 10mm - 2 each(5 & 10 mm)
7. Maryland forceps-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility - 2 nos
8. Grasping forceps-Atraumatic-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility - 2nos
9. Grasping forceps-Allis-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility - 2nos
10. Grasping forceps Mixter-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility - 2nos
11. Grasping forceps-plain dissection & Grasping-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility - 2nos
12. Grasping forceps-Babcock-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility, size 10 mm - 2 each (5& 10mm)
13. Fan shaped retractor-Rotating, size 5mm, length 33-36cm, dismantling facility - 2nos
14. Hook Scissors-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility- 2nos
15. Rotating Metzenbaum Scissors-Double action jaws, rotating with connector pin for unipolar coagulation, size 5mm, length 33-36cm, dismantling facility - 2nos
16. Bipolar coagulating forceps-Size 5mm, length 33-36cm fenestrated- 2 nos
17. Bipolar coagulating forceps-Size 5mm, length 36cm, 3mm width of jaws -2 nos
18. High Frequency Cord-For 5mm & 10mm hand instruments with Monopolar Electrodes, spatula tip, needle electrode- 2 each
19. High Frequency Cord-For 5mm & 10mm hand instruments with Monopolar Electrodes, hook tip, knife electrode - 2 each
20. Knot pushers-Eye type, length 33-36cm,2 each for intra and extra corpal knotting
21. Needle holder coaxial type-5mm, tungsten tip, straight handle with ratchet, single moving jaw, length 33-36cm,2 with carbide insert tips for straight and curved needles
22. Clip Applicator-Medium -Size -Rotatable, Provision for locking the shaft conveniently, 10mm, compatible with clip LT 300, 2 quoted with adequate no. of spare clip
23. Clip Applicator- Large-Rotatable, Provision for locking the shaft conveniently, 10mm, compatible with clip LT 400, 2 quoted with adequate no. of spare clip
24. Hassan cone-Adaptable to 10mm trocar- 2nos
25. Blunt Obturator-For 11mm port-From 10/11 mm to 5mm & 5 to 3 mm - 2nos

26. Reducer-Size 5mm, length 33-36cm with pin for cautery - 2nos
27. L-Hook-Size 5mm, length 33-36cm with pin for cautery- 2nos
28. Spatula-Size 5mm, length 33-36cm with pin for cautery - 2nos
29. Fascia closure instrument-Size 2.8mm, length 17cm - 2nos
30. Washers-For 5 & 10 mm cannula and reducers - 100 each
31. Container System: Metal & Plastic-For Sterilization and storage of telescopes, hand instruments and other accessories. Different sizes - 3nos
32. Metzenbaum scissors-High performance with bipolar cautery - 2nos
33. Large operating scissors-With double action jaws (slightly curved) Rotatable 10mm diameter instruments with a working length of 33-36cm, dismantting facility - 2 nos
34. Assistant needle holder-5mm diameter instrumentations with a working length of atleast 33-36 cms with carbide insert tips for straight and curved needles. 2 for straight & curved needles with carbide insert tip
35. Disposable extraction bags - **50 Nos.**
36. Injection and puncture canula-5 mm diameter, 33-36cms length with luer lock - 2 nos

Cleaning accessories-

a. Cotton carrier with thread
b. Cotton carrier with "U" shaped handle
c. Cleaning brush
d. Brush for cleaning jaws
e. Oil dropper
f. Wadding silver polish
g. Special lubricating oil

Note : Insulated outer sheath for all forceps and scissors

3.3 INSUFFLATOR

a) Fully automatic, electronically controlled gas fill
b) Flow rate of 20-30 litres per minute
c) Optical and acoustic warning signals in case of malfunction or excessive pressure
d) Connectible to medical gas pipeline
e) Control by keys on front panel
f) Clear and adjacent display of actual and preset flow rate, actual and preset pressure, gas consumed
g) Facility for filtering preheating of gas to body temperature
h) Facility for easy evacuation of smoke and mist
i) Memory for retention of previous pressure settings
j) Should include high pressure hose pin-index connection to smallbig cylinder with regulator, mains cord, silicone tubing set with luer lock, universal wrench and gas filter

3.4 CARBON DIOXIDE CYLINDER (type-B)

Large size cylinders with required regulators and connecting pipe to the insufflator (Type-B) – 2 nos
Gas tubing – 4

3.5 SUCTION-IRRIGATION UNIT

a) Pump for irrigation and suction
b) Maximum irrigation pressure 400 mm Hg
c) Suction pressure 0.75 bar
d) Control from control panel and/or foot pedal

e) Overflow protection on suction bottles
f) Accessories should include silicone tubings (2 nos), bacterial filter and bottles with cap
g) Irrigation suction flow rate should not be less than 2-5 L/min.

3.6 Sterilization/Disinfection Tray:
Disinfection/Sterilization tray with sieve, tray to lift Size: 27”X7”X5” (LXBXD) – 04 nos

3.7 Formaline Chamber (Imported / Indian make)

Formaline Chamber made of Virgin Acrylic 4.5mm thickness; size : 26”X8”X8” (LXBXH) with three tray, for sterilizing the laparascope& Hysterescope– 04 nos.

3.8 Suitable autoclavable plastic tray double tray for sterilization and storage for hand instruments of minimum 20 hand instruments preferably from OEM – 04 nos

3.9 CAMERA CONTROL UNIT & CAMERA HEAD

High definition Three chip Endoscopic camera system should have following features:

a) Digital HD technology

b) Progressive Scan

c) Camera control unit with three chip HD camera head having HD CCD chip of same aspect ratio of 16:9 and camera control unit should be able to produce following video output: DVI-D-2 nos, RGB-1 no. SDI – 1 no, S-VHS-2 nos, Composite Video – 1 no.

d) Three chip camera head should produce at head itself Pure Digital Signal with High Definition video (1920 * 1080P) with aspect ratio of CCD chip and video format of 16:9 or 16:10.

e) System should have integerated Optical Zoom (F should not be less than 12 mm and upper range should not be less than 30 mm, 2 X) to enhance image size and focus lens/rings to make it fully soakable and waterproof.

f) System should be able to optimize all the settings and should be ready as soon as connected to camera control unit.

g) Three Chip Camera control unit should be compatible with all the tree chip camera head and the company should provide standby facility within 48 hours of breakdown.

h) Should be compatible for remote controlled operation of various features

i) Camera should be suitable for both Laparascope, Hysteroscope & Resectoscope

j) Should have Integrated gain, shutter, Enhancement, white balance with brightness control.

k) All camera functions to be controlled from camera head buttons and through key board at camera control unit to make it controllable from both sterile and non-sterile zone

l) Technical Specification :-
Image Sensor CCD Chip
Pixels 1920 x 1080

AGC Microprocessor controlled
Lens F14-30mm
Video Outputs Composite to BNC, Y/C to S-VHS, RGB to D Socket, HDTV-DVI-D, DV for recording
Input Key Board for Character Generator, 5 pole Din

3.10 High Definition Medical Grade Monitor

Two Wide Screen Monitors having the following features:

a) HDTV Display in 16:10/**16:9** HDTV format.
b) LCD/LED Crystal display
c) 26" High Resolution HD video Medical grade monitor – 2 nos
d) Resolution : 1920 x 1200 pixels
e) SDI/HD-SDI, Composite, S-Video RGB, DVI-D, VGA input, S-VHS – 2 nos, should also have same video output.
f) All required cables and connectors, which should be specified
g) TFT screen stand/Fixtures for connecting to pendant system/Ceiling Light Arm
h) Dustproof and Drip Water Protected
i) Fast response time: (5-12ms)
j) Number of colours: 16.8 million
k) Luminance: 500cd/m2, contrast ratio: 800:1
l) Vertical/Horizontal Viewing angle: 178 degree

3.11 LIGHT SOURCE
a) Xenon 300 watts
b) Manual and automatic adjustment of light intensity
c) Lamp life 500 hrs or more with at least one spare bulb
d) Display of lamp life/Bulb usage meter warning light
e) Standby mode with emergency lamp with visual indicator
f) Long (250 cm or more) fluid and fibre-optic light cable of diameter 4.8-5 mm
g) Light weight
h) Certified for National International safety standard normal
i) Should be able to produce colour temperature of 6000K.

3.12 VIDEO- CART (Imported)
a) Made of stainless steel / Epoxy coated metal
b) Portable on 4 antistatic dual castors, 2 with locking brakes
c) Required number of shelves for housing all the units of the set
d) Adjustable arm for fixation to either side for fixing the TFT monitor
e) One drawer unit with lock and key
f) Cable Manager
g) Power box with concealed wiring for providing electrical connections of proper rating to all the units

3.13 IMAGE MANAGEMENT SYSTEM
a) Documentation system for digital storage of still images, video sequences and audio files.
b) Latest processor & HDD, which should be specified
c) Largest possible RAM, which Should be specified
d) Integrated DVD/CD writer with maximum speed which should be specified
e) Compact key board with drape

f) Cordless mouse
g) All types of connecting cables (BNC, DVI) and connectors, which should be specified
h) zwith all connectors and connection cables (BNC, S-VIDEO(Y/C), VGA), which should be specified
i) Separate mobile cart with lock and key for housing all the components of the image management system
j) It should be medical grade with touch screen monitor.
k. Full HD recording, Medical grade computer and Monitor, Touch screen, Minimum 1 TB storage memory. It should have window based operating system,minimum Windows –XP.

6 System Configuration Accessories, spares and consumables

6.1 System as specified
6.2 ACCESSORIES:- All Possible accessories of the equipments should be quoted. The specific accessory and its quantity will be decided on the basis of actual requirement
6.3 The system should be capable of accepting standard accessories of major international brands, which should be specified and for which suitable adaptor, if required, is to be provided
6.4 The codes and rates of all relevant individual accessories should be quoted separately with clear mention of period of validity of rates

7 Environmental factors

7.1 The unit shall be capable of being stored continuously in ambient temperature of 0-50 deg C and relative humidity of 15-90%
7.2 The unit shall be capable of operating continuously in ambient temperature of 10-40deg C and relative humidity fo 15-90%

8 Power Supply

8.1 Power input to be 220-240VAC, 50Hz fitted with Indian power-plug
8.2 UPS for all systems of adequate rating for power supply to the system for 60 minutes.

9 Standards & Safety

9.1 Should be USFDA or European CE approved product
9.2 Manufacturer and Supplier should have ISO certification for quality standards
10 Training
10.1 Comprehensive training for staff of user department and support services till familiarity with the system.
10.2 Training of two faculties from each consignee to be provided

11 Documentation

11.1 Product Literature in original along with that of accessories and indigenous components if any Photocopies/computer generated copies are not acceptable
11.2 Statement of compliance with tender specification with clear and unambiguous links to relevant portions of product literature/authentic document, which should be highlighted. Alternatives provide for noncompliant specification with justification must be described in details with supporting literature
11.3 Certificate of Compliance with standards and approvals stated above
11.4 Certificate of manufacturer/principal regarding authorization of service facility provided by the supplier

11.5 List of important spare parts and accessories, which are required for maintenance and repair, with their part number and costing.
11.6 Commitment for supply of log book with check list for daily, weekly, monthly and quarterly preventive maintenance with contact details of service personnel along with the equipment. The job description of the hospital technician and company service engineer should be clearly spelt out in the log book

Item Sl. No. 14
Arthroscope

1.**Existing: Para:** High definition monitor 19"

Amended as: High definition monitor **19" or more with medical grade & resolution 1920x1080p**.

2.Existing: Arthroscope Set: Straight punch, cutting width 15 deg upbiter 30 deg left cutting 30 deg right .

Amended as: Punches with cutting width 2.5mm or more, working length 11cm or more: straight,15° upbiter,30° left,30° **right, 90° right , 90° left, Grasping lock.**

Item Sl. No. 16
Harmonic Scalpel/Ultrasonic cutting and Coagulation device

1.**Existing: Para 1.1:** Ultrasound is the basis for an efficient surgical instrument: the cuts and coagulates by using lower temperatures than those used by electrosurgery or lasers. Controls bleeding by coaptive coagulation at low temperatures ranging from 50ºC to 100ºC: vessels are coapted (tamponaded) and sealed by a protein coagulum. It should have a facility of additional vessel sealing system attached in the same unit.

Amended as: Ultrasound is the basis for an efficient surgical instrument: the cuts and coagulates by using lower temperatures than those used by electrosurgery or lasers. Controls bleeding by coaptive coagulation at low temperatures ranging from 50ºC to 100ºC: vessels are coapted (tamponaded) and sealed by a protein coagulum. It should have **vessel sealing capacity up to 7mm or more.**

2.**Existing: Para 2.1:** The system is should be used for Laparoscopic & open Procedures which should operate at the same frequency.

Amended as: The system should be used for Laparoscopic & open Procedures which should operate at the same frequency. **The system should have open and laparoscopic probes for both ultrasonic & vessel sealing system.**

3.**Existing: Para 4.1.2:** Open surgery instruments – 2 Nos. Each, Coagulation shears – 5mm dia, 17cm long or more Dissecting grasp 5mm for coagulation 17mm or more Endoscopic surgery instruments – 2 Nos. each

Amended as: Open surgery instruments – **Coagulation shears – 7mm dia 17cm long - 2 nos., instrument for vessel sealing with vessel sealing capacity upto 7mm. 2 nos. , curved coagulation shears**. **7mm dia 30cm-45 cm long.-2 Nos.**

4.**Existing: Para 4.1.2:** Endoscopic surgery instruments – 2 Nos. each, a. Dissector Grasper 5mm diameter 30cm-45cm long, b. Curved Shear,5mm diameter,30cm- 45cms long

Amended as: Endoscopic surgery instruments – 2 Nos. each, a. **Dissector Grasper 7mm** diameter 30cm-45cm long, b. Curved Shear,**7mm diameter**,30cm- 45cms long

5.**Existing: Para 7.5:** Instrument should be upgradeable in case of any technology advancement free of cost. Hand piece with transducer should be covered with warranty.

Amended as: Instrument should be upgradeable in case of any technology advancement free of cost. **Handpiece should be warranted for 95 to 100 usages.**

Item Sl. No. 17
Operating Table –Electro hydraulic

1.**Existing: Para 4:** 100% Kidney Bridge position should be obtained without moving the patient, through remote Control by using extension/break function.

Amended as: 100% Kidney Bridge position should be obtained without moving the patient, through remote Control **or by manual function.**

2.**Existing: Para C:** Minimum height (without mattress): 600± 50 mm

Amended as: Minimum height (without mattress): **650± 50 mm**

3. Added Para: Prices for following OT Table accessories to be offered separately

Accessories for 2 Nos. Neurosurgery OT Tables

i. Mayfield Skull clamp
ii. Cervical attachment
iii. Accessories stand

Accessories for 2 Nos. Orthopedic OT Tables

i. Radiolucent pelvis plate with orthopaedic extension

Item Sl. No. 23
Complete Cathlab

1. Added Para: FFR facility should be included in Cathlab – **Price to be quoted separately**

2. Radiation Protection Gears: Protective apron of atleast 0.50mm lead equivalent -12, Protective gonad shield atleast 0.35mm lead equivalent-12, thyroid collars-12, lead eye glasses -12, radiation protection device for the operator at the table and for legs below the table
3. Dedicated echo machine with TEE probe with ICE (intracardiac echo) probe compatibility with 2 ICE probes (disposable) – **Price to be quoted separately.**

Item Sl. No. 24
Colour Doppler Portable

1.**Existing: Para 10:** The system should have a frame rate of at least 300 frames per second (fps) in B mode.

Amended as: The system should be **200 or more frames per second (fps)** in B mode.

2.**Existing: Para 23:** In built battery backup should be at least one hour or more.

Amended as: In built battery backup should be **at least 45 min or more.**

3.**Existing: Para 8a** Convex electronic phased array transducer: 2-6 MHz for abdominal imaging.

Amended as: Convex electronic phased array transducer: 2-6 MHz for abdominal imaging. **Transducer tolerance frequency +/- 1 MHz**

4.**Existing Para 8b:** Linear transducer: 5-12MHz MHz for vascular and small part imaging.

Amended as: Linear transducer: 5-12MHz MHz for vascular and small part imaging. **Transducer tolerance frequency +/- 1 MHz**

5.**Existing Para 8C:** Endocavitary probe (5-12MHz) with 140 deg FOV

Amended as: Endocavitary probe (5-12MHz) with 140 deg FOV. **Transducer tolerance frequency +/- 1 MHz**

Item Sl. No. 25
CR System/High End Computed Radiography Unit

1. **Existing: Para: 4. Dry imager a.** The system must have a dry imager without need of any wet chemistry

   Amended as: The system **must have a dry laser imager** without need of any wet chemistry.

2. **Existing: Para: 4. Dry imager d.** The system must deliver its first film within 80 seconds from the request sent.

Amended as: The system must deliver its first film **within 90 seconds** from the request sent.

Item Sl. No. 26
ELECTRO CAUTERY ELECTRO SURGERY UNIT

1. **Existing Para 3.1** Integrated touch screen system with 350-400W output generator for monopolar cut, 100- 120Watt for monopolar coagulation, bipolar cut 150Watt and Bipolar coagulation 120Watt and vessel sealing system for open and laparoscopic surgery with under water cutting current.

   Amended as: Integrated touch screen system with **300-400W output generator** for monopolar cut, 100 - 120Watt for monopolar coagulation, **bipolar cut 90-150Watt** and **Bipolar coagulation 90-120Watt** and vessel sealing system for open and laparoscopic surgery with under water cutting current.

2. **Existing Para 4.2 :- The accessories should include** (j) Resuable dedicated instruments for open and laparoscopic monopolar, bipolar and vessel sealing use., qty 02 of each

   Amended as: Reusable and Disposable dedicated instruments for open and laproscopic monopolar, bipolar and vessel sealing use. **Separate price for each should be quoted and price should be freeze for 5 years.**

Item Sl. No. 27
C – ARM

1. **Existing Para A- X-RAY GENERATOR** f. Should have facility for continuous fluoroscopy and Pulse fluoroscopy (Pulse rate upto 12 pulse per second)

   Amended as: Should have facility for continuous fluoroscopy and Pulse fluoroscopy **(Pulse rate upto 2 pulse per second)**

2. **Existing: Para A- X-RAY GENERATOR** b. Power output : 2 KW or more

   Amended as: Power output : 1.4 KW or more

3. **Existing: - Para A- X-RAY GENERATOR** e. mA in fluoroscopy : 0.2 to 4 mA or more in normal fluoroscopy and 10 mA or more in High Level Fluro

   Amended as: mA in fluoroscopy : 0.2 to 4 mA or more in normal fluoroscopy and **6 mA or more in High Level Fluroscopy.**

4. **Existing: - Para A- X-RAY GENERATOR** h. Housing heat capacity of minimum 400 KHU and cooling rate of more than 12,000 HU/min

   Amended as: Housing heat capacity of minimum 400 KHU and **cooling rate of more than 5,000 HU/min**

5.Existing: Para B- X-RAY TUBE HEAD a. Must have anode heat capacity of min 40,000 HU & cooling rate of min 25,000 HU/Min

Amended as: Must have anode heat capacity of min 40,000 HU & **cooling rate of min 13,000 HU/Min**

6.Existing: Para B- X-RAY TUBE HEAD d. Tube assembly filtration of 3.0 mm Al or higher

Amended as: Tube assembly filtration of **2.5 mm Al or higher**

7.Existing: Para E- Integrated image processing, recording and memory system : a. Image intensifier tube (i) Input diameter 9" with Triple field (9/6)

Amended as: Input diameter 9" with Double field (9/6)

8.Existing: - Para E- Integrated image processing, recording and memory system : a. Image intensifier tube (ii) Minimum central resolution (at monitor) : 1.4 lp/mm or better at 9" FOV

Amended as: (ii) **Deleted**

9. Existing: - Para E- Integrated image processing, recording and memory system : Digital image processor (vii) Medical imaging software's with ability to store 5000 DICOM Compatable images in internal storage

Amended as: Medical imaging software's with ability to store **2000 or more DICOM Compatable images** in internal storage

10. Existing: Para E Regulatrory / Safety Requirement (ii) Equipment should have CE for full product with notified body indentification number and US FDA certificate

Amended as: European CE or US FDA approved system.

All other terms and conditions of the tender enquiry remain unaltered.