HSCC/Medical Equipment/SJH Date: 03.7.2015

Amendment-V

Ref.: IFB No. HSCC/SJH/Medical Equipment/2015/3 Dated 15.5.2015

Sub.: Procurement of Medical Equipment for New Emergency Block & Super-Specialty Block at Safderjung Hospital, New Delhi.

The amendments for Item No. 1, 2, 3, 4, 5, 6, 7 & 8 are enclosed.

The bid submission date for Item No. 1, 2, 3, 4, 5, 6, 7 & 8 extended from 03.7.2015 to 10.7.2015.

EMD to be valid as per tender terms & conditions.

All other tender terms and conditions remain unchanged.

Amendment to be issued will be uploaded on websites www.tenderwizard.com/HSCC & www.hsccltd.com.

Medical Superintendent
Safderjung Hospital & VMMC,
New Delhi.

Item No. 1 - Modification of technical specifications for purchase offor 64 channel Video EEG Machine Digital with simulator with Central Reading Station

1. The word 'simulator' in the above heading is replaced by 'stimulator'
2. Under the heading of 'Amplifier for each system', the following points are deleted
    - The amplifier unit shall include two isolated ground and reference connections and (min) 12 Hour Battery Backup with 32 GB onboard memory to facilitate data catch up automatically when patient is out of range
    - There should be facility to automatically transfer the recorded data from the on board memory as soon as the amplifier is connected to Ethernet again.
3. Under the heading of Review software, the following points are added
   Facility for automatic generation of report.
   Easy customization of montages and re-montaging to be possible, during review on acquiring system or any other networked systems
   Facility for viewing several recordings in tiled or cascading windows. Facility to review and run two events simultaneously.
   Facility to Review and prune/ modify/remontage the data recorded from these systems on a CD / DVD/Pen Drive; on any PC without the need of loading additional REVIEW software.

4. After the review software specifications as above, the following data are added
   Video Camera (2 Nos. for system) :
   System should have Facility for MPEG 4 Video Compression and should Supply with High resolution PTZ Zoom Camera and IR camera with Video Mixer. Wall mounted Sony / Panasonic High resolution Digital video Camera. Perfect synchronization between Video & EEG recording.
   Specs for Video Camera as follows: 1/4" EXview HAD CCD Sensor, Minimum Illumination: 0.65 Lux, 28x Optical Zoom Lens, Robotic Pan, Tilt and Zoom, Night vision with IR Remote Commander Unit with, Fast f/1.35-3.7 Maximum Aperture

   HV and Photic Stimulators (1Nos.):
   HV and PHV: Automatic time counters and event insertion during Hyperventilation.
   Photic Stimulator: White LED Photic Stimulator must be on the adjustable stand for better arrangement in less space with Manual and automatic programmable through software.
   Should be able to connect with any system.

   Acquisition Station Computer (01 Nos.): Wall mountable (non space occupying)
   The acquisition station computer should strictly be supplied by the manufacturer along with the system after passing the strict in house quality checks by the manufacturer to comply with medical equipment standard.
   Latest Core i7 or better available processor
   8 GB RAM or better available RAM
   1 TB or better available HDD

Preloaded Microsoft genuine windows 8/(compatible windows and bit to the software) ultimate with latest pack with Microsoft windows CD
DVD Writer, key board, optical mouse with standard accessories
24" colored LED display monitor
Good study mike to pick up sound (not collar wearable), inbuilt speakers for hearing sound (not extra external speakers)
The system comes with its standard trolley and on the later stages if we want it wall mounted it can be done without any other charges.

Review Station Computer (01 Nos. for Neurology faculty room):
The PC should be branded and not assembled.
Latest Core i7 or better available processor
8 GB RAM or better available RAM
1 TB or better available HDD
Preloaded Microsoft genuine windows 7 ultimate with latest pack
Blue Ray Disc Writer, DVD Writer, key board, optical mouse with standard accessories
24" colored LED display monitor

5. In the general specification, the sentence 'The system should be wall and hinge mountable with mobile arms (from Manufacturer' is replaced by 'The system should be supplied with mountable trolley of good quality, based on specification and design of principal supplier/manufacturer'.
6. Under the heading of 'Consumables', the following sentence ofCompatible EEG net caps 3 of each small, medium and large size saline applicable (total 09), is replaced by 'Compatible EEG net caps 1 of each small, medium and large size saline applicable (total 03]'
7. Under safety standards, the words '**CAN/CSA-C22.2 no. 601.1-M90** Medical Electrical Safety Standard (Canada)' are deleted.

Rest of the terms and conditions are same.

Item No. 2 - Modification of technical specifications for purchase of portable EEG Machine

1. Item no 2.6 ‘Should be supplied with external camera with remote for video capturing. The camera should be integrated with on line EEG recording [Rate to be offered separately]
   Modified as ‘Should be supplied with external camera with remote for video capturing. The camera should be integrated with on line EEG recording and video camera specification is as follows. Sony / Panasonic High resolution Digital video Camera. Perfect synchronization between Video & EEG recording. The video camera should have 1/4" EXview HAD CCD Sensor, Minimum Illumination: 0.65 Lux, 28x Optical Zoom Lens’

2. Item no. 3.2 [2] 50 boxes of 10-20 conductive paste is modified as 50 jars each of 228 gms of 10-20 conductive paste

3. Item 3.2[3]: The sentence ‘5 sets of medium, small and large caps’ is modified as one set of medium, small and large caps.

4. Item 3.2 [4]: Mountable trolley [supplied by principal] is modified as ‘mountable trolley of good quality based on specification and design of principal

5. Item 3.2[1] : The word ‘with extra one cable’ is deleted.

6. Item no 6.1 should be read as ‘U.S. FDA approved ‘. The words ‘’and/or European standard approved product’ are deleted.

Rest of the terms and conditions are same.

<u>Item No. 3</u> - Modification of technical specifications for purchase of <u>EMG/NCV/EP System</u>

1. Under Electrical stimulator, the word electrical stimulator probe [2 Nos] is modified as 'hand held electrical stimulator probe [2 Numbers]'.

2. System software: System must support Microsoft windows 7 is modified as 'system must support windows 7 or above'

3. In the system software, the words 'Tremor analysis with accelometer [two in number]' are deleted.

4. The sentence 'Trolley good quality imported with amplifier arm' is modified as 'Trolley good quality with amplifier arm'

5. In regulatory standards, the words '**CAN/CSA-C22.2 no. 601.1-M90** Medical Electrical Safety Standard (Canada)' are deleted

6. In the sentence 'Visual Stimulator Pattern 21', Gold foil electrodes for ERG, the number of gold foil electrodes required is THREE.

7. The sentence 'Class 2B, Medical Device Directive (MDD) product should provide additional following things' is deleted.

8. Under Amplifier, the words ' 22 input connectors for four switched channels configured according to the 10-20 EEG electrode layout that can be used in any combination and Extended head box with 22 input connectors for four switched channels configured according to the 10-20 EEG electrode layout should be available' are deleted.

Rest of the terms and conditions are same.

<u>Item No. 4</u> - Modification of technical specifications for purchase of <u>Video Polysomnography lab system</u>

1. Under item 2, the light weight means that it should be less than 800 gms.

2. Under item 2, the words 'Should be able to record systolic BP either from PTT signal or from 3rd party stand alone (NIBP measurement form non inflating finger cuffs' are deleted.

3. The words **'**Ability to wireless transmission of PSG data is modified as Ability to wireless transmission of PSG data from patient to P.C.

4. The words 'Multiple type of masks with different sizes' is modified as 'one each of small, medium and large masks'.

5. Item 9 'Should have Synchronized Digital video with Camera and Infrared source. video camera with high audio quality without external microphone (Best possible in industry) is modified as 'Should have Synchronized Digital video with Camera and Infrared source. video camera with high audio quality without external microphone (with specifications of video camera as follows:
Sony / Panasonic High resolution Digital video Camera. The video camera should have 1/4" EXview HAD CCD Sensor, Minimum Illumination: 0.65 Lux, 28x Optical Zoom Lens'

Rest of the terms and conditions are same.

Tender No.-HSCC/SJH/MEDICAL EQUIPMENT/2015/03 dated-15/5/15

Tender Specifications	**Amended As**
Item No. 5 Haemodialysis Machine with SLED and Hemodiafiltration facility	
Point no. 2.1 - COMPULSORY accessories, which are must for smooth and safe running of machine must be quoted along with machine including data processing computer and printer if required.	It refers to machine consumables
Point no. 3.5: Suitable servo controlled stabilizer/CVT/UPS should be supplied, if required.	Provision of uninterrupted power supply available at site
Point no. 4.2: Should be FDA/European- CE/IVD certified.	Should be either USFDA or European- CE certified.
Point no. 5.7 : List of important spare parts and accessories with their part number and cost should be provided.	To be covered by the vendor under warranty & CMC contract charges.
Point no. 5.11: If some component/ part of machine or its accessories are to be provided by Indian counterpart/agent that should be very clearly defined in the bid and its cost should be clearly separated out.	To be covered by the vendor under warranty & CMC contract charges.
1.12 Wide range blood pump flow option (50-600 ml per minute with increment of 10 ml) adaptable to standard A-V bloodlines.	Amended as Blood Flow Option (50-500 ml/min) with increment of 10 ml.
1.13 Facility to show treatment parameter trends every 15-20 minutes digitally as well as graph	All important treatment parameter must be displayed
1.20 High Resolution color touch screen with functional keys.	LCD display with touch pad or touch screen as UI
1.11 Wide dialysate flow rate option (100-1000 ml/mt with increments of 100 ml/mt).	Dialysis flow min. is 100 ml/min. for SLED purposes along with wide range blood pump options.
Item No. 6 Haemodialysis Machine (Regular):	
Point no. 1.11: Facility to show treatment parameter trends every 15-20 minutes digitally as well as by graph.	Deviation in this para if any may be considered a minor deviation as per the merit of the situation.
Point no. 1.18: High resolution color touch screen with functional keys.	LCD display with touch pad or touch screen as UI
Point no. 2.16: COMPULSORY accessories, which are must for smooth and safe running of machine must be quoted along with machine including data processing computer and printer if required	It means machine consumables.

Point no. 3.20: Suitable servo controlled stabilizer/CVT/UPS should be supplied, if required.	Provision of uninterrupted power supply available at site
Point no. 4.2: Should be FDA/European- CE/IVD certified.	Should be either USFDA or European- CE certified.
Point no. 5.7 : List of important spare parts and accessories with their part number and cost should be provided.	To be covered by the vendor under warranty & CMC contract charges.
Point no. 5.11: If some component/ part of machine or its accessories are to be provided by Indian counterpart/agent that should be very clearly defined in the bid and its cost should be clearly separated out.	To be covered by the vendor under warranty & CMC contract charges.
Item No. 7 Reverse Osmosis Water Treatment Plant for Dialysis Machines:	
Point no.1.1: Supply , erection, commission, testing, operation and maintenance of water treatment plant. Suitable for supplying water for 20 hemodialysis machine and two dialyser reprocessing machine with necessary supportive arrangement like pre-treatment, RO unit, post treatment unit, electrical panel, RO panel, measuring devices etc for the proper functioning of the plant in the hemodialysis unit with the quality of treated water as per AMMI standard	Electrical Panel is a part of prerequisites of installation and to be provided by vendor.
Point no. 2.12: Service engineer for repair and maintenance of the system must be person of manufacturing unit	Service engineer for repair and maintenance should be provided by manufacturer certified local representative or parent company.
Point nos. 3.5: Particle filter, cartridge filter type of 50 micron & 10 micron.	No change
Point nos. 3.8: Should have fine filter, cartridge type of 5 micron to 1 micron.	No change
Point no. 4 RO Unit	No change
Point no. 4.1: Should be microprocessor based dual RO system which should produce water as per AAMI standard.	Dual RO System is required for providing ultra pure dialysis water for good quality dialysis.
Point no. 4.3: Should have inbuilt ability to show conductivity of permeate produced, temperature , yield, permeate output supply.	Deviation in this para if any may be considered a minor deviation as per the merit of the situation.
Point no. 4.9: Appropriate online UPS required for RO plant should include in the total cost.	Provision of uninterrupted power supply available at site. Bidder should visit the site.
Point no. 4.10: Should have fully automatic volume controlled disinfection cycle.	Should be automatic volume controlled disinfection cycle.

Point no. 5.1: Should have appropriate material and shape permeate storage tank of at least 1000 liters capacity with level control system	Tank capacity atleast 750 ltrs. Required to ensure uninterrupted dialysis.
Point no. 3.1 Pre treatment should have a mesh filter of 50 Microns	Required
Point no. 3.2There should be an automatically controlled solenoid valve to fill the raw water tank.	Required
Point no. 3.5Particle filter, Cartridge filter type of 50 microns & 10 Microns	Required
Point no. 3.8Should have fine filter cartridge type of 5 micron & 1 Micron	Required
Point no. 4.3 Should have inbuilt ability to show conductivity of permeate produced, temperature, yield, permeate output supply.	Should have inbuilt ability to show conductivity of permeate produced & rejection rate with optional display of temperature & permeate output supply.
Point no. 4.9Appropriate Online UPS required for RO plant should included in the cost	Provision of uninterrupted power supply available at site. Bidder should visit the site.

Revised / amended Technical Specifications

<u>Item No. 8</u> - Positron Emission Tomography/Computed Tomography (PET \CT) Imaging System

1. General

i**.** A latest technology whole body **P**ositron **E**mission **T**omography system with minimum of 64 rows of detectors acquiring 128 slices per rotation DICOM compatible and true isotropic volume acquisition spiral CT scanner designed for providing volume measurements of metabolic and physiological process**es** using positron emitters, as well as for producing accurate structural and anatomical fusion image**s** and making attenuation maps for CT base attenuation correction.
The CT **should** also be able to function as a full CT machine **standalone as required.**

ii. The system should have capability for simultaneous data acquisition, processing, image reconstruction & analysis and fusion **of PET with** CT image.

iii. The system should operate on 220(<u>+</u>10) V A/C, 50HZ or 440V(<u>+</u>20) A/C, 50HZ

iv. **Should be FDA & CE approved product. Following documents** must be attached with the technical bid or else the bid will be summarily rejected.
FDA and CE approval certificate
AERB type approval certificate for CT for the Quoted model

v. For acceptance of the equipment and to fulfil the AERB require**ment**s, all the QA test as per NEMA guideline**/ AERB requirement** will be done and demonstrated by the company engineer(s) and all the required phantoms will need to be arranged by the vendor and detailed report to be submitted in stipulated time frame. The company will also arrange such phantoms during periodical QA/QC test**s**.

vi. All the application, Operating and Service manuals in English language in duplicates should **be** provided by the vendor at the time of handing over machine

vii. Any options or added facilities not indicated in the specification may also be given. Any improved modification or updated versions of the system can be included in the quotations.

2.Gantry and detector:

i. Gantry should have integrated PET & CT hardware (Single Gantry).

ii. The patient gantry aperture size should be ≥ 70 cm and uniform for both, PET and CT

iii. The PET scanner should employ lutetium based crystals (LSO/LySO) for detecting 511 KeV gamma photons due top positron interaction

iv. PET crystal thickness should be <u>≥</u>20mm

v. Ring diameter should be <u>≥</u> 80cm

vi. The transverse field of view should be <u>≥</u>50cm

vii. The geometric axial field of view (FOV) as measured from the outer edges of the crystal must be <u>≥</u>15cm

viii. **It** must be capable of acquires 45 or more transverse cross sectional slices, simultaneously without undergoing any axial motion .

ix. The separation (centre to center) between slices acquired simultaneously without any axial motion should be <u>≤</u>5 mm

x. The scanner must have a detection configuration of continuous ring around the patient. It must not have “gaps” of detection or areas of decreased sensitivity around the ring of detection.

xi. The scanner must have low power laser lines orthogonally mounted on the gantry for patient alignment and auto – contouring. The laser should be mounted in such a ways that the patient can be positioned from either side of gantry and the patient bed.

x. Integrated cooling system with heat dissipation outside the gantry room.

3. PERFORMANCE Specifications

i. All specifications must comply NEMA standards publication **NU 2- 2007** or latest performance measurements without altering instruments parameters. QC software to

measure these parameters must be available in the system.
ii. Axial & Transverse spatial resolution **at 1 cm & 10 cm from the central axis of the gantry should be ≤ 5 mm FWHM** iii. Additional feature that helps to enhance the NEMA spatial resolution values **must be offered as a standard package.**
iv. System sensitivity ≥5cps/KBq
v. Total uniformity : please specify
vi. Scatter fraction **<40%**
vii. Activity at which peak NECR counts occurs (MBq)?
viii. Peak NECR (kcps): please specify
ix. Methods of scatter correction?
4. CT specifications
i. Multi detector CT having minimum of 64 rows of detectors capable of constructing 128 slices per rotation
ii. Image slice width should be from ≤1mm to 10mm and freely selectable
iii. **Rotation time should be ≤0.5sec**
iv. Multiple pitch factor settings should be available
v. Low contrast delectability should be at least 4mm @0.3 % on 20 cm CATPHAN phantom
vi. High contrast resolution should be **15.0 Lp/ cm** or better
vii. Microprocessor controlled high frequency x- ray generator with output of 70 kw or more. Tube voltage adjustable from of **80 kV -140 kV**, Anode heat storage capacity of 8.0 MHU or more, Tube current of ***20-600 mA***.
5. Patients bed
i. Precision bed with low attenuation carbon fiber pallet and minimum sag of the patient table top.
ii. It should be able to bear **190 kg or more** patient weight.
iii. The horizontal motion of the patient bed must be electrically motorized and computer controlled with an independent operator control option as well. Operator controls accessible from both sides of the patient must be provided for both horizontal and vertical movements.
iv. Full body horizontal length should be ≥190 cm & vertical movement between 60-110cm.
v. A digital readout of the horizontal and vertical position of the bed must exist and must be located near the aperture controls for the bed to provide ease in positioning.
vi. **Low** attenuation ergonomic head holder, pediatric pallet/restrain, knee- leg support and other accessory pallets.
vii. A flat table-top for RT planning should also be supplied with required software
6. Data Acquisition and Reconstruction Workstations: (one acquisition and two processing workstations)
i. Data acquisition workstation independent of main processing unit having high definition (HD), OSEM and Time-of – Flight and any other lasted reconstruction algorithms as a standard features. The workstation should be of latest specifications at time of shipment.
ii. PET data acquisition and image reconstruction should be concurrent process.
iii. If list mode, PET data reconstruction should not take more than 90 sec/ bed.
iv. The processing workstation should be high performance Pentium i7 quad core or equivalent with multi tasking operating system having minimum of 8 GB RAM, 3 GHz processor speed, minimum 1 GB graphic card, **2**TB or more SCSI hard drive (if less**,** another HDD may be included), optical mouse**,** key board and high resolution flat panel dual view LCD monitor of **≥19"** size with minimum resolution of 1280 **x**1024. **It** should also have DVD drive preferably with read / writer facility. It should have both serial and USB ports the computer workstation should be of latest specifications at the time of shipment with archival system with **4 TB** or more storage capacity.

v. Another workstation with similar configurations (as at iv above) with all **standard permanent multiple licences** software (s) to review and report PET /CT and CT.
vi. Intercom with user programmable patient instructions system.
vii. Communications – Ethernet with TCP/IP protocols and DICOM -3 or latest networking of all possible equipment (CT/MRI) in the facility with their peripherals and PACS available in the department.
7. Data acquisition software
i. *Acquisition modes* : Acquisition in full **3-D** mode must include Static, Whole body, Dynamic and Gated (cardiac & respiratory) acquisition.
ii. *Acquisition protocols*: The acquisition program should support pre programmed scan protocols with acquisition and reconstruction parameters and patients information with simple, dynamic editing of parameters. These parameters would include all information necessary to acquire data on the PET scanner (e.g., scan duration, patient information, bed motion), as well as information necessary for reconstruction. Same PET CT protocol should be used for Contrast CT in single acquisition
iii. *Whole body acquisition*: Multi bed acquisitions (e.g for the purpose of whole body oncology studies) should advance the bed from one position to the ne**x**t automatically.
iv. *Dynamic frame mode acquisition:* The acquisition set-up software must support multi frame acquisition of different (arbitrary) frame duration's with no loss of data between frames. Alternatively, list mode acquisition may to be available as standard feature.
v. *Reconstruction***:** Image reconstruction should simultaneously start for the acquired image while acquisition is still in process.
vi. **Time of flight** and HD must be available for image reconstruction
vii. Fully 3-D Iterative reconstruction technique should be available as standard protocol.
viii. Low dose iterative reconstruction algorithm should also be provided
ix. *Pixel size*: The user should have the option to specify the pixel size for reconstruction. The reconstruction program should support reconstruction in images sizes of at least 128x128 or higher.
x. *Scatter correction* : scatter correction must be provided based on scan of the actual patient whose scan is being corrected and processed automatically
8. Clinical application software
i. Software for data collection, CT based attenuation correction, reconstruction of image for co-registration, Full 3-D prospective reconstruction with iterative scatter correction, advance 3-D **Volume rendering with 3-D fusion, virtual endoscopy, Model based 3-D** scatter correction, MIP, whole body acquisition, dynamic acquisition.
ii. System management software for computerized calibration, quality control for all scanner performer parameters, diagnostics and administration of the patient's record.
iii. Software for PET/CT/MRI/SPECT fusion. It should be able to process the imported data from these modalities installed at other location.
iv. Processing workstation should have image comparison software for the baseline and follow – up studies.
v. Processing workstation should have viewing and processing software for dynamic acquisition data.
vi. Provision to make DICOM/PDF/JPEG/AVI/MPEG digital output .
vii. Latest advanced CT radiation dose reduction technology and software that should offer higher speed image reconstruction.
viii. 4-D TOF or better, respiration gating software and hardware for PET/CT acquisition and processing should be a standard feature.
ix. System must have neuro quantification software for neurological applications (**with normal databases)** including assessment of dementia by measuring relative SUV.

x. Complete cardiac package with ECG gated studies (prospective and retrospective tagging) and ECG gate**d** dose modulation.
xi. Dedicated licensed latest version of Emory cardiac toolbox including optional software (3.05suite /latest version) **/ Corridor4DM nuclear cardiology quantification software.**
xii. Advanced CT applications software for coronary imagin**g**, vessel analysis coronary tree extraction, calcium scoring for coronary arteries, one touch volume rendering of the whole heart, CT coronary and PET/SPECT MPI cardiac fusion
xiii. On site remote service diagnostic facility **with dedicated** connection to be provided.
xiv. All future software updates during warranty period and CMC shall be free of cost.
9. Peripherals / accessories:
i. A **three** phase input / output **UPS** (approved make) with maintenance free batteries (Exide, Amrom, Base, Yuasa) for the complete system including **CT** with minimum 30 min backup at full load should be provided. One extra set of batteries of reputed make (for the **UPS**) to be supplied after 2-3 years.
ii. Latest **automated** dual head pressure injector compatible with CT and 200 sets of 200 ml disposable syringes with tubing and connector.
iii. ECG gating device & necessary electronics to enable gated cardiac acquisition.
iv. Required phantoms for CT & PET Quality Assurance and system calibration including one NEMA phantom **and associated accessories to perform QA as per NU 2 – 2007/ latest and associated software to analyse QC parameters. Five new sets of sources for PET QC and calibration shall be provided on demand and responsibility of disposal of old sources shall lie with the vendor.**
v. Dry laser camera on LAN with facility of taking printout on film sizes at least 14”x17”with 200 films of 14”x17” included.
vi. High resolution color laser printer on LAN for color hardcopy on paper with 5 sets of all cartridges.
vii. One stainless steel side trolley in the PET /CT room
viii. One crash cart Trolley
ix. One electrical weighing machine for measuring up to 200 kg.
x. Two X-ray **LED** illuminators for 2 films view of 14” x 17” size and one X-ray **LED** illuminators for 4 films view of 14” x 17” size.
xi **Two single syringe infusion pumps.**
xii. One vital sign monitor.
xiii. 3 x 6 foot lead glass (≥2mm lead equivalent) for PET radionuclides
xiv. Tools (hardware & software) for PET / CT guided tissue biopsy.
xv. Dehumidifier of **adequate capacity** for PET/CT room.
xvi. **CT Three Moving** laser system - **patient alignment system** for RT planning.
10. Hot Lab & Monitoring equipment
i. One SS trolley in injection room with a provision to mount **L**- bench for PET radionuclides and placing dose calibrator in it.
ii. Two dose calibrators for PET radio pharmaceuticals (Atomlab 500 dose calibrator or equivalent) including radioactive reference \ quality control sources and dose calibrator shielding rings (2.25” thick lead).
iii. **Two L**- bench with lead glass for handling PET RPS.
iv. One **PET** dose drawing system \ module for drawing F-18 /FDG from a **vial** in to a syringe (Biodex or equivalent)
v. 40**(forty)** painted Lead bricks and 8 lead corners for F- 18 handling.
vi. **Three** waste bins with minimum 12 mm **lead** on all side for PET RPS waste
vii. Two numbers each **vial** shields for 10ml and 30ml.
viii. Tungsten syringe **shield** (for PET RPS) (≥9mmtungsten) -2cc & 5cc -2 no. each.

ix. Four lead shielded syringe carrier for F-18 FDG – Two for single dose and two for multiple doses.

x. Shielded syringe holder**s** - **S**ix no. (**T**wo each for 2ml, 5ml & 10ml)

xi. Two digital µSv/hr range GM based survey –cum – contamination monitors.(**FDA approved)**

xii. Digital Area Zone Monitors with built-in GM Gamma Detector for continuous monitoring- Four numbers. (**FDA approved)**

xiii. Five digital pocket dosimeters (digital) - Gamma & Beta. (**FDA approved)**

xiv. PET sharps container - 2.no

xv. One decontamination kit.

xvi. Radiation detection alarms- Two no.

xvii. Digital temperature and humidity control system- two no

xviii. Light weight radiation protection aprons- five no

xix. High energy shielded decay drum (shielded with **0.5"** lead for high energy isotopes) -two no.

xx. Any other essential accessory not mentioned in the list should also be quoted and supplied

The make and model of all the instruments **must** be mentioned

11. Turnkey (The supplier shall be required to undertake all the interior work in the PET/CT rooms and PET laboratory area as per the regulatory requirements) **(Copy of AERB approved Map in annexure-A)**

i. **Civil work: In the civil work following works are to be undertaken.**

a. The walls should be finished with acrylic / plastic emulsion as per AERB requirement. The walls in the patient's waiting area should be finished with vitrified tiles up to 6 feet level.
b. The flooring in the PET/CT room and PET radio chemistry should be as per AERB regulations. Flooring of other rooms shall be of vitrified tiles of 60 x 60 cm size of reputed make like Johnson / Kajaria / Naveen.
c. Demarcated PET/CT area shall be finished with fire resistant metallic false ceiling (Armstrong/Lindner/Dexume) (ISI/BIS)
d. All the doors (with lead sheet wherever required as per AERB approved map) should be provided with necessary fittings, hydraulic type door closures (DORMA / equivalent Make) and with Mortised locks of Godrej / equivalent reputed make.
e. Lead Glass window between console room and PET CT room (refer to S.No.:9(xiii)).
f. Proper signage both external and internal

ii. **Plumbing work has to be carried out as per requirement.**

The waste pipes and accessories should be of centrifugally cast iron of ISI make and the connection of existing main hole in the public health shafts shall be done. All water pipes shall be Galvanized iron of TATA / equivalent make and filling shall be SUW / UF/ UNIK make. The grating shall be chrome plated. All CP fittings shall be of EBONY / Jaguar / ESSCO.

iii. **Electrical work:**

a. The firm is required to specify load requirement i.e., required for the PET/CT, air conditioning, room lighting and for the accessories, if any.
b. Only ducting of central air conditioning to be done in all rooms of PET/CT facility.
c. Suitable air conditioner(s) (carrier/ Hitachi/ voltas/ Daikin / Ogeneral/ Emerson/ Bluebox/ Stulz/ Hiross) to be provided in PET/CT equipment room and console room to maintain ambient temperature and humidity as per equipment(s) requirements. Extra air conditioner(s) of same strength as above to be provided as back up for PET/CT equipment room and console room.
d. Earthing with copper plates/ strip is to be provided for the main equipment as per requirements.
e. A distribution panel of standard make and appropriate capacity shall be provided for main equipment with complete cabling, terminal, earthing etc. and any other items to complete

the work.

d. The switch gears (MCBs / ACBs / MCCBs) should be of Siemens / Hager (L&T) / ABB make. L.T. distribution board for MCBs etc. should be of Siemens / Hager (L&T)/ ABB make

e. Electrical wires (ISI/BIS approved) should be of copper of different capacity as per the international load requirement and should be of Finolex / polycab / L&T make.

f. Modular range Switches / Sockets of MK / North West / Ancor (wood) should be provided and fixed as per requirement (ISI/BIS).

g. General lights (in adequate number for providing LUX as per NBC) should be of LED mirror optic reflector type of Philips / wipro / Cromptom make. Light dimmers (down lighters) should also be fixed in the PET/CT equipment room. (ISI/BIS)

h. CCTV system (Honeywell/Seimens/Scheider electric/Bosch)for patient waiting areas with control in console room. Music and Public Address system (Sony/Philips/Harmon/Bosch)for calling / informing the patients in the patients in the waiting areas.

iv. **Miscellaneous** (The vendor should also include the following in the scope of work)

a. Ultrasonic Pest repellents to be provided and installed.

b. Furniture and fixtures for all the area should be provided as per requirement. Furniture and other items, mentioned should be of Godrej / equivalent reputed make.

v. **Room Layout**

A typical layout plan (with dimensions) showing the placement of all specified hardware, including PET CT, consoles, data acquisition / processing workstations, any imaging table(s) and rails along with details of computer furniture, conduiting and earthing etc. would have to be provided to the hospital /appropriate authority. Renovation of room(s) would have to be done as mentioned above after the obtaining the approval of the plan by the hospital / appropriate authorities

vi. **Defect liability of turnkey works**

a. The turnkey work including installation / commissioning of all the turnkey items should be completed within 3months.

b. Certification to the effect that the work has been executed as per the specifications incorporated in the above document will be by the HSCC Ltd. / and Safdarjang Hospital.

c. The turnkey works shall be guaranteed for a period of 5yrears from the date of commissioning against any defective material / workmanship. The warranty and AMC of the air Conditioners will form part of main equipment.

d. Comprehensive maintenance contract for whole system for a period of FIVE years after the expiry of warranty period at S.No.:12(ii) should include CMC of turnkey also

12. Warranty

i. The complete system (including accessories, the radioactive reference sources, crystals, detectors, CT x- ray tubes replacement and turnkey works with air conditioners(s)) **shall** have a guarantee \ warranty for a period of FIVE years after the satisfactory commissioning and handing over of the equipment.

ii. Comprehensive maintenance contract for whole system including spares such as CT x-ray tube replacement as and when required, accessories and turnkey works along with air conditioner(s) for a period of FIVE years after the expiry of warranty period should be quoted separately. This would be taken into consideration for deciding L-1.

The peripherals /accessories, electronic / electrical consumables (leads, probes, batteries etc.) phantom source and calibration sources and batteries of UPS will also form part of the warranty and CMC. Service, repair & maintenance of all third party items will be the sole responsibility of primary vendor.

iii. At least 95% uptime (24x7) should be **maintained** during warranty as well as CMC period. If the specified uptime is not achieved, the warranty period will be extended by double the

number of days for which guaranteed up-time period criteria was not met / penalty may be levied as per discretion of the hospital.
iv. Onsite training by trained engineers and application specialists for at least 2 weeks period.
v. The company must ensure spares of the whole system for a period of 10 years from the date of installation.
vi. After sale service to be available locally (Delhi NCR).