NATIONAL TENDER ENQUIRY DOCUMENT

FOR PURCHASE OF MEDICAL EQUIPMENT

FOR & ON BEHALF OF

Chittarranjan National Cancer Institute, Kolkata (Campus -II)

On E-Tender Basis

Tender Enquiry No.: HSCC/PUR/CNCI/Kolkata/Medical Equipment/02 dt. 02.11.2017

HSCC (INDIA) LTD

(A GOVERNMENT OF INDIA ENTERPRISE)
Plot No. 6-A, Block-E, Sector-1,
NOIDA (U.P.) – 201 301
PHONE: 0120-2540153
FAX: 0120-2542447
URL: www.hsccltd.com

Important to Bidder:

A. Off- line documents submission:- Sealed part –I document is to be submit in tender box in as per the schedule mentioned in section –I.

- **Bid Security (EMD) – in original**
- **Affidavit- in original.**
- **Bid Summary Sheet**

Note:

1. **Bidders are advice to submit above mentioned documents in tender box only in hard copy.**
2. **EMD favour of "HSCC (India) Ltd" payable at New Delhi/ Noida**

B. On line documents submission:-

- **(i) Part –II : Following scan documents upload as per chronological order as mentioned below:**

- **01 Bid summary sheet**: - Bid summary sheet should be as per Section XXII
- **02 EMD**: Demand draft / BG
- **03 Power of Attorney**- Power of attorney should be as per Section XXIII
- **04 Tender Form** Tender form should be as per section X.
- **05 Manufacturers Authorization Form-** Manufacturers Authorization Form should be as per SECTION – XIV
- **06 Affidavit/Undertaking** Affidavit/Undertaking should be as per Section XIX.
- **07 Proforma A** The performa "A" should as per TE document and supported **with purchaser order in accordance to section –IX in order to qualify the qualification criteria. The latest purchaser order along with End user certificate /installation certificate is to be scan from original copy**.
- **08 PAN and Certificate of Incorporation/Declaration":** PAN Card and Certificate of Incorporation/Declaration of bidder firm.
- **09 Audited Annual report":** Audited Balance sheet (2013 - 14, 2014 – 15 & 2015 – 16) of last 3 completed financial years certified by Chartered Accountant is to be Colour scan from original along with the certificate issued by Chartered Accountant certify
- **10 Certificate of Regn**.":- The certificate of registration Issued by Directorate of Industries/NSIC, if SSI unit is to be Colour scan from original copy.
- **11 Quality Control Requirements":-** This format should be as per Section VIII.
- **12 Bidder Information:-** Bidder Information should be as per Section XXIV
- **13 Technical Compliance":-** Technical compliance for the quoted goods vis-à-vis the Technical specifications with all related brochures/catalogues in the tender enquiry, technical bid.

Note: Before uploading, bidder should ensure that all above documents is to be sign & stamped.

C. Price Bid

Part-III:- Price Bid is to be filled up on line as per the format mentioned in the TE document

- The bidders are required to be registered at HSCC e-tender portal www.tenderwizard.com/HSCC and downloading the bid document from HSCC website. For submission of the bids, the bidders are required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities.

Tender/Bid Validity: The tender/bid shall remain valid 360 days from the date of Techno – Commercial Tender opening, date prescribed in the TE document. The EMD shall be valid for 415 days from Techno – Commercial Tender opening d

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Chittarranjan National Cancer Institute, (Campus –II), Kolkata
Ministry of Health & Family Welfare, Govt. of India,

NATIONAL COMPETITIVE BIDDING (NCB), INVITATION FOR BIDS (IFB)

FOR SUPPLY, INSTALLATION, TESTING & COMMISSIONING MEDICAL EQUIPMENT
E-Tendering

Director, Chittarranjan National Cancer Institute, (CNCI –Campus –II) Kolkata under Ministry of Health & Family Welfare, Govt. of India through their Consultants HSCC (India) Ltd. invites **On-line bids** from eligible bidders, in single stage two bid system for supply, installation, testing, commissioning & handing-over of various Medical Equipment **for Chittarranjan National Cancer Institute, (Campus –II), Kolkata**

The bidders are required to be registered at HSCC e-tender portal www.tenderwizard.com/HSCC. Please log on to www.tenderwizard.com/HSCC only for downloading bid document and for participation through **E-Tendering basis**. For submission and other details, please refer HSCC e-tender portal www.tenderwizard.com/HSCC. For submission of the bids, the bidders are required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities. The bidders are required to submit Original Bid Security as per Bid Document and submit in the office of **CGM, HSCC (India) Ltd., E-6A, Sector-1, Noida** – 201301 **before the date and time fixed for opening of the bid either by registered post or by hand failing which the bid will be declared nonresponsive**

Complete set of Bid Documents has been made available at E-Tender portal www.tenderwizard.com/HSCC, www.hsccltd.com Prospective bidders are advised to regularly scan through HSCC E-Tender portal www.tenderwizard.com/HSCC, www.hsccltd.com as corrigendum/ amendments etc., if any, will be notified on this portal only and no separate advertisement will be made for this.

Chief General Manager, HSCC (I) Ltd
For & on behalf of Director CMCI, Kolkata

SECTION - I

NOTICE INVITING TENDERS (NIT)

Open E- Tender

FOR

Chittarranjan National Cancer Institute, (Campus –II), Kolkata
Ministry of Health & Family Welfare, Govt. of India,

Tender Enquiry No.: HSCC/PUR/CNCI/Kolkata/Medical Equipment/02 dated 02.11.2017

Director, Chittarranjan National Cancer Institute, Kolkata under Ministry of Health & Family Welfare, Govt. of India through their Consultants HSCC (India) Ltd. invites **On-line bids** from eligible bidders, in single stage two bid system for supply, installation, testing, commissioning & handing-over of various Medical Equipment **for Chittarranjan National Cancer Institute, (Campus –II), Kolkata**

SL .NO	NAME OF THE EQUIPMENT/ INSTRUMENT	Section	Qty.	EMD (Rs.)
1.	High-Energy Linear Accelerator with IMRT, IGRT, VMAT, SRS/SRT/SBRT, Eelectron & FFF Facility	Radiotherapy	2	60,00,000/-
2.	Wide Bore 4D CT – Simulator	Radiotherapy	1	6,00,000/-
3.	Radiotherapy Dosimetry, Quality Assurance and Immobilization Equipments	Radiotherapy	1	3,00,000/-
4.	PET – CT (Positron Emission Tomography CT Scan)	Radio Nuclear Medicine	1	28,00,000/-

Sl. No.	Description	Schedule
i.	Dates of sale of tender enquiry documents	**03.11.2017 to 06.12.2017, 10:00 hrs to 13:00 hrs IST**
ii.	Place of sale of Tender Enquiry Documents	HSCC (India) Ltd, Plot No. 6-A, Block-E, Sector-1, Noida (U.P)-201301
iii.	Cost of the Tender Enquiry Document	Free of cost
iv.	Pre Tender Meeting Date & Time	**14.11.2017**, 14:00 hrs IST
v.	Pre Tender Meeting Venue	HSCC (India) Ltd, Plot No. 6-A, Block-E, Sector-1, Noida (U.P)-201301
vi.	Closing date & time for receipt of Tender	**06.12.2017, 14:00 hrs IST**
vii.	Time and date of opening of Techno – Commercial tenders	**06.12.2017, 14:30 hrs IST**
viii	Venue of Opening of Techno Commercial Tender	Same as 2 (ii)

1. Please long on to www.tenderwizard.com/HSCC only for downloading bid document and for participation through **e-tendering basis**. All corrigendum/modifications/amendments, if

any, will be published on the website www.tenderwizard.com/HSCC only. All bidders are requested to visit this website on regular basis.

2. Tenderer may also downloaded the tender enquiry documents from the web site http://eprocure.gov.in/cppp, www.hsccltd.com and submit its tender by utilizing the downloaded document, along with the required non-refundable fee as mentioned in Para 3 above. The tender shall be submitted, all the necessary documents and in physical form (with respect to few documents as mentioned in the SIT) in parts/covers as mentioned below:

A. <u>In Original Offline & Copy Online (In separate Envelope : Part-I)</u>

(i) EMD (in original)
(ii) Affidavit as per Section XIX (in original)
(iii) Bid summary sheet as per Section XXII

B. <u>Online (Part-II)</u>

(i) Bid summary sheet as per Section XXI
(ii) EMD.
(iii) Power of Attorney as per Section XXIII
(iv) Tender Form as per section X.
(v) Manufacturers Authorization Form as SECTION – XIV
(vi) Affidavit as per Section XIX.
(vii) Proforma "A" **with purchaser order in accordance to section –IX in order to qualify the bidder qualification criteria. The copy of latest purchaser order along with installation certificate /service report performance certificate is to be scan and upload accordingly.**
(viii) Copy of PAN and Certificate of Incorporation/Declaration being a proprietary firm of the bidder.
(ix) Audited Annual report of last 3 completed financial years (Balance sheet and Profit & Loss Account).
(x) Certificate of Regn. Issued by Directorate of Industries/NSIC, if SSI unit.
(xi) Quality Control Requirements as per Section VIII
(xii) Bidder Information as per Section XXIV

3. All prospective tenderers may attend the **Pre Tender meeting**. The venue, date and time indicated in the Para 2 above.
4. **Bids to be submitted on-line only in single stage two bid system, i.e. Techno-commercial Bid (unpriced bid) and the Price Bid, for the above, including Bid Security on or before the closing date and time indicated above, failing which the tenders will be treated as late and rejected.**
5. In the event of any of the above tender opening/closing dates being declared as holiday/closed day for the purchase organization, the bids will be sold/received/opened on the next working day at the stipulated time.
6. The Tender Enquiry Documents are not transferable.
7. Bids shall be evaluated separately for each **item.**
8. HSCC reserves the right to accept or reject any or all of the tenders in full or in part including the lowest bid without assigning any reason thereof or incurring any liability thereby.

Chief General Manager, HSCC (I) Ltd
For & on behalf of Director CNCI, Kolkata

SECTION - II

GENERAL INSTRUCTIONS TO TENDERERS (GIT)
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GENERAL INSTRUCTIONS TO TENDERERS (GIT)

A. PREAMBLE

1. Definitions and Abbreviations

1.1 The following definitions and abbreviations, which have been used in these documents shall have the meanings as indicated below:

1.2. Definitions:

(i) "Purchaser" means Director, Chittarranjan National Cancer Institute, (CNCI) Kolkata under Ministry of Health & Family Welfare, Govt. of India
(ii) "Tender" means Bids / Quotation / Tender received from a Firm / Tenderer / Bidder.
(iii) "Tenderer" means Bidder/ the Individual or Firm submitting Bids / Quotation / Tender
(iv) "Supplier" means the individual or the firm supplying the goods and services as incorporated in the contract.
(v) "Goods" means the articles, material, commodities, livestock, furniture, fixtures, raw material, spares, instruments, machinery, equipment, medical equipment, industrial plant etc. which the supplier is required to supply to the purchaser under the contract.
(vi) "Services" means services allied and incidental to the supply of goods, such as transportation, installation, commissioning, provision of technical assistance, training, after sales service, maintenance service and other such obligations of the supplier covered under the contract.
(vii) "Earnest Money Deposit" (EMD) means Bid Security/ monetary or financial guarantee to be furnished by a tenderer along with its tender.
(viii) "Contract" means the written agreement entered into between the purchaser and/or consignee and the supplier, together with all the documents mentioned therein and including all attachments, annexure etc. therein.
(ix) "Performance Security" means monetary or financial guarantee to be furnished by the successful tenderer for due performance of the contract placed on it. Performance Security is also known as Security Deposit.
(x) "Consignee" means the **Director, Chittarranjan National Cancer Institute, (CNCI Campus -II) Kolkata** person to whom the goods are required to be delivered as specified in the Contract. If the goods are required to be delivered to a person as an interim consignee for the purpose of despatch to another person as provided in the Contract then that "another" person is the consignee, also known as ultimate consignee.
(xi) "Specification" means the document/standard that prescribes the requirement with which goods or service has to conform.
(xii) "Inspection" means activities such as measuring, examining, testing, gauging one or more characteristics of the product or service and comparing the same with the specified requirement to determine conformity.
(xiii) "Day" means calendar day.

1.3 Abbreviations:

(i) "TE Document" means Tender Enquiry Document
(ii) "NIT" means Notice Inviting Tenders.
(iii) "GIT" means General Instructions to Tenderers
(iv) "SIT" means Special Instructions to Tenderers
(v) "GCC" means General Conditions of Contract
(vi) "SCC" means Special Conditions of Contract
(vii) "DGS&D" means Directorate General of Supplies and Disposals
(viii) "NSIC" means National Small Industries Corporation
(ix) "PSU" means Public Sector Undertaking
(x) "CPSU" means Central Public Sector Undertaking
(xi) "LSI" means Large Scale Industry

(xii) "SSI" means Small Scale Industry
(xiii) "LC" means Letter of Credit
(xiv) "DP" means Delivery Period
(xv) "BG" means Bank Guarantee
(xvi) "ED" means Excise Duty
(xvii) "CD" means Custom Duty
(xviii) "VAT" means Value Added Tax –Deleted
(xix) "CENVAT" means Central Value Added Tax
(xx) "CST" means Central Sales Tax –Deleted
(xxi) "RR" means Railway Receipt
(xxii) "BL" means Bill of Lading
(xxiii) "FOB" means Free on Board
(xxiv) "FCA" means Free Carrier
(xxv) "FOR" means Free On Rail
(xxvi) "CIF" means Cost, Insurance and Freight
(xxvii) "CIP (Destinations)" means Carriage and Insurance Paid up to Consignee Site. Additionally the Insurance (local transportation and storage) would be extended and borne by the Supplier from ware house to the consignee site for a period including 3 months beyond date of delivery.
(xxviii) "DDP" means Delivery Duty Paid named place of destination (consignee site)
(xxix) "INCOTERMS" means International Commercial Terms as on the date of Tender Opening
(xxx) Detected
(xxxi) "Dte. GHS" means Directorate General and Health Services, MOH&FW.
(xxxii) "CMC" means Comprehensive maintenance Contract (labour, spare and preventive maintenance)
(xxxiii) "RT" means Re-Tender.
(xxxiv) GST – Goods and Services tax

2. Introduction

2.1 The Purchaser has issued these TE documents for purchase of goods and related services as mentioned in Section – VI – "List of Requirements", which also indicates, *interalia,* the required delivery schedule, terms and place of delivery.

2.2 This section (Section II - "General Instruction Tenderers") provides the relevant information as well as instructions to assist the prospective tenderers in preparation and submission of tenders. It also includes the mode and procedure to be adopted by the purchaser for receipt and opening as well as scrutiny and evaluation of tenders and subsequent placement of contract.

2.3 The tenderers shall also read the Special Instructions to Tenderers (SIT) related to this purchase, as contained in Section III of these documents and follow the same accordingly. Whenever there is a conflict between the GIT and the SIT, the provisions contained in the SIT shall prevail over those in the GIT.

2.4 Before formulating the tender and submitting the same to the purchaser, the tenderer should read and examine all the terms, conditions, instructions, checklist etc. contained in the TE documents. Failure to provide and/or comply with the required information, instructions etc. incorporated in these TE documents may result in rejection of its tender.

3. Availability of Funds

3.1 Expenditure to be incurred for the proposed purchase will be met from the funds available with the purchaser/consignee.

4. Language of Tender

4.1 The tender submitted by the tenderer and all subsequent correspondence and documents relating to the tender exchanged between the tenderer and the purchaser, shall be written in the English language, unless otherwise specified in the Tender Enquiry. However, the language of any printed literature furnished by the tenderer in connection with its tender may be written in any other language provided the same is accompanied by an English translation and, for purposes of interpretation of the tender, the English translation shall prevail**.**

4.2 The tender submitted by the tenderer and all subsequent correspondence and documents relating to the tender exchanged between the tenderer and the purchaser, may also be written in the Hindi language, provided that the same are accompanied by English translation, in which case, for purpose of interpretation of the tender etc, the English translations shall prevail.

5. Eligible Tenderers

5.1 This invitation for tenders is open to all suppliers who fulfil the eligibility criteria specified in these documents.

6. Eligible Goods and Services

6.1 All goods and related services to be supplied under the contract shall have their origin in India or any other country with which India has not banned trade relations. The term "origin" used in this clause means the place where the goods are mined, grown, produced, or manufactured or from where the related services are arranged and supplied.

7. Tendering Expense

7.1 The tenderer shall bear all costs and expenditure incurred and/or to be incurred by it in connection with its tender including preparation, mailing and submission of its tender and for subsequent processing the same. The purchaser will, in no case be responsible or liable for any such cost, expenditure etc regardless of the conduct or outcome of the tendering process.

B. TENDER ENQUIRY DOCUMENTS

8. Content of Tender Enquiry Documents

8.1 In addition to Section I – "Notice inviting Tender" (NIT), the TE documents include:

- Section II – General Instructions to Tenderers (GIT)
- Section III – Special Instructions to Tenderers (SIT)
- Section IV – General Conditions of Contract (GCC)
- Section V – Special Conditions of Contract (SCC)
- Section VI – List of Requirements
- Section VII – Technical Specifications
- Section VIII – Quality Control Requirements
- Section IX – Qualification Criteria
- Section X – Tender Form
- Section XI – Price Schedules
- Section XII – Questionnaire
- Section XIII – Bank Guarantee Form for EMD
- Section XIV – Manufacturer's Authorisation Form
- Section XV – Bank Guarantee Form for Performance Security/CMC Security
- Section XVI – Contract Forms A & B
- Section XVII – Proforma of Consignee Receipt Certificate
- Section XVIII – Proforma of Final Acceptance Certificate by the consignee
- Section XIX – Instructions from Ministry of Shipping/ Surface Transport (Annexure 1 & 2)
- Section XX – Check List for the Tenderers
- Section XXI – Consignee List

8.2 The relevant details of the required goods and services, the terms, conditions and procedure for tendering, tender evaluation, placement of contract, the applicable contract terms and, also, the standard formats to be used for this purpose are incorporated in the above-mentioned documents. The interested tenderers are expected to examine all such details etc to proceed further.

9. Amendments to TE documents

9.1 At any time prior to the deadline for submission of tenders, the purchaser may, for any reason deemed fit by it, modify the TE documents by issuing suitable amendment(s) to it.

9.2 Such an amendment will be published on website.

9.3 In order to provide reasonable time to the prospective tenderers to take necessary action in preparing their tenders as per the amendment, the purchaser may, at its discretion extend the deadline for the submission of tenders and other allied time frames, which are linked with that deadline.

10. Clarification of TE documents

10.1 A tenderer requiring any clarification or elucidation on any issue of the TE documents may take up the same with the purchaser in writing. The purchaser will respond in writing to such request provided the same is received by the purchaser.

C. PREPARATION OF TENDERS

11. Documents Comprising the Tender

Please refer Clause no. 3 under Section -I

Note: The bidder shall not submit hard copy of financial bid otherwise his tender shall be straightway rejected. Also, uploading the price bid in prequalification bid or technical bid will result in rejection of the tender

It is the responsibility of tenderer to go through the TE document to ensure furnishing all required documents in addition to above, if any.

11.1 The **Two Tender System**, i.e. "Techno – Commercial Tender" and "Price Tender" prepared by the tenderer shall comprise the following:

A) <u>Techno – Commercial Tender (Un priced Tender)</u>

i) Earnest money furnished in accordance with GIT clause 19.1 alternatively, documentary evidence as per GIT clause 19.2 for claiming exemption from payment of earnest money.
ii) Tender Form as per Section X (without indicating any prices).
iii) Documentary evidence, as necessary in terms of clauses 5 and 17 establishing that the tenderer is eligible to submit the tender and, also, qualified to perform the contract if its tender is accepted.
iv) Tenderer/Agent who quotes for goods manufactured by other manufacturer shall furnish Manufacturer's Authorisation Form.
v) Power of Attorney in favour of signatory of TE documents.
vi) Documents and relevant details to establish in accordance with GIT clause 18 that the goods and the allied services to be supplied by the tenderer conform to the requirement of the TE documents.
vii) Performance Statement as per section IX along with relevant copies of orders and end users' satisfaction certificate.
viii) Price Schedule(s) as per Section XI filled up with all the details including Make, Model etc. of the goods offered with prices blank (without indicating any prices).

B) <u>Price Tender:</u>

The information given at clause no. 11.1 A) ii) & viii) above should be reproduced with the prices indicated. **In case of tenderer quoting for more than 1 (one) item, the prices for the quoted items should be submitted in separate sealed covers.**

NOTE:

1. All pages of the Tender should be page numbered
2. It is the responsibility of tenderer to go through the TE document to ensure furnishing all required documents in addition to above, if any.

11.2 The authorized signatory of the tenderer must sign the tender duly stamped at appropriate places and initial all the remaining pages of the tender. Individuals signing the tender or other documents connected with a contract must specify whether he signs as:

i. A 'Sole Proprietor' of the firm or constituted attorney of such Sole Proprietor.
ii. A partner of the firm, if it be a partnership, in which case he must have authority to quote & to refer to arbitration dispute concerning the business of the partnership either by virtue of the partnership agreement or a power of attorney;
iii. Constituted attorney of the firm if it is a company.

NOTE:

1. In case of (ii) above, a copy of the partnership agreement or general power of attorney, in either, case, attested by a Notary Public should be furnished, or affidavit on stamped paper of all the partners admitting execution of the partnership agreement or the general power of attorney should be furnished.
2. In case of the Partnership firms, where no authority to refer disputes concerning the business of the partnership has been conferred on any partner, the tender and all other related documents must be signed by every partner of the firm.
3. A person signing the tender form or any documents forming part of the contract on behalf of another shall be deemed to warrantee that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.

11.3 A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.

11.4 Tender sent by fax/telex/cable/electronically shall be ignored.

12. Tender currencies

12.1 Deleted

12.2 For imported goods if supplied directly from abroad, prices shall be quoted in any freely convertible currency say US Dollar, Euro, GBP or Yen. As regards price(s) for allied services, if any required with the goods, the same shall be quoted in Indian Rupees only if such services are to be performed /undertaken in India. Commission for Indian Agent, if any and if payable shall be indicated in the space provided for in the price schedule and will be payable in Indian Rupees only.

12.3 **Tenders, where prices are quoted in any other way shall be treated as non -responsive and rejected.**

13 Tender Prices

13.1 The Tenderer shall indicate on the Price Schedule provided under Section XI all the specified components of prices shown therein including the unit prices and total tender prices of the goods and services it proposes to supply against the requirement. All the columns shown in the price schedule should be filled up as required. If any column does not apply to a tenderer, same should be clarified as "NA" by the tenderer.

13.2 If there is more than one schedule in the List of Requirements, the tenderer has the option to submit its quotation for any one or more schedules and, also, to offer special discount for combined schedules. However, while quoting for a schedule, the tenderer shall quote for the complete requirement of goods and services as specified in that particular schedule.

13.3 The quoted prices for goods offered from within India and that for goods offered from abroad are to be indicated separately in the applicable Price Schedules attached under Section XI.

13.4 While filling up the columns of the Price Schedule, the following aspects should be noted for compliance:

13.4.1 For domestic goods or goods of foreign origin located within India, the prices in the corresponding price schedule shall be entered separately in the following manner:

a) the price of the goods, quoted ex-factory/ ex-showroom/ ex-warehouse/ off-the-shelf, as applicable, including all taxes and duties like GST/Sales tax, Custom Duty, etc. already paid or payable on the components and raw material used in the manufacture or assembly of the goods quoted ex-factory etc. or on the previously imported goods of foreign origin quoted ex-showroom etc;
b) any sales or other taxes which will be payable on the goods in India if the contract is awarded;
c) charges towards Packing & Forwarding, Inland Transportation, Insurance (local transportation and storage) would be borne by the Supplier from ware house to the consignee site for a period including 3 months beyond date of delivery, Loading/Unloading and other local costs incidental to delivery of the goods to their final destination as specified in the List of Requirements and Price Schedule;
d) the price of Incidental Services, as mentioned in List of Requirements and Price Schedule;
e) the prices of Turnkey (if any), as mentioned in List of Requirements, Technical Specification and Price Schedule; and
f) the price of annual CMC, as mentioned in List of Requirements, Technical Specification and Price Schedule.

13.4.2 For goods offered from abroad, the prices in the corresponding price schedule shall be entered separately in the following manner:

a) The price of goods quoted FOB/FCA port of shipment, as indicated in the List of Requirements and Price Schedule;
b) The amount of freight and insurance.
c) the price of goods quoted CIP (at Consignee Site) Basis as indicated in the List of Requirements & Price Schedule;
d) the charges for Incidental Services including Customs Duty on (CDEC) basis/ DSIR certificate, Custom Clearance, inland transport upto Consignee's site, installation & commissioning, supervision, Demonstration & training, as in the List of Requirements and Price Schedule.
e) the charges for Insurance (local transportation and storage) would be extended and borne by the Supplier from ware house to the consignee site for a period including 3 months beyond date of delivery. Other local costs and Incidental costs, as specified in the List of Requirements and Price Schedule;
f) the charges for Incidental Services, as in the List of Requirements and Price Schedule;
g) the prices of Turnkey (if any), as mentioned in List of Requirements, Technical Specification and Price Schedule; and
h) the price of annual CMC, as mentioned in List of Requirements, Technical Specification and Price Schedule.

13.5 Additional information and instruction on Duties and Taxes:

13.5.1 If the Tenderer desires to ask for GST/Sales tax to be paid extra, the same must be specifically stated. In the absence of any such stipulation the price will be taken inclusive of such GST and no claim for the same will be entertained later.

13.5.2 Excise Duty: Detected

13.5.3 GST:

If a tenderer asks for GST/ Sales tax to be paid extra, the rate and nature of GST/Sales tax applicable should be shown separately. The GST/Sales tax will be paid as per the rate at which it is liable to be assessed or has actually been assessed provided the transaction of sale is legally liable to GST /Sales tax and is payable as per the terms of the contract. If any refund of Tax is received at a later date, the Supplier must return the amount forth-with to the purchaser.

13.5.4 Octroi Duty and Local Duties & Taxes: Detected

13.5.5 Customs Duty:

The Purchaser will pay the Customs duty wherever applicable.

13.6 For transportation of imported goods offered from abroad, relevant instructions as incorporated under GCC Clause 10 shall be followed.

13.7 For insurance of goods to be supplied, relevant instructions as provided under GCC Clause 11 shall be followed.

13.8 Unless otherwise specifically indicated in this TE document, the terms FCA, FOB, FAS, CIF, CIP, DDP etc. for imported goods offered from abroad, shall be governed by the rules & regulations prescribed in the current edition of INCOTERMS, published by the International Chamber of Commerce, Paris

13.9 The need for indication of all such price components by the tenderers, as required in this clause (viz., GIT clause 13) is for the purpose of comparison of the tenders by the purchaser and will no way restrict the purchaser's right to award the contract on the selected tenderer on any of the terms offered.

14. Indian Agent

14.1 If a foreign tenderer has engaged an agent in India in connection with its tender, the foreign tenderer, in addition to indicating Indian agent's commission, if any, in a manner described under GIT sub clause 12.2 above, shall also furnish the following information:

a) The complete name and address of the Indian Agent and its permanent income tax account number as allotted by the Indian Income Tax authority.
b) The details of the services to be rendered by the agent for the subject requirement.
c) Details of Service outlets in India, nearest to the consignee(s), to render services during Warranty and CMC period.
d) A copy of agreement between the Agent & their principal detailing the terms & conditions as well as services and after sales services as above to be rendered by the agent and the precise relationship between them and their mutual interest in the business.
e) Principal / manufacturer's original proforma invoice with the price bid.

15. Firm Price

15.1 Unless otherwise specified in the SIT, prices quoted by the tenderer shall remain firm and fixed during the currency of the contract and not subject to variation on any account.

15.2 However, as regards taxes and duties, if any, chargeable on the goods and payable, the conditions stipulated in GIT clause 13 will apply.

16. Alternative Tenders

16.1 Alternative Tenders are not permitted.

16.2 However the Tenderers can quote alternate models meeting the tender specifications of same manufacturer with single EMD.

16.3 a). If a tenderer, either the Indian Agent on behalf of the Principal / OEM or Principal / OEM itself can bid but both cannot bid simultaneously for the same item/ product in the same tender

b). If an agent submits bid on belhalf of the Principal / OEM, the same agent shall not submit a bid on behalf of another Principal / OEM in the same tender for the same item / product.

17 Documents Establishing Tenderer's Eligibility and Qualifications

17.1 Pursuant to GIT clause 11, the tenderer shall furnish, as part of its tender, relevant details and documents establishing its eligibility to quote and its qualifications to perform the contract if its tender is accepted.

17.2 The documentary evidence needed to establish the tenderer's qualifications shall fulfil the following requirements:

a) in case the tenderer offers to supply goods, which are manufactured by some other firm, the tenderer has been duly authorised by the goods manufacturer to quote for and supply the goods to the purchaser. The tenderer shall submit the manufacturer's authorization letter to this effect as per the standard form provided under Section XIV in this document.
b) the tenderer has the required financial, technical and production capability necessary to perform the contract and, further, it meets the qualification criteria incorporated in the Section IX in these documents.
c) in case the tenderer is not doing business in India, it is duly represented by an agent stationed in India fully equipped and able to carry out the required contractual functions and duties of the supplier including after sale service, maintenance & repair etc. of the goods in question, stocking of spare parts and fast moving components and other obligations, if any, specified in the conditions of contract and/or technical specifications.

18. Documents establishing Good's Conformity to TE document.

18.1 The tenderer shall provide in its tender the required as well as the relevant documents like technical data, literature, drawings etc. to establish that the goods and services offered in the tender fully conform to the goods and services specified by the purchaser in the TE documents. For this purpose the tenderer shall also provide a clause-by-clause commentary on the technical specifications and other technical details incorporated by the purchaser in the TE documents to establish technical responsiveness of the goods and services offered in its tender.

18.2 In case there is any variation and/or deviation between the goods & services prescribed by the purchaser and that offered by the tenderer, the tenderer shall list out the same in a chart form without ambiguity and provide the same along with its tender.

18.3 If a tenderer furnishes wrong and/or misguiding data, statement(s) etc. about technical acceptability of the goods and services offered by it, its tender will be liable to be ignored and rejected in addition to other remedies available to the purchaser in this regard.

19. Earnest Money Deposit (EMD)

19.1 Pursuant to GIT clauses 8.1 and 11.1(d) the tenderer shall furnish along with its tender, earnest money for amount as shown in the List of Requirements. The earnest money is required to protect the purchaser against the risk of the tenderer's unwarranted conduct as amplified under sub-clause 19.7 below.

19.2 The tenderers who are currently registered and, also, will continue to remain registered during the tender validity period with Directorate General of Supplies & Disposals or with National Small Industries Corporation, New Delhi for the specific goods as per tender enquiry specification shall be eligible for exemption from EMD. Vague stipulations in the Registration Certificate such as "to customers' specification" etc. will not be acceptable for exemption from furnishing of earnest money. In case the tenderer falls in these categories, it should furnish copy of its valid registration details (with DGS&D or NSIC, as the case may be).

19.3 The earnest money shall be denominated in Indian Rupees or equivalent currencies as per GIT clause 12.2. The earnest money shall be furnished in one of the following forms:

i) Account Payee Demand Draft
ii) Banker's cheque and
iii) Bank Guarantee

19.4 The demand draft or banker's cheque shall be drawn on any commercial bank in India or country of the tenderer, in favour of the **"HSCC (India) Ltd"** payable at New Delhi/Noida. In case of bank guarantee, the same is to be provided from any commercial bank in India or country of the tenderer as per the format specified under Section XIII in these documents

19.5 The earnest money shall be valid for a period of forty-five (45) days beyond the validity period of the tender. As validity period of Tender as per Clause 20 of GIT is **360 days**, the EMD shall be valid for **415 days** from Techno – Commercial Tender opening date. **In case of extension of submission of bid/ tender, the validity of bid security (EMD) may be considered from the original date of submission of bid.**

19.6 Unsuccessful tenderers' earnest money will be returned to them without any interest, after expiry of the tender validity period, but not later than thirty days after conclusion of the resultant contract. Successful tenderer's earnest money will be returned without any interest, after receipt of performance security from that tenderer.

19.7 Earnest Money is required to protect the purchaser against the risk of the Tenderer's conduct, which would warrant the forfeiture of the EMD. Earnest money of a tenderer will be forfeited, if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender **or if it comes to notice that the information/documents furnished in its tender is incorrect, false, misleading or forged without prejudice to other rights of the purchaser**. The successful tenderer's earnest money will be forfeited without prejudice to other rights of Purchaser if it fails to furnish the required performance security within the specified period.

19.8 In the case of Bank Guarantee furnished from banks outside India (i.e. foreign Banks), it should be authenticated and countersigned by any nationalised bank in India by way of back-to-back counter guarantee and the same should be submitted along with the bid.

20. Tender Validity

20.1 If not mentioned otherwise in the SIT, the tenders shall remain valid for acceptance for a period of **360 days** after the date of tender opening prescribed in the TE document. Any tender valid for a shorter period shall be treated as unresponsive and rejected.

20.2 In exceptional cases, the tenderers may be requested by the purchaser to extend the validity of their tenders up to a specified period. Such request(s) and responses thereto shall be conveyed by surface mail or by fax/ telex/cable followed by surface mail. The tenderers, who agree to extend the tender validity, are to extend the same without any change or modification of their original tender and they are also to extend the validity period of the EMD accordingly. A tenderer, however, may not agree to extend its tender validity without forfeiting its EMD.

20.3 In case the day up to which the tenders are to remain valid falls on/ subsequently declared a holiday or closed day for the purchaser, the tender validity shall automatically be extended up to the next working day.

21. Signing and Sealing of Tender

21.1 The tenderers shall submit their tenders as per the instructions contained in GIT Clause 11.

21.2 Deleted

21.3 The original and other copies of the tender shall either be typed or written in indelible ink and the same shall be signed by the tenderer or by a person(s) who has been duly authorized to bind the tenderer to the contract. The letter of authorization shall be by a written power of attorney, which shall also be furnished along with the tender.

D. SUBMISSION OF TENDERS

22. Submission of Tenders

Bidders are requested not to submit the hard copy of Price Bid along with the physical form of tender. Uploading of the price bid in prequalification bid or technical bid will result in rejection of the tender.

22.2 The tenderers must ensure that they deposit their tenders not later than the closing time and date specified for submission of tenders. It is the responsibility of the tenderer to ensure that their Tenders whether sent by post or by courier or by person, are dropped in the Tender Box by the specified clearing date and time. In the event of the specified date for

submission of tender falls on / is subsequently declared a holiday or closed day for the purchaser, the tenders will be received up to the appointed time on the next working day.

23. Late Tender

23.1 A tender, which is received after the specified date and time for receipt of tenders will be treated as "late" tender and will be ignored.

24. Alteration and Withdrawal of Tender

24.1 The tenderer, after submitting its tender, is permitted to alter / modify its tender so long as such alterations / modifications are received duly signed, sealed and marked like the original tender, within the deadline for submission of tenders. Alterations / modifications to tenders received after the prescribed deadline will not be considered.

24.2 No tender should be withdrawn after the deadline for submission of tender and before expiry of the tender validity period. If a tenderer withdraws the tender during this period, it will result in forfeiture of the earnest money furnished by the tenderer in its tender.

E. TENDER OPENING

25. Opening of Tenders

25.1 The purchaser will open the tenders at the specified date and time and at the specified place as indicated in the NIT.

In case the specified date of tender opening falls on / is subsequently declared a holiday or closed day for the purchaser, the tenders will be opened at the appointed time and place on the next working day.

25.2 **Authorized representatives of the tenderers, who have submitted tenders on time may attend the tender opening provided they bring with them letters of authority from the corresponding tenderers.**

The tender opening official(s) will prepare a list of the representatives attending the tender opening. The list will contain the representatives' names & signatures and corresponding tenderers' names and addresses.

25.3 Two - Tender system as mentioned in Para 21.6 above will be as follows. The **Techno - Commercial Tenders** are to be opened in the first instance, at the prescribed time and date as indicated in NIT. These Tenders shall be scrutinized and evaluated by the competent committee/ authority with reference to parameters prescribed in the TE document. During the Techno - Commercial Tender opening, the tender opening official(s) will read the salient features of the tenders like brief description of the goods offered, delivery period, Earnest Money Deposit and any other special features of the tenders, as deemed fit by the tender opening official(s). Thereafter, in the second stage, the Price Tenders of only the Techno - Commercially acceptable offers (as decided in the first stage) shall be opened for further scrutiny and evaluation on a date notified after the evaluation of the Techno – Commercial tender. The prices, special discount if any of the goods offered etc., as deemed fit by tender opening official(s) will be read out.

F. SCRUTINY AND EVALUATION OF TENDERS

26. Basic Principle

26.1 Tenders will be evaluated on the basis of the terms & conditions already incorporated in the TE document, based on which tenders have been received and the terms, conditions etc. mentioned by the tenderers in their tenders. No new condition will be brought in while scrutinizing and evaluating the tenders.

27. Scrutiny of Tenders

27.1 The Purchaser will examine the Tenders to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed stamped and whether the Tenders are generally in order.

27.2 The Purchaser's determination of a tender's responsiveness is to be based on the contents of the tender itself without recourse to extrinsic evidence.

27.3 The tenders will be scrutinized to determine whether they are complete and meet the essential and important requirements, conditions etc. As prescribed in the TE document. The tenders, which do not meet the basic requirements, are liable to be treated as non – responsive and will be rejected.

27.4 The following are some of the important aspects, for which a tender shall be **declared non – responsive and will be summarily ignored;**

(i) Tender form as per Section X (Signed and stamped) not enclosed.
(ii) Tender is unsigned.
(iii) Tender validity is shorter than the required period.
(iv) Required EMD (Amount, validity etc.)/ exemption documents have not been provided.
(v) Tenderer has quoted for goods manufactured by other manufacturer(s) without the required Manufacturer's Authorisation Form as per Section XIV.
(vi) Tenderer has not agreed to other essential condition(s) specially incorporated in the tender enquiry like terms of payment, liquidated damages clause, warranty clause, dispute resolution mechanism applicable law.
(vii) Poor/ unsatisfactory past performance.
(viii) Tenderers who stand deregistered/banned/blacklisted by any Govt. Authorities.
(ix) Tenderer has not quoted for the entire quantity as specified in the List of Requirements in the quoted schedule.
(x) Tenderer has not agreed for the delivery terms & delivery schedule.

28. Minor Infirmity/Irregularity/Non-Conformity

28.1 If during the evaluation, the purchaser find any any minor informality and/or irregularity and/or non-conformity in a tender, the purchaser will convey its observation on such 'minor' issues to the tenderer by registered/speed post etc. asking the tenderer to respond by a specified date. If the tenderer does not reply by the specified date or gives evasive reply without clarifying the point at issue in clear terms, that tender will be liable to be ignored.

29 Discrepancies in Prices

29.1 If, in the price structure quoted by a tenderer, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless the purchaser feels that the tenderer has made a mistake in placing the decimal point in the unit price, in which case the total price as quoted shall prevail over the unit price and the unit price corrected accordingly.

29.2 If there is an error in a total price, which has been worked out through addition and/or subtraction of subtotals, the subtotals shall prevail and the total corrected; and

29.3 If there is a discrepancy between the amount expressed in words and figures, the amount in words shall prevail, subject to sub clause 29.1 and 29.2 above.

29.4 If, as per the judgement of the purchaser, there is any such arithmetical discrepancy in a tender, the same will be suitably conveyed to the tenderer by registered / speed post. If the tenderer does not agree to the observation of the purchaser, the tender is liable to be ignored.

30. Discrepancy between original and copies of Tender

30.1 In case any discrepancy is observed between the text etc. of the original copy and that in the other copies of the same tender set, the text etc. of the original copy shall prevail. Here also, the purchaser will convey its observation suitably to the tenderer by register / speed post and, if the tenderer does not accept the purchaser's observation, that tender will be liable to be ignored.

31. Qualification Criteria

31.1 **Tenders of the tenderers, who do not meet the required Qualification Criteria prescribed in Section IX, will be treated as non - responsive and will not be considered further**.

32. Conversion of tender currencies to Indian Rupees

32.1 In case the TE document permits the tenderers to quote their prices in different currencies, all such quoted prices of the responsive tenderers will be converted to a single currency viz., Indian Rupees for the purpose of equitable comparison and evaluation, as per the exchange rates established by the Reserve Bank of India for similar transactions, as on the date of 'Price Tender' opening.

33. Schedule-wise Evaluation

33.1 In case the List of Requirements contains more than one schedule, the responsive tenders will be evaluated and compared separately for each schedule. The tender for a schedule will not be considered if the complete requirements prescribed in that schedule are not included in the tender. However, as already mentioned in GIT sub clause 13.2, the tenderers have the option to quote for any one or more schedules and offer discounts for combined schedules. Such discounts wherever applicable will be taken into account to determine the lowest evaluated cost for the purchaser in deciding the successful tenderer for each schedule, subject to tenderer(s) being responsive.

34. Comparison of Tenders

34.1 Unless mentioned otherwise in Section – III – Special Instructions to Tenderers and Section – VI – List of Requirements, the comparison of the responsive tenders shall be carried out on ware house to consignee site basis. The quoted turnkey prices and CMC prices will also be added for comparison/ranking purpose for evaluation.

35. Additional Factors and Parameters for Evaluation and Ranking of Responsive Tenders

35.1 Further to GIT Clause 34 above, the purchaser's evaluation of a tender will include and take into account the following:

i) In the case of goods manufactured in India or goods of foreign origin already located in India, GST/Sales tax & other similar taxes & other similar duties, Customs Duties, etc which will be contractually payable (to the tenderer), on the goods if a contract is awarded on the tenderer; and

ii) in the case of goods of foreign origin offered from abroad, customs duty and other similar import duties/taxes, which will be contractually payable (to the tenderer) on the goods if the contract is awarded on the tenderer.

35.2 The purchaser's evaluation of tender will also take into account the additional factors, if any, incorporated in SIT in the manner and to the extent indicated therein.

35.3 i. In exercise of powers conferred in section 11 of the Micro, Small and Medium Enterprises Development (MSMED) Act 2006, the Government has notified a new Public Procurement Policy for Micro & Small enterprises effective from 1st April 2012. The policy mandates that 20% of procurement of annual requirement of goods and services by all Central Ministries/Public Sector Undertakings will be from the micro and small enterprises. The Government has also earmarked a sub-target of 4% procurement of goods & services from MSEs owned by SC/ST entrepreneurs out of above said 20% quantity.

ii. In accordance with the above said notification, the participating Micro and Small Enterprises (MSEs) in a tender, quoting price within the band of L 1+15% would also be allowed to supply a portion of the requirement by bringing down their price to the L1 price, in a situation where L1 price is from someone other than on MSE. Such MSEs would be allowed to supply up to 20% of the total tendered value. In case there are more than one such eligible MSE, the 20%

supply will be shared equally. Out of 20% of the quantity earmarked for supply from MSEs, 4% quantity is earmarked for procurement from MSEs owned by SC/ST entrepreneurs. However, in the event of failure of such MSEs to participate in the tender process or meet the tender requirements and the L1 price, the 4% quantity earmarked for MSEs owned by SC/ST entrepreneurs will be met from other participating MSEs.

iii. The MSEs fulfilling the prescribed eligibility criteria and participating in the tender shall enclose with their tender a copy of their valid registration certificate with District Industries Centres or Khadi and Village Industries Commission or Khadi and Village Industries Board or Coir board or national Small Industries Corporation or any other body specified by Ministry of Micro and Small enterprises in support of their being on MSE, failing which their tender will be liable to be ignored.

36. Tenderer's capability to perform the contract

36.1 The purchaser, through the above process of tender scrutiny and tender evaluation will determine to its satisfaction whether the tenderer, whose tender has been determined as the lowest evaluated responsive tender is eligible, qualified and capable in all respects to perform the contract satisfactorily. If, there is more than one schedule in the List of Requirements, then, such determination will be made separately for each schedule.

36.2 The above-mentioned determination will, interalia, take into account the tenderer's financial, technical and production capabilities for satisfying all the requirements of the purchaser as incorporated in the TE document. Such determination will be based upon scrutiny and examination of all relevant data and details submitted by the tenderer in its tender as well as such other allied information as deemed appropriate by the purchaser.

37. Contacting the Purchaser

37.1 From the time of submission of tender to the time of awarding the contract, if a tenderer needs to contact the purchaser for any reason relating to this tender enquiry and / or its tender, it should do so only in writing.

37.2 In case a tenderer attempts to influence the purchaser in the purchaser's decision on scrutiny, comparison & evaluation of tenders and awarding the contract, the tender of the tenderer shall be liable for rejection in addition to appropriate administrative actions being taken against that tenderer, as deemed fit by the purchaser.

G. AWARD OF CONTRACT

38. Purchaser's Right to accept any tender and to reject any or all tenders

38.1 The purchaser reserves the right to accept in part or in full any tender or reject any or more tender(s) without assigning any reason or to cancel the tendering process and reject all tenders at any time prior to award of contract, without incurring any liability, whatsoever to the affected tenderer or tenderers.

39. Award Criteria

39.1 Subject to GIT clause 38 above, the contract will be awarded to the lowest evaluated responsive tenderer decided by the purchaser in terms of GIT Clause 36.

40. Variation of Quantities at the Time of Award/ Currency of Contract

40.1 At the time of awarding the contract, the purchaser reserves the right to increase or decrease by up to twenty five (25) per cent, the quantity of goods and services mentioned in the schedule (s) in the "List of Requirements" (rounded of to next whole number) without any change in the unit price and other terms & conditions quoted by the tenderer.

40.2 If the quantity has not been increased at the time of the awarding the contract, the purchaser reserves the right to increase by up to twenty five (25) per cent, the quantity of goods and services mentioned in the contract (rounded of to next whole number) without any change in the unit price and other terms & conditions mentioned in the contract, during the currency of the contract after one year from the Date of Notification of Award.

41. Notification of Award

41.1 Before expiry of the tender validity period, the purchaser will notify the successful tenderer(s) in writing, by registered / speed post or by fax/ telex/cable (to be confirmed by registered / speed post) that its tender for goods & services, which have been selected by the purchaser, has been accepted, also briefly indicating therein the essential details like description, specification and quantity of the goods & services and corresponding prices accepted. **The successful tenderer must furnish to the purchaser the required performance security within thirty days from the date of dispatch of this notification, failing which the EMD will forfeited and the award will be cancelled**. Relevant details about the performance security have been provided under GCC Clause 5 under Section IV.

41.2 The Notification of Award shall constitute the conclusion of the Contract. The Notification of Award/ Supply order shall constitute the conclusion of the Contract agreement from date of issue. The Notification of Award/ Supply order will be placed on successful bidder (i.e. manufacture and /or manufacture authorised agent). **The manufacturer and /or manufacture authorised agent shall be jointly and severally liable to perform the all contractually obligations under the agreement**

42. Issue of Contract

42.1 Promptly after notification of award, the Purchaser/Consignee will mail the contract form (as per Section XVI) duly completed and signed, in duplicate, to the successful tenderer by registered / speed post.

42.2 **Within thirty days** from the date of the contract, the successful tenderer shall return the original copy of the contract, duly signed and dated, to the Purchaser/Consignee by registered / speed post.

42.3 The Purchaser/Consignee reserves the right to issue the Notification of Award consignee wise.

43. Non-receipt of Performance Security and Contract by the Purchaser/Consignee

43.1 Failure of the successful tenderer in providing performance security and / or returning contract copy duly signed in terms of GIT clauses 41 and 42 above shall make the tenderer liable for forfeiture of its EMD and, also, for further actions by the Purchaser/Consignee against it as per the clause 24 of GCC – Termination of default.

44. Return of E M D

44.1 The earnest money of the successful tenderer and the unsuccessful tenderers will be returned to them without any interest, whatsoever, in terms of GIT Clause 19.6.

45. Publication of Tender Result

45.1 The name and address of the successful tenderer(s) receiving the contract(s) will be mentioned in the notice board/bulletin/web site of the purchaser.

46. Corrupt or Fraudulent Practices

46.1 It is required by all concerned namely the Consignee/Tenderers/Suppliers etc to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the Purchaser: -

(a) defines, for the purposes of this provision, the terms set forth below as follows:
   (i) "corrupt practice" means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution; and

   (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Tenderers (prior to or after Tender submission) designed to establish Tender prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition

(b) will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract by the purchaser if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing the contract.

SPECIAL INSTRUCTIONS TO TENDERERS
(SIT)

The following Special Instructions to Tenderers will apply for this purchase. These special instructions will modify/substitute/supplement the corresponding General Instructions to Tenderers (GIT) incorporated in Section II. The corresponding GIT clause numbers have also been indicated in the text below:
In case of any conflict between the provision in the GIT and that in the SIT, the provision contained in the SIT shall prevail.

A Preamble

No Change

B TE documents

10. Clarification of TE documents

10.1 During pre bid meeting clarification asked by the bidder will be respond by the purchaser. The Bidder request shall be in writing and submit to HSCC office during pre bid meeting or not later than **three days** from date of pre bid meeting, thereafter the bidder request will be ignore or rejected. The purchaser response (including explanation of the query but without identifying the source of inquiry) will be displayed on the website only www.hsccltd.com.

19. Earnest Money Deposit (EMD)

19.5 The earnest money deposit (EMD)/ bid security shall be valid for a period 415 days from the Techno – Commercial Tender opening date. In case of extension of submission of bid/ tender, the validity of bid security (EMD) may be considered from the original date of submission of bid.

20. Tender Validity

20.1 If not mentioned otherwise in the SIT, the tenders shall remain valid for acceptance for a period of **360 days** from the date of Techno – Commercial Tender opening, date prescribed in the TE document. Any tender valid for a shorter period shall be treated as unresponsive and rejected.

E Tender Opening

Tender opening commitee first open envelop, if no bid Security/EMD bid will be rejected.

G Award of Contract

42. Issue of Contract

42.1 Deleted

47. If a firm quoted NIL charges /consideration, the bid shall be treated as unresponsive and will not be considered.

SECTION - IV
GENERAL CONDITIONS OF CONTRACT (GCC)
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GENERAL CONDITIONS OF CONTRACT (GCC)

1. Application

1.1 The General Conditions of Contract incorporated in this section shall be applicable for this purchase to the extent the same are not superseded by the Special Conditions of Contract prescribed under Section V, List of requirements under Section VI and Technical Specification under Section VII of this document.

2. Use of contract documents and information

2.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract or any provision thereof including any specification, drawing, sample or any information furnished by or on behalf of the purchaser in connection therewith, to any person other than the person(s) employed by the supplier in the performance of the contract emanating from this TE document. Further, any such disclosure to any such employed person shall be made in confidence and only so far as necessary for the purposes of such performance for this contract.

2.2 Further, the supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC sub-clause 2.1 above except for the sole purpose of performing this contract.

2.3 Except the contract issued to the supplier, each and every other document mentioned in GCC sub-clause 2.1 above shall remain the property of the purchaser and, if advised by the purchaser, all copies of all such documents shall be returned to the purchaser on completion of the supplier's performance and obligations under this contract.

3. Patent Rights

3.1 The supplier shall, at all times, indemnify and keep indemnified the purchaser, free of cost, against all claims which may arise in respect of goods & services to be provided by the supplier under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks. In the event of any such claim in respect of alleged breach of patent, registered designs, trade marks etc. being made against the purchaser, the purchaser shall notify the supplier of the same and the supplier shall, at his own expenses take care of the same for settlement without any liability to the purchaser.

4. Country of Origin

4.1 All goods and services to be supplied and provided for the contract shall have the origin in India or in the countries with which the Government of India has trade relations.

4.2 The word "origin" incorporated in this clause means the place from where the goods are mined, cultivated, grown, manufactured, produced or processed or from where the services are arranged.

4.3 The country of origin may be specified in the Price Schedule

5. Performance Security

5.1 **Within thirty (30) days from date of the issue of notification of award by the Purchaser/Consignee,** the supplier, shall furnish performance security to the Purchaser/Consignee for an amount equal to ten percent (10%) of the total value of the contract, valid up to sixty (60) days after the date of completion of all contractual obligations by the supplier, including the warranty obligations, initially valid for a period of **minimum 68 months** for Radiotherapy, Nuclear Medicine, MRI & CT and **66 months** for other equipment **from the date of Notification of Award.**.

5.2 The Performance security shall be denominated in Indian Rupees or in the currency of the contract as detailed below:

a) It shall be in any one of the forms namely Account Payee Demand Draft or Fixed Deposit Receipt drawn from any Scheduled bank in India or Bank Guarantee issued by a Scheduled bank in India, in the prescribed form as provided in section XV of this document in favour of the Purchaser/Consignee. The validity of the Fixed Deposit receipt or Bank Guarantee will be for a period up to **sixty (60) days beyond Warranty Period.**

5.3 In the event of any failure /default of the supplier with or with out any quantifiable loss to the government including furnishing of consignee wise Bank Guarantee for CMC security as per Proforma in Section XV, the amount of the performance security is liable to be forfeited. The Administration Department may do the needful to cover any failure/default of the supplier with or without any quantifiable loss to the Government.

5.4 In the event of any amendment issued to the contract, the supplier shall, within twenty-one (21) days of issue of the amendment, furnish the corresponding amendment to the Performance Security (as necessary), rendering the same valid in all respects in terms of the contract, as amended.

5.5 The supplier shall enter into Annual Comprehensive Maintenance Contract as per the 'Contract Form – B' in Section XVI with respective consignees, 3 (three) months prior to the completion of Warranty Period. The CMC will commence from the date of expiry of the Warranty Period.

5.6 Subject to GCC sub – clause 5.3 above, the Purchaser/Consignee will release the Performance Security without any interest to the supplier on completion of the supplier's all contractual obligations including the warranty obligations & after receipt of Consignee wise bank guarantee for CMC security in favour of Head of the Hospital/ Institute/ Medical College of the consignee as per the format in Section XV.

6. Technical Specifications and Standards

6.1 The Goods & Services to be provided by the supplier under this contract shall conform to the technical specifications and quality control parameters mentioned in 'Technical Specification' and 'Quality Control Requirements' under Sections VII and VIII of this document.

7. Packing and Marking

7.1 The packing for the goods to be provided by the supplier should be strong and durable enough to withstand, without limitation, the entire journey during transit including transhipment (if any), rough handling, open storage etc. without any damage, deterioration etc. As and if necessary, the size, weights and volumes of the packing cases shall also take into consideration, the remoteness of the final destination of the goods and availability or otherwise of transport and handling facilities at all points during transit up to final destination as per the contract.

7.2 The quality of packing, the manner of marking within & outside the packages and provision of accompanying documentation shall strictly comply with the requirements as provided in Technical Specifications and Quality Control Requirements under Sections VII and VIII and in SCC under Section V. In case the packing requirements are amended due to issue of any amendment to the contract, the same shall also be taken care of by the supplier accordingly.

7.3 Packing instructions:

Unless otherwise mentioned in the Technical Specification and Quality Control Requirements under Sections VII and VIII and in SCC under Section V, the supplier shall make separate packages for each consignee (in case there is more than one consignee mentioned in the contract) and mark each package on three sides with the following with indelible paint of proper quality:

a. contract number and date

b. brief description of goods including quantity
c. packing list reference number
d. country of origin of goods
e. consignee's name and full address and
f. supplier's name and address

8. Inspection, Testing and Quality Control

8.1 The purchaser and/or its nominated representative(s) will, without any extra cost to the purchaser, inspect and/or test the ordered goods and the related services to confirm their conformity to the contract specifications and other quality control details incorporated in the contract. The purchaser shall inform the supplier in advance, in writing, the purchaser's programme for such inspection and, also the identity of the officials to be deputed for this purpose. The cost towards the transportation, boarding & lodging will be borne by the purchaser and/or its nominated representative(s) for the first visit. In case the goods are rejected in the first instance and the supplier requests for re-inspection, & if same is accepted by purchaser / consignee / PSA/ PA, all subsequent inspections shall be at the cost of the supplier. The expense will be to and fro. Economy Airfare, Local Conveyance, Boarding and Lodging of the inspection team for the inspection period.

8.2 The Technical Specification and Quality Control Requirements incorporated in the contract shall specify what inspections and tests are to be carried out and, also, where and how they are to be conducted. If such inspections and tests are conducted in the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance, including access to relevant drawings, design details and production data, shall be furnished by the supplier to the purchaser's inspector at no charge to the purchaser.

8.3 If during such inspections and tests the contracted goods fail to conform to the required specifications and standards, the purchaser's inspector may reject them and the supplier shall either replace the rejected goods or make all alterations necessary to meet the specifications and standards, as required, free of cost to the purchaser and resubmit the same to the purchaser's inspector for conducting the inspections and tests again.

8.4 In case the contract stipulates pre-despatch inspection of the ordered goods at supplier's premises, the supplier shall put up the goods for such inspection to the purchaser's inspector well ahead of the contractual delivery period, so that the purchaser's inspector is able to complete the inspection within the contractual delivery period.

8.5 If the supplier tenders the goods to the purchaser's inspector for inspection at the last moment without providing reasonable time to the inspector for completing the inspection within the contractual delivery period, the inspector may carry out the inspection and complete the formality beyond the contractual delivery period at the risk and expense of the supplier. The fact that the goods have been inspected after the contractual delivery period will not have the effect of keeping the contract alive and this will be without any prejudice to the legal rights and remedies available to the purchaser under the terms & conditions of the contract.

8.6 The purchaser's/consignee's contractual right to inspect, test and, if necessary, reject the goods after the goods' arrival at the final destination shall have no bearing of the fact that the goods have previously been inspected and cleared by purchaser's inspector during pre-despatch inspection mentioned above.

"On rejection, the supplier shall remove such stores within 14 days of the date of intimation of such rejection from the consignee's premises. If such goods are not removed by the supplier within the period mentioned above, the purchaser / consignee may remove the rejected stores and either return the same to the supplier at his risk and cost by such mode of transport as purchaser / consignee may decide or dispose of such goods at the suppliers risk to recover any expense incurred in connection with such disposals and also the cost of the rejected stores if already paid for.".

8.7 Goods accepted by the purchaser/consignee and/or its inspector at initial inspection and in final inspection in terms of the contract shall in no way dilute purchaser's/consignee's right to reject the same later, if found deficient in terms of the warranty clause of the contract, as incorporated under GCC Clause 15.

8.8 Principal/ Foreign supplier shall also have the equipment inspected by recognised/ reputed agency like SGS, Lloyd or equivalent (acceptable to the purchaser) prior to despatch at the supplier's cost and furnish necessary certificate from the said agency in support of their claim.

9. Terms of Delivery

9.1 Goods shall be delivered by the supplier in accordance with the terms of delivery and as per the delivery period specified in the schedule of requirement. Please note that the time shall be the essence of the contract.

10. Transportation of Goods

10.1 Instructions for transportation of imported goods offered from abroad:

The supplier shall not arrange part-shipments and/or transhipment without the express/prior written consent of the purchaser. The supplier is required under the contract to deliver the goods under CIP (at Consignee site) basis terms; the shipment shall be made by Indian flag vessel or by vessels belonging to the conference lines in which India is a member country through India's forwarding agents/coordinators. In case the forwarding agent/coordinators are unable to provide timely adequate space in Indian flag vessel or by vessels belonging to the conference lines, the supplier shall arrange shipment through any available vessel to adhere to the delivery schedule given in the contract.
In case of airlifting of imported goods offered from abroad, the same will be done only through the National Carrier i.e. Air India wherever applicable. In case the National Carrier is not available, any other airlines available for early delivery may be arranged.

10.2 Instructions for transportation of domestic goods including goods already imported by the supplier under its own arrangement:

In case no instruction is provided in this regard in the SCC, the supplier will arrange transportation of the ordered goods as per its own procedure.

11. Insurance:

11.1 Unless otherwise instructed in the SCC, the supplier shall make arrangements for insuring the goods against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the following manner:

i) **in case of supply of domestic goods on Consignee site basis, the supplier shall be responsible till the entire stores contracted for arrival in good condition at destination. The transit risk in this respect shall be covered by the Supplier by getting the stores duly insured for an amount equal to 110% of the value of the goods from ware house to ware house (consignee site) on all risk basis. The insurance cover shall be obtained by the Supplier and should be valid till 3 months after the receipt of goods by the Consignee.**

ii) **in case of supply of the imported goods on CIP Named port of Destination Basis, the additional extended Insurance (local transportation and storage) would be borne by the Supplier from the port of entry to the consignee site. The transit risk in this respect shall be covered by the Supplier by getting the stores duly insured for an amount equal to 110% of the value of the goods from ware house to ware house (consignee site) on all risk basis. The insurance cover shall be obtained by the Supplier and should be valid till 3 months after the receipt of goods by the Consignee**.

If the equipment is not commissioned and handed over to the consignee within 3 months, the insurance will be got extended by the supplier at their cost till the successful installation, testing, commissioning and handing over of the goods to the consignee. In case the delay in the installation and commissioning is due to handing over of the site to the supplier by the consignee, such extensions of the insurance will still be done by the supplier, but the insurance extension charges at actual will be reimbursed.

12. Spare parts

12.1 If specified in the List of Requirements and in the resultant contract, the supplier shall supply/provide any or all of the following materials, information etc. pertaining to spare parts manufactured and/or supplied by the supplier:

a) The spare parts as selected by the Purchaser/Consignee to be purchased from the supplier, subject to the condition that such purchase of the spare parts shall not relieve the supplier of any contractual obligation including warranty obligations; and

b) In case the production of the spare parts is discontinued:

i) Sufficient advance notice to the Purchaser/Consignee before such discontinuation to provide adequate time to the purchaser to purchase the required spare parts etc., and

ii) Immediately following such discontinuation, providing the Purchaser/Consignee, free of cost, the designs, drawings, layouts and specifications of the spare parts, as and if requested by the Purchaser/Consignee.

12.2 Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares for the goods so that the same are used during warranty and CMC period.

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13. Incidental services

13.1 Subject to the stipulation, if any, in the SCC (Section – V), List of Requirements (Section – VI) and the Technical Specification (Section – VII), the supplier shall be required to perform the following services.

i) Installation & commissioning, Supervision and Demonstration of the goods
ii) Providing required jigs and tools for assembly, minor civil works required for the completion of the installation.
iii) Training of Consignee's Doctors, Staff, operators etc. for operating and maintaining the goods
iv) Supplying required number of operation & maintenance manual for the goods

14. Distribution of Dispatch Documents for Clearance/Receipt of Goods

The supplier shall send all the relevant despatch documents well in time to the Purchaser/Consignee to enable the Purchaser/Consignee clear or receive (as the case may be) the goods in terms of the contract.
Unless otherwise specified in the SCC, the usual documents involved and the drill to be followed in general for this purpose are as follows.

A) For Domestic Goods, including goods already imported by the supplier under its own arrangement

Within 24 hours of despatch, the supplier shall notify the purchaser, consignee, and others concerned if mentioned in the contract, the complete details of despatch and also supply the following documents to them by registered post / speed post (or as instructed in the contract):

(i) Four copies of supplier's invoice showing contract number, goods description, quantity, unit price and total amount;
(ii) Consignee Receipt Certificate as per Section XVII in original issued by the authorized representative of the consignee;
(iii) Two copies of packing list identifying contents of each package;
(iv) Inspection certificate issued by the nominated Inspection agency, if any.
(v) Certificate of origin;
(vi) Insurance Certificate as per GCC Clause 11.
(vii) Manufacturers/Supplier's warranty certificate & In-house inspection certificate.

B) For goods imported from abroad

Within 24 hours of despatch, the supplier shall notify the purchaser, consignee, and others concerned if mentioned in the contract, the complete details of despatch and also supply the following documents to them by registered post / speed post (or as instructed in the contract). **Any delay or demurrage occurred during the customs clearance on account of the non-availability of technical support/ clarifications /documents from the supplier shall be borne by the supplier:**

(i) Four copies of supplier's invoice showing contract number, goods description, quantity, unit price and total amount;
(ii) Original and four copies of the negotiable clean, on-board Bill of Lading/Airway bill, marked freight pre paid and four copies of non-negotiable Bill of Lading/Airway bill;
(iii) Four Copies of packing list identifying contents of each package;
(iv) Insurance Certificate as per GCC Clause 11.
(v) Manufacturer's/Supplier's warranty certificate;
(vi) Inspection Certificate for the despatched equipments issued by recognized/ reputed agency like SGS, Lloyd or equivalent (acceptable to the purchaser) prior to despatch
(vii) Manufacturer's own factory inspection report;
(viii) Certificate of origin
(ix) Port of Loading;
(x) Port of Discharge and
(xi) Expected date of arrival.
(xii) Any other documents require in order to avoid the demurrage on the goods.

15. Warranty

15.1 The supplier warrants comprehensively that the goods supplied under the contract is new, unused and incorporate all recent improvements in design and materials unless prescribed otherwise by the purchaser in the contract. The supplier further warrants that the goods supplied under the contract shall have no defect arising from design, materials (*except when the design adopted and / or the material used are as per the Purchaser's/Consignee's specifications*) or workmanship or from any act or omission of the supplier, that may develop under normal use of the supplied goods under the conditions prevailing in India.

15.2 The **warranty** shall remain valid for **5 (Five) Years** from the date of installation & commissioning followed by a **CMC for a period of 5 (Five) Years** for all the equipments after the goods or any portion thereof as the case may be, have been delivered to the final destination and installed and commissioned at the final destination and accepted by the purchaser/CONSIGNEE in terms of the contract, unless specified otherwise in the SCC

a. No conditional warranty like mishandling, manufacturing defects etc. will be acceptable.
b. Warranty as well as Comprehensive Maintenance contract will be inclusive of all accessories and Turnkey work
c. Replacement and repair will be under taken for the defective goods.
d. Proper marking has to be made for all spares for identification like printing of installation and repair dates.

15.3 In case of any claim arising out of this warranty, the Purchaser/Consignee shall promptly notify the same in writing to the supplier. The period of the warranty will be as per G.C.C clause number 15.2 above irrespective of any other period mentioned elsewhere in the bidding documents.

15.4 Upon receipt of such notice, the supplier shall, within 8 hours on a 24(hrs) X 7 (days) X 365 (days) basis respond to take action to repair or replace the defective goods or parts thereof, free of cost, at the ultimate destination. The supplier shall take over the replaced parts/goods after providing their replacements and no claim, whatsoever shall lie on the purchaser for such replaced parts/goods thereafter. The penalty clause for non rectification will be applicable as per tender conditions

15.5 In the event of any rectification of a defect or replacement of any defective goods during the warranty period, the warranty for the rectified/replaced goods shall be extended till the completion of the original warranty period of the main equipment.

15.6 If the supplier, having been notified, fails to respond to take action to repair or replace the defect(s) within 8 hours on a 24(hrs) X 7 (days) X 365 (days) basis, the purchaser may proceed to take such remedial action(s) as deemed fit by the purchaser, at the risk and expense of the supplier and without prejudice to other contractual rights and remedies, which the purchaser may have against the supplier.

15.7 During Warranty period, the supplier is required to visit at each consignee's site at least once in 6 months commencing from the date of the installation for preventive maintenance of the goods

15.8 **The Purchaser/Consignee reserve the rights to enter into Annual Comprehensive Maintenance Contract between Consignee and the Supplier for the period as mentioned in Section VII, Technical Specifications after the completion of warranty period.**

15.9 The supplier along with its Indian Agent and the CMC provider shall ensure continued supply of the spare parts for the machines and equipments supplied by them to the purchaser for 10 years from the date of installation and handing over.

15.10 The Supplier along with its Indian Agent and the CMC Provider shall always accord most favoured client status to the Purchaser vis-à-vis its other Clients/Purchasers of its equipments/machines/goods etc. and shall always give the most competitive price for its machines/equipments supplied to the Purchaser/Consignee.

16. Assignment

16.1 The Supplier shall not assign, either in whole or in part, its contractual duties, responsibilities and obligations to perform the contract, except with the Purchaser's prior written permission.

17. Sub Contracts

17.1 The Supplier shall notify the Purchaser in writing of all sub contracts awarded under the contract if not already specified in its tender. Such notification, in its original tender or later, shall not relieve the Supplier from any of its liability or obligation under the terms and conditions of the contract.

17.2 Sub contract shall be only for bought out items and sub-assemblies.

17.3 Sub contracts shall also comply with the provisions of GCC Clause 4 ("Country of Origin").

18. Modification of contract

18.1 If necessary, the purchaser may, by a written order given to the supplier at any time during the currency of the contract, amend the contract by making alterations and modifications within the general scope of contract in any one or more of the following:

a) Specifications, drawings, designs etc. where goods to be supplied under the contract are to be specially manufactured for the purchaser,
b) Mode of packing,
c) Incidental services to be provided by the supplier
d) Mode of despatch,
e) Place of delivery, and
f) Any other area(s) of the contract, as felt necessary by the purchaser depending on the merits of the case.

18.2 In the event of any such modification/alteration causing increase or decrease in the cost of goods and services to be supplied and provided, or in the time required by the supplier to perform any obligation under the contract, an equitable adjustment shall be made in the contract price and/or contract delivery schedule, as the case may be, and the contract amended accordingly. If the supplier doesn't agree to the adjustment made by the Purchaser/Consignee, the supplier shall convey its views to the Purchaser/Consignee within twenty-one days from the date of the supplier's receipt of the Purchaser's/Consignee's amendment / modification of the contract.

19. Prices

19.1 Prices to be charged by the supplier for supply of goods and provision of services in terms of the contract shall not vary from the corresponding prices quoted by the supplier in its tender and incorporated in the contract except for any price adjustment authorised in the SCC.

20. Taxes and Duties

20.1 Supplier shall be entirely responsible for all taxes, duties, fees, levies etc. incurred until delivery of the contracted goods to the purchaser.
20.2 Further instruction, if any, shall be as provided in the SCC.

21. Terms and Mode of Payment

21.1 Payment Terms

Payment shall be made subject to recoveries, if any, by way of liquidated damages or any other charges as per terms & conditions of contract in the following manner.

A) Payment for Domestic Goods Or Foreign Origin Located Within India.

Payment shall be made in Indian Rupees as specified in the contract in the following manner:

a) On delivery:

80 % payment of the contract price shall be paid on receipt of goods in good condition and upon the submission of the following documents:

1. Copy of Purchase order, copy of performance security
2. Consignee receipt in original issued by CNCI -Kolkata/Client.
3. Invoice in favour of consignee through HSCC
4. Packing list showing NOA duly vetted by third party inspection agency.
5. Insurance certificate as per tender terms
6. Despatch note issued by HSCC
7. Manufacture's / supplier's warranty certificate
8. Third party inspection agency report viz SGS, Lloyd, Bureau Veritas, TUV prior to despatch.

b) On Acceptance:

Balance 20 % payment would be made on submission of following document:

1. Copy of Purchase order, copy of performance security valid upto tender terms.
2. Copy of consignee receipt
3. Final Acceptance Certificate (Installation & commissioning certificate) in original issued by CNCI -Kolkata on completion of installation & commissioning
4. Insurance certificate as per tender terms.
5. Invoice in favour of consignee through HSCC

B) Payment for Imported Goods:

Payment for foreign currency portion shall be made in the currency as specified in the contract in the following manner:

a) On Shipment:

Seventy Five (75) % of the net CIP price (CIP price less Indian Agency commission) of the goods shipped shall be paid through irrevocable, non-transferable Letter of Credit (LC) opened in favour of the supplier in a bank in his country and upon submission of documents specified hereunder:

(i) Four copies of supplier's invoice showing contract number, goods description, quantity, unit price and total amount;
(ii) Original and four copies of the negotiable clean, on-board Bill of Lading/ Airway bill , marked freight pre paid and four copies of non-negotiable Bill of Lading/Airway bill;
(iii) Four Copies of packing list identifying contents of each package showing contract number duly signed & stamped by thirty party inspection agency.
(iv) Insurance Certificate as per tender
(v) Manufacturer's/Supplier's warranty certificate;
(vi) Manufacturer's own factory inspection report and

(vii) Certificate of origin by the chamber of commerce of the concerned country;
(viii) Inspection Certificate for the despatched equipments issued by recognized/ reputed agency like SGS, Lloyd, TUV & Beauru Varitus, prior to despatch.
(ix) Despatch note issued by HSCC.

b) On Acceptance:

Balance payment of 25 % of net CIP price of goods would be made against 'Final Acceptance Certificate' as per Section XVIII to be issued by the consignees to the supplier. The supplier shall submit the original final acceptance certificate to the Purchaser (HSCC India Ltd) who shall issue no objection certificate to the banker for payment through irrevocable Letter of Credit (LC) opened in favour of the Foreign Principal in a bank in his country, subject to recoveries, if any.

In case where the installation and commissioning or final inspection and test at site is delayed for any reason for which consignee is responsible, 25% of the contract price shall become payable, after the expiry of six months from the date of arrival of the last consignment at site subject to submission of a bank guarantee by the supplier for the said amount valid initially for the period of six months. The supplier shall get the validity of the bank Guarantee extended for the further period as and when asked for by the purchaser.

c) Payment of Incidental Costs till consignee site & Incidental Services (including Installation & Commissioning, Supervision, Demonstration and Training) will be paid in Indian Rupees to the Indian Agent on proof of final installation, commission and acceptance of equipment by the consignee.

d) Payment of Indian Agency Commission:

Indian Agency commission will be paid to the manufacturer's agent in the local currency for an amount in Indian rupees indicated in the relevant Price Schedule (as per prevailing rate of exchange ruling on the date of Contract) and shall not be subject to further escalation / exchange variation.

C) Payment of Turnkey, if any:
Turnkey payment will be made as indicated in the relevant Price Schedule (as per prevailing rate of exchange ruling on the date of Contract) and shall not be subject to further escalation / exchange variation.

D) Payment for Annual Comprehensive Maintenance Contract Charges:
The consignee will enter into CMC with the supplier at the rates as stipulated in the contract. The payment of CMC will be made on **six monthly basis after satisfactory completion of said** period, duly certified by the consignee on receipt of bank guarantee for an amount equivalent to 2.5 % of the cost of the equipment as per contract in the prescribed format given in Section XV valid till 2 months after expiry of entire CMC period.

21.2 The supplier shall not claim any interest on payments under the contract.
21.3 Where there is a statutory requirement for tax deduction at source, such deduction towards income tax and other tax as applicable will be made from the bills payable to the Supplier at rates as notified from time to time.
21.4 Irrevocable & non – transferable LC shall be opened by the respective consignees. However, if the supplier requests specifically to open confirmed LC, the extra charges would be borne by the supplier. If LC is required to be extended and/or amended for reasons not attributable to the purchaser/consignee, the charges thereof shall be borne by the supplier.
21.5 The payment shall be made in the currency / currencies authorised in the contract.
21.6 The supplier shall send its claim for payment in writing, when contractually due, along with relevant documents etc., duly signed with date, to respective consignees.
21.7 While claiming payment, the supplier is also to certify in the bill that the payment being claimed is strictly in terms of the contract and all the obligations on the part of the supplier for claiming that payment has been fulfilled as required under the contract.
21.8 While claiming reimbursement of duties, taxes etc. (like sales tax, excise duty, custom duty) from the Purchaser/Consignee, as and if permitted under the contract, the supplier shall also certify that, in case it gets any refund out of such taxes and duties from the concerned authorities at a later date, it (the supplier) shall refund to the Purchaser/Consignee forthwith.

21.9 In case where the supplier is not in a position to submit its bill for the balance payment for want of receipted copies of Inspection Note from the consignee and the consignee has not complained about the non-receipt, shortage, or defects in the supplies made, balance amount will be paid by the paying authority without consignee's receipt certificate after three months from the date of the preceding part payment for the goods in question, subject to the following conditions:

(a) The supplier will make good any defect or deficiency that the consignee (s) may report within six months from the date of despatch of goods.
(b) Delay in supplies, if any, has been regularized.
(c) The contract price where it is subject to variation has been finalized.
(d) The supplier furnishes the following undertakings:

"I/We, _____ certify that I/We have not received back the Inspection Note duly receipted by the consignee or any communication from the purchaser or the consignee about non-receipt, shortage or defects in the goods supplied. I/We _____ agree to make good any defect or deficiency that the consignee may report within three months from the date of receipt of this balance payment.

22. Delivery

22.1 The supplier shall deliver of the goods and perform the services under the contract within the time schedule specified by the Purchaser/Consignee in the List of Requirements and as incorporated in the contract. The time for and the date of delivery of the goods stipulated in the schedule shall be deemed to be of the essence of the contract and the delivery must be completed not later than the date (s) as specified in the contarct.

22.2 Subject to the provision under GCC clause 26, any unexcused delay by the supplier in maintaining its contractual obligations towards delivery of goods and performance of services shall render the supplier liable to any or all of the following sanctions:

(i) imposition of liquidated damages,
(ii) forfeiture of its performance security and
(iii) termination of the contract for default.

22.3 If at any time during the currency of the contract, the supplier encounters conditions hindering timely delivery of the goods and performance of services, the supplier shall promptly inform the Purchaser/Consignee in writing about the same and its likely duration and make a request to the Purchaser/Consignee for extension of the delivery schedule accordingly. On receiving the supplier's communication, the Purchaser/Consignee shall examine the situation as soon as possible and, at its discretion, may agree to extend the delivery schedule, with or without liquidated damages for completion of supplier's contractual obligations by issuing an amendment to the contract.

22.4 When the period of delivery is extended due to unexcused delay by the supplier, the amendment letter extending the delivery period shall, interalia contain the following conditions:

(a) The Purchaser/Consignee shall recover from the supplier, under the provisions of the clause 23 of the General Conditions of Contract, liquidated damages on the goods and services, which the Supplier has failed to deliver within the delivery period stipulated in the contract.
(b) That no increase in price on account of any ground, whatsoever, including any stipulation in the contract for increase in price on any other ground and, also including statutory increase in or fresh imposition of customs duty, GST/ Sales tax or on account of any other tax or duty which may be levied in respect of the goods and services specified in the contract, which takes place after the date of delivery stipulated in the contract shall be admissible on such of the said goods and services as are delivered and performed after the date of the delivery stipulated in the contract.
(c) But nevertheless, the Purchaser/Consignee shall be entitled to the benefit of any decrease in price on account of reduction in or remission of customs duty, GST/ Sales

tax or any other duty or tax or levy or on account of any other grounds, which takes place after the expiry of the date of delivery stipulated in the contract.

22.5 The supplier shall not dispatch the goods after expiry of the delivery period. The supplier is required to apply to the Purchaser/Consignee for extension of delivery period and obtain the same before despatch. In case the supplier dispatches the goods without obtaining an extension, it would be doing so at its own risk and no claim for payment for such supply and / or any other expense related to such supply shall lie against the purchaser.

22.6 Passing of Property

22.6.1 The Property in the goods shall not pass to the purchaser unless and until the goods have been delivered to the consignee in accordance with the conditions of the contract.

22.6.2 Where there is a contract for sale of specific goods and the supplier is bound to do something to the goods for the purpose of putting them into a deliverable state the property does not pass until such thing is done.

22.6.3 Unless otherwise agreed, the goods remain at the supplier's risk until the property therein is transferred to the purchaser.

23. Liquidated damages

23.1 Subject to GCC clause 26, if the supplier fails to deliver any or all of the goods or fails to perform the services within the time frame(s) incorporated in the contract, the Purchaser/Consignee shall, without prejudice to other rights and remedies available to the Purchaser/Consignee under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to 0.5% per week of delay or part thereof on delayed supply of goods and/or services until actual delivery or performance subject to a maximum of 10% of the contract price. Once the maximum is reached Purchaser/Consignee may consider termination of the contract as per GCC 24.

During the above-mentioned delayed period of supply and / or performance, the conditions incorporated under GCC sub-clause 22.4 above shall also apply.

24. Termination for default

24.1 The Purchaser/Consignee , without prejudice to any other contractual rights and remedies available to it (the Purchaser/Consignee), may, by written notice of default sent to the supplier, terminate the contract in whole or in part, if the supplier fails to deliver any or all of the goods or fails to perform any other contractual obligation(s) within the time period specified in the contract, or within any extension thereof granted by the Purchaser/Consignee pursuant to GCC sub-clauses 22.3 and 22.4.

24.2 In the event of the Purchaser/Consignee terminates the contract in whole or in part, pursuant to GCC sub-clause 24.1 above, the Purchaser/Consignee may procure goods and/or services similar to those cancelled, with such terms and conditions and in such manner as it deems fit and the supplier shall be liable to the Purchaser/Consignee for the extra expenditure, if any, incurred by the Purchaser/Consignee for arranging such procurement.

24.3 Unless otherwise instructed by the Purchaser/Consignee, the supplier shall continue to perform the contract to the extent not terminated.

25. Termination for insolvency

25.1 If the supplier becomes bankrupt or otherwise insolvent, the purchaser reserves the right to terminate the contract at any time, by serving written notice to the supplier without any compensation, whatsoever, to the supplier, subject to further condition that such termination will not prejudice or affect the rights and remedies which have accrued and / or will accrue thereafter to the Purchaser/Consignee.

26. Force Majeure

26.1 Notwithstanding the provisions contained in GCC clauses 22, 23 and 24, the supplier shall not be liable for imposition of any such sanction so long the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure.

26.2 For purposes of this clause, Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable and not brought about at the instance of , the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include, but are not restricted to, acts of the Purchaser/Consignee either in its sovereign or contractual capacity, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes excluding by its employees , lockouts excluding by its management, and freight embargoes.

26.3 If a Force Majeure situation arises, the supplier shall promptly notify the Purchaser/Consignee in writing of such conditions and the cause thereof within twenty one days of occurrence of such event. Unless otherwise directed by the Purchaser/Consignee in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

26.4 If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side.

26.5 In case due to a Force Majeure event the Purchaser/Consignee is unable to fulfil its contractual commitment and responsibility, the Purchaser/Consignee will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs.

27. Termination for convenience

27.1 The Purchaser/Consignee reserves the right to terminate the contract, in whole or in part for its (Purchaser's/Consignee 's) convenience, by serving written notice on the supplier at any time during the currency of the contract. The notice shall specify that the termination is for the convenience of the Purchaser/Consignee. The notice shall also indicate interalia, the extent to which the supplier's performance under the contract is terminated, and the date with effect from which such termination will become effective.

27.2 The goods and services which are complete and ready in terms of the contract for delivery and performance within thirty days after the supplier's receipt of the notice of termination shall be accepted by the Purchaser/Consignee following the contract terms, conditions and prices. For the remaining goods and services, the Purchaser/Consignee may decide:

a) To get any portion of the balance completed and delivered at the contract terms, conditions and prices; and / or

b) To cancel the remaining portion of the goods and services and compensate the supplier by paying an agreed amount for the cost incurred by the supplier towards the remaining portion of the goods and services.

28. Governing language

28.1 The contract shall be written in English language following the provision as contained in GIT clause 4. All correspondence and other documents pertaining to the contract, which the parties exchange, shall also be written accordingly in that language.

29. Notices

29.1 Notice, if any, relating to the contract given by one party to the other, shall be sent in writing or by cable or telex or facsimile and confirmed in writing. The procedure will also provide the sender of the notice, the proof of receipt of the notice by the receiver. The addresses of the parties for exchanging such notices will be the addresses as incorporated in the contract.

29.2 The effective date of a notice shall be either the date when delivered to the recipient or the effective date specifically mentioned in the notice, whichever is later.

30. Resolution of disputes

30.1 If dispute or difference of any kind shall arise between the Purchaser/Consignee and the supplier in connection with or relating to the contract, the parties shall make every effort to resolve the same amicably by mutual consultations.

30.2 If the parties fail to resolve their dispute or difference by such mutual consultation within twenty-one days of its occurrence, then, unless otherwise provided in the SCC, either the Purchaser/Consignee or the supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided the applicable arbitration procedure will be as per the Arbitration and Conciliation Act, 1996 of India. In the case of a dispute or difference arising between the Purchaser/Consignee and a domestic Supplier relating to any matter arising out of or connected with the contract, such dispute or difference shall be referred to the sole arbitration of an officer in the Ministry of Law and Justice, appointed to be the arbitrator by the Director General (Health Services). The award of the arbitrator shall be final and binding on the parties to the contract subject to the provision that the Arbitrator shall give reasoned award in case the value of claim in reference exceeds Rupees One lakhs (Rs. 1,00,000/-)

30.3 Venue of Arbitration: The venue of arbitration shall be the place from where the contract has been issued, i.e., New Delhi, India.

30.4 Jurisdiction of the court will be form the place where the tender enquiry document has been issued, i.e., New Delhi, India.

31. Applicable Law

The contract shall be governed by and interpreted in accordance with the laws of India for the time being in force.

32. Withholding and Lien in respect of sums claimed

Whenever any claim for payment arises under the contract against the supplier the purchaser shall be entitled to withhold and also have a lien to retain such sum from the security deposit or sum of money arising out of under any other contact made by the supplier with the purchaser, pending finalization or adjudication of any such claim.

It is an agreed term of the contract that the sum of money so withheld or retained under the lien referred to above, by the purchaser, will be kept withheld or retained till the claim arising about of or under the contract is determined by the Arbitrator or by the competent court as the case may be, and the supplier will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention.

32. General/ Miscellaneous Clauses

32.1 Nothing contained in this Contract shall be constructed as establishing or creating between the parties, i.e. the Supplier/its Indian Agent/CMC Provider on the one side and the Purchaser on the other side, a relationship of master and servant or principal and agent.

32.2 Any failure on the part of any Party to exercise right or power under this Contract shall not operate as waiver thereof.

32.3 The Supplier shall notify the Purchaser/Consignee /the Government of India of any material change would impact on performance of its obligations under this Contract.

32.4 Each member/constituent of the Supplier/its Indian Agent/CMC Provider, in case of consortium shall be **jointly and severally liable** to and responsible for all obligations towards the Purchaser/Consignee/Government for performance of contract/services including that of its Associates/Sub Contractors under the Contract.

32.5 The Supplier/its Indian Agent/CMC Provider shall at all times, indemnify and keep indemnified the Purchaser/Government of India against all claims/damages etc. for any infringement of any Intellectual Property Rights (IPR) while providing its services under CMC or the Contract.

32.6 The Supplier/its Agent/CMC Provider shall, at all times, indemnify and keep indemnified the Purchaser/Consignee/Government of India against any claims in respect of any damages or compensation payable in consequences of any accident or injury sustained or suffered by its employees or agents or by any other third party resulting from or by any action, omission or operation conducted by or on behalf of the supplier/its associate/affiliate etc.

32.7 All claims regarding indemnity shall survive the termination or expiry of the contract

SECTION – V

SPECIAL CONDITIONS OF CONTRACT (SCC)

The following Special Conditions of Contract (SCC) will apply for this purchase. The corresponding clauses of General Conditions of Contract (GCC) relating to the SCC stipulations have also been incorporated below.

These Special Conditions will modify/substitute/supplement the corresponding (GCC) clauses.
Whenever there is any conflict between the provision in the GCC and that in the SCC, the provision contained in the SCC shall prevail.

1. Bidder must take into consideration in its bid, costs to be incurred for any additional work pertaining to civil, Electrical, Plumbing, sanitary, **Radiation protection as per Govt. regulation/or equivalent as per local statutory conditions ,** servo stabilisers, U.P.S. etc. if required for successful installation testing and commissioning of the system/ equipment in the "All inclusive lump sum price"/ turnkey work.
2. **The contract will be turnkey work**, bidder must take into consideration in its bid, costs to be incurred for supply of equipment from **ware house to consignee CNCI -Kolkata,** installation, commissioning testing, training, third party inspection cost, packing & forwarding cost, all taxes, all duties, custom clearance charges, loading & unloading charges, site visit charges, two year compressive warranty cost including all spare , Indian agent charges, any other required for successful installation & commissioning of system/ equipment.
3. The pre delivery inspection carried out by **third party Inspection agency viz LLOYDS/SGS /Bureau Veritas/ TUV** or any other with same high status inspection agency. The suppler shall arrange III party Inspection agency approved by HSCC. All charges for III party inspection shall be borne by the supplier. Therefore same charges shall take into consideration in its bid.
4. Purchaser's / consignee's contractual right to inspect before issue despatch note.

A. For goods imported from abroad: The stores **(Import origin goods)** should be dispatched only after ensuring inspection carried out by third party Inspection agencies viz. **LLOYDS/SGS /Bureau Veritas/ TUV** and proof of such documents submitted to HSCC for the goods inspected. Inspection. HSCC on receipt of such documents shall issue **Dispatch note**.

To enable HSCC to issue Despatch note, supplier/manufacture is to furnish the following documents in **two sets:**

1. Packing list showing NOA duly vetted by third party inspection agency
2. Manufacture's internal test report.
3. Quality Certificate by manufacture
4. Certificate of origin by the chamber of commerce of the concerned country
5. Warranty certificate by manufacture/supplier
6. Third party inspection agency report viz SGS, Lloyd, Bureau Veritas, TUV prior to despatch
7. Copy of Insurance as per tender document.

No goods (both Indian & Import origin goods) shall be despatched before issue of despatch note issued by HSCC, failing which responsibility (i.e. demurrage charges etc. by the custom department) shall be rest on manufacture/supplier/ its authorised agency in india.

All above documents showing contract number, goods description & LC. The Invoice should in favour of Director, Chittarranjan National Cancer Institute, Kolkata through HSCC. After scrutiny, if the documents found in order, **Despatch note** will be issued to the supplier.

B. For Domestic Goods, including goods already imported by the supplier under its own arrangement

To enable HSCC to issue Despatch note, supplier/manufacture is to furnish the following documents in **two sets:**

1. Packing list showing NOA
2. Manufacture's internal test report.
3. Quality Certificate by manufacture
4. Warranty certificate by manufacture/supplier
5. Third party inspection agency report viz SGS, Lloyd, Bereau Veritas, TUV prior to despatch
6. Copy of Insurance as per tender document

No goods (both Indian & Import origin goods) shall be despatched before issue of despatch note issued by HSCC, failing which responsibility shall be rest on the manufacture/supplier.

All above documents showing contract number, goods description. The Invoice should in favour of Director, Chittarranjan National Cancer Institute, Kolkata through HSCC through HSCC. After scrutiny, if the documents found in order, **Despatch note** will be issued to the supplier.

5. The performance security shall be valid for a **period six (6) months beyond expire of two years warranty period.**

6. The Purchaser reserves the right to ask for a free demonstration of the quoted equipment at a pre determined place acceptable to the purchaser for technical acceptability as per the tender specifications, faling which bid may not be consider.

7. **Insurance:** For delivery of goods at site, the insurance including transit and installation & commissioning insurance shall be obtained by the supplier in an amount equal to **110%** of the value of the goods from "warehouse to warehouse" (final destination – designated consignee place) on "all risks" basis including war, risks, strikes, erection, storage etc. In any event the Goods are at the Supplier's risk until delivery and installation & commissioning at site.

8. Delected

9. **Reimbursement of Custom Duty: CNCI deserves for customs duty exemption through DSIR certificate.** The custom duty amount as mentioned in the price schedule section –XI (B) (convert in INR at the rate of exchange mentioned in bill of entry) will compared with the actual total custom duty amount levied by custom department and reimbursed to the supplier as per below:

   a. If the custom duty amount as mentioned in the price schedule section –XI (B) is equal to the actual total custom duty amount levied by custom department, the actual total custom duty amount levied by custom department shall be prevailed and reimbursed to the supplier in INR accordingly.
   b. If the custom duty amount as mentioned in the price schedule section –XI (B) is more than actual total custom duty amount levied by custom department, the actual total custom duty amount levied by custom department shall be prevailed and reimbursed to the supplier in INR accordingly.
   c. If the custom duty amount as mentioned in the price schedule section –XI (B) is less than the actual total custom duty amount levied by custom department, the custom duty amount as mentioned in the price schedule section –XI (B) shall be prevail and reimbursed to the supplier at rate of exchange rate mentioned on the bill of entry in INR accordingly.

10. The Tenderer shall furnish copy of all Purchase Orders (complete with specifications and prices) in their Technical Bid for the same model supplied to Govt. Hospitals/PSU Hospital/UN Agencies/Govt. Labs/Corporate Hospitals in the last one year from the date of Technical Bid opening.

11. Manufacture/supplier/ its authorised agency in India shall entirely responsible to safely delivery/handing over the goods from ware house to consignee.

12. Manufacture/supplier/ its authorised agency in India shall entirely responsible for custom clearance/ any statuary compliance etc. however necessary support/document will be provided by HSCC/ **CNCI -Kolkata** if required.

SECTION - VI

Required Delivery Schedule:

a) For Indigenous goods or for imported goods if supplied from India:

(i) Delivery period for Radiology, Radio therapy Equipments: **90 days** from date of Notification of Award to delivery at consignee site. The date of delivery will be the date of delivery at consignee site.
(ii) Installation and commissioning period Radiology, Radio therapy Equipments:- **90 days** for receipt of the stores/ goods delivery at site or **90 days** from handing over the site or instruction for installation, whichever is later.
(iii) Delivery period for other Equipments: **60 days** from date of Notification of Award to delivery at consignee site. The date of delivery will be the date of delivery at consignee site.
(iv) Installation and commissioning period other Equipments:- **60 days** for receipt of the stores/ goods delivery at site or **60 days** from handing over the site or instruction for installation, whichever is later.

b) For Imported goods directly from foreign through LC:

(i) Delivery period for Radiology, Radio therapy Equipments: **90 days** from date of Notification of Award to delivery at consignee site. The date of delivery will be the date of delivery at consignee site.
(ii) Installation and commissioning period Radiology, Radio therapy Equipments:- **90 days** for receipt of the stores/ goods delivery at site or **90 days** from handing over the site or instruction for installation, whichever is later.
(iii) Delivery period for other Equipments: **60 days** from date of Notification of Award to delivery at consignee site. The date of delivery will be the date of delivery at consignee site.
(iv) Installation and commissioning period other Equipments:- **60 days** for receipt of the stores/ goods delivery at site or **60 days** from handing over the site or instruction for installation, whichever is later.

The Time lapse on the part of HSCC approval/ CNCI -Kolkata approval / local statutory approval / issue of CDEC /DSIR Certificate/ Despatch Clearance/note will not be count for delivery period and site not ready/ site not handed over will not be count for installation period.

Insurance (local transportation and storage) would be extended and borne by the Supplier from ware house to the consignee site for a period including 3 months beyond date of delivery.

NOTE:

1. The bidders are advised to ship / deliver the equipments / items, only after obtaining "Permission to Ship" from HSCC in writing. If the bidder ship the equipments / items without obtaining permission, then the cost towards demurrage, warehouse charges etc has to be borne by the bidder only.
2. **For Imported goods directly from abroad:** The foreign tenderers are required to quote their rates on CIP Named Port of Destination Basis giving break up of the price as per the Proforma prescribed in the Price Schedule. Purchaser will place the order on Consignee basis. The shipping arrangements shall be made by the supplier accordingly.

Section – VII
Technical Specifications

DEPARTMENT OF RADIOTHERAPY
CNCI, KOLKATA
TECHNICAL SPECIFICATION:

Item no. 01

I. High-Energy Linear Accelerator with IMRT, IGRT, VMAT, SRS/SRT/SBRT, Eelectron & FFF Facility (2 Nos.):

Sealed tenders (sealed separately as the "Technical Bid & the Price Bid-in duplicate) are invited directly from the manufacturers/principles for the supply of two state-of the-art clinical Radiotherapy Linear Accelerator capable of producing 6MV,10 MV and 15 MV photon energy for the routine and specialized treatment techniques. Linear Accelerator must have the latest technology and should be fully computer controlled system. The Medical Linear accelerator system includes Linear accelerator, Treatment Planning System, Oncology Information System. It should be capable of integrating with standard networking and PACS systems available in the market. Vendor should provide the time-line schedule for shipping, beam modeling, on-site training and clinical implementation and first patient treatment after LC opening. The offered equipment should have the following technical features.

1. Linear Accelerator

An Advanced, latest model of high-energy medical linear accelerator should be equipped with a multileaf collimator (MLC) and an electronic portal imaging device (EPID) and kV-cone-beam CT (CBCT) to perform conformal treatment techniques such as three dimensional conformal radiotherapy (3D-CRT), intensity modulated radiation therapy (IMRT) and image-guided radiotherapy (IGRT) volumetric Modulated Arc therapy, stereotactic radiosurgery and radiotherapy (SRS/SRT), stereotactic body radiotherapy (SBRT) 4D-Radiotherapy (4D-RT) and Adaptive Radiotherapy (ART) with Flattening Filter Free (FFF) beam technology based linear accelerator.

2.0 Photon Beam Characteristics

2.1 Beam Energies

The accelerator shall be capable of producing three clinically useful three photon beams with energies of 6MV, 10MV and 15 MV (flattened). In addition, two energies of 6MV and 10MV capable of producing in Flattening Filter Free (un-flattened) photon mode should be offered.

2.2 Dose Rate and Beam Stability

2.2.1 The maximum dose rate for routine clinical applications shall at least 600 monitor units (MU)/min or more for a 10 x 10 cm^2 field at the depth of maximum buildup dose at a TSD of 100 cm for all flattened photon beams.

2.2.2 The dose rate for in flattening filter free photon beams should have at least 1000 MU/min or more for 6MV and 2000MU/min or more for 10MV.

2.2.3 Specify the maximum dose rate and number of intermediate dose rate available in the offered linac model.

2.2.4 Specify the beam stability time in milliseconds.

2.3 **Field Size Specifications**

The field size is defined as the distance along the radial and transverse axes between the points of 50% density on an x-ray film taken at 100 cm TSD with minimum buildup. The digital display, light field size and mechanical display should be accurate to within + 2 mm.

2.3.1 The accelerator shall provide a continuously variable rectangular, unclipped field size from 1 x 1 cm to 35 x 35 cm at 100 cm SSD. The maximum clipped field size should equal or exceed 40 x 40 cm at 100 cm SSD. Clipped corners are unacceptable for fields smaller than 35 x 35 cm.

2.3.2 A detachable block holder should be provided to accommodate 2 trays simultaneously for wedges and block trays. The size of the blocking trays should be at least 5 cm larger than the maximum field size at the lower position. Specify location and size of blocking trays.
2.3.3 Asymmetrical collimation for two sets of jaws shall be provided. One set of jaws shall be capable of crossing the center line by at least 10 cm as projected at 100 cm TSD. The collimators shall re-center automatically when the symmetrical mode of operation is re-selected.

2.4 **Beam Profile Specification**

2.4.1 Field Flatness: Field Flatness of all flattened and un-flattened photon energies shall comply with the permissible limit of AERB and IEC.
2.4.2 Field Symmetry: Field symmetry of all flattened and un-flattened photon energies shall comply with the permissible limit of AERB and IEC.
2.4.3 Radiation Field Penumbra: Radiation Field Penumbra of all flattened and un-flattened photon energies shall comply with the permissible limit of AERB and IEC.

2.5 **Beam Quality Index:**

The ratio of ionization measured at 20 cm and 10cm depth for a field size 10 X 10 cm2 at the detector level and with constant detector source distance = 100cm should be as given below:

Photon beam energy (MV)	Quality Index (QI)
6 MV	Specify
10 MV	Specify
15 MV	Specify

The beam quality indices for all flattened and un-flattened beam energies supplied shall comply with the permissible limit of AERB.

2.6 **Radiation Leakage**

Radiation leakage limits shall be within appropriate regulatory agency guidelines as follows:
2.6.1 **Photon leakage.** The photon leakage rate at any point one meter from the target outside the cone defined by the primary x-ray collimator shall be less than 0.1% of the absorbed dose at the isocenter.
2.6.2 **Collimator transmission.** The movable collimators shall not permit transmission of radiation exceeding 0.5% of the central axis dose at Dmax measured in air for both photon energies.
2.6.3 **Neutron leakage.** The neutron leakage rate should not exceed 0.1% expressed in neutron dose equivalent (Sievert) when added to the photon leakage for a 10 x 10 cm field at the isocenter at any point one meter from the target when the jaws are closed.
2.6.4 In addition to meeting above specifications for radiation leakage, the linac should also meet all the mandatory safety and radiation leakage regulations as specified by Atomic Energy Regulatory Board (AERB), Mumbai, India for a medical linear accelerator.

2.7 **Rotational/ Arc Therapy**

2.7.1 The Linac must have photon arc therapy feature with gantry rotation in clockwise and counter clockwise directions.
2.7.2 The dose rate/range of dose rate should be specified MU per degree. The MU/degree shall automatically be computed.
2.7.3 A range of continuously variable dose rate should be available. A unit able to deliver high dose per degree will be preferred.

2.8 **Maximal Dose**

For TBI procedures, maximum dose should be specified for a useful suitable beam.

2.9 **Congruence Between Optical and Radiation Field:**

The congruence between optical and radiation fields for 5x5 cm^2, 10 cm x10 cm at 0, 90,180 and 270 degree gantry angles with SSD = 100 cm should be within 2 mm along X,Y axes.

2.10. Vendor should provide the beam matching between two linear accelerators.

3.0 **Electron Beam Characteristics**

3.1 **Electron Beam Energies**

Five clinically useful electron beam energies shall be provided. The lowest energy shall be 4 or 6 MeV and the highest energy shall be 16 MeV or above. Energy shall be specified as the most probable energy (Ep) of the electron energy spectrum at 100 cm from the accelerator exit window.

3.2 **Dose Rate**

The dose rate at the isocenter shall not be less than 600 MU/minute for each electron energy.

3.3 **Field Size**

The electron beam size is defined by the inside dimensions of the electron beam applicators projected geometrically to a plane surface at 100 cm SSD. A range of field sizes from 4 x 4 cm to 25 x 25 cm^2 is required. A method to obtain irregular field shapes shall be provided.

It shall be possible to visualize both the field defining light and the optical distance indicator with an electron applicator in place.

3.4 **Beam Profile Specification**

3.4.1 Field Flatness

The maximum percent variation of the electron intensity at 100 cm SSD at Dmax shall not exceed 5% (within the central 80% of the longitudinal and transverse axes relative to the central axis) for field sizes from 10 x 10 cm^2 to 25 x 25 cm^2 and for all the electron beam energies.

3.4.2 Beam Symmetry

The maximum percent variation in the average electron intensity to the longitudinal and transverse halves of the electron field at Dmax for a 10 x 10 and 25 x 25 cm^2 field at 100 cm SSD shall not exceed ± 2% at gantry angles of 0, 90, 180 and 270 degrees. The average electron intensity is the average of the maximum and minimum points within the central 80% of the field for each of the axes.

3.5 **X-ray Contamination**

The x-ray contamination of the electron beam shall be less than 5% of the maximum dose for all energies specified previously.

3.6 **Total Skin Electron Therapy**

A high dose rate electron mode for total skin electron therapy must be provided with a minimum dose rate of 900 MU/min or above for the 4 or 6 MeV electron beam.

4. Accelerator System

4.1 The system must provide with either Magnetron or Klystron as the radiofrequency (RF) micro power source. The warranty should be at least for 5 years. (Pro rata guarantee is not acceptable).

4.2 Standing or travelling type of waveguide along with the bending magnet, target assembly, vacuum ion-pump should be offered a warranty of 5 years. (Pro rata guarantee is not acceptable).

4.3 Specify the target type and materials and also flattening filter materials in details

4.4 Electron gun should have warranty of minimum 5 years.

5. Dose Monitoring System

5.1 Sealed/unsealed type of dose monitoring chambers must be provided and should operate independent of ambient temperature and pressure. All dosimetry, patient and unit safety related interlocks must be sensed and controlled by hardware and software.

5.2 The equipment shall provide two independent dose monitoring systems for primary and secondary dose monitoring as well dose distribution monitoring

5.3 The dose monitoring systems shall monitor the beam energy and shall terminate irradiation when the change of beam energy greater than ±3% of the nominal energy.

5.4 Provision of a controlling timer to protect against failure of dose monitoring systems shall comply with the requirements in accordance with respective IEC norms.

5.5 The reproducibility tolerance for the dose monitoring system shall be better than 1% or 1 MU.

5.6 The linearity tolerance of accumulated doses from 10 to 1000 MU for the dose monitoring system shall be ± 1% or 1 MU. Specify the linearity tolerance for less than 10MU in view of IMRT

5.7 The reproducibility tolerance at any gantry angles for the dose monitoring system shall be better than ± 1% or 1 MU.

6. Mechanical Features Specification

6.1 Gantry

6.1.1 Gantry shall be motorized by local and remote controls. Automatic setup facility and in-room display of treatment parameters shall be provided.

6.1.2 The total range of gantry rotation shall not be less than 360°

6.1.3 Resolution and accuracy of digital readout shall be 0.1° and ± 0.5° or better 6.1.4 Resolution and accuracy of analog readout shall be 1° and ± 1° or better

6.2 Collimator

6.2.1 Collimator shall be motorized by local and remote controls

6.2.2 The cross-wire wander (rotation) shall not exceed 1mm diameter

6.2.3 The total range of collimator rotation shall not be less than ± 165°

6.2.4 Resolution and accuracy of digital readout shall be 0.1° and ± 0.5° or better

6.2.5 Resolution and accuracy of analog readout shall be 1° and ± 1° or better

6.3. Diaphragm (Jaws)

6.3.1 Each diaphragm shall be independently motorized by local and remote controls

6.3.2 One pair of diaphragm shall be traveled up to at least -10cm crossover the central axis in order to simulate the asymmetrical and offset fields.

6.3.3 Resolution and accuracy of digital readout shall be 1 mm and ± 1mm or better

6.3.4 Maximum angular deviation between the axes of opposing diaphragms shall be stated.

6.4 Multileaf Collimator

6.4.1 Number of multileaf collimator (MLC) leaves shall be at least 60 pairs or more to provide maximum field size of 40x40 cm2.

6.4.2 MLC leaf width projected at 100 cm TSD shall be 5 mm uniform or combination of 5mm and 10mm.

6.4.3 Multileaf collimator speed together with maximum possible dose rate for dynamic radiotherapy shall be stated.

6.4.4 Maximum range of leaf speed and extension between leaves shall be stated.

6.4.5 Accuracy and repeatability of leaf position shall be within ± 1mm or better. Accuracy of leaf alignment perpendicular to leaf movement about isocenter shall be within 1mm or better.

6.4.6 Radiation parameters such as leaf penumbra, leaf transmission, inter-leaf transmission and coincidence of radiation field vs optical field shall be stated.

6.4.7 The MLC system shall incorporate a fast and efficient QA tools (compliance of AAPM-TG-50 guidelines) for checking and monitoring all leaves position in real time. Deviations from leaves position calibration shall be interlocked to prevent treatment.

6.4.8 Clearance from bottom of collimator to isocenter shall be specified.

6.4.9 Provision of treatment verification and record system with the necessary interface for static and dynamic operation of MLC prior to treatment delivery.

6.5 Treatment Table/Couch

6.5.1 Vendor shall provide the treatment couch and accessories used for accurate image guided radiation therapy and it should have 6-degree-of-freedom (6DOF) in translational and rotational movement capability.

6.5.2 Indexed carbon fiber tabletop shall be provided.

6.5.3 The tabletop shall comply with the deflection requirement of IEC norm.

6.5.4 Lifting capacity shall be at least 200kg

6.5.5 IEC scale convention shall be provided.

6.5.6 Treatment tabletop shall be capable of free manual movement in both lateral & longitudinal directions

6.5.7 Lateral & longitudinal couch displacement shall not exceed 1mm under braked condition

6.5.8 Range of vertical, longitudinal and lateral movement and pitch, yaw and roll shall be stated

6.5.9 Range and accuracy of isocentric rotation shall be stated.

6.5.10 Vendor shall specify the accuracy of isocentric rotation angle.

6.5.11 Mechanical isocenter accuracy for couch rotation shall not 1mm radius sphere
6.5.12 Vendor shall specify the accuracy of couch rotation isocenter
6.5.13 Vendor shall specify the coincidence of couch isocenter with gantry and collimator isocenter.
6.5.14 Vendor shall provide any auto-setup / remote control couch motions capability
6.5.15 Precision of digital couch rotation readout +/- 0° or accuracy of digital couch rotation readout +/- 1 ° or better.
6.5.16 Precision of digital couch vertical, longitudinal and lateral position readout shall be +/- 1mm or better, accuracy of digital couch vertical, longitudinal and lateral position +/- 2mm or better.
6.5.17 Vendor is required to facilitate with all available accessories, inter-changeable tabletop materials, removable parts for treatment. Provision of patient immobilization accessories, preferably with indexing capability compatible with the couch. Detailed list of all accessories shall be stated and provided.
6.5.18 Emergency down drive shall be provided to remove the patient in the case of power failure.

6.6 Electronic Portal Imaging System

6.6.1 The imager shall utilize amorphous silicon (a-Si) with higher resolution shall be provided.
6.6.2 Vendor shall specify the maximum image field size at isocenter and at other distance achievable with a single exposure for the detector panel. Size of flat panel shall be at least 30 x 30 cm^2 with a resolution not less than 1024 x 1024 pixel.
6.6.3 Specify details of all movements and positional accuracy of the imager.
6.6.4 Specify the details of pixel depth pitch of the imager.
6.6.5 Maximum image acquisition rate and minimum MU for full image resolution shall be stated
6.6.6 Spatial resolution (lp/mm) shall be stated if test object position is at isocenter and at detector
6.6.7 Accuracy of imager centre to beam isocenter shall be stated.
6.6.8 The system shall provide a suitable means to import & export images for verification and display on the same workstations; to acquire & transfer images through the existing oncology network; and to be capable of registration
6.6.9 Vendor shall provide features on image processing, image display, image analysis, image storage, image print and image enlargement. Details shall be stated.
6.6.10 Avoidance of irradiation of area outside sensitive detector panel and anti-collision device, vendor shall state and provide details including the usable life span of the EPID.
6.6.11 Vendor shall provide all accessories including necessary QA tools, maintenance tools etc. for EPID.
6.6.12 Provision of facilities for storage I archival of electronic portal images.
6.6.13 Portal images can be exported to external facilities in a recognized format including BMP and TIFF.
6.6.14 Vendor should provide IMRT and VMAT portal dosimetry verification system of EPID for all available energies including FFF beams.

6.7 Patient Alignment system

6.7.1 Vendor is required to supply and install 4 sets green laser alignment systems. A separate back pointer laser alignment system shall be provided and installed onto the linear accelerator on offer. All laser products shall comply with respective code of IEC safety of laser products.
6.7.2 Each laser beam shall be precisely adjustable vertically and horizontally by remote control to indicate the isocenter position within 1 mm and protected against accidental displacement
6.7.3 System should have 0.5 mm line thickness at isocenter for patient alignment and set-up

6.8 Control Console and Treatment room display features

6.8.1 **Main control console:**

A computerized control console shall be located outside the treatment room. This console shall provide controls that must be activated in order for the accelerator to become operational in any of its various modes of operation and also provide displays of accelerator parameters. The following shall be present:
6.8.1.1 **Power Off:** Turns off all electrical power, including power to the computer, except for that power needed to maintain the accelerator in a "Stand By" condition
6.8.1.2 **Power On:** Turns on electric power to the accelerator

6.8.1.3 **Total Dose:** Sets the desired total dose for patient's treatment
6.8.1.4 **Time:** Sets time for patient's treatment. Time shall be used as a back up in case of failure of total dose interlock. Backup time shall be calculated automatically with provision for manual reset.
6.8.1.5 **MU/Degrees:** Sets the desired MU/degree for rotational therapy. MU/degree shall be calculated automatically with provision for manual reset.
6.8.1.6 **Mode Selection:** Selects x-rays or electrons for treatment
6.8.1.7 **X-Ray Energy:** Selects photon beam energy
6.8.1.8 **Radiation On:** Turns on accelerator and radiation is produced
6.8.1.9 **Interrupt:** Immediately stops treatment.
6.8.1.10 **Treatment Complete:** Indicates that desired dose has been delivered. In addition, the operator should be alerted if radiation terminates for any reason other than reaching the set integrated dose. In such cases, the dose remaining to be given shall be indicated
6.8.1.11 **Arc Therapy:** Enables the accelerator to perform arc therapy
6.8.1.12 **Wedge:** Requires that the presence, identification and orientation of a wedge must be confirmed at the control console.
6.8.1.13 **Port Film:** Opens jaws completely or partially, as selected by the operator, and limits the amount of radiation to be delivered to less than or equal to 20 cGy. This shall be operational in both the photon and electron modes but allow only the production of low energy photons. Once the port film has been completed, it should be possible to return the collimators to their original setting automatically.
6.8.1.14 **Special Procedures:** Prohibits accidental selection of procedures such as electron arcs or high dose rate electron irradiation by providing an "extra step" in selection procedure

6.8.2 Control Console Display/Monitors:

The following monitors and displays should be available at the control console, and with the exception of a back-up dose counter, it should be possible continuously to visually observe the value being registered on these counters and displays from the position of the operator.
6.8.2.1 **Dose Rate Indicator:** Indicates the dose rate at maximum build-up for a 10 x 10 cm field at 100 cm SSD.
6.8.2.2 **Dose Counters:** Two counters that count integral dose detected by each of the two dosimeters.
6.8.2.3 **Total Time Counter:** Counts total treatment time in 0.01-minute increments up to 9.99 minutes.
6.8.2.4 **Angle:** Indicates position of gantry in degrees with precision of ± 0.5 degrees
6.8.2.5 **Symmetry:** Indicates beam symmetry in both major axes

6.8.3 It should be possible to adjust the parameters at or near the control console:

6.8.4 **Accelerator Parameter Checks:** It shall be possible to monitor different accelerator parameters via an oscilloscope at or near the control console.

6.8.5 **Treatment room pendent:**

Hand pendants shall be provided. The hand pendent must have the control of gantry rotation, collimator rotation, collimator jaw settings, treatment couch motions (vertical lateral, longitudinal and turntable rotation around isocentre and room light control. To prevent possible malfunctioning, when hand pendant is in operation, the computer system must prevent conflicting signals from being sent to the same mechanical device.

6.9 Essential Accessories

6.9.1 **SSD indicator**

A optical distance indicator (ODI) of SSD from 80cm to 130 cm with accuracy of ±1 mm at isocentre should be provided.

6.9.2 **Front and Side pointers**

A mechanical front pointer to locate isocentre of the unit within ±2mm and to apply to any orientation of the machine shall be provided

6.9.3 **A closed-circuit color TV system**

with TV monitors and two cameras in the linac treatment room shall be supplied.

6.9.4 Field Illuminating light: A field illuminating system should be provided for both photon and electron modes.
6.9.5 Vendor should provide the motion-based skylight with interior of treatment room wall decoration for all linear accelerators.

6.10 Wedge Systems

6.10.1 The programmable wedge fields shall provide a range of wedged fields starting at least 4cm up to 25 cm at 100 cm TSD.
6.10.2 Provision of a statistics log for tracking the accuracy of the programmable wedge fields' profiles.
6.10.3 Provision for automatic, motorized, universal wedge system for variable wedge angles from 0° up to 60.

7. Intensity Modulated Radiation Therapy & Volumetric Modulated Radiation Therapy System

7.1 The linear accelerator system shall be capable of delivering Intensity (fluence) modulated photon beam within and across the given field apertures in order to produce highly conforming dose distribution as per the physician prescription.
7.2 Inverse treatment planning system shall be capable of doing IMRT and VMAT Planning of the linear accelerator offered.
7.3 Support for "step and shoot" IMRT and/or dynamic sliding window" IMRT delivery
7.4 Specify the linac performance for small MU delivery
7.5 Capable of delivering high quality intensity modulated fields using fractions of MU (please state minimum MU per segment)
7.6 Extended intensity modulated field size shall be at least 30 cm x 30 cm
7.7 Capable of automated delivery of multiple co-planar fields in sequence from the console with remote control of gantry, collimator and jaws motions between coplanar treatment fields.
7.8 Capable of verifying every parameter of segments downloaded from treatment planning systems through network for IMRT treatment
7.9 The latest technology for faster implementation of IMRT such as Volumetric Intensity Modulated Arc Therapy (VMAT) or its equivalent should be provided.

8. Image-Guided Radiotherapy System

8.1 Kilovoltage-based 3D-Image-Guided Radiotherapy (kV-IGRT) shall be provided and it should have FDA clearance. The system shall have the capability of producing 2D radiography, 2D fluoroscopy and 3D cone beam CT (3DCBCT) and 4D cone beam CT (4DCBCT) imaging modalities to account for patient's interfraction and intrafraction daily setup verification and respiratory motion.
8.2 A 3D volume CT image data is reconstructed from a series of 2D projection images acquired as the linear accelerator gantry is rotated. This image data can be used for verification of patient position and target motion. This shall have flexibility in providing full or partial gantry rotations, with the opportunity to select a choice of gantry rotation speeds.
8.3 The cone-beam CT technology should be of amorphous silicon (a-Si) based flat panel detector technology.
8.4 The system should be able to acquire and display on-board 2D and 3D volume images of the patient immediately prior to treatment. The images should be in DICOM 3 and DICOM RT format. The network provided should be able to transfer images to (from) EPID/CBCT from (to) TPS and simulator and additional workstations.
8.5 The quality of image, especially axial CT images from the CBCT should be sufficient to delineate target and critical structure volumes.
8.6 All Advanced image registration software commercially available should be supplied and should be able to overlay original reference images from the TPS to the on-board images and calculate offset values based on user defined reference points and structures. The software should be able to move the table as per the offset values in 3D and 6D.
8.7 Based on the comparison of initial planning images and on-board images, change in treatment plan should be possible.

8.8 The system should have latest configuration of hardware (CPU, hard drive, RAM, min 21" square LED monitor, color LASER printer)
8.9 There shall be a geometric calibration phantom for kV to MV isocenter alignment and other calibration.
8.10 Image quality phantom to determine the low contrast and spatial resolution shall be provided.
8.11 IGRT daily QA phantom for kV and MV projection imaging and kV CBCT checks and dynamic thorax phantom for validation of 4DCBCT imaging along with mechanically independent of platform motion and programmable through motion control software and all other necessary IGRT QA tools shall be provided.

9. Stereotactic Radiosurgery and Radiotherapy of Intracranial and Extracranial Treatment System

9.1 The frameless stereotactic treatment systems for both intracranial radiosurgery/radiotherapy (SRS/SRT) and also extracranial stereotactic body radiotherapy (SBRT) should be provided.
9.2 The vendor should offer necessary immobilization systems and other gadgets to perform frameless intracranial and frameless extracranial stereotactic treatment of brain, lung, liver and spine tumors for each 20 patients. Abdominal compression facility with fixing mechanism for two linac and one CT Simulator shall be provided.

10. Four-Dimensional and Adaptive Radiation Therapy Systems

10.1. The vendor should provide advanced and latest model of optical surface tracking and gating solutions for entire four-dimensional (4D) treatment chain from imaging (4DCT) to (4D) treatment delivery. The system should consist of Advanced Laser based-optical Scanning, 4DCT acquisition and Gating Systems with following features;
a. The system should be of non-invasive, marker-free i.e no markers or devices will need to be placed on the patient or on the couch.
b. The system should support for patient positioning/surface mapping, intrafraction motion tracking/monitoring and respiratory gating of complete workflow.
c. The system should facilitate the 4D treatment of thoracic and abdominal tumors.
d. The system should have advanced algorithms for non-rigid and deformable models to enable real-time assessment of patient positioning errors before and during treatment delivery.
e. The system should check the patient position more than once every second with sub millimeter accuracy.
f. The system should have provision for audio-visual coaching apparatus to detect the deviation outside the set tolerance which also helps the patient to follow optimal breathing pattern.
g. The optical scanning system should support for 4D CT imaging acquisition and should be installed both in the CT room and also treatment room.
h. The gating system should be capable of prospectively gated and retrospectively gated imaging and treatment delivery.
i. All necessary phantoms and QA systems/tools/gadgets required for Commissioning and validation tests for clinical implementation of above systems should be provided.
10.2. The vendor should provide latest model of the stand-alone deformable image registration system with following features;
a. System should be capable of performing deformable image registration using CT/MRI/PET/SPECT images and should be provided with all commercially available deformable algorithms.
b. System should be capable of performing Auto contouring and Atlas based segmentation for Adaptive re-planning.
c. System should be capable of Adaptive re-planning interfraction Dose Accumulation.
d. System should support for DICOM /DICOM RT Import: CT, CBCT, PET CT, PET, MR, SPECT and diffusion weighted MRI (DWI), including cine/4D modes for all relevant imaging types.

e. System should support for DICOM / DICOM RT export: all meta-data and imaging data (including structure sets, treatment plans with doses) must be exportable in a DICOM-readable format along with deformations, either as deformable vector fields (DVF) or as resample deformed DICOM images.
f. System should have tools to generate maximum intensity projection, minimum intensity projection, average projection, mid-ventilation position reconstruction from 4D-scans.
g. System should be capable of performing 4D dose accumulations over all phases of respiration for evaluating the actual dose delivered to moving target.
h. It should have option to calculate Jacobian determinant from DVF.
i. Should have tools to reduce artifacts/noise from the images, e.g. attenuation correction, HU replacement in a user contoured or automatically defined area.
j. It should have Biological modeling solutions (EUD or TCP or NTCP etc).
k. It should have external beam and brachytherapy dose accumulation.
10.3. The vendor should provide CBCT Electron density and image quality phantom specifically designed for CBCT with increased HU value for adaptive radiotherapy commissioning and QA of CBCT image quality.

11. Utility Requirements

11.1 Power Supply

11.1.1 Power conditioner shall be installed to provide precise voltage regulation and protection for the linear accelerator on offer.
11.1.2 Should work on three phase 440 V / 50 Hz Power
11.1.3 On line UPS of suitable rating with voltage regulation and spike protection for 45 minutes back up for whole linear accelerator systems (including associated TPS, server etc.) should be provided.
11.1.4 Resettable over current breaker shall be fitted for protection.

11.2 Water Chiller System

10.2.1 The chiller system shall be provided along with the machine by the principals. No local system shall be accepted.
10.2.2 The chiller system shall incorporate an automatic back-up facilities, remote control and alarm panel with warning facilities
10.2.3 Vendor should provide a fully automatic water chiller system for sufficient cooling of the linear accelerator

11.3 Air conditioning and ventilation:

To be provided. Specify temperature, relative humidity and air changes.

11.4 Safety Systems: Patient, staff and machines safety interlocks, emergency switches and beam off interlocks to be provided.

11.5 Machine space: Details about the physical dimensions and weights of the machine and its accessories including control console to be provided.

11.6 Last Man Out Switch: The Last Man Out Switch (LMOS) which is a mandate from AERB has to be provided.

11.7 **Stand-alone Room Dehumidifiers** of adequate capacity for both LINAC room, Console Room and TPS Room to be provided to ensure condensation free atmosphere for the high value equipment.
11.8 **One Vacuum cleaner** to remove dust from the various components of the machine.
11.9 **One HD LCD Projector** for discussion and decision of treatment planning and radiation dosimetry and QA.

(II) TECHNICAL SPECIFICATION FOR ADVANCED TREATMENT PLANNING SYSTEM

Inviting tender for supplying **Advanced Radiation Treatment Planning System** (TPS) capable of performing Conformal 3D-Planning, Inverse Treatment Planning for IMRT and VMAT, 4DTreatment Planning and Adaptive Treatment Planning for clinical application of standard and advanced techniques in radiotherapy treatment for cancer. The offered system should have the following requirements and technical specifications.

1**. General Requirements**

1.1 The system should be integrated with CT-Simulator, MR/PET and linear accelerators capable of dynamic sliding window IMRT and VMAT
1.2 System should be capable of integrating with standard record-and-verify and networking and PACS systems commercially available.
1.3 The system should have latest technology of hardware and software features commercially available. Any advanced version which is released within 6 months period after LC opening should provide/upgrade for free of charge.
1.4 **Five treatment planning workstation** with calculation licenses for 3D conformal planning and IMRT and VMAT planning capability and additional Five workstations for enabling **contouring and virtual simulation** with individual licenses should be provided. Vendor should provide the each unit price of both TPS and workstations offered.
1.5 The TPS system should have the capability of integration with CT- Simulators/MR/PET scanners and linear accelerator of any vendor. Virtual simulation software and licenses for virtual simulation features including for controlling moving laser shall be provided.
1.6 The system shall be linked to linear accelerator console through record and verification system and required port/Hub/connectors for network connection should be provided.
1.7 The offered system should be capable of performing both 3D conformal and IMRT and VMAT planning in the same single system.
1.8 All optional features for advanced planning techniques should be quoted separately.
1.9 Vendor should provide the time-line schedule for shipping, beam modeling, on-site training and clinical implementation and first patient treatment after LC opening.

2. Three-dimensional (3D) conformal Planning:

2.1 It should support 3D-Conformal radiotherapy planning (3DCRT) with linac and MLC of any make. It should include non-coplanar, asymmetric, arc and blocked irregular beams.
2.2 Advanced tools for automatic and manual contouring/segmentation of normal structures and target volumes on arbitrary axial, coronal and sagittal planes. Non-uniform automatic and manual margining for CTV and PTV in 3D with exclusion barriers should be possible.
2.3 Manual and fully automatic image registration using mutual information modes for image fusion among CT, MRI and PET should be provided. The fusion results should be qualitatively and quantitatively verifiable with checkered board and in vertical and horizontal split screens spyglass and image overlaying options.
2.4. 3D visualization of anatomical structures, beams eye view (BEV), rooms eye view (REV) and dose distributions shown in 2D and 3D solid, wired and transparent multiplanar views including colour wash mode.
2.5 Multiplan viewing for comparing dose distribution of at least three rival plans including interactive DVH (qualitative and quantitative) comparison. Summation and subtraction of dose plans should also be possible.
2.6 Creation of DRRs in any desired plane including the beam cross-sectional plane should be possible for export to EPID and virtual simulation console.
2.7 TCP and NTCP calculations should be provided
2.8 Compatibility with any reputed international class RFA system for beam data transfer. Necessary software and support for beam modeling into the TPS should be provided.
2.9 It should support full DICOM connectivity for import and export of data with query/retrieve support, DICOM CT, MR, PET image support, and DICOM RT structures, set, RT plan and RT dose support.

3. Patient anatomical imaging and data transfer:

3.1 The patient data must be transferred from CT, MRI, PET via DICOM, CD and DVD's.
3.2 Image data from CT/MRI slices must be transferred via film scanner, digitizer and direct from CT/MRI scanners, Simulators, RFA system and patient-specific QA system.
3.3 The system should select atleast 150 images per patient and to do real-time multiplaner reconstructions from original CT/MRI image data sets.

4. Image handling

4.1 Should support the prone or supine, and head-first or feet-first patient orientation.

4.2 Image processing tools should include mean filter, median filter, threshold, and adaptive histogram.

4.3 Window/level facilities for gray scale images should be possible

4.4 Image utilities should include distance, area and volume measurements and statistical calculation of CT values within a user-defined region.

4.5 Zooming of high-resolution image and screen dumps to a color printer should be possible in any stage of the planning program.

4.6 Each image should contain information of the imaging equipment (scaling, orientation); the images should be in arbitrary order and arbitrarily spaced.

5. Contouring

5.1 System should support contouring templates that list structures of interest and define structure display properties.

5.2 Automatic contouring of patient outlines and internal structures through all CT images.

5.3 Post-processing tools that smooth, reshape, connect, disconnect structures should be possible.

5.4 3-D auto-margin functions (e.g. CTV to PTV) with independent margins in 6 directions.

5.5 3-D manual contouring tools that work in the transversal, sagittal and frontal images.

5.6 Interpolation of contours

5.7 Manual contour entry and editing

5.8 Display of frontal and sagittal images for reference should be possible

6. Dose Planning

6.1 System should support planning library that define field orientation, name, margins, isocenter location, and dose prescription

6.2 The field should be centered automatically to the center of any volume

6.3 Different energies (photons and electrons) to combine in a single plan should be possible

6.4 Each field should have separate isocenter

6.5 Import of image, isocenter and plan data from CT scanner

6.6 Entire group of fields should be moved together

6.7 Auto-blocking with a user-defined margin around target volume

6.8 Block outlines should be modified graphically

6.9 Ability to copy, move and mirror blocks

6.10 Auto-MLC with a user-defined margin around target volume

6.11 MLC aperture should be modified graphically

6.12 Ability to copy and mirror MLC settings

6.13 Automatic optimization of compensators.

6.14 User-defined density for bolus

6.15 User-defined CT numbers within specified regions (remove contrast medium) in any plane

7. Dose Calculation should support for:

7.1 Photon energy range from 6MV, 10MV and 15 MV X-rays and multiple electrons.

7.2 3-D dose calculations with coplanar and non-coplanar photon and electron beams

7.3 Calculation of Monitor Units for any vendors of linear accelerators

7.4 3-D dose calculations should be performed simultaneously with multiple patients planning

7.5 Normalization of dose distributions to minimum, maximum, any arbitrary % value or to any dose point value

7.6 User-definable transmission factors for blocks etc.

7.7 Beam hardening in metallic wedges should include in the calculation

7.8 Isocentre and fixed SSD fields

7.9 Photons, electrons beams

7.10 Irregular fields

7.11 Coplanar and non-coplanar fields

7.12 Asymmetrical collimators with field central axis over-travel
7.13 Shielding blocks (number should be specified)
7.14 Standard physical wedges
7.15 Motorized universal physical wedge
7.16 Enhanced Dynamic Wedges/Virtual wedge
7.17 Bolus

8. Dose Calculation Algorithms

8.1 TPS should include 3-D Pencil Beam, Anisotropic Analytic, Convolution and Superposition algorithms for dose calculations of 3-D external beam applications with electron and photon beams. Monte Carlo or equivalent (ACUROS-XB) calculations algorithms for Photon & Electron should be provided.
8.2 Specify the Inhomogeneity calculations algorithms available.

9. Plan Analysis and Evaluation

9.1 Side-by-side plan comparisons such that images are linked to display the same image planes (frontal, sagittal and transversal) simultaneously should be possible.
9.2 DVH for any multiple structure volumes in one plot
9.3 DVH for multiple plans in one plot
9.4 Differential or cumulative dose volume histogram
9.5 Absolute or relative scale for the structure volume axis of DVH plot
9.6 Export of DVH data into other formats (ASCII file/Excel file, etc.)
9.7 Printout of DVH graphs on paper
9.8 Point dose display
9.9 Display and plotting of any arbitrary dose line profiles
9.10 Multiple plan summation and store summed plans should be possible.
9.11. Vendor should offer the System which will be capable of multiple plan summation between external beam planning and brachytherapy planning should be provided as optional items and price must be quoted seperately.

10. Inverse Treatment Planning for IMRT and VMAT

Inverse planning optimization should be used to determine fluence pattern or beamlet intensities/aperture shape for each field and translate it to delivery instructions. Inverse planning algorithms should be specified in the offered TPS for IMRT and VMAT Planning with the following capabilities:
10.1 System should be capable of handling unlimited target and normal structure volume objectives and dose-volume constraints.
10.2 The dose optimization should be fast and interactive. Optimization algorithms either deterministic or stochastic should be provided. Both physical and biological optimization algorithms should be provided.
10.3 The system should support planning for both step-and-shoot and dynamic sliding window IMRT delivery and also for VMAT.
10.4 MLC leaf sequencing algorithms for beamlet-based/direct aperture-based/direct machine parameters-based should be provided.
10.5 System should be capable of modeling/incorporating MLC head scatter, penumbra, physical limitation of MLC motion, rounded leaf ends and tongue-and groove effects.
10.6 Specify all dose calculation algorithms used in the offered inverse planning.
10.7 The dose grid should be finer than the size of the beamlet or incidence fluence
10.8 System should be capable of calculating doses in the build-up region using bolus
10.9 System should be capable of calculating doses in the region of flash and also in the mobile target like breast target.
10.10 Advanced inverse planning features should be included to follow ICRU-83 nomenclature of volume definitions and dose reporting and recording the treatment.
10.11 Comparison of planning images with images received via network from EPID system for necessary changes in treatment plan should be possible

10.12 Vendor should provide the necessary QA tools/gadgets for commissioning of the inverse planning system for dosimetric accuracy.

11. Four-dimensional (4D) Planning and Adaptive Re-planning System

The system should be capable of performing 4D-treatment planning and adaptive re-planning, having features such as autosegmentation, deformable imaging registration for target delineation and other necessary tool/gadgets and systems.

11.1 System should be capable of doing both rigid and deformable image registration with all imaging modalities (CT/MRI/PET/CBCT) used in radiotherapy planning.

11.2 Should be capable of automatically register images, such as MIP, Min-IP, Average-IP, or free-breathing images with 3D/4D images.

11.3 Specialized contouring tools should offer to make dose planning in 4D.

11.4 System should be capable of 4D-viewing, assessment, and contouring in 4-D movie loops and 4-D blinding images.

11.5 System should be capable of shaping fields on moving DRR feature.

11.6 System should be capable of automatically re-contours subjects for re-planning post-or mid-way through treatment.

12 Quality Assurance Software Systems for testing the performance of Image registration and fusion, autosegmentaion, deformable image registration for 4D dose calculations and adaptive planning of interfraction dose accumulation capability should be provided.

13. Plan Output

13.1 The plans should be exported directly after approval to linear accelerator for dose delivery.

13.2 User-definable print layouts

13.3 On-screen graphics should be dumped to a color graphics printer

13.4 Plotting of plan in a user selected scale on A3, A4, letter or tabloid size paper

13.5 Printouts should include patient administration data, time stamp, field parameters (treatment unit, gantry, collimator and couch rotations, field position coordinates, field size, wedge, weight, Monitor Units), dose parameters (target maximum, minimum and mean, maximum dose), patient orientation and plotting scale.

13.6 DRR should print with cross-hairs to identify isocenter

13.7 DRR should print with graticules to identify scale

13.8 DRR should print with structure outline projections

13.9 Should be scaleable DRR printouts

13.10 Plotting of BEV image at any distance.

13.11 Block outlines should be plotted in a user-defined scale with internal structures and field edges

14. Network Connectivity and Import/Export licenses

All licenses required for above mentioned planning capabilities should be included, even if it is not listed now, but which are necessary and obvious.

14.1 Multiple 3D workstations should be connected to TPS network.

14.2 Multiple 3D workstations should import image and plan data

14.3 Should support for different image modalities (CT, MR and PET) for target and critical organ delineation.

14.4 Should support DICOM-RT import/export of:

14.4.1 At least DICOM 3.0 images.

14.4.2 Radiotherapy Images (CT, MRI, PET, Simulator image, EPID, CBCT etc.)

14.4.3 Radiotherapy Structures

14.4.4 Radiotherapy Plans

14.4.5 Radiotherapy Dose Matrix

14.4.6 Radiotherapy Dose points

14.4.7 Radiotherapy Fluence

14.4.8 Radiotherapy dMLC for IMRT

14.4.9 Radiotherapy Blocks.

15. Hardware System Specifications

The latest configuration of the computer/PC available at the time of shipping should be the basic platform for the TPS.

15.1 The CPU shall perform 64 bit instructions

15.2 There should be at least quad core processors with speed of each exceeding 2.8GHz

15.3 The system should have minimum 28GB RAM capacity.

15.4 Disk space for patient data should be of RAID type with a capacity of 2.TB

15.5 Internal Read/Write CD/DVD on the TPS computer must be included for archiving

15.6 21' Flat panel LED screen with a resolution of at least 1280 x 1024 pixels should be provided.

(III) ONCOLOGY INFORMATION & RECORD AND VERIFY SYSTEM

The oncology information for recording and verifying communication between treatment planning systems and treatment delivery system. The system should have latest model/version of hardware and software features commercially available.

1. The vendor shall provide a comprehensive oncology information & image management and treatment record & verify system. The system shall assist in the integration of radiotherapy patient data throughout the entire department which includes treatment planning systems, linear accelerators, CT-Simulator, imaging units in the institute. It shall also record and verify treatment parameters of patients undergoing treatment on the linac(s). The system shall be based on one comprehensive database, thereby eliminating the need for redundant entry of data used in different applications.

2. The system shall provide the following functions: Record and Review Patient Diagnoses; capable of recording the diagnosis as per the ICD C and ICD 10 system and complete ICD C and ICD 10 codes should be available in the system without requiring extra input, Plan a course of treatment in advance so that treatments are readily delivered when the patient arrives; Write RT prescriptions that detail treatment techniques, fractions, and dose; Define treatment fields; Link setup fields and notes to treatment fields; Setup notes should include photos that show how to set up the patient; Track dose to specific sites; Define site breakpoints with instructions that appear when the breakpoint will be exceeded; Store treatment plan information to avoid redundant and time-consuming data entry.

3. MLC user operation shall be accomplished entirely through the Oncology Information System (OIS), thereby eliminating the need for a separate control station for the MLC. Planned leaf shapes shall be incorporated directly into a patient's planned treatment field(s) in the electronic Chart.

4. The MLC shape shall automatically appear on the OIS treatment screen during the setup and treatment of any patient with a planned MLC shape. The shape shall be displayed simultaneously with all other pertinent treatment parameters.

5. The system shall have the capability of storing patient photos facilitating correct treatment. The digital patient photographs should upload to the database. After treatment of the first field, all subsequent fields shall be automatically and sequentially downloaded to start auto-setup of the next field without requiring operator interaction at either the OIS console or In-Room Monitor.

6. Port Films shall be capable of being planned ahead for appropriate treatment sessions, completed with prompting from the system, and automatically recorded in the electronic chart. Port Film dose shall be capable of being accumulated, if desired. The system shall permit override of individual treatment parameters (couch longitudinal for example) and require a password and appropriate user rights to successfully complete the override.

7. The record and verification station shall accept and store demographic data, notes or comments and diagnostic information for each radiotherapy patient. When the patient proceeds with tumor localization, treatment planning and simulation, the treatment parameters will also be entered into the patient's file automatically or manually.

8. A daily patient schedule and time management schedule must be capable of being displayed on the computer monitor at the record and verify workstation. This schedule shall include, at a minimum, the scheduled treatment time for each patient, the patient's identification number and the patient's name. The schedule shall be used to select a patient for treatment on the accelerator.

9. The system shall be capable of maintaining a record of field-specific and treatment-specific daily and cumulative doses for the target site and additional sites of interest. It shall be possible to specify a prescribed dose for each treatment site for every patient. The system shall prevent treatment if this dose will be exceeded upon completion of the treatment. A manual override shall be provided. Overriding prescribed dose limits by unauthorized personnel shall not be permitted. After the daily irradiation of a patient, the therapy history will be updated and the given target doses, or doses calculated to other sites, shall be accumulated.
10. The Operating System shall provide a convenient and efficient means for the user to generate and to print hard copy reports of information contained in the database.
11. The scheduler of the OIS should be capable of maintaining schedules for multiple departments and scheduling any resource desired by the site. It should have a graphical user interface for ease of customizing schedule views, changing appointment times and minimizing keystrokes.
12. The OIS shall provide the capability to integrate simulation, CT, MRI, PET and electronic portal imaging system images into the OIS database to provide a readily available reference during the patient's course of treatment. Reviewing images immediately after acquisition from a remote location shall be permitted.
13. The Hardware should consist of the following: 2NO.S, separate, but fully integrated servers, one each for data management and image management with back up with 4TB or more capacity or more to handle our busy department workload. In additional 5 Image Workstations for Review and Approval; a networked color image DICOM laser printer; capability for high speed internet connectivity for Online Service support. Vendor should provide licenses in order to use five users simultaneously.
14. The vendor should provide the storage server for backup of patient databases.
15. All necessary cabling like LAN, DICOM & PACS for data interface between LINAC, TPS, CT-SIMULATOR, available imaging facilities like CT Scan, MRI, PET, SPECT etc & HDR BRACHYTHERAPY SYSTEM should be provided with adequate number of terminals.

15. Equipment Warranty and Service Facilities

i. Five years warranty to be commenced from first patient treated after commissioning approval from AERB.
ii. CMC year-wise for quoted machine, UPS, Battery and other accessories for next 5 years after warranty period.
iii. 95% uptime guarantee during warranty and CMC period.
iv. Spare parts should be available for minimum of 10 years.
v. During the warranty period, all the software updates and upgradation should be provided for free of charge.
vi. Quote the rates of necessary consumables valid for 5 years block of CMC period
vii. Factory trained service engineer/Application specialist should be available in Kolkata to look after the installation and maintenance of the system without patient treatment interruption.

16. Safety Standards

i. Equipment standard and safety should comply with the national regulatory AERB requirements.
ii. System offered should be of USA-FDA/ European CE certified product.

17. General Terms & Conditions

i. The optional items, if any will also be considered for L1 calculations.
ii. The vendor shall list the number of their offered LINAC & TPS installation/user in India.
iii. All claims regarding meeting the specification should be duly supported by appropriate, latest technical catalogues/brochures from the manufacturer.
iv. Penalty clause: Penalty at the rate of Rs. 25,000 per day for short falling of 95% uptime guarantee. If the machine lies non-functional for a period of more than two weeks continuously, the same penalty will be imposed even if 95% uptime clause is met with.

18. National Regulatory Body and Radiation Safety and Protection Requirement:

The vendors should visit the site and user department to get the Plan Layout and should facilitate and coordinate with user department in communicating with AERB in providing all required information

pertaining to radiation safety compliance of the concerned equipment till the clinical commissioning process of first patient treatment commencement.

19. Equipment Warranty and After-Sales Services

19.1 The vendor shall give mandatory on-site warranty for first five years from the date of commissioning of the entire Linac system (including for all locally supplied items including consumables like batteries of the UPS, printer cartridges etc) from the Principals.

19.2 Vendor should provide comprehensive maintenance contract (CMC) rate year-wise for quoted machine including all locally supplied items, consumables like batteries and UPS, cooling gas, deionised water, distilled water and other accessories for next 5 years after warranty period.

19.3 95% uptime warranty/guarantee during warranty and CMC period.

12.4 Spare parts kit should be available for minimum of 10 years and price must be included in the offer

19.5 During the warranty period, all the software updates and upgradation should be provided without asking for free of cost.

19.6 Please quote the rates of necessary consumables recommended valid for 5 years block

19.7 Factory trained service Engineer/Application specialists should be available at CNCI, second campus, Rajarhat, Kolkata to look after the installation and maintenance of the system without patient treatment interruption.

20. Equipment Compliance with Standards and Safety

20.1 Should be ISO, IEC, USA-FDA and/or European CE certified product.

20.2 Should comply with the national regulatory AERB/BARC guidelines

20.3 The offered linac model should have AERB type approval/ NOC.

20.4 Dosimetry, QA and Safety protocols should adherence to ICRP/ICRU/IAEA and national regulatory AERB/BARC guidelines/reports

20.5 Interlock system should be provided to afford maximum protection for personal against high voltage hazards.

20.6 High voltage protection and warning lights/symbols to be provided.

21. Staff Training and Documentation

21.1 The vendor should provide comprehensive training on Linear Accelerator, Treatment Planning in a well advanced center in any developed country for eight persons (Four for Radiation Oncologist, four for Medical Physicist). The vendor should also provide comprehensive training on Linear Accelerator, IGRT in a well advanced center in India for four Radiotherapy Technologists. The training period should be at least for two weeks.

21.2 On-site application training on Linear Accelerator, Treatment Planning should be provided for minimum one month for all staff members in the department.

21.3 Beam Data: Representative photon and electron central axis profile dose curves, as well as flatness and symmetry profiles measured on the accelerator to be installed shall be provided.

21.4 User/Technical/Maintenance manual to be supplied in English

SITE MODIFICATION WORKS:

(III) Scope of Work for Facility Site Modification:

General Requirements

1. The Supplier should inspect the proposed site offered by the Consignee, wherein the LINAC has to be installed. They are required to submit the plan for the project. The scope of work includes complete Electrical, Wall finishing, Air-conditioning, Flooring for the proper functioning of the LINAC. The supplier shall assist the user by providing necessary documentations/technical data for regulatory clearances and approvals from AERB.
2. The cost of the facility site modification work should be quoted separately and this cost will be considered for L1 calculation.

3. Vendor will have to quote Unit Rates of the following components of Site Modification work.

i. Electrical work
ii. Air conditioning (HVAC)
iii. Flooring
iv. Wall Finishing & Painting
v. False Ceiling

4. The payment for site modification work shall be based on the Unit Price quoted by the supplier applied to the actual measurement of Site Modification work executed at the supplier at the site.
5. Bidder should clearly mention break up price of each component of Site Modification work separately.
6. The system should be installed and handed over in working condition with all necessary electrical, wall finishing, air conditioning, flooring and plumbing work undertaken by the vendor in consultation with the user dept.
7. Rate quoted for Site modification work, Furniture like desks, chairs, shelves etc; and the price quoted for 15 TR HVAC is included for L1 calculation of the bids.
8. The LINAC CENTRE shall consist of the following rooms:

a LINAC Treatment Room
b Console Room
c UPS & batteries Room
d Equipment / Electrical Room

9.The supplier shall be required to specify the total load requirements for the LINAC 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 LINAC centre. The mains panel and distribution panel for LINAC, HVAC, and LIGHTING should be provided by the supplier. Few lights in LINAC, CONSOLE ROOMS, UPS ROOM shall be connected to the UPS to provide emergency lighting.
10. The bidder may quote the unit rates of any other site modification work activity which is not mentioned in the list below.

THE ELECTRICAL WORKs:

1. 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.
2. All necessary cabling like LAN, DICOM & PACS for data interface between TPS and LINAC; CT-SIMULATOR & LINAC should be provided with adequate number of terminals.
3. All the internal wiring including that of telephone, LAN, DICOM & PACS etc) will be concealed variety.
4. Earthing: Double earthing with copper plate shall be provided for the LINAC and all accessories like UPS and Chiller. The earthing cable/wire shall be routed end-to-end through an insulated conduit.
5. Switches light and power points should be of modular type and of standard make as listed below.
6. General lights – Ceiling mounted LED lighting panels, recessed 600 x 600mm should be provided. Light dimming facility should be provided wherever it is necessary.
7. All wires used must be FRLS (Fire Retardant with low smoke) type only.

AIR CONDITIONING WORKs: (15 TR HVAC)

1. The area marked for Site Modification work needs to be air-conditioned. Package Air Conditioners may be used according to room requirement and suitability. Humidity control should be provided to effectively eliminate moisture condensation on the equipment. The Air conditioning system should be designed with standby unit(s) to provide uniform air-conditioning 24 x 7.
2. In the case of LINAC-CHILLER is placed indoors; the Air-conditioning system should be able to provide adequate ventilation and heat exchange for the same.
3. Stand-alone Room Dehumidifiers of adequate capacity to be provided for LINAC Room, Console Room and TPS Room to ensure condensation- free atmosphere for the high value equipment.

4. The Air conditioning of the LINAC treatment room shall have minimum 6 air changes per hour.

Environment specifications:

Humidity range: Relative humidity 60% and 80% in all areas except equipment room which shall be as per requirement of the equipment.

6.Temperature ranges: 22 ± 2° C in all areas throughout the year, except equipment room which shall be as per requirement of the equipment.

7. **Air conditioning load:** The heat load calculations and maintaining the desired temperature and humidity shall be the responsibility of the supplier.

FLOORING WORKs:

1. "600x600 mm vitrified tiles with 100mm matching tile skirting in LINAC Room & Console Room.

Note: Providing and laying approved quality, colour, design and shade fully homogeneous 600 x 600 mm (thickness to be specified by the manufacturer)Vitrified tile flooring (Marbonite or Granamite, confirming to IS code 15622 with water absorption less than 0.08%)flooring in pattern as detailed in drawing or as directed by the institute and grouted with matching colour approved quality readymade grout, curing, cleaning etc to required line level etc.all complete at all leads, lifts and heights to the entire satisfaction of the institute. Providing and fixing 2-3mm thick POP protection over polythene covering sheet to flooring areas till handed over and cleaning, etc all complete as per drawings & Specification."

2. 50mm thick cement concrete flooring with 3mm Vinyl flooring in UPS Room / Equipment Room

3. Floor leveling if required to be done by supplier. All installation related floor modification non structural) like Turntable pit, trench etc to be done by supplier.

4. The LINAC room, Console Room & UPS Room will be made rodent /pest proof.

5. Mode of measurement (finished surface area of the tiles shall be measured and paid. Rate shall be inclusive of providing and laying leveling course, PVC spacers, providing and applying epoxy grout and no additional payment shall be made for wastage.

WALL FINISHING & PAINTING

1. Two coats Plastic Emulsion Paint over 2 coats of wall putty including primer in all areas not covered by wall tiles. Colour to be approved by institute.

2. Wall Tiles-High quality density Vitrified Tiles clad on the side walls up to a uniform height of 1200 mm in all rooms; except UPS & equipment rooms. Colour to be approved by institute.

Note: Providing all tools, tackles, materials, manpower for applying plastic enamel paint over

3. Coats of wall putty including primer in all areas, of approved brand and manufacture and approved shade finished with roller to wall & ceilings surfaces, in 2 coats over a coat of approved quality primer on the plastered/POP surface, POP board/Gypsum board surfaces including scaffolding, preparation of surface, sanding, light sanding, work platform, painting equipment/apparatus etc. required to complete interior grade finish etc. at all heights & levels complete as per drawings & Specifications.

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. To be finished with white paint or powder coated with white paint, if metallic. The false ceiling panels should be of reputed brands.

MISCELLANEOUS:

1. The LINAC room shall be provided with wall-mounted storage cupboards within LINAC room; to store: Dosimetry & QA Items, LINAC accessories.

2. Sufficient number of Open Racks of high Quality vendors should be provided to house the immobilization materials; within LINAC room

3. TPS room should be provided with LED X-ray film viewer with adjustable brightness; capable of holding 3 films of 14"x17" size-2 nos.

4. The CONSOLE room shall be provided with Wall mounted Storage cupboards with MDF laminate shutters; to be fixed on the wall above the workstation (approx 1800mm length; 750 mm height; 300 mm depth).

FURNITURE:

1. Revolving chairs height adjustable, medium-back with hand-rest for Control room, TPS room - 15 Nos.
2. "Workstation/Tables for Console room & TPS room: The Console room and TPS room should be provided with suitable workstations(s) of reputed brand, to accommodate the various Terminals in Console Room, TPS Room. The Workstation shall be providing with enough power sockets, LAN sockets etc. to enable smooth functioning of the LINAC and TPS."
3. Bookshelves: Four-door bookcase with glass doors, height approx 1700mm; to store manuals; CD/DVDs, spares etc-4 Nos.
4. Shoes Rack - 2 Nos.

15. General Terms & Condition

15.1 The optional items quoted, if any, will also be considered for L1 calculation.

15.2 A list of installations existing in the county with 'satisfactory service certificate', if available from the user, may be submitted to support the claim of a good performance of the equipment. The supplier shall mention the number of installations in India and worldwide, for the quoted model only. Such installations should have been supplied directly by the quoting firm itself. Current performance and status report from the user departments for the model quoted shall be provided.

15.3 All claims regarding meeting the specification should be duly supported by appropriate, latest technical catalogues/brochures from the manufacturer. The vendors shall submit point-wise compliance statement in regard to the specifications asked for in the tender and should mention corresponding page numbers matching with the technical details in the compliance statement.

15.4 **Penalty clause:** Penalty at the rate of RS.25,000/ per day for short falling of 95% uptime guarantee. If the machine lies non-functional for a period of more than two weeks continuously, the same penalty will be imposed even if 95% uptime clause is met with for the given calendar year.

15.5 **Uptime guarantee:** During warranty and the CMC period, the uptime of the system shall be at least 95% of the 365 days in a year. If downtime exceeds 5%, there shall be a penalty of Rs.25,000 / per day.

Calculation of uptime

The machine shall remain in working condition/fully functional for minimum 347days (being 95% of 365 days) during the year. For leap year, the machine shall remain in working condition/fully functional for minimum 348 days (being 95% of 366 days) during the year. Sunday and other holidays as per the institute policy would be counted calculation of uptime, if the machine was in working condition/fully functional on both days i.e the day preceding Sunday/holiday and the day succeeding Sunday/holiday. Further, routine maintenance as per scheduled agreed by user would be counted towards calculation of uptime. In case downtime is more than 5 hours on any particular day during normal working hours of the institute the same day would not count towards uptime calculation.

Calculation of down time

Down time calculation would start from the reporting of the down time by the representative of the institute by agreed mode of communication i.e. telephonic communication or email or as per the data of the remote access of the machine(s) by supplier, if any, whichever is earlier.

The down time would be calculated by deducing total uptime period as defined above from total days of the respective year. Year for the calculation of Uptime/downtime as the case may be would be considered from 01st January to 31st December of the respective year. For purpose of the downtime calculation breakdown of the machine shall be calculated as under. If no radiotherapy is possible then its complete breakdown. If only some functions of the machine are not working for example the EPID or electron cone or laser is not functional in that case it shall be considered as partial breakdown equivalent to 50% of the complete breakdown for calculation purposes.

15.6 **Price Guarantee:** The supplier shall also give a commitment that the price quoted for the equipment in the tender is the minimum price quoted to any institution in the country for similar terms & conditions; whether Government, semi-Government, autonomous or non-Government; in the recent

times (preceding six months) and shall remain so for at least the next six months subject to variations in the foreign exchange rates, if applicable.

Item sl. no. 02
Wide Bore 4D CT – Simulator (1 No.)

Sealed tenders (Sealed separately as the "Technical Bid & the Price Bid-in duplicate) are invited directly from the manufacturers/principles for the supply of a state-of the-art and latest technology based CT-Simulator. The CT-simulator includes CT scanner, laser system and virtual simulation system. The CT scanner should be of **spiral multi slice, large-bore at least 16 slices per rotation** model which should be capable of 4DCT acquisition. It should also be capable of integrating with standard networking and PACS systems available in the hospital. The offered equipment should have the following technical features.

1. **CT Scanner system**

1.1 The system should be of latest slip-ring technology allowing acquisition of 16 slices per rotation with true isotropic volume acquisition and sub millimeter resolution of an at least 0.4mm.

2. **X-ray Generator**

2.1 High frequency x-ray generator with an output of at least 80 KW or more to support continuous and sustained operation. Please give details.

3. **X-ray Tube**

3.1 Tube current: 30-600 mA or more. The mA rating at peak generator power must be mention.

3.2 The system should have mechanism for real time mA modulation for both Z axis and angular dose modulation

3.3 Tube voltage should be in the range of 80-140kV

3.4 The x-ray tube should have anode heat storage capacity of 5 MHU or more.

3.5 The anode peak heat dissipation rate should be 800 KHU/min or more angular dose modulation.

3.6 The x-ray tube should have dual focal spot (please specify the size of each focal spot). The automatic selection of focal spot should be possible.

3.7 Filter and beam limiting device: Their Al equivalent and other specific features to reduce radiation dose to the patient shall comply radiation safety compliance of AERB.

4. Gantry

4.1 Gantry aperture should be minimum 80 cm or more

4.2 Gantry tilt should be at least ±30 degree

4.3 Entire range of rotation times for full 360 degree should be specified.

4.4 Remote controlled tilt from operator table should be possible.

4.5 Laser alignment lights should define accurately actual scan of plane. It should operate over full range of gantry tilt.

4.6 Green laser patient alignment system with (gantry and external wall /ceiling mounted) stationary and mobile for radiotherapy planning should be provided.

5. Patient Table

5.1 The scanning table should be universally flat with flat table top and should be compatible with tables of linear accelerators installed. The table should have patient positioning index system on carbon fiber table top.

5.2 The table should be able to bear weight up to 200 Kg or more.

5.3 Table should have the metal free scanable range should be at least 150 cm.

5.4 Horizontal accuracy should be ±0.50 mm or less

5.5 Vertical table travel range should be specified. Minimum at least 55cm height.

5.6 Table should support the immobilization accessories for conformal and stereotactic procedures. QA phantom holder, water level phantom and laser calibration bar should be provided.

5.7 The table should have total free floating facility

5.8 All patients positioning accessories including tilt should have control both form gantry and control console

6. CT scanning parameters

6.1 The slice thickness should be users selectable which range from 0.625 mm to 10 mm.
6.2 Minimum scan time for full 360 degree rotation should be 0.5 seconds or less for whole body applications.
6.3 Maximum true scan field of view should be at least 60 cm or more
6.4 Extended reconstruction FOV of at least 70cm should be possible.
6.5 Gapless spiral length should be 150cm or more.
6.6 Specify single continuous spiral-on-time should be minimum 100 seconds or more.
6.7 The system should automatically optimize radiation dose and resolution for each selection.
6.8 Bolus triggered spiral acquisition should be possible. Give detail of sub millimeter resolution.
6.9 Both spiral and sequential mode acquisition should be possible for all scanning protocols.
6.10 Prospective and Retrospective respiratory compensated/gated CT to generate 4D datasets must be compatible with all commercially available hardware and software for motion management to localize the tumor in motion. Specify the details.

7. Scannograms/Topogram

7.1 Length and width: specify the range
7.2 Scan times: specify the range
7.3 Views: should be feasible in frontal and lateral views
7.4 Should be possible to interrupt acquisition manually once the desired anatomy is obtained.

8. Data Acquisition system

8.1 Detector: Please specify the number of detectors, detector design and type of detector.
8.2 Number of rows with their thickness, number of elements in each row
8.3 Mention the channels per row and number of projections
8.4 In-built mechanism for adapting the tube current during each scan. This should enable radiation dose reduction where body part thickness is less. Specify the mechanism used in the offered system.
8.5 There should be in-built pediatric protocols adapted to weight and/or age.
8.6 Specify available mechanisms to reduce the effective patient dose.
8.7. Vendor should provide the 4DCT acquisition system as applicable to the offered System.

9. Image Reconstruction:

9.1 Real-time reconstruction speed: 10 images per second or more at 512x512 matrixes.
9.2 Display matrix should be minimum 1024 x 1024 or more.
9.3 Freely selectable window width and centre with organ specific preset windows be possible
9.4 Retrospective reconstruction with variable slice thickness should be possible.

10. Image Quality

10.1 High Contrast Spatial Resolution: It should be 15 lines pair per cm or better (for 60 cm FOV) maximum at 0% MTF for a slice of 1 cm thickness. Clearly specify the phantom used, scan time, mA, filter for image reconstruction, scan field, dose and MTF.
10.2 Low Contrast Detectability: The low contrast resolution for CATPHAN should be at least 5mm or less at 0.3% using 20cm CATPHAN phantom on 10mm slice thickness.
10.3 Spiral parameters: Different selection of pitch should be possible, from 0.5 to 3 in 0.1 increments. Inter scan delay in different group of spiral should not be more than 5 seconds.
10.4 CT number accuracy must be better than + 4HU for water and +10 HU for air. All necessary phantoms to check the spatial resolution of the scanner should be provided. A phantom to check the electron density to HU relationship for different body tissues must be provided.

11. CT Control Console

11.1 It should have 20" or more LED colour monitor for display of 1024 x 1024 matrix or more.
11.2 Computer CPU systems should be running on a high-end workstation platform with UNIX/Window of latest configuration. RAM size must be at least 8GB or better.

11.3 All functions viz. registration, scheduling, scanning, image reconstruction, image evaluation tools, post processing tools, film documentation and transfer of images, MPR, CT, maximum intensity projection, 3D with SSD etc should be possible from main console and workstation
11.4 Image storage of 500 GB or more for at least 2, 50,000 or more images in 512 x 512 matrixes uncompressed or better (quote the latest configuration)
11.5 At least one high resolution medical grade laser color printer with latest model should be provided.
11.6 CD/DVD facility for archiving must be available.
11.7 The image reconstruction time should be less than 1.5 second for any mode.
11.8 An on-line juke-box with total storage capacity of 1.5 Terra bytes with fully loaded media for data storage should be provided.
11.9 The system should have fully DICOM complaint. DICOM compliance statement should be provided.
11.10 An integrated intercom for bi-directional speaker communication between operator and patient and also automated patient instruction (API) system should be provided.

12. Laser System

12.1 The CT-Simulator laser systems should have at least **three computer controlled moving lasers** for marking the isocentre without moving the table top. Following the isocentre localization in the CT-Simulation workstation, the isocentre coordinate will be sent directly to the computer system that is controlling the movements of the lasers. This computer in turn should drive all the lasers, so that without moving table, the laser point to the isocentre. The laser must be GREEN LASER system. Complete quality assurance tools must be provided.
12.2 In addition to the moving laser, the CT -Scanner should have conventional in-built lasers for positioning the patient.
12.3 The vendor should give a complete description about the laser marking system offered and how the CT-Simulation software integrates with it.

13. CT-Simulation/Virtual Simulation System

13.1 The CT-Simulation/Virtual Simulation System should be possible to simulate all kinds of teletherapy machines in the simulation workstations without any kind of restrictions. It should support IEC, Varian, Elekta and other user defined linear accelerator conventions.
13.2 It should be possible to visualize interactively reference views in axial, coronal, sagittal, isocentre image planes and in any oblique direction with overlay of beams on digitally reconstructed radiograph (DRR).
13.3 DRR must provide fully divergent beam's eye view (BEV) 512x512 images.
13.4 The DRR and BEV/Room-eye view image should display the machine diagram to allow real-time checking of machine and patient geometry.
13.5 The system should be possible to support and define the asymmetric features in the Simulation software.
13.6 The system should be possible to support and define the Multileaf collimator placement of 40 or more pairs of MLC leaves in the simulation software.
13.7 Three CT simulation workstation must be provided in addition to the CT workstation.
13.8 System should incorporate CT, MRI, PET and SPECT into localization, image fusion and registration

14. Contouring

14.1 Volume definition should be possible using volume segmentation using threshold, free hand contour tracing, contour editing, 3D anisotropic margins etc and any other advanced tools
14.2 System must be able to contour in axial, sagittal, coronal and oblique projections.
14.3 It should be possible to do manual, semi-automated, fully-automated contouring in the images by defining volume of interest.
14.4 The software should have facility for automated uniform/non-uniform margins. For example it should be possible to expand the clinical target volume (CTV) on all three dimensions by same magnitude or by different magnitude to define the planning target volume (PTV).

14.5 It should be possible to copy one organ to another with margin, and margins on a single slice, a range of slice or all slices.
14.6 Interpolate algorithm should be available to provide interactive, shape and interpolation i.e. after contouring only in selected slices. The algorithm should automatically interpolate the closely fitting contour in other slices. Interpolated contour may be edited; accepted or rejected.
14.7 Tracking of source to skin distance and contouring/extracting of wall should be possible
14.8 System should have the capability of 3D viewing and volume rendering should be possible.
14.9 The software should provide the density value (in Hounsfield Unit) of a particular point on an image. It should compute distances along straight line and curved line, angles between lines, and radius of the curvatures for curves.
14.10 Any other advanced features which may be of standard or optional, should be specified.

15. Isocentre Management

15.1 The software should support separate isocentre for multiple target volumes or general regions
15.2 Marked and final isocentre should be reported and displayed in the localization package for easy confirmation of a physical simulation session.
15.3 Hardcopy of the isocentre coordination should be possible for record of the simulation.
15.4 Isocentre positioning should be automatic.
15.5 No limit on number of isocentre per target.

16. Beam Placement and Definition

16.1 If should support extensive beam shapers (shielding blocks etc) and beam definition methods.
16.2 Manual or automatic beam placement tool.
16.3 Beam shaping should be possible in multiple ways like automatic shielding block, definition conforming to selected volume, definitions aperture or shielding manual free hand definition, automatic collimator jaw or multi leaf position definition.
16.4 It should be possible to define this asymmetric collimator feature, where both the X and Y axis are asymmetric, in the CT simulation software. Similarly the software should allow multi-leaf-collimator placement up to 40 pairs or more.

17. DRR Features

17.1 Interactive DRR calculation mode must be available.
17.2 Automatic window width/level selection for DRR.
17.3 DRR should be interactively updated when the isocentre position is modified.
17.4 Should be possible to highlight or suppress different density region in the DRR.
17.5 Printing of DRR images should be possible.DRR presets should be user defined.
17.6 Reconstruction of DRRs should be real-time or sub-second.
17.7 Real-time display of DRR as beam parameter changed should be possible.
17.8 Differential tissue weighting in DRR calculation should be possible.
17.9 Facility to display BEV on MPR with fields and blocks displayed divergently.
17.10 Any other advanced features available should be specified.

18. Data Import/Export and Connectivity

18.1 System should be able to export image, volume and plan data in DICOM 3.0 standard along with all Radiotherapy specific data and private objects, DICOM RT plans and data sets.
18.2 System should be able to import DICOM RT data to the linear accelerator of any vendor.
18.3 CT simulator system should be fully integrated with the contouring workstations and TPS of LINAC and HDR Brachytherapy. The vendor should inspect and will be responsible for complete integration.
18.4 Specify clearly the DICOM-RT import and export licenses that are being offered.
18.5 The entire CT Simulation system must be interconnected (all the workstations, laser systems, printers etc.) and must be integrated into the department's treatment planning system for smooth transferring of images and DICOM-RT structures. The system should be networked with all radiotherapy

treatment planning system in the department and necessary software support shall be provided for all external beam radiotherapy and Brachytherapy treatment planning systems.

18.6 ***Dose computation & display:*** The system should display CTDLw (CTDI1 00), DLP

19. Archiving and Documentation

19.1 Should be on a Color dye sublimation printer to be supplied along with system. DICOM print should be possible.

19.2 Adobe Post Script Printing should be possible.

19.3 Archiving should be on a CD in DICOM format.

19.4 User / Technical / Maintenance manuals to be supplied in English.

19.5 Certificate of calibration and inspection

19.6 List of Equipment available for providing calibration and routine preventive maintenance support as per manufacturer documentation in service / technical manual.

19.7 List of important spare parts and accessories with their part number and costing.

19.8 Log book with instruction for daily, weekly, monthly and quarterly maintenance checklist.

19.9 Stand-alone Room Dehumidifiers of adequate capacity for both LINAC room, Console Room and TPS Room to be provided to ensure condensation free atmosphere for the high value equipment.

20. Equipment Warranty and Service Facilities

20.1 Five years warranty to be commenced from first patient treated after commissioning approval from AERB.

20.2 CMC year-wise for quoted machine, UPS, Battery and other accessories for next 5 years after warranty period.

20.3 95% uptime warranty/guarantee during warranty and CMC period.

20.4 Spare parts should be available for minimum of 10 years.

20.5 During the warranty period, all the software updates and up gradation should be provided without asking for free of charge.

20.6 Please quote the rates of consumables recommended as well as other necessary consumables valid for 5 years block

20.7 Factory trained service engineer/Applications specialists should be available in Kolkata to look after the installation and maintenance of the system without patient treatment interruption.

21. Standards, Safety and Training

21.1 Equipment standard and safety should comply with the national regulatory AERB guidelines and offered model should have AERB type approval and NOC.

21.2 Should be USA-FDA and/or European CE certified product.

21.3 The vendor should provide comprehensive training on CT-Simulator in a well advanced center in the country for three persons (one for Radiation Oncologist, one for Medical Physicist and one Technician).The training period should be at least for one week.

21.4 On-site Application training should be provided for minimum two weeks for all staff members in the department.

22. Essential Accessories to be included with the unit:

22.1 Sets of patient positioning accessories namely head holder positioning kit, mattresses (for diagnostic procedures) must be provided.

22.2 UPS: On line UPS with MF batteries for the backup of the entire system for at least 45 minutes.

22.3 Dry Chemistry LASER Imager: Resolution 16 bits/500 dpi or more and support multiple film sizes. It shall be DICOM 3.0 compatible Dry Laser Camera to be provided.

22.4 Light weight Lead Apron- 2 Nos with stand., Lead Goggles – 2 Nos., Lead Gloves- 2 Pairs, Gonads shields- 2 Nos. and eye shields- 2 sets

22.5 Pressure Injector: CT Compatible pressure injector with remote console 100 disposable syringes.

23. General Terms & Condition

23.1 Any optional items to be quoted separately with separate prices in price bid.

23.2 The vendor shall list the number of their CT-Simulator installation/user in India.

23.3 All claims regarding meeting the specification should be duly supported by appropriate, latest technical catalogues/brochures from the manufacturer.
23.4 Penalty clause: Penalty at the rate of Rs. 10, 000 per day for short falling of 95% uptime guarantee. If the machine lies non-functional for a period of more than two weeks continuously, the same penalty will be imposed even if 95% uptime clause is me with.

Scope of Work for Site Modification:

General Requirements

1. The Supplier should inspect the proposed site offered by the Consignee, wherein the CT SIMULATOR has to be installed. They are required to submit the plan for the project. The scope of work includes complete Electrical, Wall finishing, Air-conditioning, Flooring for the proper functioning of the CT SIMULATOR. The supplier shall assist the user by providing necessary documentations/technical data for regulatory clearances and approvals from AERB.
2. The cost of the site modification work should be quoted separately and this cost will be considered for L1 calculation.
3. Vendor will have to quote Unit Rates of the following components of Site Modification work.

i. Electrical work
ii. Air conditioning (HVAC)
iii. Flooring
iv. Wall Finishing & Painting
v. False Ceiling

4. The payment for site modification work shall be based on the Unit Price quoted by the supplier applied to the actual measurement of Site Modification work executed at the supplier at the site.
5. Bidder should clearly mention break up price of each component of Site Modification work separately.
6. The system should be installed and handed over in working condition with all necessary electrical, wall finishing, air conditioning, flooring and plumbing work undertaken by the vendor in consultation with the user dept.
7. Rate quoted for Site modification work, Furniture like desks, chairs, shelves etc; and the price quoted for 10 TR HVAC is included for L1 calculation of the bids.
8. The CT SIMULATOR CENTRE shall consist of the following rooms:

a CT SIMULATOR examination Room
b Console room
c. UPS room

9. The supplier shall be required to specify the total load requirements for the CT SIMULATOR 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 SIMULATOR centre. The mains panel and distribution panel for CT SIMULATOR, HVAC, and LIGHTING should be provided by the supplier. Few lights in CT SIMULATOR, CONSOLE ROOMS, UPS ROOM shall be connected to the UPS to provide emergency lighting.
10. The bidder may quote the unit rates of any other site modification work activity which is not mentioned in the list below.

THE ELECTRICAL WORKs:

1. 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.
2. All necessary cabling like LAN, DICOM & PACS for data interface between TPS and CT SIMULATOR; CT-SIMULATOR & HRD BRACHY system, CT-SIMULATOR & LINAC should be provided with adequate number of terminals.

3. All the internal wiring including that of telephone, LAN, DICOM & PACS etc) will be concealed variety.
4. Earthing: Double-Earthing shall be provided with copper plate for the CT SIMULATOR and all accessories like UPS. The earthing for the AC should also be done by the suppliers. The earthing cable/wire shall be routed end-to-end through an insulated conduit.
5. Switches light and power points should be of modular type and of standard make as listed below.
6. General lights – Ceiling mounted LED lighting panels, recessed 600 x 600mm type should be provided. Light dimming facility should be provided wherever it is necessary.
7. All wires used must be FRLS (Fire Retardant with low smoke) type only.

AIR CONDITIONING WORKs: (10 TR HVAC)

1. The area marked for Site Modification work needs to be air-conditioned. Package Air Conditioners may be used according to room requirement and suitability. Humidity control should be provided to effectively eliminate moisture condensation on the equipment. The Air conditioning system should be designed with standby unit(s) to provide uniform air-conditioning 24 x 7.
2. The outdoor units of AC should have grill coverings to prevent theft and damage.
3. Stand-alone Room Dehumidifiers of adequate capacity for CT SIMULATOR Room, Console Room and TPS Room to be provided to ensure condensation-free atmosphere for the high value equipment.

Environment specifications:

Humidity range: Relative humidity 60% and 80% in all areas except equipment room which shall be as per requirement of the equipment.
4. Temperature ranges: 22 ± 2° C in all areas throughout the year, except equipment room which shall be as per requirement of the equipment.
5. **Air conditioning load:** The heat load calculations and maintaining the desired temperature and humidity shall be the responsibility of the supplier.

FLOORING WORKs:

1. "600x600 mm vitrified tiles with 100 mm matching tile skirting in CT SIMULATOR Room & Console Room.

Note: Providing and laying approved quality, colour, design and shade fully homogeneous 600 x 600 mm (thickness to be specified by the manufacturer)Vitrified tile flooring (Marbonite or Granamite, confirming to IS code 15622 with water absorption less than 0.08%)flooring in pattern as detailed in drawing or as directed by the institute and grouted with matching colour approved quality readymade grout, curing, cleaning etc to required line level etc. all complete at all leads, lifts and heights to the entire satisfaction of the institute. Providing and fixing 2-3mm thick POP protection over polythene covering sheet to flooring areas till handed over and cleaning, etc all complete as per drawings & Specification."

2. Floor leveling if required to be done by supplier. All installation related floor modification non structural) like Turntable pit, trench etc to be done by supplier.
3. 50 mm thick cement concrete flooring with 3 mm Vinyl flooring in UPS Room / CT Equipment Room
4. The CT SIMULATOR room, Console Room will be made rodent /pest proof.
5. Mode of measurement (finished surface area of the tiles shall be measured and paid. Rate shall be inclusive of providing and laying leveling course, PVC spacers, providing and applying epoxy grout and no additional payment shall be made for wastage.

WALL FINISHING & PAINTING

1. Two coats Plastic Emulsion Paint over 2 coats of wall putty including primer in all areas not covered by wall tiles. Colour to be approved by institute.
2. Wall Tiles-High quality density Vitrified Tiles clad on the side walls up to a uniform height of 1200 mm in all rooms; except UPS & equipment rooms. Colour to be approved by institute. Note: Providing all tools, tackles, materials, manpower for applying plastic enamel paint over

3. Coats of wall putty including primer in all areas, of approved brand and manufacture and approved shade finished with roller to wall & ceilings surfaces, in 2 coats over a coat of approved quality primer on the plastered/POP surface, POP board/Gypsum board surfaces including scaffolding, preparation of surface, sanding, light sanding, work platform, painting equipment/apparatus etc. required to complete interior grade finish etc. at all heights & levels complete as per drawings & Specifications.

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. To be finished with white paint or powder coated with white paint, if metallic. The false ceiling panels should be of reputed brands.

MISCELLANEOUS:

1. The CT SIMULATOR room shall be provided with wall-mounted storage cupboards within CT SIMULATOR room; to store: Phantoms, QA Items, CT SIMULATOR accessories.
2. Sufficient number of Open Racks of high Quality vendors should be provided to house the immobilization materials; within CT SIMULATOR room
3. The CONSOLE room shall be provided with Wall mounted Storage cupboards with MDF laminate shutters; to be fixed on the wall above the workstation (approx.1800mm length; 750 mm height; 300 mm depth).

FURNITURE:

1. Revolving chairs height adjustable, medium-back with hand-rest for Console room, TPS room - 12 Nos.
2. "Workstation/Tables for Console room & TPS room: The Console room and TPS room should be provided with suitable workstations(s) of reputed brand, to accommodate the various Terminals in Console Room, TPS Room. The Workstation shall be providing with enough power sockets, LAN sockets etc. to enable smooth functioning of the CT SIMULATOR and TPS."
3. Bookshelves: Four-door bookcase with glass doors, height approx 1700mm; to store manuals; CD/DVDs, spares etc-4 Nos.
4. Shoes Rack - 2 Nos.
5. **Price Guarantee:** The supplier shall also give a commitment that the price quoted for the equipment in the tender is the minimum price quoted to any institution in the country for similar terms & conditions; whether Government, semi-Government, autonomous or non-Government; in the recent times (preceding six months) and shall remain so for at least the next six months subject to variations in the foreign exchange rates, if applicable.

Item sl. no. 03
Radiotherapy Dosimetry, Quality Assurance and Immobilization Equipments

Sealed Tenders are invited directly from the manufacturers/ principles or their authorized distributors for the supply of "state of the art" and the latest technology/model dosimetry and quality assurance equipment and systems and patient immobilization devices with the technical specifications as under. The following dosimetry equipment and systems that are required for the dosimetry and quality assurance for safety and quality of the radiotherapy treatment shall be provided by the vendors.

I. Dosimetry and Quality Assurance Equipment and Systems

1.Absolute Dosimetry Equipment

Secondary-Standard Dosimeter/Electrometer,Ion-Chambers/Detectors, Solid-Water Phantom

1.1. A well-proven, reliable, high quality **Reference Class secondary standard dosimeter/electrometer** shall be provided (**two numbers**). The dosimeter shall have wide measurement range and a large multifunction display. It shall be capable of measuring both current and charge with excellent resolution. It shall have negligible leakage current. There shall be provision for at least two different bias voltages. The dosimeter shall have extremely good accuracy, repeatability, and stability. Please provide specifications.

1.1.1 **Two** calibrated **Farmer type thimble 0.6cc or 0.65cc ion chamber** ($N_{D}w$) calibration factors with calibration certificates) shall be provided. For the calibration of electron beams two calibrated **parallel-plate ion chambers** (with $N_{D}w$ calibration certificates) shall also be provided. The chamber shall be a ROOS type or Markus type chamber. The chamber shall preferably not have any water-proof caps, sheathing and should be directly immersible for use in water or alternately the chamber shall have water-proof caps, sheathing for use in water phantom. It shall have triaxial TNC threaded type connector.

1.1.2 The dosimeter and other ion chambers shall have triaxial TNC threaded connector to facilitate uniformity amongst all the dosimetry instruments. BNC to TNC and TNC to BNC **connector/adapters** shall also be supplied.

1.1.3 For Small field dosimetry, a dedicated design detector with latest technology based **micro/nano ion chamber (one number)** for extremely small field (3mmX3mm or less) should be provided along with optimal length cable for beam data measurement in water phantom, two numbers of 20m cables with connectors compatible with water phantom and control console unit.

1.1.4 **Two solid (water equivalent) phantom** made up of slabs of different thicknesses shall be provided by the vendor for external beam teletherapy dosimetry. It shall be possible to use this phantom for both photon and electron beam dosimetry. The phantom shall be free of contaminants and air bubbles. Guarantee should be provided for electron density and homogeneity and shall be certified to be within 0.5% of water at photon energies. The slabs shall be of minimum 40 x 40 cm size totaling a thickness of 40 cm. The exact details of the slab thickness and their quantities shall be obtained from the user department. Different slabs (of 2 cm thickness) with appropriate cavities to accommodate the two 0.6cc ion chambers, parallel plate ion chamber should be provided additionally. The phantom shall be of rigid type and should not show any kind of charge build-up effects. It shall not be affected by any change in ambient temperature and humidity. Adaptor should be provided for all types of chambers supplied.

1.1.5 For the all linear accelerators, permanent cabling with cable reel between the control console and the interior wall of the treatment room for dosimetry measurements shall be provided and installed. The permanent cabling shall be for the complete RFA setup that can also be used for absolute dosimetry measurements with 0.6 cc ion chamber and parallel plate chamber. Complete description must be provided.

2. Reference Dosimetry System

2.1 **Radiation Field Analyzer (RFA) System**

The latest and state of art Radiation Field analyzer and accessories for acceptance and commissioning of linear accelerator, beam data measurements for input to TPSs and periodic

quality control and assurance (QC & QA) of teletherapy equipment as per national and international regulatory requirements should be provided. The RFA system consist of (i) The 3D Water Phantom System (ii) complete for data acquisition hardware and data software(iii) Electrometer & control unit,(iv) Ion chambers and Diodes (reference & field detectors), (v) Mobile lifting Carriage and Reservoir (vi) Data acquisition software and computer systems /Laptop & software for data analysis.

2.1.1 **3D Water Phantom:** The 3D water phantom should acquire beam profiles, depth dose curves and isodose distributions even at arbitrary angles of beam incidence with high level of accuracy. All components in the 3D water phantom should comply with national and international regulations and safety rules. The water tank should have optimally thick reinforced walls to prevent deformation and leaking. The water tank should be large enough to have a minimum scanning range of 480 mm X 480 mm and different scanning depths up to 400 mm. For fast and precise horizontal and vertical tank alignment there should be level positioning plate and device. The moving mechanism should be of stainless steel or equivalent high strength metal and not touch or dip into the water during measurements. The moving mechanism should be driven by **high speed stepper motors or mangetostrictive technology or equivalent** with high resolution and superior positional accuracy, (0.1mm, 15mm/sec or more) and software run variable speed. There should be a removable control pendant and menu controlled interface or equivalent mechanism for control of water tank moving mechanism.

2.1.2 **Electrometer and Control Unit:**

A High precision dual channel electrometer for fast scanning measurements should be offered. It should also feature auto-range and offset compensation with a minimum measuring interval of 10ms and adjustable voltage availability for ion chambers and diodes. The water phantom should be equipped with control unit for fast and precise stepper motor control during measurements. With control unit a minimum step size of 0.1mm should be achievable. Continuous mode scanning should be possible and to be provided. Dedicated water surface pointing tool has to be provided to position the ionization chambers and solid state detectors at the effective point of measurement in reference and field positions. Necessary data cables and extension cables are to be supplied to connect the control unit, electrometer and chambers and diodes.

2.1.3. **Chambers and Diodes**

Necessary thimble ionization chambers and diodes with uniform spatial resolution and optimal sensitive volume should be supplied for precise dose measurements in scanning water phantom as follows: Two numbers (reference and field detectors) of small volume chamber of 0.125cc or equivalent. One Diodes sets (for photon, electron and reference) along with optimal cable lengths for measurements of beam profiles and PDDs should be provided along with relevant calibration certificates. The ion chambers and diodes provided shall be completely water proof and totally immersible in water up to very large depths. Give details of supplied detectors can be used to perform relative dosimetry for Linacs' photon & electron beams. Adequate build-up caps for (6MV, 10MV &15MV) all offered ion chamber should also be provided. All chambers supplied should be water-proof and should have TRIAX connection.

2.1.4. Vendor should quote for a transparent reference detector in the relative dosimetry for small fields. This detector should be of perturbation-free, beam invisible as a reference signal chamber using RFA measurements of PDDs and Profiles of all available energies especially for field size from 1x1cm2 to 2cmx2cm2. It should be mounted on the linac gantry with necessary adaptors and holders. The field size should be easily selectable without physically going inside the linac room.

2.1.5 Lifting **Carriage and Reservoir:**

The 3D water phantom should be equipped with high- precision electromechanical lifting carriage mounted on wheels with long term positioning stability with water tank. The lifting carriage should have minimum movement range of 50cm for adjusting the height of water tank. The lifting carriage and water reservoir should be either integral part or separate one for easy movement of the entire

system and have PC controlled pump for TPR/TMR measurements device. The lifting carriage should have control pendant for easy control of the lifting and pumping functions.

2.1.5. **Data Acquisition and Analysis Software:**

Advanced and comprehensive data analysis software should have all important dosimetry tasks implemented in modules with optimized workflows. There should be pre-defined measurement programs for PDD's, profiles, matrices for isodoses. The software should have task list defined with multiple energies, applicators, wedges, MLC, blocks, field sizes, SSD's, depths for fast beam data collection for Flat and FFF LINAC commissioning and TPS measurements as per regulatory body. Provision of direct measurement of flatness, symmetry, TPR/TMR, penumbra, beam quality, X-ray and electron contamination by the software. There should be dedicated software to convert PDD's to TPR curves. There should be software to use the dual channel electrometer for absolute dosimetry. Adaptors for all supplied chambers for absolute dosimetry and relative dosimetry with RFA shall be provided. **Necessary software to format and convert the measured data to the formats of all commercially available TPS has to be provided.** All established international protocols including the LINAC vendor specifications should be available. There should be facility to generate user specific protocol including that of AERB for easy, fast and structured measurement. The software should allow the user to scale and customize printouts. Additional software license should be provided for absolute dose measurement in RFA.

2.1.6. Computer system/Laptop and Software for Data Analysis Latest laptop with latest available configuration like, i7 processor or better, 10 TB HDD, on board 28 GB RAM, DVDRW, 2 TB NVIDIA graphic card, Windows 7 (a compatible higher version if available), 15.1" (a compatible higher size if available) screen of 1960X1012 resolution and higher resolution if available along with the antivirus software should be provided. Color laser printer for A3 size printing with network, blue tooth and WiFi connectivity facility. A UPS system with 1 kVA capacity with 30 minutes backup time shall be supplied Provide complete details on this account.

3. Gafchromic Films and Flatbed Scanner System

Gafchromic films are used for relative dosimetry, QA including IMRT in radiotherapy and **Epson Flatbed scanner** is used to scan the exposed Gafchromic films. The vendor should provide following **Gafchromic films and Flatbed Scanner with red channel;**

3.1. EBT3 Gafchromic Film: 14 x 17 inches – 200 sheets.

3.2. EBT3 Gafchromic Film: 8 x 10 inches –100 sheets

3.3. **Flatbed Scanner with red channel (one Number):** Epson Expression 12000 XLPhoto Flatbed Scanner or latest model to be provided.

3.4. The scanner must be compatible with EBT3 Gafchromic films to be used in radiotherapy and should be able to read red channel of the film.

3.5. The vendor should provide required scanner driver (for Windows 7 & 8) software, user manual, and onsite installation.

4. Periodic QA/Safety Devices/detectors and Software Systems/Tools

4.1. A simple **Isocentre alignment device** (two numbers) that can measure accuracy of the gantry angle, collimator angle, couch angle, isocentre accuracy, optical-radiation field congruence, optical field readouts, etc shall be supplied.

4..2 Two electronic **(digital) spirit level** should be provided for measuring or marking incline or leveling surfaces and water phantom tank and checking collimator and gantry angles of Linear accelerators.

4.3 **TPR10/TPR20 or D10/D20 Phantom (two numbers):** The offer should have capability to perform TPR10/TPR20 or D10/D20 measurement for daily energy consistency check. The phantom should have provision to insert available Farmer type chamber with appropriate leveling device.

4.4 **Daily/Weekly/Monthly QA devices/detectors and software system (two numbers)** that can perform daily QA like radiation field flatness, symmetry, output consistency, etc shall be provided. The system should be capable of performing latest AAPM TG-142 linear accelerator QA protocol

tests. System should also capable to perform QA for kV/MV imaging, CT/CBCT imaging and IMRT/VMAT with FFF beam capability tests. Vendor should provide appropriate/suitable necessary dosimeter and software system/modules that can store analyze all the data and report the data in a user friendly format. Provide comprehensive details on the systems offered.

4.5 **Electron-Density phantom (one number):** The electron-density phantom commissioning CT scanners for in homogeneity correction based dose calculation in treatment planning system shall be supplied that has different electron density inserts for calibrating CT numbers (Hounsfield units) against electron density and mass. Furnish complete description about the offer phantoms.

4.6 The calibrated **Digital Thermometers (two numbers):** The Portable digital thermometer to use in radiation dosimetry for measuring temperature inside a medium including water should be supplied. It should use the latest in temperature sensor technology. It should be suitable for the Lab desk/bench/wall mounted. It should be supplied with AC adapter, batteries, a calibration certificate and user guide. Valid calibration and traceability should be provided along with certificate. It should be battery or AC powered.

4.7 The calibrated Digital Barometers (two numbers): The Portable digital barometer to use in radiation dosimetry for measuring pressure inside the room should be supplied. It should use the latest in pressure sensor technology. It should be suitable for the Lab desk/bench/wall mounted. It should be supplied with AC adapter, batteries, a calibration certificate and user guide. Valid calibration and traceability should be provided along with certificate. It should be battery or AC powered.

4.8 Latest technology Photon Survey Meter (two numbers): Photon Survey Meter is used for surveying and monitoring of x-rays and gamma rays around the exterior walls of high energy radiotherapy equipment including medical linear accelerator. Photon (X-ray) Survey Meters shall be able to measure radiation (xray) exposure/dose rates of varying energy levels in minimum possible timeframe. Type of Detector should be of pressurized Ionization chamber based detector. Measurement range: 1µR/h to 50 R/h or 1 µSv/h to 500 mSv/h.

4.9 Pocket dosimetry system (four numbers): Digital Pocket (Personal) Dosimeter is used for personal monitoring and warning of x-rays and gamma rays around the radiotherapy installations by wearing them in pockets. It shall be able to measure x-rays and gamma-rays (dose/dose rates) of varying energy levels in minimum possible timeframe. The type of detector shall have either internal energy compensated GM detector or Si detector. The measurement should range from 1 µSv/h to 500 mSv/h. Specify the details of the offer system.

4.10 Two nos.of imported international standard water phantom 30x30x30 cm^3 with variable depth measurement facility for absolute dose measurement of Photon beam and electron beam should be provided. Necessary adaptors for all supplied chambers should be provided along with this Phantom.

4.11 One ESTRO Mini phantom for Sc measurement.

5. Anthropomorphic Phantom for Whole Body Dose Verification (1. No)

The anthropomorphic phantom is a whole body cross sectional dosimetry phantom designed to investigate whole body effective dose as well as verification of delivery of therapeutic radiation doses. Phantom made of tissue equivalent epoxy resins material. The anthropomorphic phantom should have following features and capabilities;

(a) It should be an Anthropomorphic Male Whole Body cross sectional dosimetry Phantom along with Breast Attachment. Each phantom sectional size should have 2.5 cm thickness.

(b) It should be a sectioned phantom without any holes.

(c) It should be suitable for a wider range of energy levels from diagnostic to therapeutic applications.

(d). Compatible hole drilling tool along with accessories should be provided along with phantom.

(e). phantom should facilitate for ion-chambers, sufficient number of TLD Chip Holders, MOSFET cartridges, Nanodot dosimeter holders, solid tissue equivalent plugs for soft tissues, lung tissues, brain tissues and bone tissues.

(f) Phantom should have capability to accommodate a wide variety of detectors.

6. Dosimetry System for IMRT/VMAT Patient-Specific Verification/QA

6.1 IMRT/VMAT QA 3D Phantom

6.1.1 For performing QA of IMRT/VMAT, a latest, 3D phantom (one number) shall be supplied. It shall be possible to do exposure of multiple directions for high accuracy in IMRT and VMAT rotational treatment verification. The phantom material shall be water / tissue equivalent. It shall have a universal design for both dose and dose distribution verification of patient-specific pre-treatment IMRT/VMAT treatment plans.

6.1.2 It should be possible to easily adjust the phantom on the Linac couch and on CT scanners couch top. It shall be possible to do absolute dose verification.

6.2 IMRT/VMAT QA Detector and Software System

6.2.1 The detector array should be based on either ion chamber or diode detector giving the highest resolution possible. The active volume of the chamber or diode must be very less. System should be calibrated for FFF applications at high dose rate. Adequate amount of buildup materials of different thicknesses should be provided for measurements with different energy beams. It must be possible to do automatic temperature and pressure verification devices. Latest available technology/model should be quoted for the transferring of data from the detector array to the processing desktop or laptop computer. In addition to the cable based connection, cable less technology also to be quoted.

6.2.2. The software should also be able to validate the TPS calculated 2D & 3D dose against measurement with film, diode-array detector and ion chamber-array detectors in standard solid water phantom.

6.2.3 The software should supports all radiochromic and Gafchromic films

6.2.4 The software should support both flatbed (Epson) and VIDAR scanners.

6.2.5 The software should be able to reconstruct the 2D and 3D dose distribution based on the measured data from films, diode-detector array and ion chamber-detector array and compared with TPS ones.

7. Anthropomorphic Lung Phantom for SBRT for End-to-End Tests (1.No).

The vendor should provide an end-to-end (E2E) testing SBRT Phantom to check the entire treatment chain during commissioning and routine QA. This phantom is Ideal for commissioning an SBRT program and should facilitates SBRT planning and delivery for Lung treatments. It is an anthropomorphic thorax body containing articulated spine, ribs, and lungs. The thorax section contains two lung tumor volumes with ionization chamber cavities in the center of each target. The phantom also includes a lung insert with an irregular-shaped lung targets. The proximity of the lung target to the vertebral body allows clinicians to measure high- resolution dose distribution to the target and dose to the spinal cord in a single delivery. A transversal slice of the thorax enables high-resolution dose distribution measurements to the vertebral body and vertebral chord. Additional abdominal section with 3D spine anatomy for film and nanoDot dosimetry should be offered.

8. **On-line/Real-time dosimetry system for during IMRT and VMAT Treatment**

The vendor should provide a latest model On-line/Real-time dosimetry system for during IMRT and VMAT patient treatment and should have following features and capabilities;

(a) The Detector for Online/real-time treatment monitoring should be ion chamber based for long term reliability and should be wireless and cable-free for easy utilization. It should be mounted and secured on the Linac gantry head for measurements during the actual patient treatment.

(b) It should have more than 1500 ion chambers or large area single ion-chamber detectors. It should come with physical gantry angle sensor for rotational IMRT/VMAT delivery.

(c) The detector layout should be efficient for treatment plan QA and machine QA and should cover the full field of 40cm X40cm.

(d) The software system should be capable of doing online treatment monitoring and 3D pre-treatment QA based on actual patient CT based anatomy and not based on a phantom plan. The dose calculation system should have advanced kernel-based algorithms.

(e) Dosimetry training for the online dosimetry system should be provided in an international centre of excellence. In addition to this, onsite training should also be provided. All the expenses for the training should be borne by the vendor.

9. **In-Vivo Dosimetry Systems for Advanced Treatment Dose Verification.**

The in-vivo dosimetry system should be used for radiation dose measurement of various sites of patient undergoing radiotherapy. The system should be standalone and capable of measuring dose in the therapeutic range for dose measurement of patient undergoing IMRT and SBRT treatments. The vendor should provide the in vivo dosimetry systems of Thermoluminescent dosimeter (TLD), Metal Oxide Semiconductor Field Effect Transistor (MOSFET) Dosimeter and Optically Stimulated Luminescence dosimeter with following features and capabilities;

(A).Thermoluminescent Dosimetry (TLD) System -1 Nos.

The vendor should provide a latest model of TLD system consist of automatic reader capable of processing TLD chips, rods and powder and PMT-based light detection system and dosimeter heating system for measuring Photon of energies >5 keV; Neutron, thermal to 100 MeV; Electron/beta, energies >70 keV with following quantity of TLD-100 Chips (LiF, Size: 3.2 mm x 3.2 mm x 0.9 mm & Quantity = 300 Nos.), TLD-100 Rods (LiF, Size: 1 mm dia. x 6 mm & Quantity = 300 Nos.), TLD-100 Powder (Lif, mesh size: 80 - 200 (grain size 75 μm - 180 μm) & Quantity =100 g), Chip planchet, powder planchet and rod planchet (Quantity = 10 each). vendor should provide a Personal Computer of latest Microsoft windows 7 with essential antivirus softwares Processor icore-7, Hard disk 500GB,-RAM 4GB,-USB 5 ports, -Monitors 18.8" LCD- and UPS for 20 minutes backup and LaserJet printer, Programmable annealing oven, Hot nitrogen gas flowmeter and regulator and cylinder with gas, Vacuum Tweezers, Powder dispenser, Annealing tray (Quantity = 10) and Dosimeter storage tray (Quantity = 10). Vendor should provide on-site training for all concerned staff of the department till their satisfactorily usage of the system.

(B). Metal Oxide Semiconductor Field Effect Transistor (MOSFET) Dosimeter System - 1 No. (Standard MOSFET = 20 Nos., Micro-MOSFET = 20 Nos.)

The vendor should provide a latest models of both standard MOSFET(2.5 mm wide) and Micro MOSFET (1 mm wide) and should have sensitivity of 3 mV/cGy and 9 mV/cGy respectively. One reader module which is capable of reading both standard and micro MOSFET dosimeters with 1-5 dosimeter capability under standard and high sensitivity bias setting Dual bias Power adapter with dual bias sensitivity settings (high or standard) Cable length (connecting between reader outside and dosimeter inside the treatment room: 20 m, Hemispherical Brass build-up caps and Calibration jig for dosimetric measurements. Vendor should provide on-site training for all concerned staff of the department till their satisfactorily usage of the system.

(C). Optically Stimulated Luminescence dosimetry System (1.No).

The vendor should provide a latest model of Optically Stimulated Luminescence dosimetry system for in-vivo dose measurements during advanced and specialized radiation treatment. The system should consist of OSL Reader for Nano-Dots-1 No. (Qty), Optical Annealer-1 No. (Qty), Nano-Dots of same sensitivity – 200 No. (Qty) and all accessories which are required for dose measurement in all clinical situations. The systems should have following features and capabilities;

i. OSL Reader:

The OSL reader should be compact and portable with instantaneous Readout. It should be able to measure dose in radiotherapy dosimetry, diagnostic CT, CBCT and in-vivo dose assessment in clinical setting. It should consist of light emitting diode (LED) to stimulate the dosimeter and photo multiplier tube (PMT) to collect the stimulated light based on the optically stimulated luminescence technology. The reader should have simple read out process. The reader should read the dosimeter quickly and efficiently and capable of assessing dose during entrance, exit, surface and peripheral measurements in patients and phantoms. The latest software for the reading of the dosimeter should be supplied along with a computer/laptop of latest specification in terms of processor and had disk capacity and with the licensed operating system. The software should be capable of accounting for elements correction factor (ECF) while reading and should be possible to analyze the results with ease.

ii. Optical Annealer:

The annealer should reset the dosimeter quickly, effectively and easily when the dose data on the dosimeter has to be cleared. The annealer should use high intensity LED's for fast and effective annealing of the dose information. The annealer should have the provision of start-stop procedure. It should have the capacity to hold 50 or more dosimeters at a time.

NanoDots:

NanoDots should be useful in the radiation dose assessment applications. It should be able to verify independently and effectively the quantity of dose delivered from radiation production devices in medical imaging and radiation oncology. It should offer numerous times of reanalysis capabilities to confirm the accuracy of a radiation dose measurement by multiple readouts. It should be made of high sensitive OSL dosimeter material AL2O3:c of 5 mm diameter and 0.2 mm thick small plastic disks. It should be encased in 1x1x0.2 cm3 light-tight plastic holder to prevent signal depletion due to light exposure. This should be labeled with both bar code and serial number for its identification. It should have wide operating energy range. The disk should be able to slide out of the casing during reading and bleaching. The response of Screened nanodots should be within ± 5.0% for a particular dose. Vendor should provide on-site training for all concerned staff of the department till their satisfactorily usage of the system.

10. In-vivo/Exit Dosimetry system using EPID and Linac log for IMRT and VMAT/SBRT treatment (one Number)

The vendor should provide a latest model of **In-vivo/Exit Dosimetry system using EPID and Linac log for IMRT and VMAT/SBRT treatment.** The software should listen for and capture pre-treatment and in-vivo QA files for each patient, processes and analyzes them, and save the results to the database. Failed result notifications should be automatically emailed to the user. The software should collect this data from the Portal Imager and Log files of the LINAC, thus maintaining a independence from Linac. should work with Varian and Elekta linear accelerators and ARIA and MOSAIQ oncology information systems. Should Support 3D, IMRT, VMAT delivery with FFF beam applications. Straightforward, accurate pre-treatment verification for multiple target SRS cases. Dose reconstruction is based on 3D forward projection, which allows for proper representation of the dosimetric impact of the various MLC, patient, and output errors that can occur in a radiotherapy treatment. Vendor should provide on-site training for all concerned staff of the department till their satisfactorily usage of the system.

11. E-Logbook system (one Number)

The vendor should provide a latest model of E-Logbook system. The system should replace paper based medical equipment logbook and management of Quality Assurance and Quality Control (QA/QC) data documents by user's soft templates and database entries (documents for recording QA/QC data) especially for Linear Accelerator or any other medical Equipment should be provided. The system software can be helpful in providing the user some information such as uptime, downtime and usage of the machine and also provide the data in the graphical form. The vendor should provide one high end laptop computer system which will be used for loading the software.

II. Mould Room and Patient Fixation and Immobilization Devices/Accessories

The mould room and patient fixation and immobilization devices/accessories/ tools are required in developing and implementing of a comprehensive, ultra modern 3-D CRT, IMRT/VMAT and SBRT program in the department of Radiation Oncology. The vendor should provide the all items with product information brochures.

1. Patient alignment laser system with patient support table

The vendor should provide an indexed stable flat top couch/table of good make along with fixed sagittal laser (two green laser) in-tune and aligned with the sagital laser of the CT simulator and treatment room should be provided at the ceiling of the mould room for patient alignment and pretreatment isocenter localization procedures.

2. Patient Fixation / Immobilization Accessories

The vendor should provide high precision Radiotherapy immobilization devices for Head, Head & Neck, Pelvis and Breast with handle as ultra-light weight, remarkable reproducibility, stability and durability items are as follows;

Sr.No	Name	Required Quantity
1	Carbon Fiber Head Tilting Base Plate with variable angle 5° to 30° or above	5 set
2	Carbon Fiber Head & Neck Base Plate with 5 Fixation Clamp	5 set
3	Carbon Fiber Head Rests (A to F)	5 set
4	Carbon Fiber abdomen, Pelvic Base Plate and prone belly board	5 set
5	Over Head arm positioning with carbon fiber Base or equivalent	5 set
6	Shoulder retractor system	3
7	**Breast Board :** Breast board with extended cushion aperture, lower adjustable arm supports with high arm cup, cranial adjustable arm supports with high arm cup, wide head support, bottom stop with hip position adjustment, integrated mask fixation points.	3 set
8	Head Support wide shaped (Different wide set's)	5 set
9	Cushion for Shoulders to use with fix base plate	5 set
10	Carbon fiber Universal Prone Head Support	5 set
11	**Vacuum cushion-based System:** a. Vacuum Cushion Breast Support 50x70cm b. Vacuum Cushion Pelvic Support 65x65cm c. Vacuum Cushion Body Support 100x70cm d. Vacuum Cushion Body Support 200x100cm	 5 set 5 set 5 set 5 set

	e. Vacuum Pump (VP)	2
12	**Heat Gun:** Professional Heat Gun Rated power input: 2,000 W	2
13	Storage cabinet and Hanger to accommodate the above devices (sizes of the storages cabinet should be as per the need of the immobilization devices)	4

i. The vendor should provide all appropriate locking mechanism for all offered base plates to couch. Density and also percent of attenuation of carbon fiber should be mentioned.

ii. The vendor should provide 100 (numbers) thermoplastic sheets for each site specific offered base plates as mentioned above tables.

iii. Vendor should provide the universal couch top (two numbers) for CT machine with Indexer.

iv. Digital Water Bath System (one number) vendor should provide digital water bath system which should have minimum inner dimensions of 700 mm x 700 mm x 110 mm with adjustable position of water drainage, black safety opening bracket, digital temperature display.

5. **Vendor should provide following accessories:**

i. Tungsten eye shields two sets each for pediatric and adult patients,
ii. Small. Medium and large sizes of testicle shields (each two numbers),
iii. Gel Bolus sheets 40 x 40 cm of thickness 0.5, 1, 1.5 and 3 cm 15 each
iv. Complete sets of Styrofoam cutter for electron blocks for the supplied machine -1 set
V. Alloy melter 1 no.
Vi. Low/medium melt alloy 50 kg
Vii. Styrofoam blocks 12”x12”x3” 1 set
Viii. Styrofoam blocks 12”x12”x1” 1 set
x. Body calipers 4 nos.
xi. Curved stainless steel calipers 4 nos.
xii Rectal marker 2 nos.
xiii. CT markers (2mm dia) 500 nos.
xiv. MRI markers 200 nos.
xv. Nail shield for TSET

6. Total Skin Electron Therapy (TSET) with Electron patient positioning system having rotatable standing platform and fixed frame with two handgrips should be provided. One energy degrader to degrade 6 MeV electron energy to 3.8 to 4 MeV.

7. **General Conditions and Requirements:**

7.1 Required equipment/accessories/software offered against this tender shall have approval of the FDA USA or CE Europe as well as of the AERB, India.

7.2 Installation of all these equipment/accessories shall be free of cost and should be completed in the specified time-frame manner. The vendor shall demonstrate all the acceptance and calibration tests, to the satisfaction of the user as well as of the Regulatory Authorities, as required for the safe use of the equipment.

7.3 Full warranty of all the hardware and software, for a total period of 5 years from the date of satisfactory commissioning and Rate of comprehensive maintenance charges per annum for the complete system after 6 to 10 year must be quoted.

7.4 All the participating firms should quote the price of all required spares for upkeep and smooth functioning of the equipment for a period of 5 years.

7.5 Any dosimetric and patient immobilization items/features left/missed inadvertently which are required to complete the workflow and new features clinically important for machine-specific and patient-specific advanced QA and also for ensuring accurate treatment should be provided.

B. GENERAL POINTS:

1. Warranty:

a) The bidders must quote for Five years Comprehensive Warranty as per Conditions of Contract of the bidding document for complete equipment (Including all spares, labour and third party items) and Turnkey Work (if required) from the date of satisfactory installation, commissioning, trial run, handing over and acceptance of the goods by the User Department.

b) The warranty charges shall not be quoted separately.

c) During the Warranty period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. In addition a penalty equal to amount of 0.25 % of the total cost of equipment per day will be liveable for the excess downtime period. Complaints should be attended properly, maximum within 8 hrs.

d) All software updates should be provided free of cost during Comprehensive Warranty period.

2. After Sales Service:

After sales service centre should be available at the city of Institution on 24 (hrs) X 7 (days) X 365 (days) basis. Complaints should be attended properly, maximum within 8 hrs. The service should be provided directly by Bidder/Indian Agent. Undertaking by the Principals in the "Manufacturer Authorisation Form" that the spares for the equipment shall be available for at least 10 years from the date of supply of equipment.

3. Training:

On Site training to Doctors/ Technicians/ staff is to be provided by Principal/Indian Agents (if they have the requisite know-how) for operation and maintenance of the equipment to the satisfaction of the User Department.

4. **Comprehensive Annual Maintenance Contract (CAMC) of subject equipment:**

a) The cost of Comprehensive Annual Maintenance Contract (CAMC) which shall include preventive maintenance including testing & calibration as per technical/service/ operational manual of the manufacturer, labour and all spares, after satisfactory completion of Warranty period may be quoted for next five years on yearly basis for complete equipment including third party items as per Price Schedule.

b) The cost of CAMC may be quoted along with GST applicable on the date of Bid Opening.

c) Cost of CAMC will be added for Ranking/Evaluation purpose.

e) During the CAMC period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. In addition a penalty equal to amount of 0.25% of the total cost of equipment per day will be livable for the excess downtime period. Complaints should be attended properly, maximum within 8 hrs.

f) All software updates should be provided free of cost during CAMC. In case of failure by the supplier, the Bank Guarantee of CAMC will be forfeited.

g) The payment of CAMC will be made on half yearly basis after satisfactory completion of said period duly certified by end User.

5. Uptime & Downtime Penalty Clause:

a) The firm should provide uptime guarantee of 95% during warranty period and CAMC period.

b) During the Warranty period and CAMC period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. In addition a penalty equal to amount of 0.25 % of the total cost of equipment per day will be liveable for the excess downtime period. Complaints should be attended properly, maximum within 8 hrs.

Department of Nuclear Medicine
CNCI, Second Campus
ITEM No. 4

PET-CT (Positron Emission Tomography – CT Scan)

i. A latest technology Positron Emission Tomography system with integrated 128-slices spiral CT scanner for commissioning by the vendor.

ii. Scope of the work: Primary vendor shall be responsible for supply, installation and commissioning of the PET-CT.

iii. Vendor should visit the department to have a look at the space available for installation of the new system. A certificate should be attached that the space is *adequate for the installation of the quoted systems.*

iv. The radiation equipments offered against this tender shall duly conform to the prescribed international/national standards and norms of radiation safety. Type approval certificate/NOC from AERB, Mumbai for the quoted model must be attached with the technical bid or else the bid will be summarily rejected.

v. All the QA / acceptance tests as per NEMA and AERB need to be carried out by company engineer in the presence of Nuclear Medicine Physicist of the department. A detailed report need to be submitted in a stipulated time frame for onwards transmission to AERB to get the license for operation of the equipment. All the required phantoms for QA tests will need to be arranged by the vendor. The Company will also arrange such phantoms during periodical QA tests.

vi. The tenders along with all the commitments, claims, specifications, guarantee, warrantee etc. pertaining to the equipment should be submitted directly by the Manufacturer/Principal Company or their Vendors who shall be wholly and solely responsible for all the statements/commitments in this connection.

vii. Any options or added facilities not indicated in the specifications may also be given. Any improved modifications or updated versions of the system can be included in the quotation.

1. General:

i. A latest technology DICOM ready state of the art Positron Emission Tomography system with integrated 128-slices per rotation spiral CT scanner, designed for providing volume measurements of metabolic and physiological processes using positron emitters, as well as for producing accurate structural and anatomical fusion images and making attenuation maps for CT based attenuation correction.

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

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

iv. System should be on latest PET and CT platform. The acquisition & processing software should be of latest version

v. System must be FDA approved at time of bidding and shipping. Attach relevant certificates.

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 the machine. At least one of these manual sets to be provided in computer readable format, preferably as Word for Windows format document**.**

2. Gantry and Detector:

i. Gantry should have integrated PET & CT hardware.

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

iii. The PET scanner should employ non-hygroscopic high light yield (80%) and low decay time scintillator material like LYSO or LSO crystals for detecting 511 KeV gamma photons in coincidence

iv. The scanner must have a continuous ring of detectors without any gaps

v. Ring diameter should be ≥ 80 cm

vi. PET crystal thickness should be ≥ 20 mm

vii. The transverse field of view should be ≥ 70 cm

viii. The geometric axial field of view (FOV) as measured from the outer edges of the crystals must be ≥ 15 cm.

ix. It must be capable of acquiring 45 or more transverse cross- sectional slices, simultaneously without undergoing any axial motion

x. 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 way that the patient can be positioned form either side of the gantry and the patient bed.

xi. Efficient Gantry cooling system for continuous running of the machine, the detector performance should be maintained over temperature variations

3. CT Specifications

i. Multi detector CT having capability of 128 transverse cross-sectional slices simultaneously in one rotation without undergoing any axial motion.

ii. Filters / Collimators and other specific features to reduce radiation dose to the patient (with separate adult and pediatric protocols)

iii. Laser alignment light should control the iso-centric position of the patient in all planes
iv. Fluoroscopy facility with monitor for guided interventions must be included
v. Multiple pitch factor settings, variable between 0.5 to 1.5 or more and should be freely selectable by the user.
vi. Rotation time should be ≤ 0.5 sec for 360 degree
vii. Image slice thickness should be from ≤ 1 mm to 10 mm and freely selectable
viii. High contrast spatial resolution should be ≥15.0 Lp/cm at 0% MTF
ix. Low contrast resolution should be at least ≤ 4 mm @ 0.3% with 20 cm CATPHAN phantom
x. Microprocessor controlled high frequency ≥ 70 kW x-ray generator
xi. Tube Voltage range 80 kV to 140 kV
xii. Anode heat storage capacity of 7.0 MHU or more
xiii. Tube Current of 20-600 mA
xiv. Automatic self testing system

4. **Patient Bed:**

i. Precision bed having low attenuation pallet and minimum sag of the patient table top.
ii. A separate flat table top should be provided for radiotherapy treatment planning.
iii. It should be able to bear 200 kg or more patient weight.
iv. 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
v. 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.
vi. Full body horizontal length should be ≥ 190 cm and cover whole body imaging (Head to Feet) in a single go.
vii. The table height should be good enough to unload the stretcher and wheel chair patients without footrest.
viii. Low attenuation ergonomic head holder, pediatric pallet / restrain, knee-leg support and other accessory pallets

4. Performance Specifications:

i. All specifications must comply with latest NEMA Standards Publication NU2 performance measurements without altering instrument parameters. QC Software to measure these parameters must be available in the system.

ii. Additional feature that helps to enhance the NEMA spatial resolution values must be offered as a standard part.

iii. TOF based reconstruction algorithms for better lesion detectability

iv. Axial & Transverse spatial resolution at 1 cm & 10 cm from the central axis of the gantry should be ≤ 5 mm FWHM

v. Timing Resolution should be below ≤ 400 psec.

vi. System sensitivity must be ≥ 7 cps/KBq at center

vii. Total uniformity should be < 10% and inter slice uniformity < 15%

viii. System energy resolution should be ≤ 12.0 %

ix. 3-D scatter fraction should be ≤ 40%

x. Peak NECR should be >120 Kcps, specify the activity concentration for the peak NECR.

5. Data Acquisition Workstation and Software:

i. One high performance multi-tasking Acquisition Workstation independent of main processing unit. The workstation should have a minimum 2TB SSD storage, high processor speed, and high resolution (1024 x 1024 or more) antiglare flat panel Dual LCD monitor of minimum 19" size. The workstation should be of latest specifications at the time of shipment.

ii. *Acquisition Modes:* Acquisition in full 3-D mode must include Static, Whole Body, Dynamic and Gated (cardiac & respiratory) acquisition.

iii. *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.

iv. *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 next automatically.

v. *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.

vi. *List Mode Acquisition:* Full list mode acquisition should also be available as standard feature.

vii. *ECG Gating* should be part of the offer and is to be provided with necessary hardware and software.

viii. Intercom with user programmable patient instruction system

ix. Ultralow dose CT protocols should be available for hybrid PET/CT protocols.

x. Same PET CT protocol should be used for Contrast CT in single acquisition

xi. CT based attenuation correction

xii. *Reconstruction*: PET data acquisition and image reconstruction should be concurrent process i.e., image reconstruction should simultaneously start for the acquired image while acquisition is still in process.

xiii. Fully 3-D speedy iterative reconstruction with scatter correction, **OSEM** technique, High definition (HD) **and Time-of-flight** reconstruction algorithms must be standard features.

xiv. Reconstruction time: At least 40 frames/sec

xv. List mode PET data reconstruction should not take more than 90 sec/bed

xvi. Advanced 3-D Volume rendering with 3-D fusion, Model based 3-D scatter correction, virtual endoscopy & bronchoscopy

xvii. Low dose iterative reconstruction algorithm should also be provided

xviii. *Pixel Size*: The User should have the option to specify the pixel size for reconstruction. The reconstruction program should support reconstruction in image sizes of at least 256 x 256 or higher.

xix. *Scatter Correction*: Scatter correction must be provided based on scan of the actual patient whose scan is being corrected and processed automatically.

xx. System management software for computerized calibration, quality control for all scanner performance parameters, diagnostics.

xxi. Data editing facility for acquired data

xxii. Latest DICOM based networking and compatible software for both PET & advanced CT applications.

xxiii. Facility of DVD & CD writing and image transferring to processing workstation as well as the mini PACS server.

6. Processing Workstation and Clinical Application Software:

i. TWO high performance multi tasking post processing workstations having minimum 32 GB RAM, 3 GHz processor speed, minimum 1 GB graphic card, 2 TB or more SSD (if less, another SDD may be included) logically divided into 3-4 partitions, Optical Mouse, Key-board and high resolution anti-glare flat panel dual view LED monitor of ≥ 21” size

with minimum resolution of 1280 x 1024. It should also have CD and DVD combo drive with writer facility. It should have both, serial and USB ports. The graphical user interface (GUI) should be identical to that of the acquisition unit. The computer workstation should be of latest specifications at the time of shipment.

ii. Communications - Ethernet with TCP/IP protocols and DICOM-3.0 or latest networking of all possible equipments in the facility with their peripherals, seamless connectivity to acquisition station and image server.

iii. Image comparison software for review with longitudinal evaluation of baseline-follow up studies using PERCIST.

iv. Viewing and processing software for dynamic acquisition data

v. Fusion software for PET/CT/MRI/SPECT data, including imported data and provision for multiple phases in 3-D demonstration.

vi. 4-D TOF or better, respiratory gating software and hardware for PET/CT acquisition and processing should be a standard feature

vii. Computer aided diagnosis software with quantification ability for neurological applications including assessment of dementia by measuring relative SUV

viii. Complete cardiac package with ECG gated studies (prospective and retrospective tagging) and ECG gated dose modulation

ix. Cardiac PET viability review application software.

x. Advanced CT applications software for coronary imaging, 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

xi. Dosimetry software for PET imaging radiopharmaceutical

xii. PET DICOM 3.0 or higher version facilities for clinical applications must be implemented. It should have the ability to import MR /CT DICOM Data.It should be compatible with modern Linear Accelerator, Brachytherapy, Treatment Planning system & CT simulator.

xiii. Provision to make DICOM/ PDF/ JPEG /AVI /MPEG digital output.

xiv. On site remote service diagnostic facility with Wi-Fi enabled Gigabit broadband internet connection

xv. All future software upgrades including associated hardware during warranty and CMC period shall be free of cost.

7. Peripherals / Accessories:

i. A 3 phase input/output UPS (≥ 160 KVA) with maintenance free batteries (Exide, Amron, Base, Yuasa) for the complete system including CT with minimum 30 min. backup at full load should be provided.

ii. Latest dual head pressure injector compatible with CT and 200 sets of 200 ml disposable CT syringes with tubing and connector, per year during the warranty and CMC period

iii. ECG gating device & necessary electronics to enable gated cardiac acquisition with ECG print out facility

iv. Machine specific source for calibration of the system to be replaced as and when required for the period of warranty and CAMC.

v. Required Phantoms for CT & PET Quality Assurance and system calibration

vi. One Scatter Phantom for PET (as per NEMA specifications)

vii. One Sensitivity Phantom for PET (as per NEMA specifications)

viii. 40 Terabyte image archiving system capable of maintaining database of patient studies. It should be possible to view and compare / report multiple studies simultaneously.

ix. High resolution table top dry chemistry type DICOM laser film processor for x-ray films with minimum 100 packets of films of required size

x. High resolution color laser printer (commercial) for color hardcopy on A-3 paper with 5 sets of all cartridges per year during warranty and CMC period

xi. 200 reams of A-3 sized glossy paper of 150 GSM also need to be supplied

xii. Two latest specifications PCs having licensed windows & MS office & antivirus and a laserjet printer for patient reports and data maintenance

xiii. One side by side door refrigerator of minimum 500 L capacity

xiv. One dose calibrator (Capintec – CRC 25 PET)

xv. One shielded L-bench for F-18 handling

xvi. One decay drum for PET radionuclides

xvii. Three waste bins with minimum 12 mm lead for PET radiopharmaceutical waste

xviii. One dose drawing module for F-18 FDG

xix. 40 lead bricks and 8 lead corners for F-18 handling

xx. Two light weight (imported) lead lined aprons

xxi. Two mobile lead barriers/screens

xxii. Four Tungsten syringe holders of 2 sizes (Two 2 ml and two 5 ml)

xxiii. Tungsten syringe shields – Five of 2 ml and Two of 10 ml

xxiv. Five Digital Pocket Dosimeters (Rad-60R by Rados Technology)

xxv. One Central Radiation Exposure Monitoring System along with three Area (Gamma Zone) Monitors to be installed at different places

***xxvi. One Decontamination kit (*Biodex, Capintec)**

xxvii. Two long handled tongs

xxviii. Five Syringe Needle Destroyers

xxix. Two electrical digital weighing balances for human use for at least 200 kg

xxx. One stainless steel side trolley with lockable storage provision in the PET/CT room for intervention procedures.

xxxi. One crash cart trolley

xxxii. Mobile anaesthesia equipment cart with all accessories as required for pediatric anesthesia

xxxiii. Two Glucometers with 50 packs of blood glucose test strips

xxxiv. One side-by-side door refrigerator (minimum 500L)

xxxv. One light weight IV stand

xxxvi. One collapsible wheelchair with rubberized swivel wheels

xxxvii. Two X-ray LCD illuminators for minimum 2 films view

xxxviii. One two-step stool with hand support for patients, near the acquisition table

xxxix. CCTV system for remote monitoring of post-injection patient waiting area

xxxx. Dehumidifier of approved make to be installed in the instrument room, and to be able to provide humidity control as specified by the manufacturer of the dual head SPECT-CT machine.

8.Others

i. The supplier shall be required to undertake all the site preparatory work in the area where the PET/CT will be installed, as per the turnkey details.

ii. Equipment is to be installed as per AERB requirements. Qualified personnel from the company should install and commission the scanner.

iii. Appropriate sized lead glass in the acquisition terminal room, if required

iv. **Warranty:** The complete system should have a guarantee / warranty including the radioactive reference source, crystals, detectors and CT x-ray tubes replacement for a period of **FIVE years** after the satisfactory commissioning and handing over of the equipment.

v. **CMC**: Comprehensive maintenance contract for whole system including CT x-ray tube replacement as and when required and accessories for a period of **FIVE** years after the expiry of warranty period.

vi. 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 and maintenance of all third party items will be the sole responsibility of primary vendor. Replacement / Replenishment of the coolant for gantry will also form the part of warranty as well as CMC

vii. At least 95% uptime should be maintained during warranty as well as CMC period. Other rules as per tender conditions.

viii. After sale service to be available locally in Kolkata with availability of an onsite engineer.

ix. Onsite training by trained engineers and application specialists (both, PET and CT applications) working in good PET centers abroad to physicians and technologist for at least 4 weeks period, in two shifts.

x. The acceptance of the installation shall be subject to satisfactory handing over of the system to the department and certificate to this effect will be issued by the institute. Warranty of equipment will start from the date of receiving the License from AERB.

xi. **Penalty clause:** Penalty at the rate of RS.15,000/ per day for short falling of 95% uptime guarantee. If the machine lies non-functional for a period of more than two weeks continuously, the same penalty will be imposed even if 95% uptime clause is met with for the given calendar year.

xii. **Uptime guarantee:** During warranty and the CMC period, the uptime of the system shall be at least 95% of the 365 days in a year. If downtime exceeds 5%, there shall be a penalty of Rs.15,000 / per day.

xiii. **Calculation of uptime**

The machine shall remain in working condition/fully functional for minimum 347days (being 95% of 365 days) during the year. For leap year, the machine shall remain in working condition/fully functional for minimum 348 days (being 95% of 366 days) during the year. Sunday and other holidays as per the institute policy would be counted calculation of uptime, if the machine was in working condition/fully functional on both days i.e the day preceding Sunday/holiday and the day succeeding Sunday/holiday. Further, routine maintenance as per scheduled agreed by user would be counted towards calculation of uptime. In case downtime is more than 5 hours on any particular day during normal working hours of the institute the same day would not count towards uptime calculation.

xiv. **Calculation of down time**

Down time calculation would start from the reporting of the down time by the representative of the institute by agreed mode of communication i.e. telephonic communication or email or as per the data of the remote access of the machine(s) by supplier, if any, whichever is earlier.

The down time would be calculated by deducing total uptime period as defined above from total days of the respective year. Year for the calculation of Uptime/downtime as the case may be would be considered from 01st January to 31st December of the respective year. For purpose of the downtime calculation breakdown of the machine shall be calculated as under. If no imaging is possible then its complete breakdown. If only some functions of the machine are not working in that case it shall be considered as partial breakdown equivalent to 50% of the complete breakdown for calculation purposes.

Specifications and Scope for the Turnkey Work for PET/CT

General

i. The supplier shall be required to undertake all the site preparatory work in the area where the PET/CT will be installed. This would include planning, designing and execution of all the works pertaining to Civil, Electrical, Public health and Air Conditioning.

ii. The site in the PET/CT instrument area should be inspected by the vendor and certified that it is satisfactory for installation of the equipment.

iii. The scope of turnkey work should be discussed with department and the engineering section of the institute and may be modified as per local needs at the site.

iv. The vendor can suggest minor modifications/changes for improving the function of the PET Centre in consultation with user.

Broad outlines of the turnkey work are as following:

A. Civil & Plumbing Work

1) Need based changes to be made in the room where new PET/CT scanner will be installed. While designing the area, the existing room should be retained wherever possible and only unavoidable changes should be made.
2) The flooring of the rooms shall be of matt finished vitrified tiles of 60 x 60 cm size of reputed approved make.
3) False ceiling in the PET/CT room should be with 2’ x 2’ metal grid ceiling with GI cradling work.
4) Water proofing of the whole roof by Brick Bat COBA. Water proofing treatment of the mother slab should also be done with tapecreate (CICO) chemical and 12 mm thick cement plaster protecting layer.
5) All the doors should be provided with necessary fittings with hydraulic type door closures as per GOI approved makes (Dorma/ Godrej / Kich).
6) The walls should be finished with non toxic acrylic/plastic emulsion.
7) Anti-termite treatment of entire PET-CT instrument area
8) Plumbing work has to be carried out as per site requirement. The waste pipes and accessories should be of centrifugally cast iron of ISI mark and the connection of existing main hole in the public health shafts shall be done. All fitting, water pipes and grating shall be as per GOI approved make.
9) One water cooler and RO based water purifier to provide drinking water

10) Any other need based changes to be carried out by the vendor which should be discussed with the department.

B. Electrical Work

The electrical work shall include the following:

1) Supply and installation of electrical distribution panel to the PET/CT System, Air-Conditioning Equipment. Panel should be equipped with adequate capacity of switchgear for incoming and outgoing power supply and suitable for existing and standby power supply transformer and should be as per specifications of the institute.
2) Double earthing with copper plate for the main equipment and the air-conditioning equipment, with use of earth leakage circuit breaker, as per ISI specifications.
3) General lights to be fixed should be of energy efficient (LED) mirror optic reflector type of GOI approved make. All the switches/switch gears/wires/fittings should be as per GOI approved make
4) Music and Public Address System need to be installed

C. Air Conditioning

The scope comprises the Supply, Installation, Testing and Commissioning of Energy Efficient VRV System of Blue Star / Hitachi / Trane / Carrier make.

1) Air cooled Variable Refrigerant flow Units having 100% inverter type IVRFB outdoor unit having capacity 84 H.P (28 HP x 3 nos.) and multiple indoor units.
2) The temperature range in the PET scanner rooms should be between 22 ± 2 degree Celsius. The variation in temperature should not exceed one degree Celsius per hour.
3) The indoor units on any circuit can be of different type and also controlled individually. Compressor installed in each modular outdoor unit shall be equipped with Scroll / Rotary (100 % invertor).
4) Outdoor unit shall be suitable for mix match connection of all type of indoor units.
5) The refrigerant circuit shall include liquid & gas shut-off valves and a solenoid valves and an accumulator is the system demands. The refrigerant should be R410a Only.

Variety of Indoor Units should be as under: -

6) Indoor units shall be either ceiling mounted cassette type, ceiling mounted Ductable type, wall mounted type, Package type etc. which shall be decided at the time of execution each unit shall have electronic control valve to control refrigerant flow rate in response to load variations of the rooms

7) The ceiling mounted type units shall include pre-filter, fan section and DX-coil section. The housing of the unit shall be powder coated galvanized steel.
8) Ceiling Mounted Ductable Type units shall be suitable for ceiling mounted type. The unit shall include pre filter, fan section & DX coil section.
9) Ceiling Suspended type unit shall be suitable for ceiling suspended arrangement below false ceiling. The unit includes pre filter, fan section & DX coil section.
10) A multifunctional compact centralized controller shall be provided with the system. It shall be able to control the Starting/stopping of Air- conditioners as a zone or group or individual unit. Temperature setting for each indoor unit or zone.
11) All refrigerant piping for the air conditioning system shall be constructed from soft seamless up to 19.1mm and hard drawn copper refrigerant pipes for above 19.1mm with copper fittings and silver-soldered joints. All joints in copper piping shall be sweat joints using low temperature brazing and or silver solder. The suction line pipe size and the liquid line pipe size shall be selected according to the manufacturers specified outside diameter. All refrigerant pipes shall be properly supported with cable trays of suitable size and anchored to the building structure using steel hangers, anchors, brackets and supports.

    Pipe Insulation on liquid and suction refrigerant lines including all fittings, valves and strainer bodies, etc. shall be insulated with 13 mm thick Elastomeric Nitrile rubber Class 'O'.

Package AC Units:

12) Supply, Installation, Testing & commissioning of packaged Air conditioning units having Capacity- 8.75 TR x 2 nos. (Non VRF) (Air cooled) with Scroll compressors, statically dynamically balanced centrifugal blower having nominal air flow with eco friendly R407C/410a Refrigerant and Inbuilt safety devices for compressor protection like thermal protector, Internal pressure, cutout enclosure etc shall be equipped with synthetic filters of following capacity complete with ducting work, Grill works, Insulation work and providing & fixing Electrical Panel along with cables etc. complete in all respect (make - Blue Star / Hitachi / Trane / Carrier).
13) An electrical cable, if required from / to the air-conditioning panel will be supplied and fixed by the vendor
14) The outlet drainage pipes from the air-conditioning units should be connected to the drainage ducts outside the building. If required, floor traps/manholes should be provided to collect the condensed water and connected with the drainage system of the Institute.
15) Proper Ventilation in electrical, UPS rooms, Toilets
16) Five digital temperature and humidity control reader to be provided

17) Warranty: 5 Years and CMC of 5 Years after the expiry of warrant period, as a part of the main PET/CT equipment

D. Furniture

1) Control console and computer platform should include Tables with Keyboard drawers as per the requirement
2) Adequate (3 chairs each) of waiting chairs should be provided in the waiting area.
3) Twelve plastic moulded cushioned chairs
4) Four revolving type chairs on castor of reputed make
5) One office table, One four drawer book cases
6) Lead Glass of required size should be fixed in the console room window, if required
7) Proper signage for each room including main signage board near entrance

E Defect Liability

All the works to be executed under turnkey (including civil, electrical, public health, fire fighting, HVAC etc.) shall be guaranteed for a period of five years from the date of commissioning against any defective material/workmanship. All the repairs/replacements/ maintenance during the defect liability period shall be carried out by the vendor.

F. Price Guarantee

The supplier shall also give a commitment that the price quoted for the equipment in the tender is the minimum price quoted to any institution in the country for similar terms & conditions; whether Government, semi-Government, autonomous or non-Government; in the recent times (preceding six months) and shall remain so for at least the next six months subject to variations in the foreign exchange rates, if applicable.

SECTION-VII

TECHNICAL SPECIFICATIONS
GENERAL TECHNICAL SPECIFICATIONS

GENERAL POINTS:

1. Warranty:

   a) **Five year Comprehensive site warranty** from the date of satisfactory installation, commissioning, trial run & handing over of equipment to Hospital/Institution/Medical College.
   b) 98% up time Warranty of complete equipment with extension of Warranty period by double the downtime period on 24 (hrs) X 7 (days) X 365 (days) basis.
   c) All software updates should be provided free of cost during Warranty period.

2. After Sales Service:

   After sales service centre should be available at the city of Hospital/Institution/Medical College on 24 (hrs) X 7 (days) X 365 (days) basis. Complaints should be attended properly, maximum within 8 hrs. The service should be provided directly by Tenderer/Indian Agent. Undertaking by the Principals that the spares for the equipment shall be available for at least 10 years from the date of supply.

3. Training:

   On Site training to Doctors/ Technicians/ staff is to be provided by Principal/ Indian Agents (if they have the requisite know-how) for operation and maintenance of the equipment to the satisfaction of the consignee.

4. Annual Comprehensive Maintenance Contract () of subject equipment with Turnkey:

   a) The cost of Comprehensive Maintenance Contract (CMC) which includes preventive maintenance including testing & calibration as per technical/ service /operational manual of the manufacturer, labour and spares, after satisfactory completion of Warranty period may be quoted for next **5 years** on yearly basis for complete equipment (including X ray tubes, Helium for MRI, Batteries for UPS, other vacuumatic parts wherever applicable) and Turnkey (if any). The supplier shall visit each consignee site as recommended in the manufacturer's technical/ service /operational manual, **but at least once in six months during the CMC period.**
   b) The cost of CMC may be quoted along with taxes applicable on the date of Tender Opening. The taxes to be paid extra, to be specifically stated. In the absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
   c) Cost of CMC will be added for Ranking/Evaluation purpose.
   d) The payment of CMC will be made on six monthly basis after satisfactory completion of said period, duly certified by end user on receipt of bank guarantee for 2.5 % of the cost of the equipment as per Section XV valid till 2 months after expiry of entire CMC period.
   e) There will be 98% uptime warranty during CMC period on 24 (hrs) X 7 (days) X 365 (days) basis, with penalty, to extend CMC period by double the downtime period. For major equipment the penalty will be as under:
      i) Liner Accelerator -Rs. 25,000/- per day, 8 hours working basis.
      ii) Brachytherapy –Rs. 10,000/- per day, (8 hours working basis).
      iii) CT Simulator –Rs. 10,000/- per day, (8 hours working basis).
      iv) CT Scan, Gamma Camera –Rs. 10,000/- per day, (8 hours working basis).
      v) MRI, PET –Rs. 15,000/- per day, (8 hours working basis).
      vi) X –ray, MMG –Rs 2,000/- per day, (8 hours working basis).

f) During CMC period, the supplier is required to visit at each consignee's site at least once in **6 months** commencing from the date of the successful completion of warranty period for preventive maintenance of the goods.
g) All software updates should be provided free of cost during CMC.
h) Failure of the above [4. e) to 4. g)] by the supplier, may lead to the forfeiture of the Bank Guarantee for Annual CMC.
i) The payment of CMC will be made as stipulated in GCC Clause 21.

Turnkey:

Turnkey is indicated in the technical specification of the respective items, wherever required. The Tenderer shall examine the existing site where the equipment is to be installed, in consultation with HOD of Hospital/Institution/Medical College concerned. Turnkey details of each Hospital/Institution/Medical College are given at the end of Technical Specification. The Tenderer to quote prices indicating break-up of prices of the Machine and Turnkey Job of each Hospital/Institution/Medical College. **The Turnkey costs may be quoted in Indian Rupee will be added for Ranking Purpose.**

The taxes to be paid extra, to be specifically stated. In the absence of any such stipulation the price will be taken inclusive of such duties and taxes and no claim for the same will be entertained later.

The Turnkey Work should completely comply with AERB requirement, if any.

Note 1: Tenderer's attention is drawn to GIT clause 18 and GIT sub-clause 11.1(c). The tenderer is to provide the required details, information, confirmations, etc. accordingly failing which it's tender is liable to be ignored.

Note 2: General: Bidders are requested to make sure that they should attach the list of equipments for carrying out routine and preventive maintenance wherever asked for and should make sure that Electrical Safety Analyzer / Tester for Medical equipments to periodically check the electrical safety aspects as per BIS Safety Standards IS-13540 which is also equivalent to IEC electrical safety standard IEC-60601 is a part of the equipments. If the Electrical Safety Analyzer/Tester is not available they should provide a commitment to get the equipments checked for electrical safety compliance with Electronic Regional Test Labs / Electronics Test and Development Centres across the country on every preventive maintenance call.

Note 3: OPTIONAL ITEMS: Deleted.

Section – VIII
Quality Control Requirements

(Proforma for equipment and quality control employed by the manufacturer(s)

Tender Reference No.
Date of opening
Time
Name and address of the Tenderer:
Note: All the following details shall relate to the manufacturer(s) for the goods quoted for.

01 Name of the manufacturer
- a. full postal address
- b. full address of the premises
- c. telegraphic address
- d. telex number
- e. telephone number
- f. fax number

02 Plant and machinery details
03 Manufacturing process details
04 Monthly (single shift) production capacity of goods quoted for
- a. normal
- b. maximum

05 Total annual turn-over (value in Rupees)
06 Quality control arrangement details
- a. for incoming materials and bought-out components
- b. for process control
- c. for final product evaluation

07 Test certificate held
- a . type test
- b . BIS/ISO certification
- c . any other

08 Details of staff
- a. technical
- b. b skilled
- c. c unskilled

Signature and seal of the Tenderer

Section – IX
Qualification Criteria

Bidder minimum Qualification:

1. The manufacturer or it's authorized Indian Agent has supplied similar Equipment (i.e. *MRI – MRI, CT Scanner - CT Scanner, Digital Radiography System - Digital Radiography System , Digital mammography - Digital mammography, C ARM – C ARM, Defibrillator - Defibrillator , Multipara Monitor - Multipara Monitor, Anesthesia Workstation - Anesthesia Workstation - , Ventilator - Ventilator, Radiotherapy equipment - Radiotherapy equipment, nuclear medicine - nuclear medicine etc.)* in India during last five years from the date of tender opening. In support of this, copy of latest purchase order & installation report/ service report is to be submitted with performance statement.

2. Tenderer shall submit audited balance sheets for the last three years (2013-14, 2014-15 & 2015-16). Annual Turnover statements should be certified by chartered accountant bearing their membership No.

PROFORMA 'A'

PROFORMA FOR PERFORMANCE STATEMENT

Tender Reference No. : _____
Name and address of the Tenderer : _____

Name and address of the manufacturer : _____

Order placed by (full address of Purchaser/Consignee)	Order number and date	Description and quantity of ordered goods and services	Value of order (Rs.)	Date of completion of Contract		Remarks indicating reasons for delay if any	Have the goods been functioning Satisfactorily (attach documentary proof)**	**Mobile number , name & Email ID of equipment user person**
				As per contract	Actual			
1	2	3	4	5	6	7	8	

We hereby certify that if at any time, information furnished by us is proved to be false or incorrect, we are liable for any action as deemed fit by the purchaser in addition to forfeiture of the earnest money.

Signature and seal of the Tenderer

Note:

1. **The purchase order mentioned in the above format only will be consider for evaluation.**
2. **The purchase order shall be in accordance to section –IX in order to qualify the qualification criteria.**
3. **The original copy of latest purchaser order along with End user performance certificate / installation certificate is to be colour scan and upload accordingly.**
4. **Bidder shall provide Mobile number, email ID & name of person who has issue this End user performance certificate / installation certificate in order verify the authenticity of the same, failing which unable to verify the same from end-user and entire responsibility shall rest on bidder.**

Section – X

TENDER FORM

Date_____

To,

Director, Chittarranjan National Cancer Institute,
Kolkata

Ref. Your TE document No. _____dated _____
Item no. .....

We, the undersigned have examined the above mentioned TE document, including all amendment/corrigendum issued till opening of bid (*if any*), the receipt of which is hereby confirmed with acceptance of all the terms & conditions of TE document including all amendment/ corrigendum issued till opening of bid. We now offer to supply and deliver_____ *(Description of goods and services)* in conformity with your above referred document for the sum as shown in the price schedules attached herewith and made part of this tender. If our tender is accepted, we undertake to supply the goods and perform the services as mentioned above, in accordance with the delivery, warranty & CMC. We further confirm that, if our tender is accepted, we shall provide you with a performance security of required amount in an acceptable form in terms of GCC clause 5, read with modification, if any, in Section - V – "Special Conditions of Contract", for due performance of the contract. We agree to keep our tender valid for acceptance as required in the GIT clause 20, read with modification, if any in Section - III – "Special Instructions to Tenderers" or for subsequently extended period, if any, agreed to by us. We also accordingly confirm to abide by this tender up to the aforesaid period and this tender may be accepted any time before the expiry of the aforesaid period. We further confirm that, until a formal contract is executed, this tender read with your written acceptance thereof within the aforesaid period shall constitute a binding contract between us. We further understand that you are not bound to accept the lowest or any tender you may receive against your above-referred tender enquiry. We confirm that we do not stand deregistered /banned/blacklisted by any Govt. Authorities. We fully agreed to the all terms and conditions specified in above mentioned TE document, including amendment/ corrigendum issued till opening of bid and withdrawn all conditional terms if anywhere mentioned in the our bid. Whenever there is a conflict, the tender form acceptance shall prevail.

We hereby certify that all information and documents submitted by us in this tender are true to the best of our knowledge and belief and that nothing material has been concealed. We are solely responsible for its accuracy. In case, at any stage, any of the information/ document is found to be false, the Purchaser shall have full right to reject my bid/ cancel the purchase order and / or stop payment / recover the liabilities, if any from our balance payment / performance security etc.

We hereby undertake that the spares for the equipment shall be available for at least 10 years from the date of supply.

Signature:
Name
Designation
Seal :

(On the letter head of the company)

- **TENDER FORM shall be on the letter head of the bidder and should be as per the above format only. The original copy is to be scan & upload.**

SECTION – XI PRICE SCHEDULE

A) PRICE SCHEDULE FOR DOMESTIC GOODS OR GOODS OF FOREIGN ORIGIN LOCATED WITHIN INDIA

Item no. Equipment Model no.

Name of Item Equipment Make

1	2	3	4	5							6
				Price per unit (Rs.)							
Item no.	Name of item	Country of Origin	Quantity (Nos.)	Ex - factory/ Ex -warehouse /Ex-showroom /Off - the shelf	GST/ Sales tax [%age & value]		Packing and Forwarding charges	Inland Transportation, Insurance for a period including 3 months beyond date of delivery, loading/ unloading	Incidental Services (including Installation & Commissioning, Supervision, Demonstration and Training) at the Consignee's site	Unit Price (at Consignee Site) basis (Rs.)	Total Bid Price inclusive of all cost warehouse to Consignee site as per scope of work mentioned in the TE document & inclusive of warranty (Rs.)
					%	Amount					
				(a)	(b)		(c)	(d)	(e)	(f) =a+b+c+d+e	4 x 5(f)

Total Tender price in Rupees:

In words:

Note: -

1. If there is a discrepancy between the unit price and total price THE UNIT PRICE shall prevail.
2. The charges for Annual CMC after warranty shall be quoted separately as per Section – XI – Price Schedule C
3. Bidder shall filled all cost i.e. a.b,c... failing which it will presumed that the same is inclusive in the total price and nothing will be paid on this account extra.

Name of Bidder: M/s

SECTION – XI PRICE SCHEDULE

(B) PRICE SCHEDULE FOR GOODS TO BE IMPORTED FROM ABROAD

Item no. : Equipment Model no. :
Name of Item : Equipment Make

1	2	3	4	5							6	
Item no.	Brief Description of Goods	Country of Origin	Quantity (Nos.)	Price per unit (Currency)							Total bid Price inclusive of all cost warehouse to Consignee site as per scope of work mentioned in the TE document & inclusive of warranty	
				FOB/FCA price at port/ airport of Lading (a)	Carriage & Insurance (port of loading to port of destination) and other Incidental costs (b)	CIP (name place /port of destination in india) **(C) = a+b**	#Full Custom duty amount **(D)**	Custom clearance charges, Loading & unloading at name place/port of entry in India + local transportation and storage to the consignee site + Extended Insurance for a period including 3 months beyond date of delivery** (d)	Incidental Services (including Installation & Commissioning, Supervision, Demonstration and Training) at the Consignee's site ** (e)	**f = d+e**		
				Quote in Foreign Currency Name of Currency:				INR	INR	INR	(C + D) x 4	f x 4

** To be paid in Indian Currency (Rs.)

 # In case Full Custom duty amount not mentioned in the above format by the tenders, it will presumed that the same is inclusive in total price and nothing will be paid extra to the supplier on this account. The custom duty will reimbursed only as per SCC clause no.10

Total Tender price in foreign currency: _____and INR ----------
In words: _____

Note: -

1. If there is a discrepancy between the unit price and total price THE UNIT PRICE shall prevail.
2. The charges for Annual CMC after warranty shall be quoted separately as per Section – XI – Price Schedule C
3. *The Tenderer will be fully responsible for the safe arrival of the goods at destination (consignee site) in good condition as per terms including custom clearance, payment to custom duty to the custom department, insurance etc.*
4. Bidder shall filled all cost i.e. a.b,c... failing which it will presumed that the same is inclusive in the total price and nothing will be paid on this account extra.

Indian Agency Commission - ___% of FOB/FCA

Name of Bidder _____
Address of Bidder _____

Place: _____
Date: _____

SECTION – XI PRICE SCHEDULE

C) PRICE SCHEDULE FOR ANNUAL COMPREHENSIVE MAINTENANCE CONTRACT AFTER WARRANTY PERIOD

1	2	3	4					5	6
Item no	Name of Item	Qty	Annual Comprehensive Maintenance Contract Cost included GST/ Sales tax for each Unit year wise* Rs.					Total Annual Comprehensive Maintenance Contract Cost for each unit for 5 years (Rs.)	Annual Comprehensive Maintenance Contract Cost for 5 Years included GST/ Sales tax (Rs.)
			1st	2nd	3rd	4th	5th		
			a	b	c	d	e	(a+b+c+d+e)	[3 x 5]

As on date GST/Sales tax included in above price @ ------- %

*** After completion of Five Years Warranty**

NOTE:-

1. In case of discrepancy between unit price and total prices, THE UNIT PRICE shall prevail.
2. The cost of Comprehensive Maintenance Contract (CMC) which includes preventive maintenance including testing & calibration as per technical/ service /operational manual, labour and spares, after satisfactory completion of Warranty period may be quoted for next **5 years** on yearly basis for complete equipment and Turnkey (if any).
3. The cost of CMC may be quoted along with taxes applicable on the date of Tender Opening. In the absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
4. Cost of CMC will be added for Ranking/Evaluation purpose.
5. The payment of CMC will be made as per clause GCC clause 21.1 (D).
6. The uptime warranty will be 98 % on 24 (hrs) X 7 (days) X 365 (days) basis or as stated in Technical Specification of the TE document.
7. All software updates should be provided free of cost during CMC period.
8. The stipulations in Technical Specification will supersede above provisions
9. The supplier shall keep sufficient stock of spares required during Annual Comprehensive Maintenance Contract period. In case the spares are required to be imported, it would be the responsibility of the supplier to import and get them custom cleared and pay all necessary duties.
10. Bidder shall mentioned present rate of GST, failing which it will presumed that the same is inclusive in the total price and nothing will be paid on this account extra.

Name of Bidder: M/s

SECTION – XI PRICE SCHEDULE

D) PRICE SCHEDULE FOR TURNKEY

Name of item	Brief of Turnkey works BRIEF	No of Turnkey works	Turnkey cost per unit Rs.	GST/ Sales Tax /service tax		Turnkey price included GST/ Sales Tax Rs.	Total Turnkey cost included GST/ Sales Tax/ Service tax Rs.
				%	Amount Rs.		
		a	**b**		**c**	C= b+c	**C X a**
			₹ 0.00	0.00%	₹ 0.00	₹ 0.00	₹ 0.00

Note: -

1. The cost of Turnkey as per Technical Specification (Section VII) may be quoted on lump sum along with taxes applicable on the date of Tender Opening. In the absence of any such stipulation the price will be taken inclusive of such taxes and no claim for the same will be entertained later.
2. Cost of Turnkey will be added for Ranking/Evaluation purpose.
3. The payment of Turnkey will be made as per clause GCC clause 21.1 (c).
4. The stipulations in Technical Specification will supersede above provisions
5. In case of discrepancy between unit price and total prices, THE UNIT PRICE shall prevail.

Name of Bidder: M/s

Section XI - Price Schedule

E -Price Schedule for Optional items /Spare Parts/ Consumables

Sr no.	Name of item	Name of Part	Qty	Unit cost (Rs.)	GST/ Sales Tax /service tax		Unit cost included GST/ Sales Tax /service tax (Rs.)	Total cost included GST/ Sales Tax /service tax (Rs.)
					%	Amount (Rs.)		
			a	**b**		**c**	C= b+c	**C X a**
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
	Name of Bidder:		M/s					

Note : Bidder shall mentioned present rate of GST, failing which it will presumed that the same is inclusive in the total price and nothing will be paid on this account extra**.**

SECTION – XII

Deleted

SECTION – XIII
BANK GUARANTEE FORM FOR EMD

To,

HSCC
For & on Behalf of Director,
Chittarranjan National Cancer Institute,
Kolkata

IFB No.	BG no. with date
Name of Item	Amount Rs.
Item no.	Validity

Whereas _____ (hereinafter called the "Tenderer") has submitted its quotation dated _____ for the supply of _____ (hereinafter called the "tender") against the purchaser's tender enquiry No. _____ Know all persons by these presents that we _____ of _____ (Hereinafter called the "Bank") having our registered office at _____ are bound unto _____ (hereinafter called the "Purchaser) in the sum of _____ for which* payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this _____ day of _____ 20____. The conditions of this obligation are:

(1) If the Tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.

(2) If the Tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity:-

a) fails or refuses to furnish the performance security for the due performance of the contract.
or
b) fails or refuses to accept/execute the contract.
or
c) if it comes to notice that the information/documents furnished in its tender is incorrect, false, misleading or forged

We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition(s).

This guarantee will remain in force for a period of forty-five days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorised officer of the Bank)

Name and designation of the officer

Seal, name & address of the Bank and address of the Branch

SECTION – XIV
MANUFACTURER'S AUTHORISATION FORM

To,

HSCC
For & on Behalf
Director, Chittarranjan National Cancer Institute,
Kolkata

Dear Sirs,
Ref. Your TE document No _____, dated _____

We, _____ who are proven and reputable manufacturers of_____(*name and description of the goods offered in the tender*) having factories at_____, hereby authorise Messrs_____(*name and address of the agent*) to submit a tender, process the same further and enter into a contract with you against your requirement as contained in the above referred TE documents for the above goods manufactured by us.
We further confirm that no supplier or firm or individual other than Messrs. _____ (*name and address of the above agent*) is authorised to submit a tender, process the same further and enter into a contract with you against your requirement as contained in the above referred TE documents for the above goods manufactured by us.
We also hereby extend our full warranty, CMC as applicable as per clause 15 of the General Conditions of Contract, read with modification, if any, in the Special Conditions of Contract for the goods and services offered for supply by the above firm against this TE document.

Yours faithfully,

[*Signature with date, name and designation*]
for and on behalf of Messrs_____

[*Name & address of the manufacturers*]

Note: 1. This letter of authorisation should be on the letter head of the manufacturing firm and should be signed by a person competent and having the power of attorney to legally bind the manufacturer.
2. Original letter may be sent.

Note:

- **This FORM shall be on the letter head of the manufacturing firm and duly signed and stamped by competent authority and it should be as per the above format only. The original copy is to be colour scan & upload accordingly.**
- **If bidder is self manufacturer than they will filled this form as a self manufacturer.**
- **If bidder is not self manufacturer, they get this FORM from manufacturer and submit accordingly.**
- **Official Email ID of manufacturer form issuing authority shall be provided by the bidder.**

SECTION – XV

BANK GUARANTEE FORM FOR PERFORMANCE SECURITY/ CMC SECURITY

To

Director, Chittarranjan National Cancer Institute,
Kolkata

WHEREAS _____ (Name and address of the supplier) (Hereinafter called "the supplier") has undertaken, in pursuance of contract no_____ dated _____ to supply (description of goods and services) (herein after called "the contract").

AND WHEREAS it has been stipulated by you in the said contract that the supplier shall furnish you with a bank guarantee by a scheduled commercial bank recognised by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of. _____ (Amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

.....
(Signature with date of the authorised officer of the Bank)
.....
Name and designation of the officer
.....
.....
Seal, name & address of the Bank and address of the Branch

SECTION – XVI
CONTRACT FORM - A

Deleted

SECTION – XVI
CONTRACT FORM – B
CONTRACT FORM FOR ANNUAL COMPREHENSIVE MAINTENANCE CONTRACT

Annual CM Contract No._____ **dated**_____

Between

(Address of Head of Hospital/Institute/Medical College)

And

(Name & Address of the Supplier)

Ref: Contract No_____ **dated**_____ **(Contract No. & date of Contract for supply, installation, commissioning, handing over, Trial run, Training of operators & warranty of goods)**

In continuation to the above referred contract

2. The Contract of Annual Comprehensive Maintenance is hereby concluded as under: -

1	2	3	4					5
Sr no.	Name of Equipment	Qty (Nos	Annual Comprehensive Maintenance Contract Cost for Each Unit year wise*. In INR					Total Annual Comprehensive Maintenance Contract Cost for 5 Years [3 x (a+b+c+d+e)
			1st	2nd	3rd	4th	5th	In INR
			a	b	c	d	e	

Total value (in figure) _____ (In words) _____

b) The CMC commence from the date of expiry of all obligations under Warranty i.e. from_____ (date of expiry of Warranty) and will expire on _____ (date of expiry of CMC)

c) The cost of Annual Comprehensive Maintenance Contract (CMC) which includes preventive maintenance, labour and spares, after satisfactory completion of Warranty period may be quoted for **next 5 years as** contained in the above referred contract on yearly basis for complete equipment (including X ray tubes, Helium for MRI, Batteries for UPS, other vacuumatic parts, _____ & _____) and Turnkey (if any).

d) There will be 98% uptime warranty during CMC period on 24 (hrs) X 7 (days) X 365 (days) basis, with penalty, to extend CMC period by double the downtime period.

e) During CMC period, the supplier shall visit at each consignee's site for preventive maintenance including testing and calibration as per the manufacturer's service/ technical/ operational manual. The supplier shall visit each consignee site as recommended in the manufacturer's manual, but at least once in 6 months commencing from the date of the successful completion of warranty period for preventive maintenance of the goods.

f) All software updates should be provided free of cost during CMC.

g) The bank guarantee valid till _____ [(fill the date) 2 months after expiry of entire CMC period] for an amount of Rs. _____ [(fill amount) equivalent to 2.5 % of the cost of the equipment as per contract] shall be furnished in the prescribed format given in Section XV of the TE document, along with the signed copy of Annual CMC within a period of 21 (twenty one) days of issue of Annual CMC failing which the proceeds of Performance Security shall be payable to the Purchaser/Consignee.

h) If there is any lapse in the performance of the CMC as per contract, the proceeds Annual CMC bank guarantee for an amount of Rs. _____ (equivalent to 2.5 % of the cost of the equipment as per contract) shall be payable to the Consignee.

i) **Payment terms:** The payment of Annual CMC will be made against the bills raised to the consignee by the supplier on six monthly basis after satisfactory completion of said period, duly certified by the HOD concerned. The payment will be made in Indian Rupees.

j) **Paying authority:** _____ (name of the consignee i.e. Hospital/ Institute /Medical College's authorised official)

_____

(Signature, name and address of Hospital/Institute/Medical College's authorised official)
For and on behalf of_____

Received and accepted this contract

(Signature, name and address of the supplier's executive duly authorised to sign on behalf of the supplier)
For and on behalf of _____
(Name and address of the supplier)

(Seal of the supplier)
Date: _____
Place: _____

SECTION – XVII

DELIVERY /CONSIGNEE RECEIPT CERTIFICATE

(To be given by consignee's /HSCC site representative)

The following store (s) has/have been delivered at CNCI- Kolkata –Campus –II:-

1) Contract No. & date :_____

2) Supplier's Name :_____

3) Name of the item supplied :_____

4) Quantity Supplied :_____

5) Date of goods deliver at CNCI –Kolkata :----------

6) Date of goods takeover by Consignee/HSCC :_____

7) Signature of Consignee /HSCC :_____

8) Seal of the Consignee/HSCC :_____

SECTION – XVIII

Final Acceptance Certificate [Installation, commissioning & Handing over]

(To be given by consignee's authorized representative)

The following store (s) has/have been installed & commissioned in good working satisfactory condition:

1. Contract No. & date :
2. Supplier's Name :
3. Consignee's Name & Address :
4. Name of the item supplied :
5. Installed Commissioned completion date :
6. Name CNCI -Kolkata Representative :
7. Signature of CNCI -Kolkata Representative :
8. Seal of the Consignee

Section – XXII

BID SUMMARY SHEET

A. If EMD/bid security in the form of Bank Guarantee:

Item no.	BG no.	Date	Amount Rs.	Name of Bank	BG Validity
15	XXXX	XX.XX.2014	XXXX	State Bank of India	XX.XX.2015

- **Name of Bank Manager who has issued BG : Ram Singh**
- **Mobile number of Bank Manager : 1234567890**
- **Email ID of Bank Manager : ram@sbi.com**

Sr. Item no	Quoted qty.	Name of Bidder	Name with full Address of Manufacture	Model no.
15	5	Rama	Sterling	124D

Signature:
Name:
Designation
Seal:

Note: Bidder Summary sheet shall be filled in all respect.

Section – XXIII

Power of Attorney

IFB No.

I ----------, *Sole Proprietor' of M/s* ----------, *or Board of Director of M/s* ---------- hereby authorised *Sh.* ----------, ---------- to sign all tender documents, participate in negotiations, make correspondence and sign all documents to the client and government statutory bodies for approval take decisions.

He hereby authorized to sign and execute the agreement etc. for the works and all other documents relating to the works awarded or being executed by *M/s* ----------

Signature of *Sh.* ----------, ----------is attested below.

Sh. ----------

Sole Proprietor/ Board of Director
Sealed

Designation

- **Power of attorney is to be signed by competent authority i.e. Sole Proprietor of the firm or Board of Director of the company.**
- **The original document duly signed and stamped is to be scan & upload.**

Section – XXIV

Bidder Information

Bidder correspondence Address :

Bidder correspondence Email ID :

Bidder contact number :

Bidder contact person :

Manufacture correspondence address :

Manufacture correspondence Email ID :
(who issued Manufacture authorisation form)

Manufacture contact number :

Signature:

Name:

Designation

Seal:

Note: All above information are mandatory.

SECTION – XIX
AFFIDAVIT/UNDERTAKING

IFB No.

We have read and understood the all instructions and all terms and conditions contained in the TE document.

We are fully agree all the terms and conditions of TE document including SIT, SCC, amendment/ corrigendum, technical specification issued till opening of bid. In case, anywhere any conditional terms found in our bid, the same shall be treated as deleted/cancelled/ withdrawn from our bid. Whenever there is a conflict, the acceptance of all terms and conditions of TE document in the tender form/ bid form / affidavit shall prevail only.

We (manufacturer and /or manufacturer authorised agent) shall jointly and severally liable to perform all contractual obligations under the agreement.

We (manufacturer and /or manufacturer authorised agent) confirm that we do not stand deregistered/ banned/ blacklisted/ debarred by any Govt. Authorities in India.

We hereby confirm and certify that the prices offered by us in this tender is not higher than the prices we had offered to any other Govt. of India Organisation(s)/PSU(s) during the last one year and shall provide the justification for reasonableness of our offered price whenever asked during evaluation of our submitted bid.

We hereby certify that all information and documents submitted in this tender are true to the best of our knowledge and belief and that nothing material has been concealed/ misrepresented. We are solely responsible for its accuracy.

In case, at any stage, any of the information/ document is found to be false/ misrepresentation, we (manufacturer and /or manufacture authorised agent) shall be fully liable and the purchaser/HSCC shall have full right to reject my bid/ cancel the purchase order and / or stop payment / recover the liabilities/ loss if any, from our balance payment /EMD/ performance security etc. We are liable for any action as deemed fit by the purchaser/HSCC in addition to forfeiture of the earnest money/ performance security.

We are fully agreed all the terms and conditions of TE document including amendment/ corrigendum /technical specification issued till opening of bid. In case, anywhere any conditional terms found in our bid, the same shall be treated as deleted/cancelled/ withdrawn from our bid. Whenever there is a conflict, the acceptance of all terms and conditions of TE document in the tender form/ bid form / affidavit shall prevail only.

Signature:
Name:
Designation

Seal:

Note:

- **Original copy of Affidavit is to be submitted as instructed in the tender. The original document duly signed and stamped is to be scan & upload**
- **To be submitted on non-judicial stamp paper of Rs. 10/- duly certified by Public Notary**

Section – XXI
Consignee List

Consignee Code	Medical Institutions	Contact Address.
	Director, Chittarranjan National Cancer Institute, Kolkata	**Director, Chittarranjan National Cancer Institute(CNCI, Campus –II), 37, S.P. Mukherjee Road Kolkata -700026**