BIDDING DOCUMENT

(Two Bid System for Machinery & Equipment)

FOR

NATIONAL CANCER INSTITUTE
ALL INDIA INSTITUTE OF MEDICAL SCIENCES
(JHAJJAR CAMPUS)

HLL INFRA TECH SERVICES LTD

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INDEX

SECTION -I

NOTICE INVITING BIDS (NIB)

ALL INDIA INSTITUTE OF MEDICAL SCIENCES
Ansari Nagar, New Delhi-110 029

NOTICE INVITING BIDS (GLOBAL)

NIB Ref: HITES/PCD/NCI-AIIMS/04/17-18 **Dated: 25.09.2017**

Procurement & Consultancy Services Division of **HLL INFRA TECH SERVICES LIMITED** (a fully owned subsidiary of HLL Lifecare Ltd., a Govt. of India Enterprise) for and on behalf of **Director, AIIMS - New Delhi,** invites e-tenders in two bid system (technical and price bid) from the reputed, eligible & qualified firms/ manufacturers for purchase/supply of following goods at **National Cancer Institute Jhajjar, Haryana (AIIMS, New Delhi-29)**.

Sl. no.	Rfx no.	Short Description of goods	Quantity	Bid Security (BS) (Rs.)	Tender Processing Fee incl. GST (Rs.)
1	3000002258	State of Art Linear Accelerator	2	80,00,000	5,900
2	3000002259	HDR Brachytherapy System	1	10,00,000	3,540
3	3000002260	4D CT - Simulator	1	12,00,000	5,900
4	3000002261	Radiotherapy Dosimetry Equipment	1	9,00,000	3,540

	Venue for pre-bid meeting	**Sr. no. of item**	**Date & Time of pre-bid meeting**
Pre-bid conference meeting with prospective bidders	Committee Room (No. 149), 1st Floor, Dr. BRAIRCH Building AIIMS, New Delhi-29.	Item no. 01 to 04	10.10.2017 at 11:00 AM

Last date and time of tender downloading	07.11.2017 at 6:00 PM
Last date and time of online submission of tender	08.11.2017 at 12:00 Noon
Last date and time of physical submission of EMD, Tender processing Fee, any other document specified in the Bidding Document	08.11.2017 at 2:00 PM
Date of tender Opening	08.11.2017 at 2:30 PM
Contact Person	Project Officer - DVP(PCD), HITES Email: hll.ncij@hllhites.com

2. Interested bidders are advised to download the complete Tender Enquiry document from the websites www.hllhites.com or www.lifecarehll.com or www.eprocure.gov.in/cppp or https://etender.lifecarehll.com/irj/portal for complete details.

3. The prospective bidders have to register with the E-procurement system of HLL at https://etender.lifecarehll.com/irj/portal. On completion of the registration process, the bidders will be provided user ID and password within 48 hours (excluding non-working days). In order to submit the bids electronically, bidders are required to have a valid Class 3-B Digital Signature Certificate (signing and encryption/ decryption certificates).

4. Bidders are requested to read the bidders help document on e-tender web site link before proceeding for bidding.

5. Post receipt of User ID & Password, Bidders can log on for downloading & uploading tender document.

6. The bidders shall submit the required Tender Processing Fee (in form of Demand Draft or Banker's Cheque) and EMD (as per GIT clause no. 19.3) in physical form in favour of **'HLL Infra Tech Services Limited**' at the scheduled time and venue. Tender processing Fee is required from all the bidders irrespective of their registration with NSIC or any other Govt. organisation.

7. The online submission of tender(s) can only be done through https://etender.lifecarehll.com/irj/portal

8. All prospective bidders (maximum two representative of a firm bearing ID proof issued by their firm) may attend the Pre-bid conference meeting. The venue, date and time indicated above.

9. Bidders shall ensure that their tender(s), complete in all respects, are submitted online through HLL's e-portal (as described above**) ONLY. No DEVIATION is acceptable.**

10. Tender Processing Fee and Bid Security (BS) in original should be deposited within the scheduled date & time in the Tender Box located at: **HLL Infra Tech Services Limited, Procurement and Consultancy Services Division, B-14 A, Sector-62, Noida-201307, Uttar Pradesh.**

11. Prospective bidders are advised to browse the above websites regularly before submission of their bids as any further amendments will be published in these websites only.

CEO (HITES)

SECTION - II

GENERAL INSTRUCTIONS TO BIDDERS (GIB)
CONTENTS

GENERAL INSTRUCTIONS TO BIDDERS (GIB)

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 means HLL INFRA TECH SERVICES LIMITED (HITES) for and on behalf of The Director, AIIMS, New Delhi.
ii. "Bid" means Quotation / Tender received from a Firm / Tenderer / Bidder.
iii. "Bidder" means Tenderer/ 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/purchase order.
v. "Goods" means all articles, material, commodity, livestock, furniture, fixtures, raw material, spares, instruments, machinery, equipment, vehicles, medicines, assemblies, sub-assemblies, accessories, intangible products like software, technology transfer, licenses, patents or other intellectual properties purchased or otherwise acquired for the use of Government but excludes books, publications, periodicals, etc. for a library. The term 'goods' also includes works and services which are incidental or consequential to the supply of such goods, such as, transportation, insurance, installation, commissioning, training and maintenance.

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. "Bid Security" (BS) means Earnest Money Deposit / monetary or financial guarantee to be furnished by a bidder along with its tender.
viii. "Contract" means the written agreement entered into between the purchaser 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 bidder for due performance of the contract placed on it. Performance Security is also known as Security Deposit.
x. "Consignee" means the Center/Hospital/Department/Sections /person to whom the goods are required to be delivered as specified in the Contract.
xi. "Specification" also called Technical Specifications 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 mentioned in the contract to determine conformity.
xiii. "Day" means calendar day.

1.3 Abbreviations:

(i) "NIT" means Notice Inviting Tenders.
(ii) "GIB" means General Instructions to Bidders
(iii) "SIT" means Special Instructions to Bidders

(iv) "GCC" means General Conditions of Contract
(v) "SCC" means Special Conditions of Contract
(vi) "LC" means Letter of Credit
(vii) "DP" means Delivery Period
(viii) "BG" means Bank Guarantee
(ix) "GST" means Goods & Service Tax
(x) "CD" means Custom Duty
(xi) "BL" means Bill of Lading
(xii) "FOB" means Free on Board
(xiii) "CIF" means Cost, Insurance and Freight
(xiv) "CIP (Destinations)" means Carriage and Insurance Paid up to named port of destination. 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.
(xv) "INCOTERMS" means International Commercial Terms as on the date of Bid Opening
(xvi) "CAMC" means Comprehensive Annual Maintenance Contract (labour, spare and preventive maintenance)

2. Introduction

2.1 The Purchaser has issued these Bidding 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 Instructions to Bidders") provides the relevant information as well as instructions to assist the prospective bidders in preparation and submission of bids. It also includes the mode and procedure to be adopted by the bidder for receipt and opening as well as scrutiny and evaluation of bids and subsequent placement of contract.

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

2.4 Before formulating the bid and submitting the same to the purchaser, the bidder should read and examine all the terms, conditions, instructions, checklist etc. contained in the Bidding Document. Failure to provide and/or comply with the required information, instructions etc. incorporated in these Bidding Documents may result in rejection of its Bid.

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 Bid

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

5. Eligible Bidders

5.1 This Invitation for Tenders is open to all bidder 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. Bid Expense

7.1 The bidder shall bear all costs and expenditure incurred and/or to be incurred by it in connection with its bid including preparation, mailing and submission of its bid 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 bidding process.

B. TENDER ENQUIRY DOCUMENTS

8. Content of Tender Enquiry Documents

8.1 In addition to Section I – "Notice Inviting Tender" (NIT), the Bidding Documents include:

Section II – General Instructions to Bidders (GIB)
Section III – Special Instructions to Bidders (SIB)
Section IV – General Conditions of Contract (GCC)
Section V – Special Conditions of Contract (SCC)
Section VI – List of Requirements
Section VII – Technical Specifications& General Points
Section VIII – Qualification Criteria
Section IX – Bid Form
Section X – Price Schedules
Section XI - Check List
Section XII – Bank Guarantee Form for Bid Security
Section XIII – Manufacturer's Authorization Form
Section XIV – Bank Guarantee Form for Performance Security/CAMC Security
Section XV – Contract Forms A & B
Section XVI – Proforma of Consignee Receipt Certificate
Section XVII – Proforma of Consignee Acceptance Certificate by the consignee

8.2 The relevant details of the required goods and services, the terms, conditions and procedure for bidding, bid 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 bidders are expected to examine all such details etc to proceed further.

9. Amendments to a Bidding documents

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

9.2 Such an amendment will be notified through AIIMS Website (www.aiims.edu) and/or CPPP (eprocure.gov.in/cppp) and/or www.hllhites.com and/or www.lifecarehll.com and will be binding on them.

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

10. Clarification of Bid document

10.1 A bidder requiring any clarification or elucidation on any issue of the Bidding 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 not later than ten days (unless otherwise specified in the SIB) prior to the prescribed date of submission of Bids.

C. PREPARATION OF BIDS

11. Documents comprising the e-Bid

11.1 The bid(s) shall only be submitted online as mentioned below:

1. Technical Bid (Consisting of Techno-Commercial bids in excel format provided with the tender enquiry along with the supporting documents i.e. scanned copies of Tender Processing Fee, BID SECURITY, Eligibility Criteria & Technical Specifications viz. Product Specification Sheets/Brochures, OEM Certificate, etc.) have to be attached in the C-folder of e-tendering module. Bidders have to ensure that the documents uploaded in pdf format are legible.

2. Price Bid has to be submitted in the prescribed excel format provided with the tender enquiry.

Note:

a. The tender Processing fee and BID SECURITY has to be submitted in physical form as per Section – I, Notice Inviting Tender of this tender enquiry.

b. The bidders have to follow the steps listed in Bidding Manual – Attachment Modem available in the Bidder Help Documents of e-tender portal login screen for uploading the Techno-Commercial Bid.

A) Techno-commercial Bid (Un-priced Bid)

(Bidders shall furnish the following information along with technical tender in pdf format):

i) Bid Security furnished in accordance with GIB clause 19.1 alternatively, documentary evidence as per GIB clause 19.2 for claiming exemption from payment of Bid Security.
ii) Bid Form as per Section IX (without indicating any price).
iii) Documentary evidence, as necessary in terms of clauses 5 and 17 of GIB establishing that the bidder is eligible to submit the bid and, also, qualified to perform the contract if its bid is accepted.
iv) Bidder who quotes for goods manufactured by other manufacturer shall furnish Manufacturer's Authorisation Form. While giving authorization to agent, to quote on their behalf, manufacturer has to give the reasons for not quoting directly against this bid in the Manufacturer's Authorisation Form.

v) Power of Attorney in favor of signatory and/or who is digitally signing the bidding documents and signatory of Manufacturer's Authorization Form.
vi) Documents and relevant details to establish in accordance with GIB clause 18 that the goods and the allied services to be supplied by the bidder conform to the requirement of the bidding documents.
vii) Performance Statement as per section VIII along with relevant copies of orders and end users' satisfaction certificate.
viii) Price Schedule(s) as per Section X filled up with all the details including Make, Model etc. of the goods offered with prices blank (without indicating any prices).
ix) Documents confirming to Sole Proprietorship/Partnership/Private Limited Firm in the country of origin as the case may be.
x) Checklist as per Section XI.
xi) Copies of GST registration certificate and PAN Card.
xii) Copies of annual report, audited balance sheet and profit & loss account as per tender requirement.
xiii) Non conviction /no pending conviction certification issued by Notary on judicial stamp paper for preceding three years.
xiv) Notarized affidavit that bidder does not have any relation with the person authorized to evaluate technically or involve in finalizing the tender or will decide the use of tendered items.
xv) A self-declaration on Rs. 10/- non-judicial Stamp Paper that the rates quoted in the tender are the lowest and not quoted less than this to any Government Institution (State/Central/ other Institute in India).
xvi) Technical and Commercial Compliance statement in excel format provided in the e-tender portal.
xvii) Product catalogues/original Data Sheets for all quoted items.
xviii) Copies of quality certificates, if applicable, namely, BIS, ISO, FDA, CE, etc.

B) Price Tender:

Prices are to be quoted in the prescribed Price Bid format in excel provided along with the tender enquiry in the e-tender portal. The price should be quoted for the accounting unit indicated in the e-tender document.

Note:

a) The bidder has to be diligent while filling up the Techno-commercial Bid and Price Bid provided in excel formats and must not tamper the contents of the sheets.

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

c) The bidders have to follow the steps listed in Bidding Manual – Attachment Mode available in the *Bidder Help Documents of e-tender portal login screen* for uploading the Price Bid.

11.2 The authorized signatory of the bidder must sign the bid duly stamped at appropriate places and initial all the remaining pages of the bid. Individuals signing the bid 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. In case of partnership firm 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 duly registered with "Registrar of Firm's" 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 bid and all other related documents must be signed by every partner of the firm.
3. A person signing the bid 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, liable for rejection of bid or cancel of contract and hold the signatory liable for all cost and damages.

11.3 A bid, 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.

12. Bid Currencies

12.1 The bidder supplying indigenous goods or already imported goods shall quote only in Indian Rupees.

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 after satisfactory supply, installation and acceptance of the goods. The rate of conversion shall be taken as on the date of placement of purchase order.

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

13 Bid Prices

13.1 The Bidder shall indicate on the Price Schedule provided under Section X all the specified components of prices shown therein including the unit prices, applicable taxes and total bid 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 bidder, same should be clarified as "NA" by the bidder.

13.2 If there is more than one schedule in the "List of Requirements", the bidder has the option to submit its bid for any one or more schedules and, also, to offer special discount for combined schedules. However, while quoting for a schedule, the bidder 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 X.

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 packing charges and GST and Custom Duty 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 taxes and duty, which will be payable on the goods in India if the contract is awarded;
c) Charges towards 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 (including installation & commissioning, supervision, demonstration and training), at the consignee site as mentioned in List of Requirements, Technical Specification and Price Schedule;
e) The prices of Turnkey Work (if any), as mentioned in List of Requirements, Technical Specification and Price Schedule; and
f) The price of CAMC, 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 on FOB at port/ FCA at airport of shipment, as mentioned in List of Requirements, Technical Specification and Price Schedule
b) The amount of Freight and Insurance (port of loading to port of entry) and other incidental costs.
c) The price of Incidental Services (including Installation & Commissioning, Supervision, Demonstration and Training) at the Consignee's site as mentioned in List of Requirements, Technical Specification and Price Schedule.
d) The price of Extended Insurance (local transportation and storage) from port of entry to the consignee site for a period including 3 months beyond date of delivery.
e) The Unit Price on CIP Name port of Destination + Extended Insurance (local transportation and storage)
f) The price of total Price on CIP Named port of Destination +Insurance (local transportation on and storage)
g) The prices of Turnkey Work (if any), as mentioned in List of Requirements, Technical Specification and Price Schedule; and
h) The price of CAMC, as mentioned in List of Requirements, Technical Specification and Price Schedule.

13.5 Additional information and instruction on Taxes and Duties:

13.5.1 **GST (Goods & Services Tax)**

If the bidder desires to ask for GST (goods and services 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 GST and no claim for the same will be entertained later.

13.5.2 **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 Bidding Document, the terms FCA, FOB, CIF, CIP etc. for imported goods offered from abroad, shall be governed by the rules & regulations prescribed in the current edition of INCOTERMS - 2010, published by the International Chamber of Commerce, Paris

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

14. Indian Agent

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

a) The complete name and address of the Indian Agent.
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 CAMC period.

15. Firm Price

15.1 Unless otherwise specified in the SIB, prices quoted by the bidder 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 GIB clause 13 will apply.

16. Alternative Models

16.1 Alternative Models are permitted. The Bidder can quote alternate models meeting the specifications of the bidding document of same manufacturer with single Bid Security.

16.2 If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same ATE for the same item/product. In a bid, either the Indian Agent on behalf of the Principal/OEM or

Principal/OEM itself can bid but both cannot bid simultaneously for the same models in the same ATE.

16.3 One Principal/OEM cannot authorize two agents simultaneously for the same item against same ATE.

17 Documents Establishing Bidder's Eligibility and Qualifications

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

17.2 The documentary evidence needed to establish the bidder's qualifications shall fulfill the following requirements:

a) In case the bidder offers to supply goods, which are manufactured by some other firm, the bidder has been duly authorised by the goods manufacturer to quote for and supply the goods to the purchaser. The bidder shall submit the manufacturer's authorization letter to this effect as per the standard form provided under Section XIII in this document.
b) In case the bidder 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 Bidding Document.

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

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

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

19. Bid Security (BS)

19.1 Pursuant to GIB clauses 8.1 and 11.1 A (i) the bidder shall furnish along with its bid, Bid Security for amount as shown in the Notice Inviting Bids (NIB). The Bid Security is required to protect the purchaser against the risk of the bidder's unwarranted conduct as amplified under sub-clause 19.7 below.

19.2 The bidders who are currently registered with MSME for the specific goods as per bidding document specification shall be eligible for exemption from Bid Security as defined in MSE Procurement Policy issued by the department of MSME. In case the bidder falls in this category, the bidder shall enclose relevant certificate of registration issued by department of MSME.

19.3 The Bid Security shall be denominated in Indian Rupees or equivalent currencies as per GIB clause 12.2. The Bid Security shall be furnished in one of the following forms:

i) Account Payee Demand Draft/ Banker's cheque
ii) Fixed Deposit Receipt
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 bidder, in favour of the "……."(as indicated in the NIB) payable at New Delhi. In case of Bank Guarantee, the same is to be provided from any commercial bank in India or country of the bidder as per the format specified under Section XII in these documents.

19.5 The Bid Security shall be valid for a period of forty-five (45) days beyond the validity period of the bid. As validity period of Bid as per Clause 20 of GIB is 270 days, the Bid Security shall be valid for 315 days from Techno-Commercial Bid opening date.

19.6 The Bid Security of unsuccessful bidders will be returned without any interest, after expiry of the bid validity period, but not later than thirty days after conclusion of the resultant contract. The Bid Security of successful bidder will be returned without any interest, after receipt of performance security from that bidder.

19.7 Bid Security is required to protect the purchaser's right against the risk of the Bidder's conduct, which would warrant the forfeiture of the Bid Security. Bid Security of a bidder will be forfeited, if the bidder withdraws or amends its bids or impairs or derogates from the bid in any respect within the period of validity of its bid or if it comes to the notice that the information/documents furnished in its bid is incorrect, false, misleading or forged without prejudice to other rights of the purchaser. The Bid Security of the successful bidder 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 nationalized bank in India by way of back-to-back counter guarantee and the same should be submitted along with the bid.

20. Bid Validity

20.1 If not mentioned otherwise in the SIB, the bid shall remain valid for acceptance for a period of 270 days (Two hundred and Seventy days) after the date of bid opening prescribed in the Bidding Document. Any bid valid for a shorter period shall be treated as unresponsive and rejected.

20.2 In exceptional cases, the bidder may be requested by the purchaser to extend the validity of their bids up to a specified period. Such request(s) and responses thereto shall be conveyed by mail/fax/email. The bidders, who agree to extend the bid validity, are to extend the same without any change or modification of their original bid and they are also to extend the validity period of the Bid Security accordingly. A bidder, who may not agree to extend its bid validity after the expiry of the original validity period, their bid will not be considered further and the Bid Security furnished by them shall be returned.

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

21. Signing and Sealing of Bid

21.1 The bidders shall submit their bids as per the instructions contained in GIB Clause 11.

21.2 Unless otherwise mentioned in the SIB, a bidder shall submit only one copy of its bid marking it as "Original". Bidders are requested to submit their Bids after binding and page numbering.

21.3 The Bid shall either be typed or written in indelible ink and the same shall be signed by the bidder or by a person(s) who has been duly authorized. The letter of authorization shall be by a written power of attorney, which shall also be furnished along with the bid.

21.4 All the documents of the bid shall be duly signed at the appropriate places as indicated in the Bidding Documents and all other pages of the bid including printed literature (if any), shall be initialled and stamped by the same person(s) signing the bid. The bid shall not contain any eraser or overwriting, except as necessary to correct any error made by the bidder and, if there is any such correction; the same shall be initialled and stamped by the person(s) signing the bid.

21.5 The bidder is to seal the bid and writing the address of the purchaser and the bid reference number on the envelopes. The sentence "NOT TO BE OPENED" before _____ (The bidder is to put the date & time of bid opening) are to be written on this envelope. If the envelope is not sealed and marked properly as above, the purchaser will not assume any responsibility for its misplacement, premature opening, late opening etc.

21.6 Bidding Document seeks quotation following "Two Bid System", in two parts. First part will be known as 'Techno-Commercial Bid', and the second part 'Price Bid' as specified in clause 11 of GIB. Bidders shall seal 'Techno-Commercial Bid' and 'Price Bid' separately and covers will be suitably super scribed. Both these sealed covers shall be than put in a bigger cover and sealed and procedure prescribed in Paras 21.1 to 21.5 be followed.

D. SUBMISSION OF BIDS

22. Submission of Bids:

22.1 Unless otherwise specified, the bidders are to drop the Bids in the tender box located at **HLL Infra Tech Services Limited, Procurement and Consultancy Division, B-14 A, Sector-62, Noida-201307, Uttar Pradesh** or the same shall be submitted by the bidder by hand to concerned Project Officer dealing hand or his nominee. The necessary entry will be made in the Bid Receipt Register.

22.2 The bidders must ensure that they submit the on-line bids within the scheduled closing date & time. They shall also ensure to submit the original Tender Processing Fee and Bid Security within its scheduled date & time. It is the responsibility of the bidder to ensure that their Bids 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 bid falls on / is subsequently declared a holiday or

closed day for the purchaser, the bids will be received up to the appointed time on the next working day.

23. Late Bid:

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

24. Alteration and Withdrawal of Bid

24.1 The bidder, after submitting its bid, is permitted to alter/modify its bid, within the deadline for submission of bids. Alterations/modifications to bids received after the prescribed deadline will not be considered.

24.2 No bid should be withdrawn after the deadline for submission of bid and before expiry of the bid validity period. If a bidder withdraws the bid during this period, it will result in forfeiture of the Bid Security furnished by the bidder in its bid.

E. BID OPENING

25. Opening of Bids:

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

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

25.2 Authorized representatives of the bidder, who have submitted bids on time may attend the bid opening provided they bring with them letter of authority from their bidder. The bid opening official(s) will prepare a list of the representatives attending the bid opening. The list will contain the representatives' names & signatures and corresponding bidder's names and addresses.

25.3 Two Bid System as mentioned in Para 21.6 above will be as follows. The "Techno - Commercial Bids" are to be opened in the first instance, at the prescribed time and date as indicated in NIB. These Bids shall be scrutinized and evaluated by the competent committee/authority with reference to parameters prescribed in the Bidding Document. During the Techno-Commercial Bid opening, the bid opening official(s) will read the salient features of the bids like brief description of the goods offered, Bid Security and any other special features of the bids, as deemed fit by the bid opening official(s). Thereafter, in the second stage, the Price Bids 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 Bid. The prices, special discount if any of the goods offered etc., as deemed fit by bid opening official(s) will be read out.

F. SCRUTINY AND EVALUATION OF BIDS

26. Basic Principle

26.1 Bids will be evaluated on the basis of the terms & conditions already incorporated in the Bidding Document, based on which bids have been received and the terms, conditions etc. mentioned by the bidders in their bids. No new condition will be brought in while scrutinizing and evaluating the bids.

27. Scrutiny of Bids

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

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

27.3 The Bids will be scrutinized to determine whether they are complete and meet the essential and important requirements, conditions etc. as prescribed in the Bidding Documents. The bids, 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 bid shall be declared non-responsive during the evaluation and will be ignored;

(i) Bid form as per Section IX (signed & stamped) not enclosed.
(ii) Bid is unsigned.
(iii) Bid validity is shorter than the required period.
(iv) Required Bid Security (Amount, validity etc.)/ Exemption documents have not been provided.
(v) Bidder has quoted for goods manufactured by other manufacturer(s) without the required Manufacturer's Authorization Form as per Section XIII.
(vi) Bidder has not agreed to give the required 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.
(vii) Bidder has not agreed to other essential condition(s) specially incorporated in the bidding document like terms of payment, liquidated damages clause, warranty clause, dispute resolution mechanism, and applicable law.
(viii) Poor/unsatisfactory past performance.
(ix) Bidders who stand de-registered/banned/blacklisted by any Central Govt. Ministries/Departments/Hospitals/Institutes.
(x) Bidder is not eligible as per Clauses 5, 6 & 17 of GIB.
(xi) Bidder has not quoted for the entire quantity as specified in the List of Requirements in the quoted schedule.
(xii) Bidder has not agreed for the delivery terms and delivery schedule.

28. Minor Informality/Irregularity/Non-Conformity

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

29 Discrepancies in Prices

29.1 If, in the price structure quoted by a bidder, 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 bidder 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 judgment of the purchaser, there is any such arithmetical discrepancy in a bid, the same will be suitably conveyed to the bidder by registered/speed post/email. If the bidder does not agree to the observation of the purchaser, the bid is liable to be ignored.

30. Qualification Criteria

30.1 Bids of the bidder, who do not meet the required Qualification Criteria prescribed in Section VIII, will be treated as non-responsive and will not be considered further.

31. Conversion of Bid currencies to Indian Rupees

31.1 In case the Bidding Documents permits the bidder to quote their prices in different currencies, all such quoted prices of the responsive bidder 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 Bid' opening.

33. Schedule-wise Evaluation

1.1 In case the List of Requirements contains more than one schedule, the responsive bids will be evaluated and compared separately for each schedule. The bid for a schedule will not be considered if the complete requirements prescribed in that schedule are not included in the bid. However, as already mentioned in GIB sub clause 13.2, the bidders 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 bidder for each schedule, subject to bidder (s) being responsive.

33. Comparison of Bids

33.1. Unless mentioned otherwise in Section – III – Special Instructions to bidder and Section – VI – List of Requirements, the comparison of the responsive Bids shall be carried out on Free Delivery at consignee site basis. The quoted Turnkey Work prices and CAMC prices will also be added for comparison/ranking purpose for evaluation. "Net Present Value (NPV) of the Comprehensive Annual Maintenance Contract Charges (CAMC) quoted for 5 years after the warranty period shall be added to the bid price for evaluation and will be calculated after discounting the quoted price by a discounting factor of 10% per annum." However the payment of CAMC shall be made to the successful bidder at approved rates.

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

34.1 Further to GIB Clause 33 above, the purchaser's evaluation of a bid 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 which will be contractually payable (to the bidder), on the goods if a contract is awarded on the bidder; and

ii) in the case of goods of foreign origin offered from abroad, customs duty and GST which will be contractually payable (to the bidder) on the goods if the contract is awarded on the bidder.

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

34.3 The Purchaser reserves the right to give the price preference to small-scale sectors etc. and purchase preference to central public sector undertakings as per the instruction in vogue while evaluating, comparing and ranking the responsive Bids.

35. Bidder's capability to perform the contract

35.1 The purchaser, through the above process of bid scrutiny and bid evaluation will determine to its satisfaction whether the bidder, whose bid has been determined as the lowest evaluated responsive bid 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.

35.2 The above-mentioned determination will, inter alia, take into account the bidder satisfying all the requirements of the purchaser as incorporated in the Bidding Document. Such determination will be based upon scrutiny and examination of all relevant data and details submitted by the bidder in its bid as well as such other allied information as deemed appropriate by the purchaser.

36. Contacting the Purchaser

36.1 From the time of submission of bid to the time of awarding the contract, if a bidder needs to contact the purchaser for any reason relating to NIB/Bidding Document and / or its bid, it should do so only in writing.

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

G. AWARD OF CONTRACT

37. Purchaser's Right to accept any bid and to reject any or all bids.

37.1 The purchaser reserves the right to accept in part or in full any bid or reject any or more bid(s) without assigning any reason or to cancel the bidding process and reject all bids at any time prior to award of contract, without incurring any liability, whatsoever to the affected bidder(s).

38. Award Criteria

38.1 Subject to GIB clause 37 above, the contract will be awarded to the lowest evaluated responsive bidder decided by the purchaser in terms of GIB Clause 35.

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

39.1 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 off to next whole number) without any change in the unit price and other terms & conditions quoted by the bidder.

39.2 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 off 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.

40. Notification of Award

40.1 Before expiry of the bid validity period, the purchaser will notify the successful bidder(s) in writing, by registered / speed post or by fax/email (to be confirmed by registered / speed post) that its bid for Goods & Services, which have been selected by the purchaser, has been accepted, also briefly indicating there in the essential details like description, specification and quantity of the goods & services and corresponding prices accepted. The successful bidder must furnish to the purchaser the required Performance Security within thirty days from the date of dispatch of this notification, failing which the Bid Security will be forfeited and the award will be cancelled. Relevant details about the Performance Security have been provided in clause 5 of GCC under Section IV.

40.2 The Notification of Award shall constitute the conclusion of the Contract.

41. Issue of Contract

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

41.2 Within twenty one days from the date of the contract, the successful bidder shall return the original copy of the contract, duly signed and dated, to the Purchaser/ by registered / speed post/courier.

41.3 The Purchaser reserves the right to issue the Notification of Award consignee wise.

42. Non-receipt of Performance Security and Contract by the Purchaser

42.1 Failure of the successful bidder in providing Performance Security and/or returning contract copy duly signed in terms of GIB clauses 40 and 41 above shall make the bidder liable for forfeiture of its Bid Security and, also, for further actions by the Purchaser it as per the clause 24-Termination of default of GCC under Section IV.

43. Return of Bid Security

43.1 The Bid Security of the successful bidder and the unsuccessful bidder will be returned to them without any interest, whatsoever, in terms of Clause 19 of GIB.

44. Publication of Bid Result

44.1 The name and address of the successful bidder (s) receiving the contract(s) will be mentioned in the Website of AIIMS, CPPP and HITES.

H. CORRUPT OR FRADULENT PRACTICES

45. Corrupt or Fraudulent Practices

45.1 It is required by all concerned namely the Bidder /Suppliers/Purchaser/Consignee/End User 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 anything 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 bidders (prior to or after Bid submission) designed to establish Bid 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 Bidder 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.

SECTION – III

SPECIAL INSTRUCTIONS TO BIDDERS (SIB)

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

Sl. No.	GIB Clause No.	Topic	SIB Provision	Ref. Page No.
A	1 to 7	Preamble	No Change	
B	8 to 10	Bidding Document	Change in GIB Clause no. 10.1	
	10.1	Clarification of Bid document	Changed as under	10
C	11 to 21	Preparation of Bids	Change in GIB Clause no. 21.1	
	21.1		Changed as under	17
D	22 to24	Submission of Bids	Guiding notes given as under	18
E	25	Bid Opening	No Change	
F	26 to 36	Scrutiny and Evaluation of Bids	No Change	
	33	Comparison of Bids	Additional para 33.2 as under	20
G	37 to 44	Award of Contract	No Change	
H	45	Corrupt or Fraudulent Practices	No Change	

10. Clarification of Bid document

10.1 A bidder requiring any clarification or elucidation on any issue of the TE documents may take up the same with the purchaser in writing in their letter head duly signed and scanned through email to hll.ncij@hllhites.com. The purchaser will respond to such request provided the same is received 2 (two) days prior to the Pre-bid Meeting Conference. Any queries/representations received after the pre-bid meeting will not be taken into cognizance.

21. Digital Signing of e-Bid

21.1 The bidders shall submit their bids **online** as per the instructions contained in GIB Clause 11 and any other specific instruction mentioned in the e-Tender portal using the digital signature.

Instruction on submission of Bids

i) All the necessary documents as prescribed in the NIB shall be prepared and scanned in different files (in PDF format as prescribed) and uploaded for on-line submission of Proposal.

ii) The scanned copies of Bid Processing Fee, Bid Security, all document(s)/ information(s) including the Financial Proposal should be uploaded **online only** in the prescribed format given in the designated e-tendering portal website. No other mode of submission shall be acceptable.

However, **Bid Processing Fee, Bid Security, Catalogue(s)/Data-sheet(s)** related to all quoted items must be submitted in original at the desired venue before the last date and time of physical submission as mentioned in the NIB.

iii) The prospective bidders may **scan the documents in low resolution (75 to 100 DPI)** instead of 200 DPI. The documents may be scanned for further lower resolution (if possible). This would reduce the size of the Cover and would be uploaded faster.

iv) The Individual file size of uploading is restricted up to 5 MB. Bidders may upload multiple files (Not exceeding 5 MB individually) & give relevant file name indicating the contents.

v) The file name of price bid should not be different from the price bid format uploaded by the Bid inviting Authority in the portal. This can be downloaded from the **Notes & Attachment** under **Details** of item when the RFx/event is in **Display Mode**.

33. Comparison of Bids

33.2 Unit Prices for all optional items/accessories/services (if any) asked in the tender specifications must be quoted separately by all the bidders in their price bid. Such unit prices after multiplying by the required quantity shall be added and taken into consideration for comparison and ranking of bids.

SECTION - IV

GENERAL CONDITIONS OF CONTRACT (GCC)
TABLE OF CLAUSES

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 Bidding 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, trademarks 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, the supplier, shall furnish Performance Security to the Purchaser for an amount equal to ten percent (10%) of the total value of the contract, valid up to ninety

(90) days after the date of completion of all contractual obligations by the supplier, including the warranty obligations.

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

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 XIV of this document in favour of the Purchaser. The validity of the Fixed Deposit Receipt or Bank Guarantee will be for a period up to ninety (90) days beyond Warranty Period.

5.3 In the event of any failure/default of the supplier with or without any quantifiable loss to the government including furnishing of consignee wise Bank Guarantee for CAMC security as per Performa in Section XIV, the amount of the performance security is liable to be forfeited. The needful will be done 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 fifteen (15) 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 Comprehensive Annual Maintenance Contract as per the 'Contract Form - B' in Section XV with respective consignees, 3 (three) months prior to the completion of Warranty Period. The CAMC will commence from the date of expiry of the Warranty Period.

5.6 Subject to GCC sub – clause 5.3 above, the Purchaser 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 CAMC security in favour of concerned Director AIIMS/Chief of Centres/MS of Hospital/Head of the Department/Dean as per the format in Section XIV.

6. Technical Specifications and Standards

6.1 The Goods & Services to be provided by the supplier under this contract shall conform 'Technical Specification' under Sections VII 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 under Section VII 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 under Section VII 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 and 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, and if same is accepted by Purchaser/Consignee, 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 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 re-submit the same to the purchaser's inspector for conducting the inspections and tests again.

8.4 In case the contract stipulates pre-dispatch 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 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-dispatch 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 recognized/ reputed agency like SGS, Lloyd, Bereau Veritas, TUV etc. prior to dispatch 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 without the express/prior written consent of the purchaser. The supplier is required under the contract to deliver the goods under CIP (Named port of destination) terms.

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 Free Delivery at Consignee's 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 warehouse to warehouse (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 for a period including 3 months beyond date of delivery for an amount equal to 110% of the overall expenditure to be incurred by the purchaser from warehouse to ware house (consignee site) on all risk basis.

If the equipment is not commissioned and handed over to the consignee within 3 months, the insurance will have to be 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/End User, 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/End User 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/End User 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/End User, free of cost, the designs, drawings, layouts and specifications of the spare parts, as and if requested by the Purchaser/End User.

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

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, Demonstration, Trial run etc. of the goods.
ii) Turnkey work (if any).
iii) Training of Consignee's/End Users 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 dispatch documents well in time to enable the purchaser 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:

Within 24 hours of dispatch, the supplier shall notify the concerned Store Officer in AIIMS Clearing Agent and others concerned the complete details of dispatch and also supply following documents by air mail/ courier etc. with intimation by e-mail:

a) Commercial Supplier's Invoice giving full details of the goods including quantity, value, etc.;
b) Packing list;
c) Certificate of country of origin;
d) Bill of Lading/Airway Bill;
e) Insurance Certificate; (if applicable)
f) Manufacturer's guarantee and Inspection certificate; (if applicable)
g) Inspection certificate issued by the Purchaser's Inspector; (if applicable)
h) Any other document(s) as and if required in terms of the contract.

15. Warranty and CAMC

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 include all spares, labour and preventive maintenance from the date of completion of the satisfactory installation and acceptance till warranty period.

15.3 The Comprehensive Annual Maintenance Contract shall include all spares, labour and preventive maintenance from the date of completion of the satisfactory installation and acceptance till warranty period.

15.4 Warranty as well as Comprehensive Annual Maintenance Contract will be inclusive of all accessories and turnkey work and it will also cover the following, wherever applicable:-

- All kinds of Motors.
- Plastic & Glass Parts against any manufacturing defects.
- All kinds of sensors.
- All kinds of coils, probes and transducers.
- Printers and imagers including laser and thermal printers with all parts.
- UPS including the replacement of batteries.
- Air-conditioners

15.5 In case of any claim arising out of this warranty and CAMC period 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 unless revised in SCC in Section V of Bidding Document.

15.6 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 conditions laid down in the Bidding Document.

15.7 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 up to the completion of the original warranty period of the main equipment.

15.8 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.

15.9 During Warranty and CAMC 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.

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

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

15.12 The Supplier along with its Manufacturer 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 equipment/machines/goods etc. and shall always give the most competitive price for its machines/equipment 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 bid. Such notification, in its original bid 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 dispatch,
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 the supplier shall convey its views to the Purchaser within twenty-one days from the date of the supplier's receipt of the Purchaser'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 bid and incorporated in the contract except for any price adjustment authorized in the SCC.

20. Taxes and Duties

20.1 Supplier shall be entirely responsible for GST 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 through electronic transfer in NEFT/RTGS 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 Indigenous Goods (M&E) 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**: 75% payment of the contract price shall be paid on receipt of goods in good condition and upon the submission of the following documents:
   (i) Original copies of supplier's invoice showing contract number, goods description, quantity, packing list, unit price and total amount;
   (ii) Consignee Receipt Certificate as per Section XVI of bidding document in original issued by the authorized representative of the consignee;

b) **On Acceptance**: Balance 25% payment would be made against "Installation and Acceptance Certificate" of goods to be issued by the End User subject to

recoveries, if any, either on account of non-rectification of defects/deficiencies not attended by the Supplier or otherwise. "Installation and Acceptance Certificate" need to be issued by the concerned End User after installation, commissioning, testing and successful trial run (if applicable).

B) Payment for Imported Goods (M&E): Payment for foreign currency portion shall be made in the currency as specified in the contract in the following manner:

a) **On Shipment**: 75% of the net FCA/CIP price (i.e. FCA/CIP price less Indian Agency commission) of the goods despatch by Sea/Air 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) Commercial Supplier's Invoice giving full details of the goods including quantity, value, etc.;
ii) Packing list;
iii) Certificate of country of origin;
iv) Negotiable clean Bill of Lading/Airway Bill;
v) Insurance Certificate; (if applicable)
vi) Manufacturer's guarantee and Inspection certificate; (if applicable)
vii) Inspection certificate issued by the Purchaser's Inspector; (if applicable)
viii) Any other document(s) as and if required in terms of the contract.

b) **On Acceptance**: Balance payment of 25% of net FCA/CIP price of goods would be made against "Installation and Acceptance Certificate" to be issued by the End User through irrevocable, non-transferable Letter of Credit (LC) opened in favour of the Foreign Principal in a bank in his country, subject to recoveries, if any. "Installation and Acceptance Certificate" need to be issued by the concerned End User after installation, commissioning, testing and successful trail run (if applicable).

c) Payment of Consumable Imported Goods/Reagents/Kits would be made 100% against "Installation and Acceptance Certificate" to be issued by the End User through Wire Transfer.

d) **Payment of Incidental Costs:** Incidental costs till consignee site towards Incidental Services (including Installation & Commissioning, Supervision, Demonstration and Training),if applicable will be paid in Indian Rupees to the Indian Agent on submission of "Installation and Acceptance Certificate" by the End User.

e) **Payment of Indian Agency Commission**: Indian Agency Commission (IAC) will be paid to the Authorised manufacturer's agent in Indian rupees indicated in the contract (as per prevailing rate of exchange ruling on the date of Contract) and shall not be subject to further escalation/exchange variation. The agency commission payment shall be made on submission of "Installation and Acceptance Certificate" by the End User.

C) Payment of Civil/Electrical Works at site: The payment related to Civil/Electrical Works at site will be made as indicated in the contract (as per prevailing rate of exchange ruling on the date of Contract) and shall not be subject to further escalation/exchange variation. The payment for Civil/Electrical works shall be made on submission of "Installation and Acceptance Certificate" by the End User.

D) Payment for Comprehensive Annual Maintenance Contract Charges: The consignee will enter into CAMC with the supplier at the rates as stipulated in the

contract. The payment of CAMC will be made on six monthly basis after satisfactory completion of said period, duly certified by the End User 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 of the bidding document valid till 3 months after expiry of entire CAMC period. The Performance Bank Guarantee for CAMC will be applicable in case of contract value is more than Rs. 10 lakh.

21.2 Terms of payment for imported goods

21.2.1 The supplier shall not claim any interest on payments under the contract.

21.2.2 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.

21.2.3 Irrevocable & non-transferable LC shall be opened by the Purchaser. 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, the charges thereof shall be borne by the supplier.

21.2.4 The payment shall be made in the currency/currencies authorised in the contract.

21.2.5 The supplier shall send its claim for payment in writing, when contractually due, along with relevant documents etc., duly signed with date.

21.2.6 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.

21.2.7 While claiming reimbursement of duties, taxes etc. (like GST, sales tax, excise duty, custom duty) from the Purchaser, 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, the supplier shall refund to the Purchaser forthwith.

22. Delivery

22.1 The supplier shall deliver the goods and perform the services under the contract within the time schedule specified by the Purchaser 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 no later than the date(s) as specified in the contract.

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 in writing about the same and its likely duration and

make a request to the Purchaser for extension of the delivery schedule accordingly. On receiving the supplier's communication, the Purchaser 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 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 GST 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 shall be entitled to the benefit of any decrease in price on account of reduction in or remission of customs duty and GST 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 for extension of delivery period and obtain the same before dispatch. 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 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 or install/commission any or all of the goods or fails to perform the services within the time frame(s) incorporated in the contract, the Purchaser shall, without prejudice to other rights and remedies available to the Purchaser 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, installation, commissioning and/or services until actual delivery or performance subject to a maximum of 10% of the contract

price. Once the maximum is reached Purchaser 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 without prejudice to any other contractual rights and remedies available to it the Purchaser, 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 pursuant to GCC sub-clauses 22.3 and 22.4.

24.2 The Performance Security in such cases will be forfeited.

24.3 Unless otherwise instructed by the Purchaser, 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.

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, 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 in writing of such conditions and the cause thereof within twenty one days of occurrence of such event. Unless otherwise directed by the Purchaser 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 is unable to fulfil its contractual commitment and responsibility, the Purchaser 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 reserves the right to terminate the contract, in whole or in part for its Purchaser'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. 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 following the contract terms, conditions and prices. For the remaining goods and services, the Purchaser 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 GIB 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 Facsimile/email 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.

30.3 In the case of a dispute or difference arising between the Purchaser 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 to be appointed by the Director, AIIMS. 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 lakh (Rs. 1,00,000/-).

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

30.5 **Jurisdiction of the court** will be from the place where the Bidding 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

32.1 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 contract made by the supplier with the purchaser, pending finalization or adjudication of any such claim.

32.2 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.

33. Fall Clause

Fall clause is a price safety mechanism. The fall clause provides that if the contract holder reduces its price or sells or even offers to sell the contracted goods of identical specification and terms & conditions to that of the contract, at a price lower than the contract price, to any person or organization during the currency of the Contract, the Contract price will be automatically reduced with effect from that date for all the subsequent supplies under the Contract and the contract amended accordingly.

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.

The warranty conditions will be as mentioned in the list of requirement as per section VI of the Bidding Document.

SECTION- VI

LIST OF REQUIREMENTS

Part I:

Sl. no.	Rfx/ Event number	Short Description of goods	Quantity	Warranty Period	CAMC period after warranty
1	3000002258	State of Art Linear Accelerator	2	05 years	05 years
2	3000002259	HDR Brachytherapy System	1	05 years	05 years
3	3000002260	4D CT - Simulator	1	05 years	05 years
4	3000002261	Radiotherapy Dosimetry Equipment	1	05 years	05 years

Part II: Required Delivery Schedule:

a) For Indigenous goods or for imported goods if supplied from India:
90 days from date of Notification of Award to delivery at consignee site. The date of delivery will be the date by when it is to be delivered at consignee site. Bidders may quote earliest delivery period.

Installation and Commissioning shall be done at the earliest but not later than 45 days of delivery of goods at site or date of handing over the site for installation, whichever is later.

b) For Imported goods directly from foreign:
90 days from the date of opening of L/C. The date of delivery will be the date of Bill of Lading/Airway bill. (Bidders may quote the earliest delivery period).

Installation and Commissioning shall be done at the earliest but not later than 45 days of delivery of goods at site or date of handing over the site for installation, whichever is later.

For delayed delivery and/or installation and commissioning liquidated damages will get applied as per GCC clause 23.

Part III: Scope of Incidental Services:
Installation & Commissioning, Supervision, Demonstration, Trial run and Training etc. as specified in GCC Clause 13.

Part IV: Turnkey Work (if any) as per details in Technical Specification.

Part V: Warranty period as per details mentioned in technical specification and as specified in Part I above. Warranty period will start from the date of installation, commissioning and acceptance.

Comprehensive Annual Maintenance Contract (CAMC) as per details in Technical Specification as specified in part I above. Comprehensive Annual Maintenance Contract (CAMC) will start from the date of successful completion of warranty period.

Part VI: Required Terms of Delivery and Destination.

a) For Indigenous goods or for imported goods if supplied from India:
Free Delivery at Consignee's Site(s)

b) For Imported goods directly from abroad:

The foreign bidders are required to quote their rates on CIP (Named Port of Destination Basis) giving breakup of the price as per the Proforma prescribed in the Price Schedule. Purchaser will place the order on CIP (Named Port of Destination basis).

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.

c) The Consignee details are as under but the supplier is required to deliver the goods at the designated site in the floor and building of concerned Centers/Hospital/ Departments:

Consignee	Site	Contact Address.	Air Port	Sea Port
NCI-AIIMS (National Cancer Institute – All India Institute of Medical Sciences)	Jhajjar Campus	Badsha Village Jhajjar Haryana	New Delhi	ICD Tuglakabad (for containerised shipments) Or ICD Patparganj

Note: The consignee will ensure timely issue of NMIC, CDEC etc., wherever applicable to the supplier.

SECTION - VII

TECHNICAL SPECIFICATION AND GENERAL POINTS

A. TECHNICAL SPECIFICATION:

Item sl. no. 01

State of Art Linear Accelerator

High-Energy Linear Accelerator with IGRT and Facility Site Modification

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.

(I) 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 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 (unflattened) photon mode should be offered.

2.2 **Dose Rate and Beam Stability**

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

2.2.2 The dose rate for in flattening filter free photon beams should have atleast 1000 or more MU/min 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

Variation of x-ray intensity relative to the central axis shall not exceed ± 4% at 100 cm SSD and 10 cm depth over the central 80% of the field for the longitudinal and transverse axes of all field sizes from 10 x 10 cm to 40 x 40 cm. State the maximum variations for the above field sizes at each energy.

2.4.2 Field Symmetry

The maximum percent differences of average doses shall not exceed ± 3.0% for the longitudinal and transverse halves of the field at 100 cm TSD and 10 cm depth, at gantry angles of 0, 90, 180 and 270 degrees. Field sizes shall be specified as 10 x 10 cm and 40 x 40 cm. Average dose is defined as the arithmetic average of minimum and maximum doses within the central 80% of the field for both axes.

2.4.3 Radiation Field Penumbra:

The width between the 20% and the 80% isodose lines measured for 10 X 10 cm^2 at depth of 10 cm at 100 cm SSD should not be more than 10mm. Specify the penumbra width.

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
15 MV	Specify

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 0.2% expressed in neutron dose equivalent (Sivert) 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 single field

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 (E_p) 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 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 D_{max} 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 to 25 x 25 cm 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 D_{max} for a 10 x 10 and 25 x 25 cm field at 100 cm SSD shall not exceed $\pm$ 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 5years. (Pro-rata guarantee is not acceptable).

4.2 Standing or travelling type of wave-guide 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 and the beam focal spot should be within 3 mm diameter.

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 cm^2.

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.

6.5.19 Two extra spare control pendants shall be provided.

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.

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 Two spare sets of green lasers shall be provided.

6.7.3 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

6.7.4 System should have 0.5mm 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: I**t 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

610.1 Provision of **either** a set of standard physical wedge filters with wedge angles 15°, 30°, 45° and 60°

6.10.2 Provision of virtual or dynamic programmable wedge fields of generating variable wedge angles starting from 1 0° up to 60

6.10.3 The programmable wedge fields shall provide a range of wedged fields starting at least 4cm up to 30 cm at 100 cm TSD

6.10.4 Provision of a statistics log for tracking the accuracy of the programmable wedge fields' profiles

6.10.5 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 co-planar 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 (VIMAT) 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 softwares 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 TFT 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.

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 400-440 V / 50 Hz Power
11.1.3 UPS of suitable rating with voltage regulation and spike protection for 60 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.

(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, 4D-Treatment 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 to 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 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. Equipment Warranty and Service Facilities

i. Five years warranty to be commenced from first patient treated as per AERB norms.
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 Delhi to look after the installation and maintenance of the system without patient treatment interruption.

16. Safety Standards and Training

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.
iii. The vendor should provide comprehensive training on TPS in international center of repute where the offered system is extensively in use. Training should be provided for one Radiation Oncologist and one Medical Physicist. The training period should be at least for two weeks.
iv. On-site application training should be provided for minimum two weeks for all concerned staff members in the department.

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 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. 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.

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 commissioing process of first patient treatment commencement.

(III) <u>Scope of Work for Facility Site Modification</u>:

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. (The site plan is attached herewith as Annexure I).

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 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 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. The outdoor units of AC should have grill coverings to prevent theft and damage.

4. 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.

5. 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 - 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 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.

LIST OF ITEMS AND SUGGESTED MANUFACTURERS.

A **ELECTRICAL**

1. **CABLES** - Gloster, Universal, Polycab
2. **WIRES** - Finolex, Havells, V-Guard, RR Kabel, Gloster, Anchor
3. **SWITCHES** - Legrand, L&T, Crabtree , Roma, MK, Crabtree
4. **DISTRIBUTION BOX** , MCB - Legrand, L&T, Siemens, Havels
5. **LIGHT FITTINGS** - Philips / Crompton / Kesselec-Schreder / Wipro.

B **AIR CONDITIONING** -Daikin, Hitachi, Blue Star, Voltas

C **FURNITURE** -Hermen Miller, Godrej, Featherlite, Wipro

D **FALSE CEILING** - Armstrong, Saint Gobain, Luxalon.

12. Equipment Warranty and After-Sales Services

12.1 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, except for the wave-guide, beam-bending magnet assembly, electron gun, X-ray tube & RF system, which shall carry guarantee for 10 years. Pro-rata warranty is not acceptable.

12.2 Vendor should provide comprehensive maintenance contract (CMC) rate year-wise for quoted machine other accessories for next 5 years after warranty period.

12.3 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

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

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

12.7 Factory trained service Engineer/Application specialists should be available in NCI, Jhajjar to look after the installation and maintenance of the system without patient treatment interruption.

13. Equipment Compliance with Standards and Safety

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

13.2 Should comply with the national regulatory AERB/BARC guidelines

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

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

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

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

14. Staff Training and Documentation

14.1 The vendor should provide comprehensive training on Linear Accelerator, Treatment Planning in a well advanced center in any developed country for nine persons (Four for Radiation Oncologist, three for Medical Physicist and two technologists).The training period should be at least for two weeks.

14.2 On-site application training should be provided for minimum four weeks for all staff members in the department

14.3 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. These curves need not be warranted by the vendor for clinical use.

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

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.50,000 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.50,000/ 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.

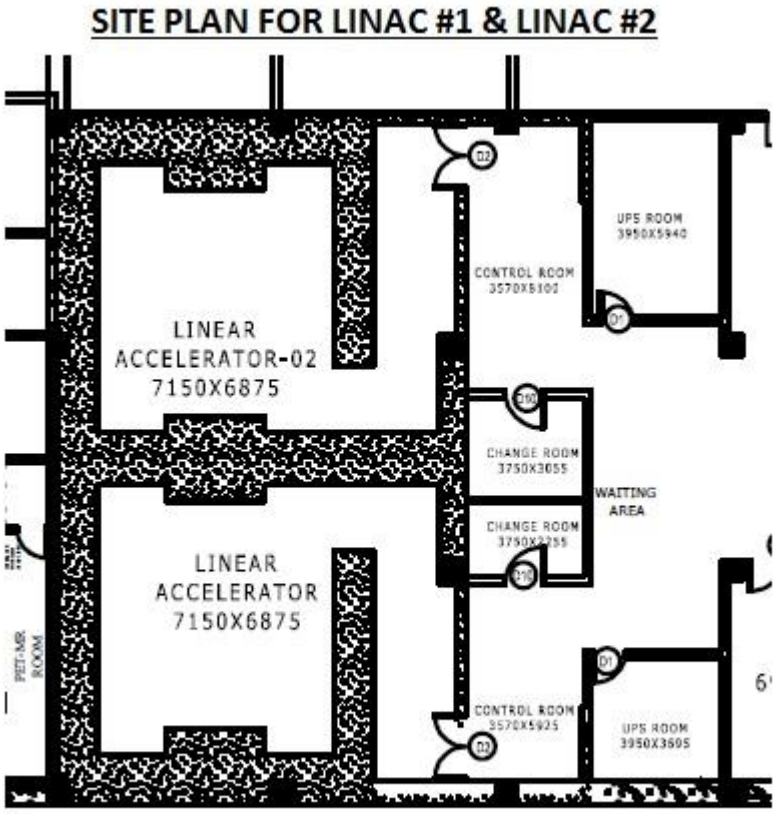
The down time would be calculated by deducing total uptime period as defined above from total days of the respective year. Year for the calculation of Uptime/downtime as the case may be would be considered from 01st January to 31st December of the respective year. For purpose of the downtime calculation 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.

Additional penalty for high continuous downtime:-

If the machine(s) lies non-functional for a period of more than 5 days continuously at any stage, an additional penalty at the rate of Rs.50,000/ per day for a linac shall be levy-able without any regard to the other penalty/recourse under the provisions of the tender document.

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.

Annexure-1: AERB approved Site and Facility Layout plan



Item sl. no. 02

HDR Brachytherapy System

High Dose-Rate Brachytherapy Remote After-Loading System

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 latest technology High Dose-Rate (HDR) Brachytherapy Remote After-Loading System. The High Dose-Rate (HDR) Brachytherapy Remote After-Loading System includes Treatment Unit, Control Unit, Treatment Planning System and applicators and other required accessories for clinical application. The HDR system should be capable for the treatment of intracavitary, intraluminal, interstitial and surface mould brachytherapy. The offer system should be of the latest model. The vendor should provide commitment to be able to provide service and support for the offered new unit for atleast 10 years from the date of installation.

Technical Specification

1. Brachytherapy Treatment Unit:

1.1 The system should be capable for the treatment of intracavitary, intraluminal, interstitial and surface mould brachytherapy
1.2 The HDR system should be latest microprocessor and PC controlled and it must have latest hardware and advanced software.
1.3 The system should have minimum 20 channels or more for all types of brachytherapy treatments.
1.4 The system should be on wheels for easy mobility in the treatment area and provided with storage safe of lead/ tungsten alloy to guarantee and compatible with guidelines of international safety regulations especially AERB.
1.5 Specify the in-built radiation safety measures provided in the unit including power failure, emergencies, channels indexer, activity of the source and dose rate, verification system for channel number and connectivity of the applicator etc.
1.6 Specify the surface dose rate of the system source container when full strength of the source is loaded.
1.7 The treatment unit should have an in-built integrated radiation detector to check the safe return of the source (GM Type tube).
1.8 The source must be retractable and reach in the safe position in the events of an emergency/ power failure etc specifies the source retraction methods.
1.9 Refurnished / reconditioned unit should not be offered. The vender shall quote month and year of the fabrication of the unit and provide the certificate of the same of its being original.
1.10 The Source head should have adequate shielding and its height should be adjustable.
1.11 The System should have the dummy cable to check the treatment parameters prior to treatment.

2. Radioactive Source

2.1 The system should use radioactive sources of Ir-192
2.2 source strength should be of at least 10Ci Ir-192
2.2 Please specify the activity, physical characteristics and dimensions of the source being supplied with the unit. Specify the number of source offered and usability period of the each source quoted. Please specify the following:
(i) Specify the maximum source extension
(ii) Specify the dwell position per catheter
(iii) Specify the maximum dwell time per position in the catheter
(iv) Specify the maximum treatable length in cm

(v) Specify the accuracy in position in mm.
(vi) Specify the active diameter and length of the source.
(vii) Specify the mode of source movement in each channel of the unit
(Viii) Source cable must be able to pass through catheters of curvature 1.5 cm or less

3. Treatment Control Console:

3.1 Stand alone and independent PC based control unit should be provided with flat panel 21" or larger plasma color monitor, keyboard, mouse build in audio card, network card, backup media, printer etc and direct link with 3D-TPS to be supplied.
3.2 It should have protection circuit inbuilt to prevent treatment without proper applicator connection, door closing and proper index locking.
3.3 It should have all self-testing provision necessary for the treatment.
3.4 Control unit software should run on window application.
3.5 Access must be limited to authorized users with password protection
3.6 The treatment times must be automatically corrected for the decay of the radioactive source
3.7 There should be higher dwell position for the source in each channel
3.8 On-line extensive display of status codes with an indication of the action required
3.9 Large patient's database should be provided with a backup option to an external storage device
3.10 The system should provide real-time information during treatment.
3.11 Provision for checking of complete operation of the system prior to actual treatment including electronic and radiation safety checks should be available.

4. Brachytherapy Treatment Planning System (TPS)

4.1 A state-of-the-art brachytherapy planning system capable for performing conventional 2D and advanced 3D-treatment planning with dose-volume histogram analysis methods and different methods of optimization of the treatment plan and also inverse planning modules for planning of all treatment techniques like intracavitary, interstitial, intraluminal, and surface mould.

4.2 System should have input capability of receiving patient information i.e patient data through scanner, digitizer, and directly from CT, MRI, X-ray unit through DICOM 3.0/RT compatible interface.

4.3 The system should be capable of doing multimodality image registration and also should have the features of auto-contouring of the organs and applicator etc.

4.4 The 3D planning and viewing of dose distribution in coronal and sagital cuts and any other possible cuts should be provided.

4.5 The system should include the plan library, source and applicator library, optimization and isodose sharper tools and reporting tools etc. specify the features.

4.6 The treatment times must be automatically corrected for the decay of the radioactive source.

4.7 The system should be cabable of summation of brachytherapy and external beam dose distribution and 3D viewing and should be quoted as optional item and price must be quoted separately.

4.8 The Networking (on-line) between HDR treatment unit and TPS should be provided and it should be connected with CT machine and simulator and other imaging modalities.

4.9 Hardware: Treatment planning system should have a latest computer with high speed with most modern graphics workstation, fast processor with RAM of maximum latest

availability and should have a Hard Disk with large storing capacity of maximum available memory, Key Board, Mouse of latest configuration.

4.10 The system should have at least 21" TFT LCD Screen with high resolution for good visualization

4.11. For patient data input, high resolution FILM SCANNER should be provided.

4.12 One color printer A3/A4 size for printing the treatment planning and plotting of isodose should be provided.

4.13. The vendor should provide advanced model-based dose calculation algorithm for inhomogeneity correction in dose calculation as per the AAPM TG-186 recommendations.

5. Applicators for HDR Unit

5.1 Supply the standard accessories for the application of intracavitary, intraluminal, interstitial brachytherapy of cervix, vagina, rectum and head and neck esophagus and bronchial, biliary, breast and prostate applications. Applicators to be provided for;

5.2 Gynaecological applicator Fletcher-Suit type – 6 sets

5.3 Gynaecological application templates -2 set each (2 sets Syed-Neblet and 2 Sets of MUPIT with all required accessories)

5.4 CT / MRI compatible gynaecological Fletcher-Suit type applicators – 2 sets

5.5 Vaginal / Rectal applicator – 6 sets

5.6 Esophagus applicator – 6 sets

5.7 Nasopharyngeal applicator – 2 sets

5.8 Breast and Prostate templates – 2 sets each
(i) Biliary Applicators – 2 Each
(ii) Intrabronchial Applicators (reusable)– 4 sets
(iii) Brain Applicators (Gliasite) – 10 each

5.9 Surface mould – 5 sets for IOHDR applications (Freiberg applicators)

5.10 All kinds of x-ray dummy markers (two sets) for the applicators supplied (wherever relevant). Interstitial implant plastic tubes – total 1000 numbers and Interstitial implant plastic needles- total 50 numbers and interstitial implant stainless steel applicators-20numbers.

5.12. Vienna Applicator or its equivalent for combined interstitial and intracavitary application-2 sets

Balloon based Breast applicator-total 5 numbers.

5.13 Provide the catalogues of the all the applicators. All the guide-tubes must be functional for 5 years.

5.14. Vendor should provide **one extra treatment control console system** which will be compatible with offered HDR treatment machine for the purpose of performing intra-operative HDR brachytherapy treatment.

5.15. Vendor should quote treatment planning system for **intraoperative real-time ultrasound** guided prostate brachytherapy treatment including inverse planning capability.

5.16. Vendor should quote an ultrasound system for performing for intraoperative real-time ultrasound guided prostate brachytherapy treatment along with compatible probes.(Probes for Prostrate , breast and abdomen)

5.17. Vendor should provide extra two sets of transfer tubes for Gynecological applicator Fletcher-Suit type.

6. Radiation Dosimetric, Quality Assurance (QA) and Safety System/Tools

6.1 Quote necessary QA tools and radiation monitoring and measuring instrument being supplied with the unit.

6.2 Emergency container/ source container as per AERB norms

6.3 Brachy treatment table with all accessories (Motorized/Hydraulic locking clamp mounting and Lithotomy position support)

6.4 Source position simulator and source check ruler

6.5 Two online UPS with 30 min backup for total system (HDR machine and TPS)

6.6 Closed Circuit TV systems along with standby camera

6.7 X-ray reconstruction jig.

6.8 X-ray marker wire for all applicators.

6.9 Well-type chamber with calibration certificate should be provided.

6.10. Vendor should provide the Last-man-out switch (LMOS) for offered HDR machine as acceptable by AERB

6.11. **Gamma Zone (Area) Monitors** (one number): Gamma-Zone (Area) Monitor is used for radiation area monitoring around the interior walls of brachytherapy equipment. Gamma-Zone (Area) Monitors shall be able to measure and monitor x-rays and gamma-rays (dose/dose rates) of varying energy levels in minimum possible timeframe. System should have capability of warning alarm condition whenever the emergency exposure is in the treatment room. The measurement range: 0.1mR/h to 100mR/h and display units: µR/h, mR/h, µSv/h, mSv/h. The detector shall be of GM based. Specify the details of the offer system.

6.12 Two-way communication between Patient & Console should be provided as standard.

7. Equipment Warranty and Service:

7.1. The vendor must quote for five years comprehensive warranty (including all spares and labour from the date of completion of the satisfactory installation. The warranty charges shall not be quoted separately otherwise the offer shall be summarily rejected. The vendors must submit their quote (Rate) also for subsequent five years comprehensive AMC (including all Spares and labor) in the price bid, failure to comply this condition will entail the rejection of the bids.

7.2. Five years warranty to be commenced from first patient treated as per AERB norms.

7.3 CMC year-wise for quoted machines, UPS, Battery and other accessories for next 5 years after warranty

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

7.5 **Source:** (i) minimum 15 sources (Ir-192 source) should be offered for 5 years period (one source in every four months interval or as and when required) to maintain HDR treatment delivery. The 15 sources cost should be quoted seperately and this will be considered for L1 calculation. Loading of new source and unloading of the decayed source, source transportation, source export and disposal will be part of the offer.

7.6 Quote the rates of consumables recommended valid for 5 years block.

7.7 Factory trained service engineer/Applications specialists should be available in NCI Jhajjar to look after the installation and maintainace of the system without patient treatment interruption.

8. Staff Training and Manual/documentations

8.1 Training should be provided to one Radiation Oncologist and one Medical Physicist for one week in the centre of excellence in abroad and also on-site training of two week to staff of department.

8.2 User / Technical / Maintenance manuals to be supplied in English

8.3 Certificate of calibration and service inspection should be provided.

9. 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 commissioing process of first patient treatment commencement.

Scope of Work for Site Modification:

General Requirements

1. The Supplier should inspect the proposed site offered by the Consignee, wherein the HDR BRACHYTHERAPY SYSTEM 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 HDR BRACHYTHERAPY SYSTEM. The supplier shall assist the user by providing necessary documentations/technical data for regulatory clearances and approvals from AERB. (The site plan is attached herewith as Annexure I).

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 7 TR HVAC is included for L1 calculation of the bids.

8. The HDR BRACHYTHERAPY CENTRE shall consist of the following rooms:
   a HDR BRACHYTHERAPY Treatment Room
   b Console room

9. The supplier shall be required to specify the total load requirements for the HDR BRACHYTHERAPY 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 HDR BRACHYTHERAPY centre. The mains panel and distribution panel for HDR BRACHYTHERAPY SYSTEM, HVAC, and LIGHTING should be provided by the supplier. Few lights in HDR BRACHYTHERAPY SYSTEM, 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 HDR BRACHYTHERAPY SYSTEM; CT-SIMULATOR & HDR BRACHYTHERAPY SYSTEM 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 HDR BRACHYTHERAPY SYSTEM 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, 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:

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 HDR BRACHYTHERAPY SYSTEM 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 100mm matching tile skirting in HDR BRACHYTHERAPY SYSTEM 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 levelling 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 HDR BRACHYTHERAPY SYSTEM 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 HDR BRACHYTHERAPY SYSTEM room shall be provided with wall-mounted storage cupboards within HDR BRACHYTHERAPY SYSTEM room; to store: Dosimetry & QA Items, HDR BRACHYTHERAPY SYSTEM accessories.

2. Sufficient number of Open Racks of high Quality vendors should be provided to house the immobilization materials; within HDR BRACHYTHERAPY SYSTEM 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 1800 mm length; 750 mm height; 300 mm depth).

FURNITURE:

1. Revolving chairs height adjustable, medium-back with hand-rest for Control 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 HDR BRACHYTHERAPY SYSTEM and TPS."

3. Bookshelves: Four-door bookcase with glass doors, height approx.. 1700 mm; to store manuals; CD/DVDs, spares etc-4 Nos.

4. Shoes Rack - 2 Nos.

LIST OF ITEMS AND SUGGESTED MANUFACTURERS.

A **ELECTRICAL**
1. **CABLES** - Gloster, Universal, Polycab
2. **WIRES** - Finolex, Havells, V-Guard, RR Kabel, Gloster, Anchor
3. **SWITCHES** - Legrand, L&T, Crabtree , Roma, MK, Crabtree
4. **DISTRIBUTION BOX** , MCB - Legrand, L&T, Siemens, Havels
5. **LIGHT FITTINGS** - Philips / Crompton / Kesselec-Schreder / Wipro.

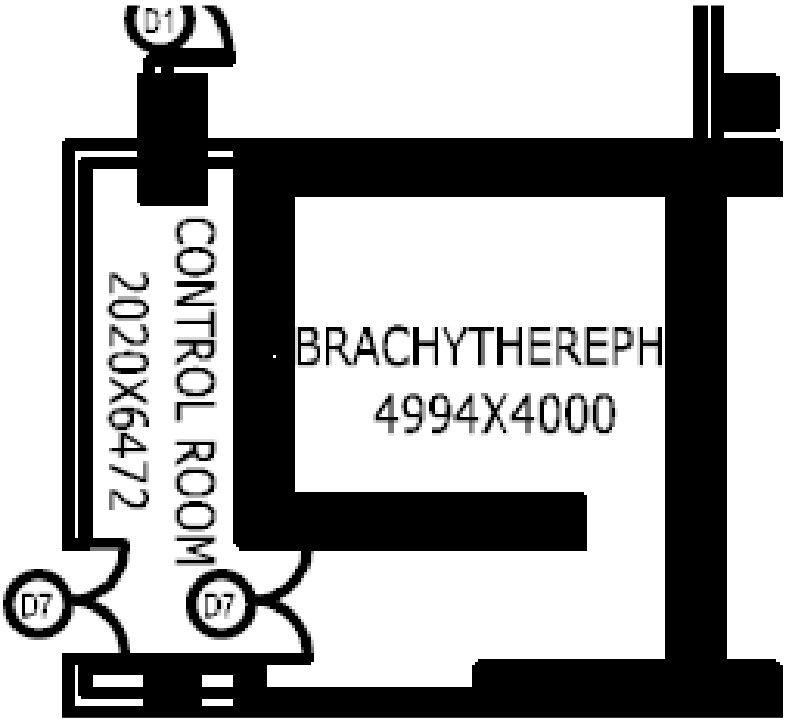
B **AIR CONDITIONING** -Daikin, Hitachi, Blue Star, Voltas

C **FURNITURE** -Hermen Miller, Godrej, Featherlite, Wipro

D **FALSE CEILING** - Armstrong, Saint Gobain, Luxalon.

Annexure-1: AERB approved Site and Facility Layout plan.

SITE PLAN of HDR BRACHYTHERAPY



Item sl. no. 03

4D CT - Simulator

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 multislice, large-bore atleast 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 50 KW or more to support continous and sustained operation. Please give details.

3. X-ray Tube

3.1 Tube current: 30-400mA 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 700 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 (at least 5mm) and other specific features to reduce radiation dose to the patient must be specified.

4. Gantry

4.1 Gantry aperture should be minimum 80 cm or more
4.2 Gantry tilt should be at least ±30 degree
4.4 Entire range of rotation times for full 360 degree should be specified.
4.5 Remote controlled tilt from operator table should be possible.
4.7 Laser alignment lights should define accurately actual scan of plane. It should operate over full range of gantry tilt.
4.8 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 1 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 $\pm$ 4HU for water and $\pm$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 TFT flat screen LCD 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 atleast 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 isocenter without moving the table top. Following the isocenter localization in the CT-Simulation workstation, the isocenter 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 isocenter. 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, isocenter 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. Isocenter Management

15.1 The software should support separate isocenters for multiple target volumes or general regions

15.2 Marked and final isocenters should be reported and displayed in the localization package for easy confirmation of a physical simulation session.

15.3 Hardcopy of the isocenter coordination should be possible for record of the simulation.

15.4 Isocenter positioning should be automatic.

15.5 No limit on number of isocenters 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 isocenter 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 existing TPS. 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) must be integrated to treatment machines available in the department for smooth transferring of images and DICOM-RT structures.

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 PostScript 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.

20. Equipment Warranty and Service Facilities

20.1 Five years warranty to be commenced from first patient treated as per AERB norms.
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 upgradation 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 Delhi 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 any developed country for two persons (one for Radiation Oncologist, one for Medical Physicist).The training period should be at least for two weeks.

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

22. General Terms & Condition

22.1 Any optional items to be quoted separately with separate prices in price bid.
22.2 The vendor shall list the number of their CT-Simulator installation/user in India.
22.3 All claims regarding meeting the specification should be duly supported by appropriate, latest technical catalogues/brochures from the manufacturer.
22.4 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. (The site plan is attached herewith as Annexure I).

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.

LIST OF ITEMS AND SUGGESTED MANUFACTURERS.

A **ELECTRICAL**

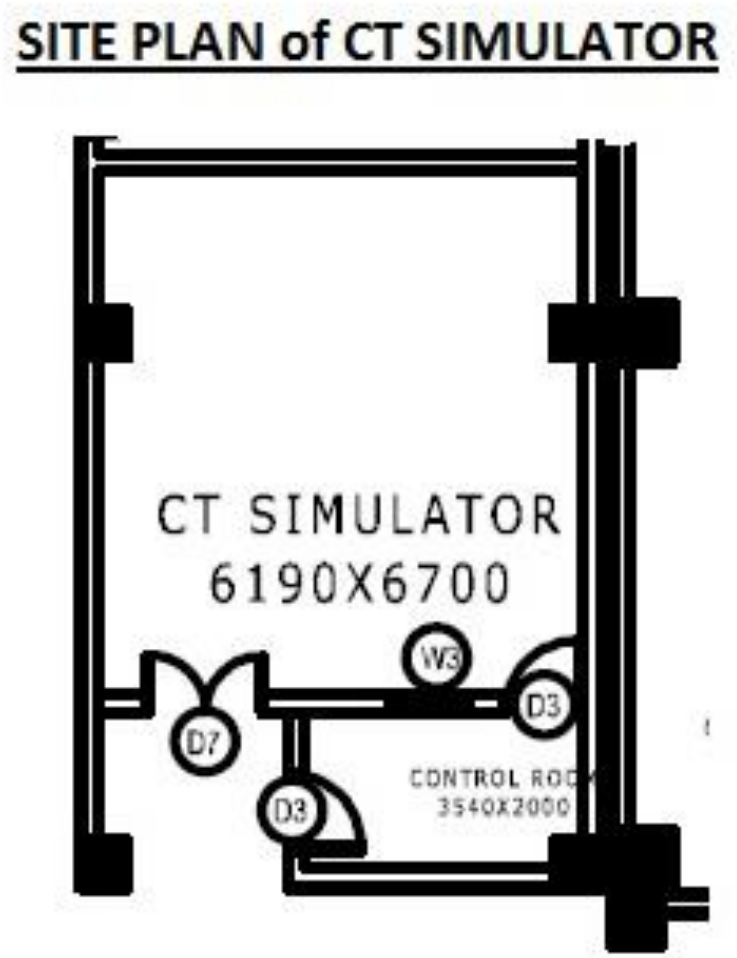
1. **CABLES** - Gloster, Universal, Polycab
2. **WIRES** - Finolex, Havells, V-Guard, RR Kabel, Gloster, Anchor
3. **SWITCHES** - Legrand, L&T, Crabtree , Roma, MK, Crabtree
4. **DISTRIBUTION BOX** , MCB - Legrand, L&T, Siemens, Havels
5. **LIGHT FITTINGS** - Philips / Crompton / Kesselec-Schreder / Wipro.

B **AIR CONDITIONING** -Daikin, Hitachi, Blue Star, Voltas

C **FURNITURE** -Hermen Miller, Godrej, Featherlite, Wipro

D **FALSE CEILING** - Armstrong, Saint Gobain, Luxalon.

Annexure-1: AERB approved Site and Facility Layout plan.



Item sl. no. 04

Radiotherapy Dosimetry Equipment

Radiotherapy Dosimetry Equipment and Patient Immobilization Devices

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_{Dw}) calibration factors with calibration certificate) shall be provided. For the calibration of electron beams **one** calibrated **parallel-plate ion chamber** (with N_{Dw} calibration certificate) shall also be provided. The chamber shall be a ROOS type or Markus type or NACP 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.

1.1.4 For Small field dosimetry, a dedicated design detector with latest technology based **micro/nano ion chamber (one number)** for extremely small field (5mmX5mm 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.

1.1.5 **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 30 x 30 cm size totalling a thickness of 30 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. Please note that these special slabs are in addition to the simple, solid slabs totalling a thickness of 50 cm. 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.

1.1.6 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 electro-mechanical 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/TAR 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/TAR/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. **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 – 250 sheets.
3.2. EBT3 Gafchromic Film: 8 x 10 inches – 50 sheets
3.3. **Flatbed Scanner with red channel (one Number):** Epson Expression 12000 XL-Photo 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 **Isocenter alignment device** (two numbers) that can measure accuracy of the gantry angle, collimator angle, couch angle, isocenter accuracy, optical-radiation field congruence, optical field readouts, etc shall be supplied.
4..2 An 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 levelling 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 (x-ray) exposure/dose rates of varying energy levels in minimum possible timeframe. Type of Detector may be of either GM detector or 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 (two 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.

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 Nos (Standard MOSFET = 20 Nos., Micro-MOSFET = 20 Nos.)

The vendor should provide a latest models of both standard MOSFET(2.5 mm wide) and MicroMOSFET (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 analyse 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.

iii. 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 $AL_2O_{3:c}$ of 5 mm diameter and 0.2 mm thick small plastic disks. It should be encased in 1x1x0.2 cm^3 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 sagital 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 and Pelvic Base Plate	5 set
5	Over Head arm positioning with carbon fiber Base or equivalent	5 set
6	Shoulder retractor system	2
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 Vacuum Pump (VP)	 5 set 5 set 5 set 5 set 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 50 (numbers) thermoplastic sheets for each site-specific offered base plates as mentioned above tables.

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

4. 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. Styrofoam cutter for photons 1 no.
v. Styrofoam cutter for electron 1 no.
vi. Alloy melter 1 no.
vii. Low/medium melt alloy 50 kg
viii. Styrofoam blocks 12”x12”x3” 1 set
ix. Styrofoam blocks 12”x12”x1” 1 set
x. Body calliper 2 nos.
xi. Curved stainless steel caliper 2 nos.
xii. Tissue compensator 2 sets
xiii. Rectal marker 2 nos.
xiv. CT markers (2mm dia) 500 nos.
xv. MRI markers 200 nos.

6. Total Skin Electron Therapy (TSET) with Electron patient positioning system having rotatable standing platform and fixed frame with two handgrips should be provided.

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 goodsby 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 on NPB basis.

d) Before commencement of CAMC period, the suppliers shall furnish a Performance Bank Guarantee for 2.5% of the cost of the equipment (as per Performa given in bidding document) valid till 3 months extra after expiry of entire CAMC period. The Performance Bank Guarantee for CAMC will be applicable in case of equipment cost is more than Rs.10 lakh.

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 liveable 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.

6. Turnkey Work:

Turnkey Work is to be indicated in the Technical Specification wherever required. The Bidder shall examine the existing site where the equipment is to be installed, in consultation with User Department. The Bidders are required to quote separately for the equipment and Turnkey Work as per Price Schedule. The Turnkey Work costs may be quoted in Indian Rupee and the same will be added for Ranking Purpose.

The Turnkey Work should completely comply with AERB requirement, wherever required.

SECTION - VIII

QUALIFICATION CRITERIA

1. The bidders must be a manufacturer. In case the manufacturer does not quote directly, they may authorise their authorized agent as per proforma of "Manufacturer Authorization Form" as given in the bidding document to quote and enter into a contractual obligation.

2. The Manufacturer should have supplied and installed in last Five years from the date of Bid Opening, similar equipment meeting major parameters of technical specification which is functioning satisfactorily.

3. In support of 2, the Bidder shall furnish Performance statement in the enclosed Proforma 'A'.

   The Bidder shall furnish Satisfactory Performance Certificate in respect of above, duly translated in English and duly signed alongwith the bid.

4. The Purchaser reserves the right to ask for a free demonstration of the quoted equipment after giving reasonable time to the bidder at a pre-determined place acceptable to the purchaser or at site (in case of non portable and heavy equipment) for technical acceptability as per the bidding document specifications, before the opening of the Price Bid.

PROFORMA 'A'

PROFORMA FOR PERFORMANCE STATEMENT

(For the period of last five years)

TE No. : _____

Date of Bid Opening : _____

Name and address of the Bidder : _____

Name and address of the Manufacturer : _____

Order placed by (full address)	Order no. and date ##	Description (Model no.) and quantity	Value of order (Rs.)	Consignee	Date of Delivery Period			Have the goods been functioning satisfactorily (attach documentary proof)**
					Contract	Actual	Reasons for Delay if Any	
1	2	3	4	5	6	7	8	9

We hereby certify that the details of all orders received in last 5 years of quoted equipment (including AIIMS, PGIMER, JIPMER, RML Hospital, Safdarjung Hospital, Institute of National importance) has been furnished. We hereby further 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 Bid Security.

Name_____

Business Address_____

Signature of Bidder_____

Place: _____ Seal of the Bidder_____

** The documentary proof will be a latest certificate from the consignee/end user with cross-reference of order no. and date

The bidders are requested to submit the purchase order copies for the specific model quoted along with the Techno-commercial Bid.

SECTION – IX

BID FORM

To
CEO
HLL Infra Tech Services Limited
B-14A, Sector-62
Noida – 201 307

Ref. Your TE No. _____due for opening on _____

We, the undersigned have examined the above mentioned bidding document, including amendment/corrigendum (*if any*), the receipt of which is hereby confirmed. We now offer to supply and deliver _____ in conformity with your above referred document for the sum as shown in the Price Schedules attached herewith and made part of this bid. If our bid is accepted, we undertake to supply the goods and perform the services as mentioned in the bidding documents, in accordance with the delivery schedule specified in the List of Requirements.

We further confirm that, if our bid is accepted, we shall provide you with a performance security of required amount in an acceptable form in terms of "General Conditions Contract", Section - IV read with modification, if any "Special Conditions of Contract", in Section - V, for due performance of the contract.

We agree to keep our bid valid for acceptance as required in the "General Instruction to Bidders", read with modification, if any in "Special Instructions to Bidders", Section – III or for subsequently extended period, if any, agreed to by us. We also accordingly confirm to abide by this bid up to the aforesaid period and this bid may be accepted any time before the expiry of the aforesaid period. We further confirm that, until a formal contract is executed, this bid 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 bid you may receive against your above-referred advertised tender enquiry.

We confirm that we do not stand deregistered/banned/blacklisted by any Central Govt. Ministries/Departments/Hospitals/Institutes.

We confirm that we fully agree to the terms and conditions specified in above mentioned bidding document, including amendment/ corrigendum if any**.**

"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 bid security."

Name_____

Business Address_____

Place: _____ Signature of Bidder_____

Date: _____ Seal of the Bidder_____

SECTION - X

PRICE SCHEDULE

A) PRICE SCHEDULE FOR DOMESTIC GOODS OR GOODS OF FOREIGN ORIGIN LOCATED WITHIN INDIA

1	2	3	4	5					6
Item Sr. No./ RFx no.	Brief Description of Goods	Country of Origin	Quantity (Nos.)	Price per unit (Rs.)					Total Price (at Consignee Site) basis (Rs.) 4 x 5(e)
				Ex - factory/ Ex -warehouse /Ex-showroom /Off - the shelf including packing charges (a)	GST (if any) Value (%age] (b)	Inland Transportation, Insurance for a period including 3 months beyond date of delivery, loading/ unloading and Incidental costs till consignee's site (c)	Incidental Services (including Installation & Commissioning, Supervision, Demonstration and Training) at the Consignee's site (d)	Unit Price (at Consignee Site) basis (e) =a+b+c+d	

Total Bid price in Rupees: _____ (in figures)

_____ (in words)

Note: -

1. If there is a discrepancy in prices the same will be evaluated as per clause 29 of GIB.
2. The charges for Annual CAMC after warranty shall be quoted separately as per Section-X – Price Schedule C

Name_____

Business Address_____

Place: _____

Signature of Bidder_____

Date: _____

Seal of the Bidder_____

B) PRICE SCHEDULE FOR GOODS TO BE IMPORTED FROM ABROAD

1	2	3	4	5							6
				Price per unit (Currency)							Total price on CIP Named Port of Destination + Insurance (local transportation and storage)
Item Sr. No./ RFx no.	Brief Description of Goods	Country of Origin	Qty (Nos.)	FOB price at port of Lading /FCA price at airport (a)	Indian Agency Commission (% of FOB)**	Net FOB	Freight &Insurance (port of loading to port of entry) and other Incidental costs (b)	Incidental Services (including Installation & Commissioning, Supervision, Demonstration and Training) at the Consignee's site (c)	Extended Insurance (local transportation and storage) from port of entry to the consignee site for a period including 3 months beyond date of delivery (d)	Unit Price on CIP Named Port of Destination + Extended Insurance (local transportation and storage) (e) = a+b+c+d	4X 5 (e)

** To be paid in Indian Currency (Rs.)

Total Bid price in _____ (currency to be mentioned) _____ (in figures)
_____ (in words)

Note: -

1. If there is a discrepancy in prices the same will be evaluated as per clause 29 of GIB.
2. The charges for Annual CMC after warranty shall be quoted separately as per Section – X – Price Schedule C
3. The Bidder will be fully responsible for the safe arrival of the goods at the named port of entry in good condition as per terms of CIP as per INCOTERMS, if applicable
4. Actual Custom duty applicable on the date of bid opening and 2% C& F charges will be added to the CIP price to arrive at free delivery at consignee site for evaluation purpose.

Indian Agent (Name and Address) :_____

Indian Agency Commission - ___% of FOB

Name_____

Business Address_____

Place: _____ Signature of Bidder_____

Date: _____ Seal of the Bidder _____

C) PRICE SCHEDULE FOR COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT (CAMS) AFTER WARRANTY PERIOD

1	2	3	4					5	6	7
Item Sr. No./ RFx no.	BRIEF DESCRIPTION OF GOODS	QTY (Nos.)	Annual Comprehensive Maintenance Contract Cost for Each Unit year wise*.					Total Annual Comprehensive Maintenance Contract Cost for Each Unit for 5 years (4a+4b+4c+4d+4e)	GST (if any) Value (%age]	Total Annual Comprehensive Maintenance Contract Cost (inclusive of GST) for 05 years 3 x (5+6)
			1st	2nd	3rd	4th	5th			
			a	b	c	d	e			

* After completion of Warranty period

Total CAMC price in Rupees: _____(in figures)

_____ (in words)

NOTE:-

1. If there is a discrepancy in prices the same will be evaluated as per clause 29 of GIB.
2. The cost of Comprehensive Annual Maintenance Contract (CAMC) 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 or the period as mentioned in the bidding document on yearly basis for complete equipment and Turnkey (if any).
3. The cost of CAMC may be quoted along with GST applicable on the date of Bid Opening.
4. Cost of CAMC will be added for Ranking/Evaluation purpose based on NPB as stipulated in the bidding document.
5. The payment of CAMC will be madeas stipulated in GCC.
6. The uptime warranty will be 95 % on 24 (hrs) X 7 (days) X 365 (days) basis or as stated in Technical Specification of the Bidding document.The stipulations in Technical Specification will supersede above provisions.
7. All software updates should be provided free of cost during CAMC period.
8. The supplier shall keep sufficient stock of spares required during Comprehensive Annual Maintenance Contract (CAMC) 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.

Name_____

Business Address_____

Place: _____ Signature of Bidder_____

Date: _____ Seal of the Bidder_____

D) PRICE SCHEDULE FOR TURNKEY WORK

Schedule No.	TURNKEY WORK	Turnkey Work price (in Rs.)	GST (if any) Value (%age]	Turnkey Work price (in Rs.) (including GST)

Total turnkey work price in Rupees: _____ (in figures)

_____ (in words)

Note: -

1. The cost of Turnkey Work (Civil/Electrical/Mechanical Engineering work) as per Technical Specification (Section VII) may be quoted on lump sum along with GST applicable on the date of Bid Opening.
2. Cost of Turnkey Work will be added for Ranking/Evaluation purpose.
3. The payment of Turnkey Work will be made as per GCC.

Name_____

Business Address_____

Place: _____ Signature of Bidder_____

Date: _____ Seal of the Bidder_____

SECTION – XI

CHECK LIST

The bidders should furnish specific answers to all the questions/issues mentioned in the Checklist detailed below:

CHECK LIST

Name of Bidder: _____

Name of Manufacturer: _____

Sl. No.	Activity	Yes/ No/ NA	Page No. of the Bids submitted	Remarks
1. a.	Have you enclosed Bid Security of required amount for the quoted schedules?			
b.	In case Bid Security is furnished in the form of Bank Guarantee, has it been furnished as per standard format of the bidding document?			
c.	In case Bank Guarantee is furnished, have you kept its validity 45 days beyond validity from Techno Commercial Bid Opening date?			
2.a.	Are you exempted for furnishing bid security being MSE as defined in MSE procurement policy issued by department of MSME.			
b.	If yes, have you enclosed certificate of registration issued by department of MSME.			
c.	Does such certificate clearly mention the quoted item?			
3. a.	Have you enclosed duly filled bid form as per bidding document?			
b.	Have you enclosed Power of Attorney in favour of the signatory?			
4. a.	Have you enclosed clause-by-clause technical compliance statement for the quoted goods vis-à-vis the Technical specifications?			
b.	In case of Technical deviations in the compliance statement, have you identified and marked the deviations?			
5. a.	Have you submitted satisfactory performance certificate as per the Proforma for performance statement given in the bidding document?			
b.	Have you submitted the documentary proof that goods have been functioning Satisfactorily?			

Sl. No.	Activity	Yes/ No/ NA	Page No. of the Bids submitted	Remarks
c.	Have you submitted latest purchase order copies?			
6.	Have you submitted Manufacturer's Authorization Certificate as per bidding document?			
7.a.	Have you quoted prices of goods, turnkey (if any), CAMC etc. in the Price Schedule as per bidding document?			
b.	If the ATE calls for buy back, have you quoted buy back prices along with applicable GST?			
8.	Have you kept validity of 270 days from the Techno Commercial Bid Opening date as per the bidding document?			
9. a.	In case of Indian Bidder, have you furnished GST No.?			
b.	In case of Foreign Bidder, have you furnished GST No. of your Indian Agent?			
10.	Have you intimated the name and full address of your Banker (s) along with your Account Number, IFSC Code etc.?			
11.	Have you furnished documents establishing your eligibility & qualification criteria as per bidding documents?			

N.B.

1. All pages of the Bid should be page numbered and indexed.
2. The Bidder may go through the checklist and ensure that all the documents/ confirmations listed above are enclosed in the bid and no column is left blank. If any column is not applicable, it may be filled up as NA.
2. It is the responsibility of bidder to go through the bidding document to ensure furnishing all required documents in addition to above, if any.
3. Wherever necessary and applicable, the bidders shall enclose certified copy as documentary proof/ evidence to substantiate the corresponding statement.
4. In case a bidders furnishes a wrong or evasive answer against any of the question/issues mentioned in the Checklist, its bids will be liable to be ignored.

Name_____

Business Address_____

Place: _____ Signature of Bidder_____

Date: _____ Seal of the Bidder_____

SECTION – XII

BANK GUARANTEE FORM FOR BID SECURITY

Whereas _____ (Name and address of the Bidder)
(*Hereinafter called the "Bidders"*)
Has submitted its Bid dated _____ for the supply of _____
(Hereinafter called the "Bid")
Against the purchaser's ATE No. _____

Know all persons by these presents that we _____ having our registered office at _____
(Hereinafter called the "Bank")
Are bound unto HLL Infra Tech Services Ltd., Noida (for and on behalf of AIIMS)
(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 Bidder withdraws or amends, impairs or derogates from the bid in any respect within the period of validity of this Bid.
2) If the Bidder having been notified of the acceptance of his Bid by the Purchaser during the period of its validity:-

    a. if the bidder fails or refuses to furnish the performance security for the due performance of the contract or
    b. if the bidder fails or refuses to accept/execute the contract or
    c. if it comes to notice at any time, that the information/documents furnished in its Bid are false or incorrect or 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 more the three conditions, specifying the occurred condition(s).

This guarantee will remain in force upto _____ *(insert date of additional forty-five days after Bid validity)* and any demand in respect thereof should reach the Bank not later than the above date.

.....
(Signature with date of the authorized officer of the Bank)
.....
(Name and designation of the Officer)
.....
.....
(Seal, name & address of the Bank and address of the Branch)

SECTION – XIII

MANUFACTURER'S AUTHORISATION FORM

The CEO
HLL Infra Tech Services Limited
B-14A Sector-62
Noida, Uttar Pradesh-201307

Dear Sir,

Ref: Your TE document No _____ dated _____

We, _____ who are proven and reputable manufacturers of_____(*name and description of the goods offered in the bid*) having factories at_____, hereby authorise Messrs_____(*name and address of the agent*) to submit a bid, 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 state that we are not participating directly in this bid for the following reason(s):
_____*(please provide reason here).*

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 bid, 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, CAMC 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.

We also hereby confirm that we would be responsible for the satisfactory execution of contract placed on the authorized agent and the spares for the equipment shall be available for at least 10 years from the date of supply of equipment.

We also confirm that the price quoted by our agent shall not exceed the price which we would have quoted directly"

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.*

SECTION – XIV

BANK GUARANTEE FORM FOR PERFORMANCE SECURITY/CAMC SECURITY

WHEREAS _____ (Name and address of the supplier) (Hereinafter called "the supplier")

has undertaken, in pursuance of Purchase Order/ Contract no_____ dated _____ to supply _____ (*insert description of goods and services*) (Hereinafter 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 recognized 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 _____ (insert *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.

This guarantee will remain in force upto _____*(insert date of additional Ninety days after completion of satisfactorily warranty period in case of Performance Security and additional Ninety days after completion of satisfactorily CAMC period in case of CAMC security)* and any demand in respect thereof should reach the Bank not later than the above date.

.....
(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 – XV

CONTRACT FORM - A

CONTRACT FORM FOR SUPPLY, INSTALLATION, COMMISSIONING, HANDING OVER, TRIAL RUN, TRAINING OF OPERATORS & WARRANTY OF GOODS

ALL INDIA INSTITUTE OF MEDICAL SCIENCES
(Insert Name of concerned Centre/ Hospital/ Department/ Section)
ANSARI NAGAR, NEW DELHI-110 029

Contract No_____ dated_____

To _____
(*insert name of Supplier with address*)

This is in continuation to this office's Notification of Award No_____ dated _____

1. Name & address of the Supplier: _____
2. ATE No of Bidding Documents: _____and subsequent Amendment No_____, dated_____ (if any), issued by the Purchaser
3. Supplier's Bid No_____ dated_____ and subsequent communication(s) No_____ dated _____ (if any), exchanged between the supplier and the purchaser in connection with this Bidding Document.
4. In addition to this Contract Form, the following documents etc, which are included in the Bidding Documents mentioned under paragraphs 2 and 3 above, shall also be deemed to form and be read and construed as integral part of this contract:

   (i) General Conditions of Contract;
   (ii) Special Conditions of Contract;
   (iii) List of Requirements;
   (iv) Technical Specifications;
   (v) Quality Control Requirements;
   (vi) Bid Form furnished by the supplier;
   (vii) Price Schedule(s) furnished by the supplier in its Bid;
   (viii) Manufacturers' Authorisation Form (if applicable);
   (ix) Purchaser's Notification of Award

   Note: The words and expressions used in this contract shall have the same meanings as are respectively assigned to them in the conditions of contract referred to above. Further, the definitions and abbreviations incorporated under clause 1 of Section II – "General Instructions to Bidders" of the Bidding Document shall also apply to this contract.

5. Some terms, conditions, stipulations etc. out of the above-referred documents are reproduced below for ready reference:

   (i) Brief particulars of the goods and services which shall be supplied/ provided by the supplier are as under:

Schedule No.	Brief description of of goods/services	Accounting unit	Quantity to be supplied	Unit Price	Total price	Terms of delivery

Any other additional services (if applicable) and cost thereof: _____
Total value (in figure) _____ (In words) _____

(ii) Delivery schedule:_____

(iii) Details of Performance Security required:_____

(v) Destination and despatch instructions:_____

(vi) Consignee: _____

6. Warranty clause:

7. Payment terms:

_____
(Signature, name and designation of the Purchaser authorised official)
For and on behalf of Director, AIIMS

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 _____
(*Insert Name and address of the supplier*)

(Seal of the Supplier)
Date: _____
Place: _____

CONTRACT FORM – B

CONTRACT FORM FOR COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT (CAMC)

Comprehensive Annual Maintenance Contract No._____
Dated_____

Between

Director, AIIMS

And

(*insert Name & Address of the Supplier*)

Reference: Contract/ Purchase Order No_____ dated_____ for supply, installation& commissioning, Training and CAMC of goods& services.

In continuation to the above referred Contract/Purchase Order, the Contract of Comprehensive Annual Maintenance Contract is hereby concluded as under: -

1	2	3	4					5	6
Items Sr. No./ RFx no.	Brief description of goods	Quantity (Nos.)	CAMC Cost for Each Unit year wise in Rs					GST Value in Rs (___ %)	Total CAMC Cost for 5 Years with GST (3) X[(4a+4b+4c+4d+4e) + (5)]
			1st	2nd	3rd	4th	5th		
			a	b	c	d	e		

Total value (in figure) _____ (In words) _____

b) The CAMC 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 CAMC)

c) The cost of Comprehensive Annual Maintenance Contract (CAMC) which includes preventive maintenance, labour and spares, after satisfactory completion of Warranty period as contained in the above referred contract on yearly basis for complete equipment as per contract including Turnkey Work(if any).

d) There will be 95% uptime warranty during CAMC period on 24 (hrs) X 7 (days) X 365 (days) basis, with penalty, to extend CAMC period by double the downtime period and other penalty as per contract.

e) During CAMC 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 3 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 CAMC period.

g) The Bank Guarantee valid till _____ [(fill the date) 3 months after expiry of entire CAMC 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 XIV of the Bidding Document, along with the signed copy of CAMC within a period of 21 (twenty one) days of start of CAMC failing which the Performance Security (10% of the contract value) submitted shall be en-cashed payable to the Purchaser/Consignee.

h) If there is any lapse in the performance of the CAMC as per contract, the proceeds Annual CAMC Bank Guarantee shall be forfeited and their bad performance will be considered while awarding future contracts.

i) Payment terms: The payment of CAMC will be made against the bills raised by the supplier on six monthly basis after satisfactory completion of said period, duly certified by the concerned User Department. The payment will be made in Indian Rupees.

_____
(Signature, name and designation of the Store Officer/ASO of the Purchaser**)**

_____
(Signature, name and designation of the F&CAO of the Purchaser)
For and on behalf of Director, AIIMS

(Seal of the Purchaser)
Date: _____
Place: _____

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 _____
(*Insert Name and address of the supplier*)

(Seal of the Supplier)
Date: _____
Place: _____

Note:- The contract will be prepared on Non-judicial Stamp paper(currently of value of Rs. 100).

SECTION – XVI

CONSIGNEE RECEIPT CERTIFICATE

(To be given by consignee's authorized representative)

The following store(s) has/have been received in good condition:

1) Contract/Purchase Order No. & date: _____

2) Supplier's Name: _____

3) Consignee's Name & Address: _____

4) Name of the item supplied: _____

5) Quantity Supplied: _____

6) Date of Receipt by the Consignee: _____

7) Signature of Authorized Representative of Consignee with date:_____

8) Name and designation of Authorized Representative of Consignee:_____

9) Seal of the Consignee:_____

SECTION – XVII

CONSIGNEE ACCEPTANCE CERTIFICATE

(To be given by consignee's authorized representative)

This is to certify that the goods as detailed below have been received in good conditions along with all the standard and special accessories in accordance with the contract. The same has been installed and accepted.

1) Contract/Purchase Order No. & date:_____

2) Supplier's Name:_____

3) Consignee's Name & Address: _____

4) Name of the item Supplied :_____

5) Quantity Supplied :_____

6) Date of Receipt by the Consignee :_____

7) Date of Installation/Commissioning and Acceptance of Equipment: _____

8) The supplier has fulfilled its contractual obligations satisfactorily

OR

The supplier has failed to fulfill its contractual obligations with regard to the following:

i)
ii)
iii)
iv)

9) The amount of recovery on account of failure of the supplier to meet his contractual obligations is_____ (here indicate the amount).

10) Signature of Authorized Representative of Consignee with date:_____

11) Name and designation of Authorized Representative of Consignee:_____

12) Seal of the Consignee:_____