BIDDING DOCUMENT

(Two Bid System for Machinery & Equipment)

FOR

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

NIB Ref: HITES/PCD/NCI-AIIMS/45/21-22

HITES
HLL INFRA TECH SERVICES LTD

B-14 A, Sector-62, Noida - 201 307
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SECTION -I

NOTICE INVITING BIDS (NIB)

ALL INDIA INSTITUTE OF MEDICAL SCIENCES

Ansari Nagar, New Delhi-110 029

NIB Ref: HITES/PCD/NCI-AIIMS/45/21-22 **Dated: 24.05.2021**

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 procurement of following goods & services at **National Cancer Institute-AIIMS, Jhajjar, Haryana.**

Sl. no.	Tender ID	Short Description of goods	Quantity	Bid Security (BS) (Rs.)	Tender Processing Fee incl. GST (Rs.)
1	2021_HLL_78018_1	a) Supply of PROTON Therapy System along with all accessories as per asked Technical specification and b) Construction of Building, infrastructure, any other allied services including installation & commissioning of above Proton Therapy system	1 set	1,00,00,000	5,900

Pre-bid conference meeting with prospective bidders		**Scheduled Date & Time**
Pre-bid meeting:	Through Video-Conferencing and a web-link will be provided on HITES website 24 hrs prior to this meeting: http://hllhites.com/tenders	03.06.2021 at 02:00 PM
Last date and time of submission of tender:		07.07.2021 at 02:00 PM
Date and time of tender opening:		08.07.2021 at 02:30 PM

Contact Person: AVP(PCD), HITES; Email: hll.ncij@hllhites.com

2. Interested bidders are advised to download the Bidding document from the websites www.hllhites.com or www.lifecarehll.com or https://etenders.gov.in/eprocure/app for complete details.

3. Bidders shall ensure that their tender(s), complete in all respects, are submitted online through CPPP website: https://etenders.gov.in/eprocure/app only**.**

4. The Bidder shall download the Bidding Document directly from the designated websites and shall not tamper/modify it including downloaded Price Bid template in any manner. In case the same is found to be tempered/modified in any manner, Tender/Bid will be summarily rejected and EMD would be forfeited.

5. Bidders are advised to follow the instructions, for registering and online submission of their bid(s), as provided in the CPPP website and are requested to read them carefully before proceeding for bidding.

6. Bidders should be in possession of valid Digital Signature Certificate (DSC) of class III for online submission of bids. Prior to bidding, DSC need to be registered on the website mentioned above.

7. 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.

8. 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 venue before the scheduled date & time. Tender processing Fee is required from all the bidders irrespective of their registration with NSIC or any other Govt. Organisation.

9. **Tender Processing Fee and Bid Security (BS) in original** should be deposited, before the scheduled latest date & time of tender submission as mentioned above, 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,** failing which the bid shall be summarily rejected.

10. 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 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) "DAP (at point of destination)" means 'Delivered at Place' – the seller delivers when the goods are placed at the disposal of the buyer on the arriving means of transport ready for unloading at the named place of destination. Under DAP terms, the risk passes from seller to buyer from the point of destination mentioned in the contract of delivery. The customs clearance in the importing country needs to be completed by the buyer including payment of all customs duties and taxes
(xvi) "INCOTERMS" means International Commercial Terms as on the date of Bid Opening
(xvii) "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 HITES provided by the ultimate 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 Bid" (NIB), 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
Appendix A – Integrity Pact
Appendix-B – Public Procurement (Preference to MII), Order 2017– Revision
Appendix-C – Restrictions under Rule 144 (xi) of the GFR, 2017

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 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:

A) Techno-commercialBid (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 favour of the signatory 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. *When any services (like installation, commissioning, CAMC, etc.) are rendered by any company in India, payment for such services can only be made in INR where GST will be applicable. GST registration & PAN card are required from Indian Firms only, who provides such services.*

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 non-judicial stamp paper for preceding three years.

xiv) A declaration 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) Technical and Commercial Compliance statement in excel format provided in the e-tender portal.

xvi) Product catalogues/ Data Sheets for quoted equipment.

xvii) Copies of quality certificates, if applicable, namely, BIS, ISO, FDA, CE, etc. as specified in the technical specification at Section VII.

xviii) The Integrity pact (At Appendix-A) on non-judicial stamp paper shall be a part and parcel of this document and has to be signed by bidder(s) at the pre-tendering stage itself, as a pre-bid obligation and should be submitted along with the Techno-Commercial Bids. All bidders are bound to comply with the integrity pact clauses.

B) Price Tender:

Price Schedule(s) as per format provided in the portal, duly filled in with all the details including Make, Model, HSN Code etc. of the goods offered, is to be uploaded.

The price bid format is provided in excel format along with this Bidding Document at https://etenders.gov.in/eprocure/app

Bidders are advised to download this Price Bid Format as it is and quote their offer/rates in the permitted column and upload the same in the Price Bid. **Bidder shall not tamper/modify the downloaded price bid template in any manner**. The Instruction given in the Price Bid Format shall strictly be adhered to.

Note:

The tender Processing fee, BID SECURITY and **Integrity Pact (Appendix A) on non-judicial stamp paper** has to be submitted in physical form as per Section – I, Notice Inviting Tender of this tender enquiry.

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.

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 1 Year 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 consignee site) 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 Storage Insurance for a period of 1 year from the date of delivery at consignee site.
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, DAP 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 and, also, will continue to remain registered during the tender validity period as Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy 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 and mandatorily declare the firm's UAM (Udyog Adhaar Memomorandum) on CPPP, failing which such bidders will not be able to enjoy the benefits as per Public Procurement Policy for MSEs Order 2012.

Note: Traders/resellers/distributors/authorized agents will not be considered for availing benefits under PP Policy 2012 for MSEs as per MSE guidelines issued by MoMSME

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** or **Fixed Deposit Receipt** 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 this document.

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 online as per the instructions contained in GIB Clause 11 and any other specific instruction mentioned in the CPPP portal using the digital signature.

21.2 Unless otherwise mentioned in the SIB, a bidder shall submit their bid online only.

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.

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.

22.3 Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

22.4 The bidder has to digitally sign and upload the required bid documents one by one as indicated in the Bidding document.

22.5 Bidder has to select the payment option as “offline” to pay the Bid Security/ EMD as applicable and enter details of the instrument.

22.6 Bidder should prepare the Bid Security/EMD as per the instructions specified in the Tender Enquiry Document. The original should be dropped in the Tender Box latest by the last date of bid submission or as specified in the Bidding Document. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.

22.8 The server time (which is displayed on the dashboard of the e-tendering portal) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

22.9 Upon the successful and timely submission of bids (i.e. after Clicking “Freeze Bid Submission” in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

22.10 The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

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 not enclosed.
(ii) Bid is digitally signed by a person outside the bidder's organisation without having a specific authorisation.
(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 desired 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) Bidderis 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.
(xiii) The Integrity pact (At Appendix-A) on non-judicial stamp paper shall be a part and parcel of this document and has to be signed by bidder(s) at the pre-tendering stage itself, as a pre-bid obligation and should be submitted along with the Techno-Commercial Bids. All bidders are bound to comply with the integrity pact clauses.

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.

30.2 The Purchaser reserves the right to relax the Norms on Prior Experience for Start-ups and Micro & Small Enterprises in Public Procurement. Relaxation is applicable only to all startups which are recognised by Department for Promotion of Industrial & Internal Trade (DPIIT) subject to meeting of quality and technical specifications.

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.

32. Schedule-wise Evaluation

32.1 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 Civil Works 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 'specified number of years in the List of Requirement at Section-VI' 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, interalia, 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 therein 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	No Change	
C	11 to 21	Preparation of Bids	Change in GIB Clause no. 11.1 A) iv. & 19	
	19		Additional para 19.9 as under	16
D	22 to 24	Submission of Bids	No Change	
E	25	Bid Opening	No Change	
F	26 to 36	Scrutiny and Evaluation of Bids	Change in GIB Clause no. 33	
	33	Comparison of Bids	Additional para 33.2 as under	21
G	37 to 44	Award of Contract	No Change	
H	45	Corrupt or Fraudulent Practices	No Change	

11.1 A) iv. No sub-authorisation required other than Main Equipment (i.e. Proton Therapy System)

19. Bid Security (BS)

19.9 HITES Bank details for necessary issuance of 'Structured Financial Messaging System (SFMS)' in case the Bid Security (i.e. EMD) is submitted in the form of Bank Guarantee:

Name of the Beneficiary	Bank Details	Bank A/c. no.	IFSC Code
HLL INFRA TECH SERVICES LTD.	HDFC BANK LTD, NOIDA, UTTAR PRADESH	57500000119955	HDFC0000088

33. Comparison of Bidsi

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.

Added Para (Ref. GIB Clause 33 & 34):

The comparison of bids will be based on GIB Clause 33, 34 and if any, as specified in the Technical specification(s). However, at the time of award of contract, the value of award (bid value/contract value) shall be limited to the upfront charges payable by the exchequer for Supply, Installation, Testing & Commissioning value only on DDP basis which is inclusive of warranty (for number of years specified at section VI; List of Requirement, Part I) and any other item(s)/services detailed for upfront purchase in the technical specifications. The cost of any other parameters like CAMC price beyond the warranty period, cost of any Consumables, any other recurring expenditure, etc. which have been considered for ranking of bids or for freezing of rates shall not be part of tender/award/bid/contract value.

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, Bureau 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/priorwritten 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 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 upto 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 towards the supply of main equipment:

a)

(i) Unconditional Order acceptance,
(ii) Irrevocable and first demand bank guarantee issued by first class bank with S&P rating (at least equivalent to A-1). The bank guarantee shall be valid till Delivery of the Goods at Consignee Site {initially valid at least for 2 years from the date of its issuance which shall be released after 100% receipt of Goods at Consignee site},

(iii) Certificate from the purchaser that all drawings and specifications for the construction of the building (IBD) have been received.

b) 20% of the CIP consideration will be paid against submission of :
   (i) Irrevocable and first demand bank guarantee issued by first class bank with S&P rating (at least equivalent to A-1). The bank guarantee shall be valid till Delivery of the Goods at Consignee Site {initially valid at least for 2 years from the date of its issuance which shall be released after 100% receipt of Goods at Consignee site},
   (ii) Certificate from Supplier stating that the Supplier or its subcontractor(s) have procured major third party materials for cyclotron, viz. machined steel, etc. supported by its invoice copy(ies). The purchaser reserves the right to visit the manufacturing unit at its own cost to confirm the same.

c) 30% of the CIP consideration will be paid through an irrevocable, non-transferable Letter of Credit opened in favour of the supplier in a bank in his country (for an equivalent amount of 70% CIP consideration, i.e. after adjusting the previous advances of 30%) and upon submission of documents specified hereunder:

   (i) Performance Bank Guarantee for an amount equivalent to 10% of the DDP consideration of the equipment from an International/ national/ scheduled first class bank with S&P rating (at least equivalent to A-1) which will be valid till 15 months beyond the Final Acceptance of the installed equipment.
   (ii) Commercial Supplier's Invoice giving full details of the goods including quantity, value (as 100%), etc.;
   (iii) Packing list;
   (iv) Certificate of country of origin;
   (v) Negotiable clean Bill of Lading/Airway Bill;
   (vi) Insurance Certificate (from supplier's Wire house to Consignee site);
   (vii) Supplier's/Manufacturer's Warrantee and Inspection certificate;
   (viii) Inspection certificate issued by the Purchaser's Inspector; (if applicable)
   (ix) Any other document(s) as and if required in terms of the contract.

d) 15% of the CIP consideration will be paid through above Letter of Credit on submission of certificate from Supplier and the purchaser confirming 1st beam extraction on degrador.

e) 15% of the CIP consideration will be paid through above Letter of Credit upon successful installation of the complete Proton Therapy system and when it generates the Beam data for AERB submission.

f) 10% of the CIP consideration will be paid through above Letter of Credit upon successful Final Acceptance and receipt of AERB approval of the whole system.

B) Payment of Custom Duty: Custom Duty shall be paid by HITES on verification of all dispatched documents and after generation of Bill of Entry against CDEC. The supplier should notify the dispatch details atleast 3 days prior to reaching the Goods at the destination Airport or 15 days prior to reaching Destination Sea Port for arranging CDEC from AIIMS for timely lodgement of Bill of Entry. Any penalty in Custom Duty or demurrage due to delay in Custom clearing of Goods due to improper documentation(s) shall be on account of the supplier.

C) Payment for Indigenous Goods and/or Services Or Goods of Foreign Origin offered in INR (except Civil Works).

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).

D) 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.

E) Payment of Construction of Building, infrastructure, any other allied services including installation & commissioning of above Proton Therapy system:

1. Construction cost of Proton building must be quoted in Indian Rupees.
2. All running/intermediate & final payments shall made to the agency in accordance with the following schedule after satisfactory completion of activity indicated below and payment shall be released after recommendation by ESD, NCI, AIIMS-Jhajjar.
3. Mobilization advance 10% of construction cost may be given against 110% amount Bank Guarantee bond from schedule bank in India with validity till recovery. The mobilization advance bears simple interest at the rate of 10% per annum and shall be calculated from the date of payment to the date of recovery (both days inclusive), on the outstanding amount of advance. Recovery of mobilization advance shall be made by the deduction from the vendor bill commencing after 10% of the gross value quoted by the vendor is executed and paid on Pro-rata percentage basis to gross value of the work billed beyond 10% in such a way that the entire advance is recovered by the time 80% of the gross value of the construction cost quoted by the vendor.

   a) 10% amount will be paid on submitting Soil Investigation, Planning, Arch. & structural drawings and obtaining all approval from local bodies/other bodies etc.
   (All structural drawing shall be vetted from institute like IIT- Delhi/ Roorkee/ Bombay/ Kanpur after approval of Arch. Drawing from ESD, NCI).

b) 30% amount will be paid on submitting approval of Design mix for RCC work, completion of basement including Execution, water proofing of basement floor & walls RCC Raft etc.
c) 15% amount will be paid on completion of columns, walls and first slab level RCC work etc.
d) 15% amount will be paid on completion of columns, walls up to roof slab level (complete structure RCC work).
e) 10% amount will be paid on completion of super structure including Brick work, Plaster, Water Supply line, Drainage line, fire-fighting line, complete water proofing work, lift pits, internal electrical installations, ventilation system, HVAC work, CCTV wiring, Building management system (BMS) for HVAC.
f) 10% amount will be paid on completion of all finishing work for Internal/External of building including Flooring, Toilets, HVAC complete work, lifts, fire alarm system, fire-fighting system, sprinkle system, generator set, etc., placing of all medical equipment in rooms, furniture's, telephones/ internet, computers etc.
g) 10% amount will be paid on completion of all internal work including External Development work and Horticulture work, CCTV, cleaning complete in all respect etc.

F) 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 part only 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.

Sl. No.	GCC Clause No.	Topic	SCC Provision	Ref. Page No.
A	10	Transportation of Goods	Change in clause 10.1	
B	11	Insurance	Change in clause 11.1 i) & ii)	
C	15	Warranty and CAMC	Change in clause 15.4	

10.1 Part-shipments are allowed provided the prices of all such part supplied items are available in the price bid. The supplier is required under the contract to deliver the goods under DAP (place of destination) terms.

11.1

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 **1 year** after the receipt of goods by the Consignee.

ii) In case of supply of the imported goods on **DAP (named place 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 **1 year** 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.

15.4 Warranty as well as Comprehensive Annual Maintenance Contract will be inclusive of all accessories 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

Note: For Proton Building twelve month defect liability and maintenance and subsequent handing over to ESD at NCI as mentioned in technical specification.

Any specific clause, mentioned in the technical specification shall prevail and will supersede the similar clause mentioned anywhere in the Bidding Document.

The applicable period of warranty & CAMC shall be as mentioned in the List of Requirement as per section VI of this Bidding Document.

SECTION- VI

LIST OF REQUIREMENTS

Part I:

Sl. no.	Tender ID	Short Description of goods	Quantity	Warranty Period	CAMC period after warranty
1	2021_HLL_78018_1	a) Supply of PROTON Therapy System along with allaccessories as per asked Technical specification and b) Construction of Building, infrastructure, any other allied services including installation & commissioning of above Proton Therapy system	1	1 year	14 years

Part II: Required Delivery Schedule:

For Indigenous and/or Imported goods:

The Bunker should be ready within twelve (12) month from the date of regulatory approval and subsequent supply & installation of equipment shall be completed within ten (10) month.

In case of LC opening, necessary documents like valid Performance Security and Proforma Invoice are to be submitted in advance to suit the above timeline.

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:

As per INCOTERMS DAP (named place of destination) basis

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	Contact Address	Air Port	Sea Port
The Director, National Cancer Institute – AIIMS (Jhajjar Campus) GST no. 06RTKA15775E1DM	Badsha Village Jhajjar, Haryana	New Delhi	ICD Tuglakabad (for containerised shipments) Or ICD Patparganj

Note: The consignee will ensure timely issue of e-LORA, PNDT, CDEC etc., wherever applicable to the supplier.

SECTION - VII

TECHNICAL SPECIFICATION AND GENERAL POINTS

A. TECHNICAL SPECIFICATION:

Item no. 1 (Tender ID: 2021_HLL_78018_1)

Proton Therapy System with Scope of building construction & related facilities

System Overview:
Sealed tenders (sealed separately as the "Technical Bid & the Price Bid" are invited for the supply of state-of the-art (at the time of supply) pencil beam scanning technology based **Compact Single-Room Proton Therapy System** capable of Image-Guided, Intensity Modulated Proton Therapy (IG-IMPT). The Proton therapy system must have the latest technology and should be fully computer controlled. The proton therapy system includes particle accelerator, proton treatment gantry room, in-room imaging system, treatment planning system, oncology information system, dosimetry and quality assurance equipment, patient positioning and immobilization devices. The proton therapy system should be capable of integrating with standard computer networking and PACS systems available in the market and Institute.

I Technical specifications for Compact Single-Room Proton Therapy System:
The offered equipment should have the following technical features.

1. Clinical Proton Beam Specification:
The clinical proton beam should have following technical specification:

1.1 Beam Energy: The energy range necessary to treat from body surface up to 32g/cm2 over the clinical range of field sizes. The beam energy should be in the range of 70-250 MeV at nozzle exit at isocenter.
1.2 Energy Range without range shifter: 4 g/cm^2 to 30 g/cm^2 or more in water.
For ranges below 4 g/cm^2 the range shifters should be provided
1.3 Range accuracy: $\pm$0.1 g/cm^2
1.4 Range adjustment: continuous or specify any other method.
1.5 Range stability: 0.03 g/cm^2
1.6 Maximum treatment field size: greater than 20 x 24 cm^2 or more
1.7 Minimum treatment field size: 1 spot
1.8 Beam spot size: should be in the range of 3 to 8 mm for the maximum to minimum proton energy respectively. If not, vender to specify their system value.
1.9 Relative spot position accuracy in a layer: $\pm$ 10% sigma or <1.5mm

1.10 Beam Spot Uniformities and profiles:
1.10.1. Lateral penumbra 80-20% for a single spot: should be of 1.13xspot size (sigma).
1.10.2. Lateral penumbra 80-20% for a map of even spots equally spaced by one sigma should be of 1.6x spot size (sigma).
1.10.3. Lateral penumbra 80-20% for a map of spots optimized by the TPS for lateral penumbra enhancement it should be of 1.3 to 1.6x spot size (sigma).
1.10.4. Distal dose fall-off above the physical limit of single bragg peak (80%-20%) should be less than 0.2g/cm^2. If not, the vendor should specifyas per their system.

1.11. Beam Monitoring System and Beam Monitor Units:

The vendor should specify about the detectors which use to measure the spot fluence, spot position, shape and size. Specify number of beam fluence monitors and beam position monitors/detectors used and its sensitive area, charge resolution and readout frequency. The monitor unit accuracy should be as follows;

1.11.1. Minimum no. of monitor units per spot: 0.01MU. If not, specify
1.11.2. Maximum no. of monitor units per spot: 12 MU. If not specify.
1.11.3. Monitor Unit reproducibility: ≤1%
1.11.4. Monitor unit proportionality factor: ±1.5% or 1.5 MU

1.12. Beam intensity: average dose rate: should be sufficient to produce > 2Gy/min per litre over full range of field sizes.
1.13. Dose reproducibility: should be of +/- 1cGy or +/- 2%
1.14. Dose uniformity: +/-3% over treatment volume.
1.15. Average Effective (source-to axis distance) SAD: > 2 m. If not, specify.
1.16. Specify treatment time to deliver 2Gy to a 1 litre cube centered at a depth of 10cm.
1.17. Layer switching time: <1sec. If not, specify.
1.18. Agreement between planned and delivered dose for IMPT: >95% of evaluated points in the central 80% of the field should fulfill the gamma criteria of 3%/3mm.

2. Particle Accelerator Specification:

2.1. The type of particle accelerator should be of advanced cyclotron or synchrotron or linear accelerator based.
2.2. The particle accelerator should be of compact footprint size to minimize structural and maintenance cost for maximum efficiency.
2.3. The life expectancy of the primary hardware components of the accelerator(s) should be of 30 years or greater.

3. Gantry and Nozzle Specifications:

3.1. The gantry should be equipped with dedicated pencil beam scanning (PBS) nozzle.
3.2. Field shaping should be either by pencil beam scanning technique of continuously, layer by layer spot scanning or proton multileaf collimator system/technique.
3.3. The nozzle should have ability to use various sizes of snouts, range shifter and ridge filter and multiple accessories (multiple slots).
3.4. The vendor should provide various sizes of snouts, range shifter and ridge filter compatible with nozzle with appropriate holders.
3.5. The gantry should have rotation angle in the range of 185-360 degree.
3.6 Maximum deviation of gantry rotation angle should be: < 0.5 degree.
3.7. Gantry rotational speed range should be : from 1degree/sec to 6degree/sec. Please specify maximum gantry speed.
3.8. Mechanical isocentricity: ≤1 mm radius at isocenter over full rotation

4. Patient Positioning System specification:

All coordinates, movements and scales should be as per the IEC61217 nomenclature**.**

4.1. The patient positioning system must be compatible with standard radiotherapy immobilization devices and the ancillary imaging equipment.
4.2. Specify maximum and minimum of the treatment table x, y, z movements.

4.3. Specify the lowest table top position above floor.
4.4. Isocentric rotation accuracy should be: ≤1.0 mm.
4.5. Maximum speed of translation motion should be: ≤ 10 cm/sec

Maximum speed of rotation should be: ≤ 6^0 per sec.
The robotic patient positioning systems should have 6 degree of freedom (3 rotational and 3 translational movements).
Robotic patient positioning accuracy should be: ± 5^0

4.6. The attenuation of the treatment beam through the positioning assembly at any angle shall be < 5%.

4.7. The positioning system should be capable of handling patients up to 230 Kg.

4.8. Software control or hardware interlocks should prevent patient positioning system, nozzle and floor collision.

4.9. The patient positioning system shall be capable and compatible in accommodating anesthesia equipment and should have mechanisms for attaching IV poles, cardiac monitors, CO2 monitors, etc. The system should permit placement of a patient on a treatment table and induction of anesthesia in a separate induction room; movement from the induction room to the treatment room; docking with the treatment unit; imaging for alignment; and treatment, all without moving the patient from the table.

4.10. The minimum three green laser patient alignment system should be provided.

4.11. Anesthesia Equipment: Treatment room, console, anesthesia and recovery room must have anesthesia and monitoring equipment installed. This will include in-room access to gases as well as a number of ports sufficient for cabling of current and predicted future monitoring equipment.

4.12. Room ports: Five or more adequate number of ports should be installed in treatment room to allow future addition of cables and other equipment into the treatment room. The ports will be distributed in size from 2 inch to 4 inches and will run from the treatment control area to a minimum of two locations inside the treatment room.

4.13 Rail free and flat carbon fiber couch top for non-perturbation of proton range should be provided

4.14 6D correction vector derived from the image registration should be seamlessly/automatically transfer to patient positioning system and correct automatically.

5. Image Guidance system specifications:

Image guidance system: The image guidance system for patient setup and alignment should consist of either 2D planar stereotactic orthogonal x-ray system and 3D cone beam computed tomography (CBCT) imaging or in-room CT imaging. The system should have capability of high quality imaging in a less time with lower radiation dose.

5.1. Stereoscopic orthogonal 2D-x-ray KV image guidance system: vendor should provide a orthogonal KV-based planar x-ray imaging for offline verification and stereoscopic image guidance system for real-time verification with following technical specification.

5.2. Specify the offered system's KVp, mA ranges and its reproducibility accuracy, high contrast and low contrast resolution and maximum imaging dose and image registration algorithm available and image registration accuracy.

5.3. CBCT image guidance system: The vendor should provide either gantry-mounted CBCT or nozzle-mounted CBCT having a flat-panel imager for patient setup 3D localization and verification of target at the time of treatment.

5.4. Vendor should provide the advanced acquisition and reconstruction methods and specify the geometry area and FOV of the flat panel, image reconstruction time, HU accuracy, HU uniformity, high contrast spatial resolution, low contrast resolution/detectability, frame rate, slice thickness, CTDI value for head, pelvis, Focal spot and thorax protocol and image registration algorithms available and image registration accuracy with the offered system.

5.5. The vendor should provide the required phantoms and detectors including dedicated laptop for commissioning, QA of imaging modality and validation of the system for clinical implementation.

6. Motion Management System Specifications:

The vendor should provide hardware and software including interfaces for motion management systems. The motion management system should have both motion monitoring system and motion mitigation system for offered proton therapy system with following specifications:

6.1. Motion monitoring system: The surface guided radiation therapy (SGRT) system should have following technical specification:

6.1.1. The vendor should provide latest available user workstation with latest configuration and advanced and latest model of optical surface tracking system.

6.1.2. 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.

6.1.3. The system should support for patient positioning /surface mapping and intra-fraction motion tracking /monitoring.

6.1.4. It should have minimum 3 pods and 6 cameras in the treatment room.

6.1.5. It should calculate positioning errors in 6 degrees of freedoms

6.1.6. The system should have automatic beam hold capability

6.1.7. It should allow import of images, iso-centers & volumes in DICOM RT format.

6.1.8. It should support region of interest definition for patient registration.

6.1.9. The system should facilitate the 4D treatment.

6.1.10. The system should use either rigid or deformable models for assessment of patient positioning errors.

6.1.11. The system should check the patient position more than once every second with sub millimetre accuracy.

6.1.12. System should be able to track in coplanar and non-coplanar positions.

6.1.13. System should have a provision of either audio-visual coaching apparatus or real time coach (RTC) apparatus to detect the deviation outside the set tolerance which also helps the patient to follow optimal breathing pattern.

6.1.14. System should gives the information of surface change by colour mapping of the change surface & also provide the percentage of change.

6.1.15. System should have advanced camera optimization feature if available to get better outcomes.

6.1.16. The optical scanning system should support for 4D CT imaging acquisition and should be installed both in the CT room and also treatment room

6.1.17. All necessary phantoms and QA systems /tools/gadgets required for commissioning and validation tests for clinical implementation of above systems should be provided.

6.1.18. It should have a comprehensive QA checks

6.1.19. The system must be FDA approved or CE marked.

6.2. Motion Mitigation System: The motion mitigation system should have following specification:

Vendor should provide either repainting/rescanning strategies (both in-layer repainting and volumetric repainting) or external marker-based respiratory gating technique or any other equivalent solution for motion management for the offered pencil beam scanning proton therapy system.

6.3. Optional and Innovative features/techniques: Vendor should quote all commercially available optional items/features for delivering image-guided PBS

intensity modulated proton beam therapy and their prices should be quoted seperately and these prices are not considered for L1 calculation.

6.4. Vendor should also quote the innovative techniques/features for enhancing treatment quality, patient throughput and overall improvement in the proton beam therapy in order to purchase when it is commercially available.

7. Radiation Safety Requirements:

The safety of the entire system is of paramount importance. While safety is difficult to specify, a safe system will include redundant guards against any conceivable failure mode. Specific attention must be given to beam delivered outside the chosen target area, incorrect dose rate, incorrect total dose, collisions of patient with nozzle components, avoidable exposure to facility workers, and accidents involving fire, electrical or vacuum systems. Control system hardware and software must pass strict safety and quality assurance tests. The entire facility will be required to meet relevant national and international safety standards for patient treatment devices. Control systems and all patient-related hardware must be designed to be "fail-safe", that is, the consequences of a failure cannot compromise the safety of the patient or the facility.The principle of Mechanical, Electrical, Fire, Radiation, and any other safety for the proton therapy facility shall be based on a "fail-safe" philosophy, *i.e.,* any malfunction in the chain of interlock mechanism is such that the patient safety must be considered first.

7.1. Patient Monitoring and communication system: Treatment room will have patient viewing and communication equipment. This will consist of a minimum of 4 cameras mounted (preferable on zoom and one wide angle) so that at least one camera is capable of meaningful observation of the patient at any gantry or table position. Two-way audio communication should be provided.

7.2. Emergency Buttons: There will be a three level of power off emergency buttons. They must be clearly marked and must be distinguishable from each other both in shapes and colors.

7.2.1. Cut off the power to the entire facility (level one emergency)

7.2.2. Cut off the power to the room and equipment a person is working (level two emergency). The beam must not leave the accelerator or be diverted to the beam dump within 10 psec after this button is pushed. The room light must not go out in this mode.

7.2.3. Divert or turn off the beam within 10 psec to the beam dump after the button is pushed (level three emergencies).

7.3. Door Interlocks: There shall be at least two electronics switches located on the door or door jamb. These switches shall function as the level three emergency button and thus stops the radiation exposure within 10 psec when the door was opened by more than 3 inches. Closing of door shall not cause the radiation to be resumed. The radiation shall resume only when door is closed and the operator initiates the exposure, assuming that all the other interlocks are properly set.

7.4. Radiation Monitor: All appropriate and regulatory required proton, photon and neutron monitoring equipment, warning signs and access control should be provided for appropriate areas of the facility. A red and white light shall be located above the treatment room door. The white light shall be turned on whenever the accelerator power is turned on without the beam in the accelerator and beam lines.

The red light at the entrance of each treatment room shall be flashing during the delivery of the beam to that treatment room. The control console shall be equipped with an indicator indicating that the accelerator's main power is on. It shall also be equipped with an indicator indicating that the beam is being delivered to that room and that high radiation exposure exists during the beam-on mode. Minimum 3 nos. each (for photon & neutron) should be provided and as per the existing AERB rules.

7.5. Neutron production: The system shall be designed with minimal materials intersecting the beam line to minimize the production of neutrons in the proton delivery system. The vendor should provide an estimate of neutron activity (both dose and half-life) upon beam stop after full operation.

7.6. Residual radioactivity: The vendor shall provide an estimate of residual radioactivity of all system and building components assuming a 30 year operational lifetime of the facility.

7.7. National Regulation compliance: All safety features shall meet the Indian national regulatory requirement in additional to the international regulatory requirements. The vendor should provide last-man-out switch safety mechanism and should fulfill all other necessary national safety compliance.

8. General Requirements

8.1. **Timeline**: The construction work for the bunker should be started only after getting all regulatory approval. The Bunker should not take more than 12 months. The equipment will be shipped at site only after completion of the bunker. The time for installation should not be more than 10 months.

8.2. **Facility** availability: >98% of the time, with clinical beam available for treatment or quality assurance between 6:00 AM and 10:00 PM, Monday through Saturday. Specific time required for preventive maintenance that should be mentioned. The preventive maintenance if any should be scheduled in the holidays after prior written approval from the department. In case the facility downtime exceeds there will be a penalty of INR 1 lac per hour OR the vendor will require to provide free of cost CAMC after the stipulated time duration. It has to be ensured that vendor must stock all the required spare parts to maintain the uptime. A dedicated space for the storing must be created by the vendor and should be reflected in the turnkey.

9. Staff Training Requirements

9.1. **Training**: Training for the staff should happen in an abroad advanced institute of excellence which is attached to teaching center for at least 5 years and treating more than 20 patients per day. The institute should provide opportunity to the trainee hands on experience and comprehensive involvement in all relevant areas of work. The Offsite training should be completed at least two months prior to commissioning. Training should happen in three batches.

Off Site training:

On-site training**:**

Offsite and onsite training are essential. To get the AERB approval and clinical commissioning the proton therapy system.

9.2. The vendor should provide two personal duly familiar with the quoted model for carrying out the commissioning of the Proton machine after the customer acceptance is over.

10. Equipment Warranty and Comprehensive Annual Maintenance Contract (CAMC)

10.1. Warranty: 1 year
10.2. CAMC: 14 Years, extendable for another 5 years
10.3. All necessary cabling like LAN, DICOM & PACS for data interface between TPS and proton therapy system; CT-SIMULATOR & proton therapy system should be provided with adequate number of terminals.
10.4. All the internal wiring including that of telephone, LAN, DICOM & PACS etc.) will be concealed variety. Earthing: Double earthing with copper plate shall be provided for the treatment system and all accessories like UPS with remote sensing and monitoring will be the responsibility of vendor. 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. Switches light and power points should be of modular type and of standard make as listed below. All wires used must be FRLS (Fire Retardant with low smoke) type only.
10.5. The PROTON facility should be DICOM connected with all existing radiation facility and multimodality Imaging facility including CT, PET and MRI etc.

11. MISCELLANEOUS:

11.1. The Anesthesia room shall be provided with wall-mounted storage cupboards; to store: Anesthesia and other related equipment
11.2. Sufficient number of Open Racks of high Quality vendors should be provided to house the immobilization materials
11.3. 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.
11.4. 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).
11.5. The facility should have wifi enabled and optic fiber provisions for projecting various work place to satellite centers for teaching and research work.

12. Equipment Compliance with Standards and Safety

12.1 Should be ISO, IEC, USA-FDA and/or European CE certified product.
12.2 Should comply with the national regulatory AERB/BARC guidelines
12.3 The offered Proton Therapy System model should have AERB type approval/ NOC.
12.4 Dosimetry, QA and Safety protocols should adherence to ICRP/ICRU/IAEA/AAPM and national regulatory AERB/BARC guidelines/reports
12.6 High voltage protection and warning lights/symbols to be provided.

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

The vendors should visit the site and user department to get the Plan Layout and should facilitate and coordinate with user department in communicating with AERB in providing all required information pertaining to radiation safety compliance of the concerned equipment till the clinical commissioning process of first patient treatment commencement.

14. Utility Requirements

The vendor should specify about the utility requirements for the offered system such as power supply, water cooling system, Air-Conditioning, Electrical load.

II. Technical Specification of Proton Treatment Planning System

1. General requirements

1.1. The proton treatment planning system (PTPS) is required for treatment planning purpose for delivering proton beam treatment with pencil beam scanning (PBS) technology based compact single room proton therapy delivery system with dedicated nozzle for PBS delivery and capable for planning of delivering intensity modulated proton therapy (IMPT), SRS/SBRT, 4D Radiotherapy and adaptive radiotherapy.

1.2. The Proton Treatment Planning System (PTPS) must be designed in accordance with good principles, and the system should be robust and reliable.

1.3. The PTPS should accept domestic characters and support domestic keyboards.

1.4. The tender should comprise a complete TPS with all necessary components including, but not limited to, import of images including image fusion of different image modalities, target delineation, field application, optimization, dose calculation, plan evaluation and export of plan data.

1.5. The equipment should USA-FDA and/or European CE marked and comply with radiation protection, health and safety and other relevant legal requirements.

1.6. Remote access: For efficient and flexible deployment and user access the system should be remotely accessible e.g. via Citrix and in situations where needed the applications

1.7. Safety/Reliability: The proposed system must be safe for patients, staff and the general public and shall be highly reliable.

1.8. The system should be able to continue production even after failure in server hardware components.

1.9. The PTPS should be a redundant system with duplicated hardware installed in two separated server rooms. If hardware in one server room is not working because of fatal failure, the duplicated hardware should be in operation within a pre-defined number of hours.

1.10. The applications must be able to run on computers with active antivirus software

1.11. Hardware*:* The tenderer should include a complete hardware package for the PTPS in the tender. The offer should also include hardware for storage. The computing and storage resources should be sufficient for the expected workload at the proton centre.

1.12. Server software and client should be possible to host in a virtual environment (e.g. Citrix or VM-Ware)

1.13. The PTPS application should also be able to run on standard hospital PC's, e.g. with Microsoft Windows OS version 7 or higher, if necessary with dedicated graphic card.

1.14. The offer should include a total of at least 5 workstations for treatment planning and

5countouring workstations.

1.15. Licenses: The offer shall include enough licenses for all its components to ensure effective use of the PTPS in the described environment.

1.16. Integration: The PTPS must be able to seamlessly integrate with and connect to Oncology Management Systems, as described, which will include Record and Verify capabilities.

1.17. Reference installations: A track record of successful previous implementation of proton therapy planning systems of similar specification is desirable.

1.18. It should be state of the art, latest and futuristic at the time of supply. It should also have the capability of handling multi Ion with artificial intelligence & machine learning system which we may acquire in future.

2. Image handling

2.1. General requirements:

2.1.1. The PTPS should as a minimum requirement provide tools for import and segmentation of CT, CBCT, MRI, and PET.

2.1.2. In addition to this, tools for import and segmentation of 4D CT, DWI MRI, DCE MRI, 4D MRI, and 4D PET should be provided.

2.1.3. The PTPS should support import of FDG-PET standardized uptake value (SUV) data of the major vendors of PET-CT systems; specify the details.

2.1.4. The PTPS manufacturer should guarantee support for novel image datasets (e.g. functional imaging as well as functional maps).

2.1.5. There should be no intrinsic limit on the number of image sets which can be imported.

2.1.6. Import for dual-energy CT retrieved elemental composition of patient tissues should be supported.

2.1.7. The TPS should provide tools for DRR generation with flexible and configurable imaging geometries (e.g. to support a gantry-mounted 2 BEV x-ray system).

2.1.8. The TPS should support the export of DRR and other images in DICOM format to the PACS and OIS systems

2.1.9. The system should meet DICOM compliance for RT Dose object (import and export)

2.2. Visualisation

2.2.1. The PTPS should provide 4D image display, processing and fusion tools.

2.2.2. The PTPS should provide 3D surface-rendered visualization of structures.

2.2.3. The PTPS should provide 3D volume-rendered visualisation of an image series.

2.3. Rigid registration

ThePTPSshouldbeabletoquicklyandefficientlyregisterandmergeimagedata from different imaging modalities.

2.3.1. The PTPS should provide tools for rigid registration (translations and rotations) of CT images to CT, CBCT, PET and MR images. It should be possible to restrict the registration to a user-defined volume (mask)

2.3.2. The PTPS should supply automated structure/contour-based rigid registration

2.3.3. The PTPS should supply automated point-based rigid registration based on user-defined fiducial points

2.3.4. Specify the algorithms for rigid registration (e.g. grayscale, volume based, point based etc.). Describe the possibility to select multiple user defined regions of interest (ROIs) for a registration.

2.3.5. Describe the tools and features for rigid registration of images. E.g. is the naming of the registration unique and descriptive? Is it possible to select/deselect rotation, roll and pitch separately? Is it possible to perform automatic registration between one image and multiple selected images (e.g. planning CT and daily CBCTs)?

2.3.6. In the interest of retrospective data handling, as many details as possible should be available from the rigid registration matrix.

2.4. **Deformable registration**

2.4.1. The PTPS should support multi-modality deformable registration of CT, CBCT, PET and MR datasets.

2.4.2. The PTPS should support structure/contour-based deformable registration

2.4.3. The underlying algorithms of the deformable registration should be described. The accuracy of the algorithms should be stated. If possible, provide white papers and peer-reviewed literature.

2.4.4. The PTPS should provide tools for the qualitative and quantitative evaluation of the outcome of the registration, including intuitive graphical tools.

2.4.5. The PTPS should supply data available for the user from the registration (e.g. transformation matrix, coordinates for structures, volume changes, Dice coefficient, etc.) and allow for visualization of the deformation vector.

2.4.6. The user-friendliness of the tools and the speed of the deformable registration will be evaluated.

2.5. **Structure propagation**

2.5.1. The PTPS should allow for "structure-propagation": the registration of a floating dataset will result in the definition of a new deformed dataset; structures (i.e. points and delineations) defined on the original floating dataset will be propagated to the deformed dataset.

2.5.2. In case of multiple online/offline rigid registrations, the user should be able to select the registration which should be used for dose propagation. If available, describe the functionality.

2.5.3. Describe contour propagation from one image to deformedly registered images (e.g. copy of a structure, deformable propagation). Also describe how the history of the contour is tracked to e.g. show from which image the contour originates. Describe the possibility to automatically propagate contours from one image to multiple registered images.

2.5.4. The TPS must provide rigid and non-rigid propagation of structures across multiple volumetric data sets

2.6. **HU-conversion**

2.6.1. The PTPS should provide flexible handling of HU-SP calibration curves and should in addition provide HU or stopping power (SP) override capability with user defined values within defined structures and/or regions.

2.6.2. The PTPS should have the ability to assign one or several Hounsfield Unit look-up tables to an imaging device e.g. a HU to proton stopping power conversion.

2.6.3. The PTPS should be able to handle CT scanner specific calibrations and editable translation lookup tables of HU to tissue and algorithm specific interaction quantities.

2.7. **Dose accumulation**

In order to perform dose accumulation, the PTPS should support flexibility in the selection of the rigid registration used for dose propagation.

3. Segmentation tools

3.1. Advanced treatment planning and image guided adaptive proton therapy demands handling of multi-modality imaging and 4D imaging. The PTPS should make available flexible tools for structure contouring on CT, PET, MRI and CBCT including delineation on one image using information from other images registered to the image.

3.2. A high patient throughput requires a high efficiency in the target and normal tissuedelineationeffectuatedbye.g.scriptingoratlasbasedandsemi-automatic target or structure segmentation. In order to avoid improper treatment, structures generated e.g. by Boolean functions should preferably be automatically updated if the underlying structure is changed.

3.3. Automatic contouring using SUV on PET images should be supplied.

3.4. The naming of the registrations should be unique and descriptive as well as automatic registration between one image and a series of images is preferred. The PTPS should allow for the application of user-defined templates with delineation-related settings (e.g. defined structures, names, colours) to facilitate quick setup of new treatment plans.

3.5. The contouring tools included in the TPS should ease the “delineation-burden” on physicians and physicists. This is especially important in the context of adaptive radiotherapy: without efficient automatic segmentation tools, repeated CT, MRI and PET imaging will result in a prohibitively high image segmentation workload.

3.6. The PTPS should therefore provide state-of-the-art automated segmentation tools that allow for accurate and fast delineation of large numbers of images. These tools may include the use of anatomical atlases, biomechanical models or a combination of these techniques.

3.7. **Manual tools**

3.7.1. The PTPS shall offer tools for manual contouring and structure delineation. The manual contouring tools should be able to ease the “delineation-burden” on physicians and physicists, and to facilitate efficient and accurate segmentation of patient anatomy

3.7.2. The 2D contouring should be available in all cardinal image planes (axial, sagittal, coronal). When contouring, switching between image planes should be a seamless transition.

3.7.3. The PTPS should offer an undo/redo-functionality when performing manual contouring. There should be an undo buffer where a number of delineation actions that can be stored.

3.7.4. The PTPS should provide tools for structure editing, e.g. cut, combine, exclude, avoid functions and morphological operations.

3.7.5. The PTPS should allow 2D contours to be interpolated between contiguous image slices.

3.7.6. The PTPS should provide tools for post processing of structures (remove holes, remove small contours, reduce number of points etc.), delineation in all three orthogonal planes, etc.

3.8. **Automatic tools**

3.8.1. ThePTPSshould offer tools for automatic contouring and semi-automatic contouring and structure delineation.

3.8.2. The PTPS should offer an undo/redo-functionality when performing semi- automated contouring.

3.8.3. The PTPS should offer tools for HU/grey scale based contour delineation.

3.8.4. The PTPS should allow for automatic generation of auxiliary structures by applying 3D margins to existing structures and support growing and shrinking of structures. It should be possible to define anisotropic margins along the positive and negative directions of the cardinal axes (axial, coronal and sagittal).

3.8.5. The PTPS should allow for automatic generation of auxiliary structures by applying Boolean logic (or equivalent) to existing structures. In particular, it should be possible to add and subtract structures.

3.8.6. The PTPS should be able to saves the "rules" by which derivative structures are created (3D margins, Boolean logic) as an attribute of the derivative structure The TPS should provide tools for the support of automatic generation of ITVs based on 4D data sets (e.g. MIP, average position etc.). The PTPS should provide beam specific PTVs taking inhomogeneities into account.

3.8.7. Ifastructure is changed, contours based on this structure, e.g. contours created by Boolean algorithms involving the structure, should be automatically updated It should be possible to manually 'guide' the automatic segmentation process for individual cases.

3.8.8. The PTPS should allow for subsequent manual editing of automatically generated auxiliary structures

3.9. **Scripting**

3.9.1. The PTPS should provide possibility of scripting of structure generation, describe the functionality.

3.9.2. The PTPS should provide a well-documented API to allow its structure delineation tools to be triggered by external applications or imported scripts

3.10. **Atlas**

3.10.1. The PTPS should provide automated anatomical atlas- and/or model-based segmentation of MRI images.

3.10.2. The TPS should allow users to define anatomical atlases and/or models based on their own patient data. It should be stated how the construction of user-defined atlases and/or models is implemented and the database organized.

3.10.3. A description of the underlying algorithms for anatomical atlas- and/or model- based segmentation should be provided.

3.10.4. The speed and accuracy of the algorithms for anatomical atlas- and/or model- based segmentation should be given.

3.10.5. It should be possible to manually 'guide' the automatic segmentation process for individual cases; describe how this is implemented.

3.10.6. It should be stated which anatomical structures are included in the atlases and/or models provided by the bidder.

3.11. **PET**

3.11.1. The PTPS should supply specific tools for contouring PET images.

3.11.2. The PTPS should support auto contouring using e.g. SUV values. A description which SUV values are supported, e.g. SUV max, should be supplied.

3.11.3. The PTPS should offer algorithms for automatic segmentation of FDG-PET datasets based on SUV-values that go beyond simple thresholding, in order to facilitate "dose painting by contours"

4. **Planning tools**

4.1. General requirements

4.1.1. The PTPS must support the treatment delivery of Pencil Beam Scanning (PBS) Proton Therapy System. Treatment planning using state of the art proton pencil beam scanning techniques should be provided. To ensure high level of patient treatment quality and flexibility, effective tools to perform optimization should be available.

4.1.2. The PTPS should provide tools for beam set-up and field geometries, including 3D rendering and BEV displays.

4.1.3. The PTPS should provide tools for the definition and application of 'planning recipes' (standard planning procedures and field geometries).

4.1.4. Dose calculation of treatment records and/or of incomplete fractions (assess dose in case of treatment abortion).

4.1.5. The PTPS should provide the possibility of plan dose summation.

4.2. **Optimization**

4.2.1. Optimization should as a minimum be based on dose based constraints (max/mindose,dose-volumeconstraintsetc.)andshouldallowformultiple constraintsforeachtargetorOARandconstraintsplacedonmorethanone target/OAR.

4.2.2. Describe the optimization process and features (e.g. direct access to DVH parameters during optimization, visualization of fulfillment of clinical goals, calculation of intermediate dose if necessary, possibility to edit fluence etc.). Also describe criteria apart from dose distribution that can be included in the optimization (e.g. smoothness, speed of treatment delivery etc.).

4.2.3. It should be possible to optimize a new proton dose distribution as an additional dose on top of a primary/former dose distribution. If this is possible, describe the functionality.

4.2.4. Specify the PBS techniques supported, e.g. SFUD, distal edge tracking, MFO, etc.

4.2.5. Specify which types of constraints are supported in the optimization mentioned above (e.g. min, max, mean, EUD, min/max to a specified volume, dose fall off, multiple constraints/line dose, etc.).

4.2.6. A large variety and flexibility of optimization methods and spot delivery techniques should be supported.

4.2.7. The optimization should be capable of taking into account simultaneous integrated boosting specific targets.

4.2.8. It should be possible to base a proton plan optimization on an already given dose distribution, regardless if it is given with protons or photons.

4.2.9. The PTPS should have and allow for Multi-criteria optimization capability.

4.3. **Photons**

4.3.1. ThePTPS should provide tools for treatment planning using photons including dynamic wedges, IMRT and VMAT , electrons and multi ion. Facility of plan conversion for different modalities should be available for e.g. proton to photon and vice versa.

Import of user specific beam data from the [specified machines] should be supported.

4.3.2. The referral of patients will for large part be based on comparative dose planning (photon vs. proton). Photon dose planning must therefore also be supported.

4.4. **Dose Painting by Numbers (DPBN)**

Dosepaintingbynumbers(functionality):ThePTPSshouldsupportdosepainting by numbers using functional and molecular imaging to determine a voxel by voxeldose.Ifso,describethefunctionality.

4.5. **Spot pattern and positions**

4.5.1. The PTPS should support minimization of scan path e.g. by spot sorting. If so, describe the functionality.

4.5.2. The PTPS should be able to optimize with non-uniform distribution of spot positions and non-uniform energy increments. Describe default spot patterns (e.g. hexagonal, square, etc.). Is it possible to have user defined spot positions?

4.5.3. Describe how energy layer spacing is set (e.g. automatic according to an algorithm, can it be customized as a parameter for IMPT etc.).

4.5.4. The PTPS should provide methods to automatically reduce the number of spots during optimization.
The PTPS should provide methods to automatically reduce the number of range layers during optimization

4.6. **Spot weights**

4.6.1. The PTPS should provide an intuitive GUI for displaying and manual editing of spot weights.

4.6.2. The PTPS should provide tools to constrain spot weights to zero on a per field basis. For e.g. multi-target treatment plans, it should be possible to assign a field to only contribute to a specific target volume. For critical tissues adjacent to target volume, it should be possible to (partially) block the target beam directions where pencil beam pass through the critical structure.

4.6.3. The TPS should provide tools for the flexible definition of machine specific scanning parameters such as maximum scanning extents.

4.6.4. The TPS should provide tools to support varying scanning source to isocentre distances, including infinite, or very large, distances.

4.6.5. Describe how the PTPS handles spots with low weight e.g. if the MU is lower than the Proton systems' minimum MU. The minimum MU per spot should be included during the optimization process.

4.7. **Robustness**

4.7.1. The PTPS should have built-in functionality to evaluate the robustness of a treatment plan for at least a user-defined setup error and range uncertainty combined.

4.7.2. The PTPS should have robust optimization for IMPT as an integrated feature. Specify the algorithms used for robust optimization (e.g. minimax, mean, hybrid, user defined).

4.7.3. Specify all the options available for robust optimization (e.g. isocenter shift, density change, a full 4DCT scan, additional CT/CBCT scans, specified positional changes in contours, isocenter position, etc.).

4.7.4. The robust optimization should be possible to apply for the dose to the target, as well as for the dose to organs at risk.

4.7.5. The PTPS should allow evaluation of a treatment plan under relative beam-by- beam isocenter variations.

4.7.6. The PTPS should be flexibility in choosing a set of error scenarios (range and/or setup) both in robustness evaluation and robust optimization.

4.7.7. The PTPS should provide tools to summarize and display the results of robustness evaluation and make the evaluation of a (robust) treatment plan easy for the physicist and physician.

4.8. **Accessories**

4.8.1. ThePTPSshouldbeableto handle accessories like range shifter, blocks and ridge filters for different snouts and snout-skin distances. Which materials are supported? Describe the degrees of freedom and limitations, e.g. if accessories are plan specific or may be changed between fields.

4.8.2. Multiple beam tunes (spot sizes): Describe how the PTPS supports planning with multiple beam tunes. Is it possible to have several different beam tunes per plan, per field, per energy layer?

4.9. **Patching**

4.9.1. The PTPS should provide tools for patching of fields to cover extended field sizes. The location of the patch lines should be definable by the user.

4.9.2. The PTPS should provide tools for matching of dose gradients for field junctions. Describe what tools are available for this, both with and without gradient smoothing to improve plan robustness.

5. **Plan Evaluation and Documentation**

5.1. Evaluate and compare plans

5.1.1. The PTPS should have informative, efficient, and user friendly tools for evaluating plans, and for comparing plans.

5.1.2. The PTPS should allow comparison of treatment plans with dose distributions (DICOM RT Dose) originating from third parties (e.g. photon therapy treatment plans)

5.1.3. The PTPS should support dose calculation based on log files from the beam delivery system. It will serve as the dose status in case of partially delivered beams, and as a method to validate the quality of the beam delivery.

5.1.4. The PTPS should provide dose volume histograms and dose distribution analysis tools.

5.1.5. The PTPS should have tools to compare two or more plans.

5.1.6. The PTPS should have tools for evaluation based on modelling of biological response. Response parameters like normal tissue complication rate, tumour response probability, etc., should be accessible and editable.

5.1.7. The PTPS may be used to estimate the risk for radiation induced secondary cancer.

5.1.8. The PTPS should have tools to perform an automatic ranking of two or more plans based on user defined decision protocols.

5.1.9. The PTPS should have tools to evaluate the RBE/LET distribution of a plan, and to compare RBE/LET distributions between two or more plans.

5.1.10. The PTPS should be capable of adding dose distributions of two or more treatment plans and visualizing the results (including DVHs).

5.1.11. The PTPS should be capable of subtracting the dose distributions of two treatment plans and visualizing the results

5.1.12. The PTPS should accurately calculate DVHs for in steep dose gradients and/or small structures (e.g. optic nerves, chiasm, pituitary gland) by adapting the sampling frequency (or an equivalent solution)

5.1.13. The PTPS should allow for generation of Beam's Eye View (BEV) images and visualization of spot weight distribution in BEV of organs at risk and targets
5.1.14. The PTPS should provide tools for displaying dose profiles and for dose-at- a-point querying.
5.1.15. The PTPS should provide multi-slice (e.g. trans axial, frontal, sagittal and user defined) display of competing dose distributions using colour wash and/or iso-dose contours.
5.1.16. The PTPS should provide dose difference and 2D/3D gamma analysis for comparing different dose distributions
5.1.17. The PTPS should be able to calculate differential and cumulative dose- volume and dose-surface histograms for defined structures and for combinations of structures.
5.1.18. The PTPS should provide a comprehensive (and configurable) display of dose volume statistics for any selected structure or structures.
5.1.19. The PTPS should provide tools for recalculating dose on alternative data sets (e.g. repeat CTs) and for comparing these to the nominal treatment plan for the patient
5.1.20. The PTPS should have tools for comparing plans from different modalities. These tools should include adding and subtracting plans with different dose weights.

5.2. **Robustness**

5.2.1. Appropriate tools to address robustness should be available.
5.2.2. The PTPS should have tools to evaluate the robustness of a proton plan to uncertainties related to SPR calibration, isocenter position, intra fractional motions, and inter fractional organ changes.

5.3. **Plan Check**

5.3.1. The PTPS should support checks for collisions.
5.3.2. Tools for patient specific QA should be provided e.g. generation of patient specific QA plans for specific test devices

5.4. **Documentation**

5.4.1. The PTPS should allow for automated production of plan documentation in Portable Document Format (PDF)
5.4.2. The PTPS should allow the PDF documentation to be customized by the user.
5.4.3. The PTPS should support to configure standardized reports, for instance by means of templates or scripting
5.4.4. Following treatment plan data should be included in the documentation (e.g. beam data, couch position, DVHs, graphical representation of dose distribution in orthogonal planes)
5.4.5. A summary of plan objectives and DVH indices (following ICRU 83) with indication whether objectives are satisfied ("traffic light" functionality) should be included.
5.4.6. PDF-documentation of a comparison between two different treatment scenarios (e.g. to provide documentation of superiority of proton over photon therapy for reimbursement purposes) should be provided.
5.4.7. The PTPS should support the printing of dose distributions in a user configurable format and their export in a common image data format (e.g. TIFF, JPG etc.)
5.4.8. The PTPS should support the printing of DRRs and their export in a common image data format (e.g. TIFF, JPFG etc.)
5.4.9. The PTPS should support user-configurable plan reports including prescription information, dose distributions and dose to structure statistics (e.g. min/max, mean, D5, V5 etc.). These should be available as PDF documents (or equivalent) and also in XML

format.

5.5. **Others**

5.5.1. The PTPS should allow the user to quickly copy and modify a proton therapy treatment scenario

5.5.2. The PTPS should be capable of converting isodose volumes to structures that can be exported as DICOM RT Structure objects.

6. **Motion management**

6.1. **4D data sets**

6.1.1. The PTPS should provide tools to account for respiratory motion by use of images obtained at multiple points during the respiration cycle, e.g. a 4DCT scan.

6.1.2. A smooth workflow for planning on 4D CT is preferred, including automation of as many steps in the planning process as possible.

6.1.3. In order to evaluate the effect of organ motion, the PTPS should provide tools for dose propagation to all phases of e.g. a 4D CT scan.

6.1.4. Automatic generation of MIP (maximum intensity projection), automatic selection of mid-ventilation phase, and automatic propagation of contours from one phase to all phases should be possible

6.1.5. The PTPS should support dose calculation at all phases (e.g. by dose/structure propagation. individual weighted summation)

6.1.6. The PTPS should allow any of the phases of the 4D dataset to be used as the "reference" image set for treatment planning.

6.1.7. The PTPS should be capable of generating MIP and AveIP (average intensity projection) images from 4D CT datasets and allow these to be used as the reference image set for treatment planning

6.1.8. The PTPS should be capable of automatically propagating structures that are delineated on a single phase to other phases in the 4D dataset, taking into account changes in anatomy

6.1.9. The PTPS should be capable of automatically generation of an "internal target volume" (ITV) from a structure that is defined on all phases of the 4D dataset. An ITV can be assigned to any phase of the 4D dataset and to the MIP and AveIP

6.1.10. The PTPS should have built-in functionality for recalculating on all phases of a 4D dataset the dose distribution of a treatment plan that was defined on the reference image set

6.1.11. The PTPS should be capable of computing a cumulative dose distribution by summing the dose distributions of the individual phases of the 4D dataset (or a subset, thereby simulating a gating-window) by means of deformable registration

6.1.12. The PTPS should provide cine visualization of the 4D dataset and dose distribution.

6.1.13. The PTPS should be capable of determining the mid-ventilation phase.

6.1.14. The PTPS should be capable of generating by means of deformable image registration position "a mid-scan". The mid-position can be used as the reference data set for treatment planning.

6.2. **4D robust optimization**

6.2.1. It is preferable if the organ motion can be included in robust optimization.

6.2.2. Robust 4DCT optimization to minimize the interplay effects should be provided. It should be possible to include only selected 4DCT phases used for gating in the optimization.

6.2.3. The PTPS support robust optimization that minimizes effects of interplay on the dose distribution.

6.3. **Motion Mitigation**

6.3.1. The PTPS should support motion mitigation features of various delivery systems.

6.3.2. The PTPS should support as many motion mitigation methods as possible to ensure optimal treatment of the large variety of moving targets. E.g. breath hold gating, respiratory gating, re-scanning, tracking, re-tracking, spot size variations, phase controlled spot delivery, motion-robust scan patterns, and ripple filters.

6.3.3. To maintain high efficiency, repainting as a parameter for plan optimization is preferred.

6.3.4. The PTPS must support layer and volume repainting.

6.3.5. The PTPS should support inclusion of repainting as a parameter for plan optimization (e.g. to optimize delivery time).

6.3.6. The PTPS should handle rescanning (e.g. isolayer, scaled rescanning, phase controlled, volumetric, combination of the techniques, user defined etc.). Describe the available repainting methods in some detail.

6.3.7. The PTPS should quantify and report the effects of interplay on the dose distribution.

7. **Physics of Beam Modeling**

7.1. The beam models should preferably have been experimentally validated, and include special issues like handling of accessories, edge scattering on cut blocks, Bragg peak degradation due to inhomogeneities, non-organic implants, and the use of Dual Energy CT – data for optimized determination of Stopping Power Ratio.

7.2. For evaluation of patient safety the PTPS should be capable of modelling neutron doses.

7.3. Various calculation engines for proton therapy should be available (e.g. pencil beam convolution, Monte Carlo simulation)

7.4. The PTPS calculation engines should handle nonorganic implants like metal, Kevlar, silicone implants etc. If possible - provide documentation for experimental validation.

7.5. Provide documented experimental validation for range shifters, blocks and ripple filters for different snouts, snout-skin distances, materials and geometries

7.6. The PTPS should handle data from a dual energy CT scanner and convert it into SPR information for the dose calculation algorithms.

7.7. It should be possible for the user alone to generate the beam models for the PTPS with appropriate support provided.

7.8. The PTPS should be able to calculate dose distributions for actively scanned proton beams, passive scattered beams and line scanned beams.

7.9. The PTPS should model the nuclear halo at the level of the individual pencil beams

7.10. For dose calculation using a non-Monte Carlo algorithm, the physical pencil beams should be decomposed into finer mathematical beams (usually referred to as bixels or beamlets) in order to take into account the effects of patient tissue inhomogeneities.

7.11. The PTPS should model the variation of the spot size in air at isocenter as a function of proton energy

7.12. Range shifters of various thicknesses should be modelled

7.13. Apertures for pencil beam scanning should be supported.

7.14. The PTPS should be able to model the variation in pencil beam size as a function of the air gap between range shifter and patient.

7.15. The PTPS should provide scan path optimization (e.g. beam delivery dynamics,

robustness, rescanning)

7.16. Specify the different optimization algorithms for IMPT (distal edge tracking, single field uniform dose, etc.)

8. **Radiobiological Response Modeling**

8.1. The PTPS should have informative, efficient, and user friendly tools for evaluating plans, and for comparing plans, also based on biological response modelling.

8.2. Biological response models should preferably include normal tissue complication rate, tumour control rate, variable proton linear energy transfer distribution (LET) dependent relative biological effectiveness (RBE) and risk for radiation induced secondary cancer risk.

8.3. The PTPS should be capable of calculating the 3D LET

8.4. Evaluation of the LET distribution for the entire plan or beam wise provides information of the biological robustness of treatment plans and ideally the LET distribution will be considered in the optimization of the dose distribution.

8.5. The PTPS should allow optimization of LET distribution.

8.6. The PTPS should be capable of correcting the physical dose distribution for RBE with a uniform scaling factor

8.7. The PTPS should be capable of taking into account the 3D LET-distribution and (optionally) tissue composition in a voxel based RBE-correction

8.8. The PTPS should be able to report radiobiological equivalent dose (EQD) for tumour and healthy tissues, modelling the effects of fractionation and variations in overall treatment time according to the standard linear- quadratic model of radiobiology (the parameters can be set by the user)

8.9. The PTPS should able to calculate tumour control probability (TCP) and normal tissue complication probability (NTCP) according to established radiobiological models (the parameters can be set by the user)

8.10. The PTPS should be able to use TCP and NTCP as inverse planning optimization goals

8.11. The PTPS should provide the capability of comparing plans using biological metrics (TCP, NTCP, EUD etc.)

8.12. Additional quantities (besides RBE weighted dose), e.g. LET or LET weighted dose (more physical quantities) should be provided.

9. **Adaptive Radiotherapy (ART)**

9.1. Adaptive Radiotherapy (ART) involves adaptation of the treatment plan to anatomical changes during the treatment course. ART is based on images (e.g. CT, CBCT, MRI, PET) acquired during the treatment course, and the PTPS should support the use of the additional information in these images for smooth plan adaptation.

9.2. The core feature to be provided by the PTPS in relation to ART is Deformable Image Registration (DIR). High quality DIR is mandatory. Nevertheless, knowing the uncertainties in DIR it also becomes important to be able to monitor, evaluate and control the DIR used for adaptation. This can be done if the PTPS provides tools for visualization, evaluation and user interaction of and with the registration. This should include:

9.3. Deformable image registration (DIR): The PTPS should provide tools to perform DIR between two CT images and between CBCT and CT images.

9.4. Contour propagation: The PTPS should provide tools to propagate contours between deformedly registered images.

9.5. Further, the vendor should specify the deformable image registration algorithms

available. It should also describe if the algorithms are based on grayscale, anatomical structures, preservation of mass, etc. Evaluation tools for the DIR (e.g. point evaluation for manually selected points and self-consistency checks by back-and-forth mapping or circular mapping through e.g. 4DCT phases) and user interaction should be also described

9.6. The PTPS should support an efficient, effective and safe workflow including aspects of ART such as treatment evaluation using CBCT, dose recalculation from the same plan on additional CT images deformedly registered to the planning CT, dose mapping, dose accumulation, and treatment re-planning with inclusion of the dose delivered so far.

9.7. The PTPS should support plan selection libraries, where daily pre-treatment imaging is used for online selection of the most suitable plan from a plan library.

9.8. An efficient and safe implementation of adaptive workflows not only requires specific capabilities of the TPS, but also of the record-and-verify system. The vendor should provide a description of the available interfaces with commercial R&V systems to facilitate adaptive workflows. The vendor should describe what efforts are being made to develop and maintain such interfaces in the future.

10. **Automation, workflow and data integrity**

10.1. **The TPS is expected to have the following basic functionalities:**

10.1.1. The possibility to import/export administrative patient information through a well-defined service interface not only internally but also from/to external centres.

10.1.2. The possibility to duplicate a patient through a copy action

10.1.3. The possibility to delete a patient

10.1.4. The possibility to anonymise a patient

10.1.5. Archiving functions enabling archived treatment plans to be completely reconstructed in the TPS. The archiving should be operable from all clients in the distributed environment.

10.2. **To ensure efficient, consistent, user independency and safe workflows, the PTPS must maintain data integrity and provide tools for automation.**

10.2.1. Data integrity is important for maintaining both efficiency and patient safety. The vendor should describe the database or databases used in the PTPS to store and organize data. In general terms specify which database stores which data. Giving special attention to safety for the patient and to prevent unintended events, how does the vendor organize data to ensure minimum redundancy, maintaining unique relations between patient ID, images, dose plans, registrations, etc. across database.

10.2.2. Automation includes among others the use of templates, automated segmentation, automated dose planning, and scripting.

10.3. **To this end the following tools are expected:**

10.3.1. Templates: The PTPS should be able to use various predefined templates/protocols to automate the treatment planning process (this could e.g. include, but is not limited to: names and types of structures, fractionation, location of isocenter, field geometry, optimization criteria, plan objectives, etc.)

10.3.2. Segmentation: The PTPS should provide tools for automation of segmentation based on CT or MRI images, with specification of the models used for automatic segmentation (e.g. atlas based). Describe the workflow and the possibility of user interaction and customization (e.g. addition of patients/structures to the atlas).

10.3.3. Multi Criteria Optimization functionality

10.3.4. Automatic treatment planning. Is the PTPS able to base a treatment plan on a library of best-case plans from similar cases (by diagnose and/or anatomical site) in order to optimize the planning process and quality?

10.4. A particular attention should be made to scripting. The software should feature the possibility to create and execute user-defined scripts allowing for customizable automation of various procedures. A full description of the scripting language should be made available. Scripts delivered by the vendor as part of this tender need to be specified. Macro recording of scripts should be available.

10.5. A further interest is the possibility to use the TPS in "batch mode" and/or "service mode". By this we mean that the TPS can be configured to automatically execute pre-defined scripts when triggered by external events. This could for example be implemented by allowing the TPS to be started from an external program or by running the TPS as a network service. An example use case would be to have the TPS automatically recalculate a treatment plan on a new CT dataset in an adaptive workflow.

10.6. **Otherscriptingoptionsare:**

10.6.1. The scripting language is a high-level imperative programming language with support for procedural and object-oriented programming, advanced container data types (e.g. arrays, dictionaries) and automatic memory management

10.6.2. The scripting language allows script developers to define their own libraries and to use external third party libraries

10.6.3. The scripting language allows script developers to call external programs (e.g. shell commands)

10.6.4. The scripting language allows script developers to create GUI-elements to facilitate interaction with the user

10.6.5. How are scripts and script libraries managed? How is script development and testing separated from clinical use? Is there an authorization scheme in place? Can scripts be managed on a per-user basis?

10.7. The vendor should describe which functionality of the TPS is available for automation.

11. Research, Education and Training

11.1. The vendor should support the implementation of the PTPS by making available application training and preferably provide resources for continuous educational training, knowledge exchange, and access to resources at reference centres.This includes:

11.1.1. The vendor should make a beam modelling application specialist available at the site to discuss the provisional beam modelling.

11.1.2. The vendor should make a beam modelling application specialist available at the site to discuss and/or perform the definitive beam modelling, for at least 1 week continuously during commissioning of the system.

11.1.3. Application training: The vendor should provide on-site application training of all relevant staff (physicists and physicians). Application training includes training in tools, procedures and operations required for segmentation, treatment planning, plan evaluation, data transfer, treatment evaluation, and adaptation.

11.1.4. Technical training: The vendor should provide training of relevant staff (IT- engineers). Training should include system installation, setup, administration, and optimization. Training for third party virtualization software should also be included.

11.1.5. The vendor should provide PTPS licenses for non-clinical educational use and training

11.1.6. The vendor in addition to application training should offer continuous educational programs (on-site training, e-learning, webinars, teaching courses, etc.).

11.2. **A comprehensive scientific and research collaboration for the development of advanced PTPS tools and systems for pencil beam scanned proton therapy should be agreed. The goals set can only be achieved in a strategic alliance with the supplier of the treatment planning system in which the supplier provides significant financial support to the program. This may include:**

11.2.1. To improve and apply multi-criteria intensity modulated proton therapy (IMPT)planningthatisrobustagainstpatientsetup,rangeerrors,andother sourcesoferrors(e.g.breathing);

11.2.2. To develop and implement image-guided and biology-guided adaptive workflows including online (near real-time) or offline (ready for the next day) adaptation of the treatment plan to anatomical changes (detected by in-room CTs) and/or to biological changes (measured by offline MRI or PETCT);

11.2.3. To automatically generate IMPT treatment plans of consistent high quality;

11.2.4. To improve the accuracy of the proton dose calculation by using dual- energy CT scanning;

11.2.5. To develop methods (prompt-gamma and time-of-flight PET imaging) for in- vivo proton range and verification and integrate those in the adaptive treatment cycle.

11.3. The vendor should support future features of other existing system, and the vendor is asked to disclose their strategy and collaboration about the synchronization of development of new features.

12. **Service, Support and Documentation**

12.1. **The customer will require a service and maintenance contract as part of the supply. This should cover hardware and software and mandatory updates. A comprehensive support service will be required.**

12.2. **The PTPS manufacturer should provide**

12.2.1. Comprehensive physics manuals including algorithms, references, file formats, file structures and limitations, including detailed descriptions of the dose algorithms used.

12.2.2. Comprehensive documentation of their deformable image registration capabilities including algorithms, references, file formats, file structures and limitations.

12.2.3. All installation/setup and documentation manuals should be electronically available, as well as tech tips and other technical documentation.

12.2.4. Scripting interface for in-house customizations / development of PTPS extensions

12.2.5. Full Support Contract on two different levels, including all upgrade, updates, licenses, service visits and support, including remote on-line support.

12.2.6. Maintenance and service of the servers and clients must be easy and flexible supported by server and client virtualization, fast and secure backup and archive routines.

12.2.7. Remote support – as a minimum telephone support (English speaking) with appropriate first-hand technical knowledge of the Equipment and systems, should be available within specified time frames.

12.2.8. Vendor must comply with e waste policy of Govt. of India.

13. **Miscellaneous**

13.1. Speed:

The analytical calculation must be fast enough that, together with the optimization step. SFUD and IMPT plans should be calculated within clinically acceptable time scales, which for a 1 litre volume and 4 fields should not take longer than [number] minutes.

13.2. Dose validation:

The TPS should have dedicated tools for fast and easy transfer of treatment planstophantomsordetectorsystemsfortreatmentplanverificationpurposes.

13.3. Configuration:

13.3.1. The PTPS must support the administration and versioning of all parameters characterizing proton pencil beams

13.3.2. The PTPS must support multiple, energy dependent depth dose curves with non–regular, and user definable, energy/range separations

13.3.3. The PTPS must support energy dependent, initial angular spatial distributions (IASDs) that can represent both focused and divergent pencil beams

13.4. Acceptance testing:

13.4.1. The entire system should be subject to a set of acceptance tests. These tests, taken together, will verify that the entire completed system meets all specifications.

13.4.2. The vendor should supply a complete list of acceptance testing procedures.

13.4.3. If the acceptance tests proposed by the tenderer do not cover all essential and relevant issues to verify that the delivered system meets the stated specifications, the Customer reserves the right to add relevant test procedures to the final acceptance testing.

13.4.4. The periodic calibration, maintenance of all dosimetry equipments including third party equipment should be responsibility of the bidder till the life of the equipment.

III. Technical Specification for Oncology Information System

The Oncology Information System should have following specifications:

1. OIS has to deliver and precisely record the latest treatment techniques such as Intensity Modulated Proton therapy, and other technique available in the machine.
2. Oncology Driven Clinical Workflows should be inbuilt or customized in OIS and could facilitate in structural clinical data collection.
3. OIS should be able to review the CBCT and stereoscopic portal images offline. 3 licenses has to be provided with 3 dedicated workstations. Minimum graphics card of 2GB require. 24 inch LED monitors also to be available with workstation
4. OIS should be able to connect and receive treatment plans from different Treatment Planning systems available in the hospital for treatment. Necessary licenses has to be provided.
5. Three numbers of Treatment plan review licenses in OIS should be available. It should be having capabilities of sum up different modality plans as well for plan review.

6. Patients identification and setup photos should be able to import in OIS. Latest digital HD camera has to be provided.
7. OIS should have option to import documents and attach to Prescription.
8. OIS should be able to connect through HL7 with HIS to receive the patient Demographics information. Necessary license has to be provided.
9. Three number of dedicated workstations with 24 inch LED monitors for routine import and scheduling purposes has to be provided.
10. IN- ROOM Monitor of 24 inch in treatment room has to be provided with necessary positioning accessories for mounting.
11. Barcode printer for accessory label printing has to be provided with its ribbon and label consumables for 5 years.
12. OIS should be able to verify the accessories automatically or through Barcode scanner for its verification at time of treatment.
13. OIS should be able to export the CBCT and portal images to treatment planning systems if required. License for the same has to be there.
14. OIS should have server capability of storing data of 5 TB in live database with 3KV online UPS to switch during the treatment automatically with in case of power failure to facilitate the un-interrupted treatment.
15. OIS should have seamless archive and retrieve facilities for the data management. Storage server space of 10 TB required and should have Provision of arrays or accessories extending up to 50TB. Software should be available archive and restore.
16. OIS should be able to take the routine back of the live database (including patient treatment record, planning CT images, RT structure Set, RT plan, RT dose, CBCT, portal images and MR images etc.) for the same 5 TB storage server is required. Backup software should be available.
17. License for any new feature or treatment technique which will be in future has to be provided without any additional cost.
18. OIS software has to update time to time with new releases and necessary hardware upgrade also to be provided.
19. Preventive maintenance for the OIS has to be carried out quarterly.
20. OIS should be able to provide the customized reports based on the user interest.
21. OIS should be IHE-RO (Integrated Healthcare Enterprise- Radiation oncology) Complaint
22. It should be state of the art, latest and futuristic at the time of supply. It should also have the capability of handling the multi ion system with artificial intelligence & machine learning which we may acquire in future.

IV. Dosimetry and Quality Assurance equipments and systems:

The vendor should provide the latest technology of proton-specific dosimetry equipment required for acceptance testing, commissioning, periodic machine quality assurance of proton therapy machine/system and acceptance testing and commissioning of Treatment Planning System, and patient-specific QA. The technical specification in detail is as below:

8.1. Reference Class secondary standard absolute dosimetry system. Vendor must supply all the required dosimetry items as per the requirement of AERB for commissioning and smooth running of the system.

8.1.1 **Two numbers of** reliable, high quality Reference Class secondary standard electrometer suitable for proton beam measurements shall be provided. The

electrometer 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 electrometer shall have extremely good accuracy, repeatability, and stability. Along with electrometers, **Two** numbers of calibrated **Farmer type thimble 0.6cc or 0.65cc ion chamber** (N_{Dw}) calibration factors with calibration certificate) for absolute dose measurement with proton-specific suitable ionization chambers with suitable interface and holders for absorbed dose determination as per the IAEA-TRS 398 protocol shall be provided. Tri axial cables (Qty – 4nos) should be supplied for connection from control to Iso center.

8.1.2. **1D motorized water phantom**: vendor should provide stand-alone **1D motorized water phantom** for Absolute Dosimetry according the specifications of TRS-398. The position accuracy of the phantom should be ±0.1mm

8.2. 3D water scanning phantom system

8.2.1 The vendor should provide the proton therapy-specific dedicated 3D water scanning phantom along with required dosimetry software system for measuring integrated depth doses and profiles of proton beam. The water phantom must have a thin PMMA or water equivalent material entrance window.

8.2.2 Vendor should provide the advanced model with latest technology based 3D water scanning phantom with water reservoir and electrometer system which is specifically meant for proton beam commissioning dosimetry with necessary systems including beam data acquisition software.

8.2.3. The 3D water scanning system should be able to measure integral depth-dose profiles and transverse beam profiles in water with a resolution of 0.1 mm having scanning dimensions of 514 x 277 x 268 mm^3 or its equivalent to cover maximum proton beam ranges and to allow measuring low-dose levels at larger lateral distances from the beam axis. The system should be capable of both step by step and continuous scanning mode

8.2.4 The phantom must support Large-area ionization chamber in the and also Markus or ROOS type parallel plate ionization chamber for integrated depth dose measurements.

8.2.5 The water phantom must be compatible with all types of proton therapy machines available in the market and must be resistant to magnetic fields produced by the PT machine.

8.2.6. The depth dose measurement range must be 32cm or more.

8.2.7. The water phantom should be capable for use of both relative and absolute dosimetry.

8.2.8 All components comply with national and international regulations and safety rules. All components of the system; all available options are controlled by the same

software that runs under Microsoft Windows of latest version of Windows 10 Pro or equivalent.

8.2.9. The positioning tool should be there to allow easy and exact positioning of the chamber's geometric center in the central beam and at the water surface. Apart from this the exact position of the chamber the radiation beam should be possible via software.

8.2.10. The scanning mode must have the option of both step by step with variable scan resolution and continuous can mode with variable speed from 0-20 mm/sec or more.

8.2.11. The zero point, reference point and limit of the different detector units should be stored separately and permanently in the control unit.

8.2.12. The latest high end laptop computer with beam data acquisition software should be provided.

8.3. Solid, water equivalent phantom: One set of solid, water equivalent phantom made up of slabs of different thicknesses shall be provided by the vendor for Proton Therapy dosimetry. The phantom shall be free of contaminants and air bubbles. The slab shall be of 30x30 cm or more size totaling a thickness of 30 cm. The material used should be water equivalent. The slabs must accompany their carry case. Solid phantoms should have adaptors for the supplied detectors.

8.4. Detectors for PBS proton beam measurements:
Vendor should provide the latest model with advanced technology based required to measure absorbed dose, output factor, beam energy range, pristine bragg-peak, spread out bragg-peak SOBP width, integrated depth dose curves, beam profiles, in-air profile measurements.

8.4.1 **One Large integral ionization bragg-peak chamber** and one thin window **parallel plate chambers** (PPC05) for accurate Bragg peak and absolute dose measurements in PBS along with 3D water scanning phantom.

8.4.2 Should provide two numbers of **thimble small volume ionization chambers** and one number of **pinpoint type chamber** for output measurements.

8.4.3 Should provide **micro-diamond detector** (One number) for small field measurements.

8.4.4 **Multilayer ionization chamber (MLIC):** The vendor must supply one **Multi-layer ion chamber** device complete with its software to allow fast and high resolution measurement of Spread Out Brag Peaks and Pristine Brag Peaks measurements in the range 2–335 mm in water equivalent thickness (WET). MLIC should have 180 air-vented ionization chambers of 12 cm diameter with a water equivalent intrinsic resolution of about 2 mm.

8.5. Scintillation screen detector: A high-resolution scintillator based detector with an Ethernet CCD camera required to acquire 2D fluence maps or spot maps. Detector should have maximum field size of 300 mm x 300 mm with an inherent resolution of 0.5 mm with a certificate specifying tolerances on the uniformity and geometric

distortion usually lower than 2% and 1 mm, respectively. The software should allow acquiring time integrated images (over up to 90 s) or videos (sequence of images) with a maximum frequency of 7.5 frames per second.

8.6. **Film dosimetry:** Film dosimetry is performed using radiochromic films: EBT3 Gafchromic films in combination with an Epson flat scanner Expression 12000XL Pro, with transparency unit, providing 0.17 mm resolution (150 DPI). The film dosimetry software suitable software is used for scanning, calibrating, and analyzing the films. Film dosimetry is often considered as the reference detector for 2D dosimetry or at least as an independent device to cross-check 2D fluence measurements obtained with other devices such as scintillating screens.

8.7 **2D-Array Patient-specific dosimetry QA system:** Vendor should provide ONE 2D Array detectors with suitable phantom for patient-specific dose verification of proton beam. Two-dimensional arrays of ionization chambers are required to verify scanned proton beam delivery in two dimensionsand can also serve for patient specific QA measurements. The panel of detectors based 1405 or more vented ionization chambers arranged in a 27x27 cm matrix or more with calibration certificate. The bias voltage applied to all ionization chambers is 1000 V to minimize ion recombination. This detector should be possible to accommodate with suitable phantom during the commissioning as well as patient QA. The suitable dosimetry software system for patient dose verification also should be provided.

9.0 **Anthropomorphic Phantom for End-to End Testing:**

The vendor should provide one anthropomorphic head phantom and one anthropomorphic pelvic phantom for commissioning and treatment planning system (TPS) verification of Proton Therapy system.

9.1 The **phantoms** should be constructed of tissue-equivalent materials, which mimic reference tissues within 1.5% for protons.

9.2 Above both phantoms should have provision to accommodate different detectors such as thimble chambers and radiochromic films and other dosimetry systems used in proton therapy.

10. **CTDI dosimetry system:**

The vendor should provide the complete set of CTDI dosimetry phantom (Head and Body phantom) with appropriate detectors for the purpose of CBCT imaging commissioning QA.

11. **Periodic QA/Safety Devices/detectors and Software Systems/Tools**

11.1. **Proton machine QA activities dedicated software system:** vendor should provide the dedicated software systems for proton machine QA activities in order to carry out QA measurements as per the AAPM TG-142 and AAPM TG-224 protocol. measurements such as like radiation field flatness, symmetry, output consistency, etc shall be provided 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. The periodic machine QA system should be able to measure spot size, spot position, proton energy/range, uniformity etc which need to be measure routinely.

11.2. **Dosimetric QA management software system**

It should also have the full flexibility to create custom protocols according to the local requirements. Full coverage of tests **related** to dosimetry, safety, medical imaging, MLC QA, etc. Generic tests with customizable pass / fail criteria can be used for definition, scheduling, tracking and reporting of any QA tasks. Flexible scheduling tool to manage the tasks, resources and time with 5 licenses.

11.3. 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.

11.4. 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.

11.5. 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.

11.6. The calibrated **Digital Thermometers (one 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.

11.7. The calibrated **Digital Barometers (one numbers):** The Portable digital barometer to use in radiation dosimetry for measuring pressure inside the room should be supplied.

11.8. **Latest technology** one **Photon and one Neutron Survey Meters and one contamination monitor (each one number):** one Photon and one neutron survey meter is used for surveying and monitoring of proton, photon and neutron and other contamination measurements around the proton therapy facility. Neutron Survey meter should be able to measure entire spectrum (thermal to maximum) of neutron dose around the proton therapy facility.

V. Technical specification of Patient positioning and immobilizations devices.

The mould room and patient fixation and immobilization devices/accessories/ tools are required in developing and implementing of a comprehensive, advanced compact single-room PBS based image-guided intensity modulated proton therapy 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 table 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. The laser system may be mounted on the ceiling of the mould room for patient alignment and pre-treatment isocenter localization procedures.

2. **Vendor** should provide the universal couch top (two numbers) for CT machine with Indexer compatible with proton therapy machine treatment table.

3. Patient positioning and Immobilization Accessories

3.1. The vendor should provide high precision radiotherapy immobilization devices of base plates (inserts for various clinical sites compatible with the supplied couch top)

for CNS, Head, Head & Neck, Breast, Thorax, Abdomen Pelvis and pediatrics patients with appropriate accessories having light weight, remarkable reproducibility, stability and durability.

3.2. The vendor should provide all appropriate locking mechanism for all offered base plates to couch. Density and also percent of attenuation of carbon fiber or other suitable material for proton therapy should be mentioned.

3.3. The vendor should provide 500 (numbers as and when required) thermoplastic sheets other suitable material for proton therapy should be mentioned for each site-specific offered base plates as mentioned above tables.

3.4 Various fixation devices like inserts for various clinical sites and property of these inserts should be such that it does not alter the range of the proton. (Qty. – 2 sets) Vacuum immobilization devices of various sizes

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. Miscellaneous items: Vendor should provide any 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

Anaesthesia Workstation complete with Anaesthesia gas delivery system, Vaporiser, Circle absorber system with built in Anaesthesia ventilator

General

- Should have provision for delivery of Oxygen, Nitrous oxide and medical Air
- The machine should be capable of delivering Low flow and Minimal flow anesthesia.
- The anesthesia machine with circle absorber, Ventilator and Vaporiser should be CE and FDA approved.
- Should have independent attachments for connecting central gas supply and pin indexed cylinders.
- Should have Non Interchangeable pipeline hose inlet connection to pipelines for medical Oxygen, Nitrous Oxide, and medical AIR
- Should have large size pressure gauges, for easy visibility, colour coded, two each for Oxygen and Nitrous oxide; One for AIR
- Anesthesia machine frame shall be manufactured in strong but lightweight material. Aluminium or composite material is preferential over steel frame construction.
- The machine shall have a maximum of four castors/wheels for manoeuvrability. These must be of a sturdy/robust design.
- The ability to individually lock the brake mechanisms of castors is mandatory.
- Should have three non-lockable and spacious drawers for storing accessories
- The machine shall have a traditional layout with obvious major components eg. Anesthesia Delivery, Circle absorber, Vaporiser and Ventilator.
- The frame shall have GCX compatible channels incorporated within the design of the machine.
- The option for an integrated independent Oxygen flow meter for Oxygen delivery is mandatory.

- Frame shall accommodate up to two backup cylinders one each for Oxygen and Nitrous Oxide
- Should have three non-lockable and spacious drawers for storing accessories
- On activation of the system on/off switch gas flow and vaporization shall immediately be available
- The common gas outlet shall be easily accessible in the event of an emergency and for use of alternate breathing circuits
- Should have Auxiliary gas outlets - 2 Nos each for Oxygen and AIR
- The option for illumination of the writing table/work surface is mandatory
- The frame should have integrated power outlets to supply a minimum of Four external devices
- Should have Top shelf ,Manoeuvring handle and foot rest
- Machine should have sufficient table top work space.
- The unit should have a battery back-up facility for the ventilator in the event of power loss. Minimum 60 minutes battery backup required.
- Input Power : 200 – 240 VAC

Gas Flow

- Antistatic and Cascaded dual flow tubes should be available for all gases (O2, N2O & AIR) to allow suitable resolution and accurate control at low total fresh gas flows.
- The flow range shall be 50ml-10 lpm
- Should have N2O cut off facility if O2 supply fails.
- Should have Oxygen failure alarm both Visual and Audible.
- Should have Oxygen Flush facility bypassing Vaporiser. O2 flush switch should be conveniently placed for easy accessibility. O2 flush switch should be non lockable.
- The unit shall have a mechanical anti-hypoxic device system to control the ratio of Oxygen and Nitrous oxide. A completely mechanical system that requires no electricity is mandatory
- The mechanical anti-hypoxic system must limit minimum Oxygen levels to approximately 30%
- Should have minimum mandatory Oxygen flow of 50 ml when switched on
- It shall be possible to deliver Air with only basal flow oxygen independent of the abovementioned hypoxic control.
- Gas flow shall be controlled mechanically only
- Visual display of individual gas flows is mandatory, this shall be by physical means such as glass flowmeters independent of electrical power
- Should have electronic flow displays for all gases in addition to individual physical flow.
- Flow meters should have the option of backlight illumination
- In the event of complete power loss and battery failure it shall still be possible to set the fresh gas flow accurately for each gas and manually ventilate adding anaesthetic agent

Vaporizers

- The unit should accommodate at least two cassette based vaporizers for Anesthetic agent delivery.
- The manifold should only accept Vaporizers with approved Back bar connections and prevent usage of more than one vaporizer simultaneously. Vaporizers supplied with the unit shall be routine maintenance free for the life of the product

- Vaporizers supplied with the unit shall be manufactured from lightweight materials to aid in fitting & removal

Ventilator

- Ventilator shall cater for a diverse range of patient groups from neonates to adult patients with restrictive airways
- Ventilator should be Pneumatically driven and controlled electronically
- Ventilator shall have a large 8.4" colour TFT display, for exclusive use of ventilator control and monitoring.
- Ventilator display shall be mounted on adjustable side arm making it possible to view from various angle
- Control of the ventilator user interface shall be by touch screen and rotary dial
- Ventilator shall have the following ventilation abilities, volume control (VCV), Pressure Control ventilation with decelerating flow (PCV), SIMV & Pressure Support Ventilation (PSV)
- Assisted modes of breathing shall be flow triggered.
- On power up, in the case of an emergency mechanical ventilation shall be available without the need to carry out user or machine self-checks
- Ventilator should have a leak and compliance test that can be done independently of a full system check and should complete in less than 1 minute.
- Ventilator shall compensate for fresh gas flow and compliance of the entire circuit. There should be provision to disable Fresh Gas Compensation.
- Ventilator shall compensate automatically for changes in ambient pressure in the atmosphere
- The ventilator shall have the option to improve delivered output accuracy by compensating for fresh gas mix (O2 & AIR / O2 & N2O) and Oxygen concentration in fresh gas
- Ventilator should have the ability to set and store a hospital default as well as preferences for Adult & Paediatric settings
- Should have user adjustable alarms for major parameters
- Apnea alarms must be user adjustable to allow for all operating conditions and phases during Anesthesia
- Ventilator should have the ability to display Patient Spirometery loop.
- Ventilator should also display waveforms for flow and airway pressure with freezing facility
- The user should be able to select & display 2 waveforms on screen
- Ventilator shall display a dynamic compliance measurement
- Volume measurement shall be by separate flow sensors for inspiratory & expiratory breathing paths
- The volume measurement flow sensors/transducers shall be housed completely within the breathing system absorber & not remoted via tubes or channels
- Volume measurement sensors should not be disposable type.

Ventilator Parameters

Tidal Volume	-	20ml-1600 ml
Frequency	-	4-100 bpm
I:E Ratio	-	1:0.2 to 1:8

Inspiratory Pause	-	0-60% of Ti
PEEP	-	OFF, 4-20 cmH2O
Pressure Limit	-	5-70 cmH2O
Minute Volume	-	0.5 to 50 lpm
Inspiratory Flow	-	2-70 lpm

Breathing System

- The breathing system designed so that it can be removed & replaced as a complete unit without the use of tools preferably with front facing inspiratory and Expiratory gas outlets
- All parts of the breathing system that are in contact with patient gas shall be latex free and Autoclavable except for non autoclavable removable part like O2 sensor and Pressure manometer.
- Bag/Vent switch shall be integrated on the absorber and should activate ventilator in vent mode and vice versa (One step operation).
- Breathing system should have heater system to avoid water condensation.
- Should have quick release canister for sodalime , capacity minimum 1 litre
- The breathing system absorber canisters shall have a bypass system to allow for canister change mid-case without loss of ventilation pressure. The requirement for an automatic bypass without extra input from the user is mandatory
- The ventilator bellows shall be clearly visible and be of upright design. The bellows should ascend on expiration to provide a quick visual indicator for system leaks.
- The fresh gas hose shall have a method of locking/securing its connection system to the CGO
- Should have provision for FiO2 monitoring cell and FiO2 value should be monitored on the main screen.
- A bag arm with height and positional adjustment shall be available as standard

Machine should be supplied with following accessories

- High pressure hoses for O2,N2O and AIR
- Adult patient circuit (User choice Disposable or Reusable Silicon type)
- Face mask (User Choice Disposable or Reusable type)
- 2 Litre Breathing bags – 2 nos.
- Power cord
- User manual
- Galvanic Type FiO2 Cell
- Vaporisers (For Sevoflurane, Isoflurane,Halothane as per user choice)

PROTON THERAPY CENTRE AT NCI-JHAJJAR

AIIMS is developing the National Cancer Institute at Jhajjar as the apex center for cancer treatment and research. Hence, the facility for PROTON therapy is expected to be state of the art in building design and equipment as well. The proposed facility should have modern, high end architectural finishes to ensure better health, safety & hygienic conditions and aesthetic look. The interior and exterior should be so developed that the facility can be considered an iconic facility.

During planning and making of the building the vendor must follow the **latest version of NBC** for all practical purposes. The building should be built with adherence to the following clause:

1) The design of building shall ensure control of noise due to walking, movement of trolleys and banging of doors etc. by providing sound proofing materials where ever required.
2) The architectural design should take in to account the requirements of physically challenged persons.
3) Furnishings in the room should be complete in all respects including, online data/information technology systems including permanent telephone & internet lines, power points etc.
4) There should be 100% power backup after factoring necessary redundancy
5) Mechanical services shall be designed and installed with provisions to contain noise and the transmission of vibration generated by moving plant and equipment schedules to achieve acceptable noise and vibration with respect to human beings specified by ISO standards 13.140 and 13.160

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. at NCI-Jhajjar.

REGULATORY GUIDELINE to ADHERE

1) The vendor must strictly adhere to the guideline for hospital Safety laid down by "National Disaster Management Authority" Govt. of India (National Disaster Management Guidelines: Hospital Safety. A publication of the National Disaster Management Authority, Government of India. ISBN: 978-93-84792-03-9 978-93).
2) CPWD guideline for **General Specifications for Heating, Ventilation & Air-Conditioning (HVAC) Works (2017);** Govt. of India.
3) AERB guideline for building the bunker and patient treatment area and adhere to the approved layout design

DESIGN PHILOSOPHY & SCOPE OF WORK

The proposed site of PROTON therapy facility will be located next to the OPD block (NCI-Jhajjar) and will connect with the OPD block by a 3.75 meter wide tunnel at the basement level. The PROTON therapy facility hence will be partly located in the new bunker block and partly in the basement of the OPD block (as specified in the drawing).

The vendor should follow the below mentioned concept during developing the facility
Building aesthetics should be attractive and refreshing.

Aesthetic considerations include:

- Increased use of natural light-where ever possible, and textures wherever applicable
- Use of artwork
- Attention to proportions, color, scale, and detail
- Bright, open, generously-scaled public spaces
- Homelike and intimate scale in patient rooms, consultation rooms, and offices
- Compatibility of exterior design with its physical surroundings

The vendor will design, built, furnish the entire facility, including the tunnel.

- The proposed building for Proton Facility comprises of three levels, the highest level includes Power supply room and Water cooling room, any office, and storage space required by vendor.

- The treatment level contains the treatment room, the main control room, and treatment control room, anesthesia & Recovery room, Patient Toilet and Change room.
- Cyclotron and gantry support structures will be at the bottom level.
- The building design must consider not only equipment to be supplied under the initial configuration, but also upgrades planned for the future
- The vendor has to connect the PROTON bunker with the existing OPD block at the basement level with a 3.75 meter wide tunnel X10 meter length (All required dismantling including construction of Tunnel will be done by vender and required water proofing will be carried out by vender).
- The tunnel should be made in a way that in future proton facility can be separated out totally for a future expansion opposite to the proton facility (ref Drawing).
- The vendor should also make arrangement for fire exit.
- The PROTON BUNKER should have the following rooms other than (Cyclotron Pit, Treatment Room, and Gantry)
- **Description of different rooms and relevant finish as under:**

Room	Min. Carpet area (Sq. M)	Floor	Wall	Comments
Anesthesia & Recovery	30	Granite (Upto INR 200 per sq ft)	Granite	Theme of this area should be taken care of pediatric patients
Toilet (patient) 2 nos. One for male and one for female (provision for pediatric and physically challenged patients in both)	5	Granite (Anti-Skid type)	Granite	Consider Male/female patients, Pediatric and Physically challenged patients
Change Room (2 nos)	4	Granite	Granite	Provide S.S (Min. grade **304**) Locker for patients/ Hangers/ 500 Gowns every year Locker Size: 150 cm X 90 cm with separation (2 nos.)
Treatment Control Room	20	Granite	Granite	
Physics QA room	10	Kota stone	Painting	May be placed in Upper Level
Main control room		Granite	Granite	

NOTE:
Agency will also be submitting the Architecture Drawing for concept approval from ESD, NCI AIIMS. The concept drawings must be vetted from IIT Delhi.

The PROTON vendor shall be responsible for finishing of following rooms in the OPD block (including Furniture), Nothing extra will be paid on this Account. Agency should visit the site before quoting their rates.

Room	Size	Floor	Wall	Comments

	(Sq. M)		(upto false ceiling height)	
Patient waiting area	120	Granite	Granite	A reception desk has to be created of Marble, Theme of this area should be taken care of pediatric patients
TPS room	50	Granite	Granite	Consider for workstation
Doctors Room	20	Granite	Granite	Provide wash basin with counter
Research room	20	Granite	Granite	
Discussion Room/ Meeting Room (May be shared with the Vendor Engineers)	100	Granite	Granite	(Details in Meeting room specification)
Counselling room	25	Granite	Granite	Provide wash basin with counter
Storage Room	35	Granite	Granite	
Patient Examination Room	25	Granite	Granite	Provide wash basin with counter
Server Room	35	Granite	Granite	
Proton Lab	50	Granite	Granite	
Store room/ Reception room	35	Granite	Granite	
Physicist room	20	Granite	Granite	

- Granites used in the bunker should be of Min. thickness of35 mm, and should meet ASTM C-615 "Standard Specification for Granite Dimension Stone
- **All rooms should have false ceiling with Gypsum.**

1. BUILDING MATERIAL

1.1 Reinforced Cement Concrete:

The agency will submit the copy of design mix of required strength as per structural requirement. The type of mix and control of RCC works in the PROTON Therapy area shall be as per the norms of latest AERB regulations. All internal walls, External and Ceiling Surfaces to be plastered to smooth finish. In RCC work batch mix concrete/RMC of required strength shall be used. **Density of RCC should be as per AERB approved drawings.**

1.2 Painting

(i) All internal surfaces should be painted with two coats of **superior grade royale emulsion over a coat of primer of approved make and colour**. The surface preparation must be done properly and with cement based putty only.

(ii) Ceiling surfaces shall be painted with Oil bound distemper in areas without false ceiling.

(iii) All service areas/Rooms shall be painted with royale emulsion/enamel paint/ Texture Paint as per requirement.

(iv) There should be provision of **one skylight and two virtual windows** in the treatment room.

1.4 Flooring And Wall Finish:

(i) Flooring should be finished with Granite of required shade in the entire area (Console, Anesthesia room, Recovery room, Change room, Physics QA room MCR, TCR and rooms in the OPD block)
(ii) Entire wall should be covered with matching Granite finish
(iii) Toilet flooring shall be anti-skid finish
(iv) Fire escape staircase shall be finished with **Single piece** Kota Stone.

1.5 External Façade &Glazing

(i) The external facade should elegantly match the adjacent buildings. A spider glass based facade in all sides is required from a height of 3 feet from the ground. Those 3 feet should be of granite covered matching the adjacent building.
(ii) The facade should be supported by a grid of stainless steel tensioned CABLES along with LED glass clamps.
(iii) The glass should have thermal insulation.

1.6 Doors & Windows & corridor:

(i) The vendor must provide Automatic **sensor sliding** door at the entry of proton therapy facility and the reception area. The following specification (for sensor sliding doors) should be considered
   a. Microprocessor fully automatic and fully adjustable for fast and slow speeds
   b. Adjustable to incorporate 0 - 30 seconds delay
   c. Variable opening width is obtained by either automatic or manual control
   d. The operator will provide internal audible alarms
   e. 2 No. Door suspensions leaf, fully adjustable to allow for vertical, horizontal or lateral adjustment
   f. Track shall be polyester-powder-coated aluminium.
   g. All track and headgear to be covered by one piece full width polyester-powder coated aluminium cover in a finish to suit aluminium installation
   h. Motor is driven from isolator unit mounted adjacent to the doors (isolator unit fitted by others**) along with UPS supply connected with DG and general electric supply.**
   i. Microwave motion detector head/s shall be mounted above each single or pair of doors on both sides of the frame to provide for 3 operations. Detectors shall incorporate presence sensing devices to keep the door open if obstructed.
(ii) The doors frames in the facility should be of **Sal-wood** timber.
(iii) Minimum Thickness 35 mm door shutters shall be of solid core flush shutters with water resistant best quality commercial ply **with both side 1mm thick laminations.**
(iv) The windows shall be of Polyester-powder Coated Aluminium section.
(v) Windows shall be side hung and could be with partial fixed panels.
(vi) Thickness of **toughened glass** shall be **6.0** mm up to 2.50 sqm Glazing area. If the area of Glazing exceeded beyond 2.5 sqm than the thickness of **toughened glass should be 8.0 mm**.

1.7 Designing of the roof:

The vendor must ensure to provide suitable camouflage in the roof around any service facility (Chiller, AC Outdoor units & DG Set etc.). The roof slab should be designed accordingly. This should be in all direction including the top should be covered. The ultimate look should match the entire building.

1.8 False ceiling:

Vendor needs to provide Gypsum Ceiling in the facility. It will be finalized after getting concept drawing.

2. <u>ELECTRICAL SYSTEM</u>:

Lighting should confirm to NBC for Lighting. All electrical system, fixtures, fittings etc. should confirm to CPWD specifications, latest IS code. **Power will be provided by NCI at two-point substation. Further extension will be done by vendor on own cost.**

2.1 External Lighting

The vendor should make provision of lighting in the building facade and canopy. The external lighting should be controlled automatically using timer. The lighting design shall be as per NEC/ECBC to attain required illumination level.

2.2 Internal Electrification:

(i) Modern designer LED light fitting is to be considered in all areas including general areas, office areas, etc. The internal lighting should be uniform, glare free. Intelligent lighting control system should be considered.

(ii) The vendor should provide Ambient light (**as approved by ESD NCI**) in the treatment room and remaining internal lighting should be LED based and should match the building design and aesthetics.

(iii) Light and power outlets on emergency supply wherever required shall be on separate emergency circuit connected with battery backup (UPS) **of 1.5 hours to the generator supply (excluding proton therapy equipment).**

(iv) The requirement of light should be as follows

Area/Room	Type of Work	Minimum Lux Level
Doctors Room	General Lighting	150
Doctors Room	Working Table	**200**
Waiting area		150
Toilet/Change room		**200**

2.3 Emergency Lighting System

(i) The vendor must adhere to the **BIS 7010** guideline for providing emergency backup based on LED signage's as required in the facility. All relevant signage's should be LED based and emergency light fitting should be LED based.

(ii) The Emergency lighting and Exit signages shall be provided in common areas like corridors Lobbies, staircase etc. and using **UPS.**

(iii) 30 % of the illuminance must be available instantaneously

(iv) Escape route illumination: minimum of 1 lux along the center line, and a minimum of 0.5 lux in the 1 m wide central band**(As per NBC guidelines)**

(v) Open area illumination: minimum of 0.5 lux

(vi) High risk task area illumination: 10% of the normal mains illuminance or at least 15 Lux. This output must be fully achieved **instantaneously.**

2.4 Lightning Protection System

Lightning protection system for the building shall be provided as per IS 2309 as per latest amendments.

2.5 Telephone system:

Telephone outlets must be provided generally in all areas except public waiting areas, lift lobby, toilets, Mechanical/Electrical rooms, clean/dirty utility and staircases. **Being basement, one Telephone point for public to be provided for emergency only.**

2.6 CCTV system:

The scope of work shall include supply, installation, testing & commissioning of following:

- Dome cameras in waiting area/corridors/entry & exit/ Lift & staircase lobbies
- PTZ cameras in building periphery
- **Monitoring will be done at two places**
- **Cameras should be IP based**
- **Areas covered by the system are as follows:**
  - Entry & Exit - PTZ camera with night vision
  - Main/Emergency - PTZ camera with night vision entry of the building
  - Main/Emergency/General entry - IR Dome camera with night vision
  - Lobby/Reception/Lift lobby/ - IR Dome camera with night vision
  - Fire escape staircase/ Corridors/waiting area - IR Dome camera with night vision above mentioned cameras shall be IP based type.

2.7 Fire Alarm System: **As per Chapter 4, NBC**.

3 FIRE FIGHTING SYSTEM:

As per India Govt. Fire Policy/Rules

4 HVAC SYSTEM:

The cooling of the PROTON bunker ONLY is in the scope of the vendor. Load calculation should be according to the table from ISHRAE GRP 158, Load Calculation Manual (Heating & Cooling).

5 VENTILATION SYSTEMS:

The number of air changes per hour in the ventilated areas (toilet) should be as per ISHRAE standards.

6 CHILLER for the Facility

(i) The vendor should provide separate water cooled chilling plants**(Power consumption should not be more than 0.64 KW/TR/hr at 100% load)** for the facility
(ii) Floor Mounted AHUS, Ceiling mounted AHUs and Fan Coil Units shall be proposed wherever necessary. All AHUs and CSUs shall complete as required.
(iii) Individual AHUs should be proposed for Gantry/Treatment Area
(iv) **GI ducts (Grade 8**)should be used for both supply & return in Gantry/Treatment Area
(v) AHU's with Hepa filters should be used for treatment areas. All HEPA filters should be disposable aluminium body with filtration efficiency of 99.97% down to 0.3 micron.

NOTE:

The Vender should lay cable for Electric supply from main Electric Sub-Station of NCI campus including earthing etc.

7 ELEVATORS:

Vendor should consider one elevator.

(i) **Suitable capacity freight lift**
(ii) Serving Floors: Basement, Ground & First floor
(iii) Interior: Stainless steel

(iv) Flooring: Aluminium Chequered plate or Granite flooring
(v) Light: LED lamp

8 SEWERAGE SYSTEM

(i) Soil and wastewater from water closets and toilet should be collected by two-pipe system. The vendor must provide sump with **auto mode sump** pump (with one standby pump in each sump for wastewater and effluent drainage from the facility. The requirement of capacity should be calculated according to the load on the facility.
(ii) Rainwater from terrace should be collected with rainwater down take pipes and terminated 150 mm above ground. The rainwater should be allowed to flow in the surface and collected in drainage system and should be connected to Rainwater pipe/chamber.

9 INTERNAL BEAUTIFICATION AND EXTERNAL LANDSCAPING.

The indoor beautification should be done with easily maintainable artificial plants in the patient waiting area and the treatment level (wherever suitable).
Exterior landscaping should be done matching the existing system.

10 ACCESS CONTROL:

(i) The vendor must provide access control system based on biometric/fingerprint access in all room designated for proton therapy.
(ii) It should have fingerprint identification method for **25 users extendable to 100**.
(iii) Identification Speed should be less than 1 sec.
(iv) There should be an option of emergency key.
(v) The equipment should be backed by USB, TCP/IP.
(vi) The equipment should have power back up facility for an emergency power cut off situation.
(vii) The system should allow maintaining electronic log and there should be facility of online data transfer.

11 SOUND SYSTEM:

There should be provision for patient's announcement system and roof mounted music system in the patient treatment level (including console, treatment room, TPS room and recovery room). It should have the following feature

(i) Streaming music via home Wi-Fi network plus Bluetooth
(ii) Compatible with the entire Sound Touch family of wireless speakers
(iii) Informational display (As required by NCI AIIMS).
(iv) Preferable from BOSE or equivalent as approved by user department
(v) In TPS Room, the main light **(Non LED**) should be control device to reduce the LUX level.

12 FURNITURE (sample of furniture/board (for wood work) etc. shall be approved by the ESD NCI before execution).

(i) Anesthesia room shall be provided with wall-mounted storage cupboards with good quality board for storage of anesthesia equipment, drugs, etc.
(ii) The CONSOLE room shall be provided with Wall mounted Storage cupboards with **commercial block board laminate shutters**; to be fixed on the wall above the workstation (approx 1800 mm length; 750 mm height; 300 mm depth).
(iii) Revolving chairs height adjustable, High-back with hand-rest for Control room, TPS room - **40 Nos**.
(iv) 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.

(v) Patients waiting area should be well designed with high quality comfortable sitting arrangement equipped with 10 no (s) sofa, **each having 3 seating capacity.**

(vi) Bookshelves: Five-door bookcase with glass doors, height approx. 1700 mm; to store manuals-one in number

(vii) The vendor must provide curtains/Roller blinds in all relevant rooms

13 PROTON MEETING ROOM

Design Considerations:

(i) TVs should be sized (minimum 84 inch) and located where all participants can view small text such as spreadsheets.

(ii) There should be adequate space to accommodate individuals with disabilities (for two persons)

(iii) Effective video conferencing, web collaboration and teleconferencing require a room without echo. Surfaces such as large windows, hard floors, concrete ceilings and large whiteboards can propagate room echoing.

(iv) The room should include at least one writing surface mounted on a wall.

Technology:

(i) The bottom edge of all wall **mounted 84" LED TVs should be mounted at suitable height from the floor.**

(ii) TV speakers should be utilized for audio.

(iii) Dual-mode speakerphones should be installed on the tabletops:

(iv) USB speakerphone mode- for computer based video conferencing and web collaboration.

(v) Teleconference mode- the dial pad and phone line connection should allow this phone to replace a typical teleconferencing phone.

(vi) USB connected video cameras should be mounted on top of the TVs. These are for computer based video conferencing and web collaboration.

(vii) The tabletop should have built-in cable cubby with HDMI, VGA (+audio) and USB cables to connect laptops, video cameras and speakerphones.

(viii) An auto-sensing HDMI switcher will be installed under the table. The sensor will detect VGA or

(ix) HDMI active inputs from laptops and output an HDMI signal to the TV.

(x) Control panels should enable users to turn TVs on or off and to adjust the TV volume in place of remote controls. Control panels will either be installed on the table or on the wall.

14 Earthquake resistance

In addition to the above-mentioned items if any material/system has been inadvertently missed which is necessary for smooth functioning of the facility should be installed/added without any financial burden.

15 Twelve month defect liability and maintenance and handing over to ESD at NCI after 12 months.

Note:

The following Operational Service charges (for technical support) need to be quoted by the bidders in the price bid. The total amount for such operational services

shall be taken into consideration of bid ranking; however, this operational charge shall not be a part of the upfront bid value:

- **Medical Physicist: 8 Man-days (distributed in 2 shift) per day x 2 years**

- **Radiation Technologist: 12 Man-days (distributed in 2 shift) per day x 2 years**

B. GENERAL POINTS:

1. Warranty:

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

b) The warranty charges shall not be quoted separately.

c) All software and hardware updates should be provided free of cost during Comprehensive Warranty period.

d) During the Warranty period, desired Uptime should be maintained as detailed in technical specification.

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 20 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 to be quoted for the specified period 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) All **software/hardware** updates should be provided free of cost during CAMC. In case of failure by the supplier, the Bank Guarantee of CAMC will be forfeited.

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

g) During the CAMC period, desired Uptime shall be same as mentioned in case of warranty terms.

5. 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 foreign manufacturer does not quote directly, they may authorize an Indian agent as per proforma of "Manufacturer Authorization Form" as given in the bidding document to quote and enter into a contractual obligation.

2. The Bidder should have supplied and installed at least 1 (one) unit in last Five years from the date of Bid Opening, similar equipment meeting major parameters of technical specification which is functioning satisfactorily.

   The Bidder shall furnish Satisfactory Performance Certificate duly signed by end user in respect of above and to be submitted along with the bid duly translated in English (in case the certificate(s) issued in any other language).

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

4. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with Competent Authority, as per order no F.No.6/18/2019-PPD dated 23-July-2020 issued by Ministry of Finance, GOI at Appendix C of this bidding document. The bidder must comply with all provisions mentioned in this order. A self declaration *(as per format provided at Annex III of Appendix C)* with respect to this order must be submitted .

PROFORMA 'A'

PROFORMA FOR PERFORMANCE STATEMENT

(For the period of last five years, as applicable)

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, as applicable, 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 – 201307

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

Price to be filled in the relevant field strictly as per the Price Bid Format provided in the e-tender portal 'https://etenders.gov.in/eprocure/app' under the Tender ID as per terms of the tender enquiry.

The instructions mentioned in the Price Bid Format are to be read and followed by the participating bidders while filling the Price Bid.

SECTION – XI

CHECK LIST

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

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 the validity of Techno Commercial Bid?			
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?			
c.	Have you submitted latest purchase order copies?			

Sl. No.	Activity	Yes/ No/ NA	Page No. of the Bids submitted	Remarks
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 quotedbuy back prices alongwithapplicable 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?			
12	Have you accepted all the terms and conditions of this bidding document?			
13	Have you submitted the duly signed copy of **Integrity pact** (at Appendix-A) on non-judicial stamp paper?			

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 _____
(Hereinaftercalled 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 14 Years with GST (3) X[(4a+4b+4c+….) + (5)]
			2nd	3rd	4th	….	15th		
			a	b	c	…			

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 and hardware updates should be provided without any extra 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 withdate:_____

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:_____

APPENDIX-A

INTEGRITY PACT

PRE-CONTRACT INTEGRITY PACT

This Pre-Contract Integrity Pact (herein after called the Integrity Pact) is made on _____ day of the month of _____ Year _____

Between

HLL Infra Tech Services Ltd. [HITES], a wholly owned subsidiary company of M/s. HLL Lifecare Ltd. a Government of India Enterprise with registered office at HLL Bhavan, Poojappura, Thiruvananthapuram 695 012, Kerala, India. (Hereinafter called "HITES", which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Party.

And

M/s., with office at _____ represented by Shri _____ , _____(*Designation*) (hereinafter called the "BIDDER/Seller"/Contractor which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Party.

Preamble

[Both HITES and BIDDER referred above are jointly referred to as the Parties]

HITES intends to award, under laid down organizational procedures, Purchase orders / contract/s against Tender /Work Order /Purchase Order No.
HITES desires full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s and Contractor/s.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

1. Enable HITES to obtain the desired materials/ stores/equipment/ work/ project done at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement; and

2. Enable the BIDDER to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and HITES will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

Clause.1. Commitments of HITES

1.1 HITES undertakes that HITES and/or its Associates (i.e. employees, agents, consultants, advisors, etc.) will not demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

1.2 HITES will, during the tender process / pre-contract stage, treat all BIDDERs with equity and reason, and will provide to all BIDDERs the same information and will not provide any such information or additional information, which is confidential in any manner, to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERs in relation to tendering process or during the contract execution.

1.3 All the officials of HITES regarding this Integrity Pact will report to IEM, any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach shall not be permitted.

1.4 HITES will exclude from the process all known prejudiced persons and persons who would be known to have a connection or nexus with the prospective bidder.

1.5 If the BIDDER reports to HITES with full and verifiable facts any misconduct on the part of HITES's Associates (i.e. employees, agents, consultants, advisors, etc.) and the same is prima facie found to be correct by HITES, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by HITES. Further, such an Associate may be debarred from further dealings related to the contract process. In such a case, while an enquiry is being conducted by HITES the proceedings under the contract would not be stalled.

Clause 2. Commitments of BIDDERs/ CONTRACTORs

2.0 The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

2.1 The BIDDER will not offer, directly or indirectly (i.e. employees, agents, consultants, advisors, etc.) any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of HITES, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

2.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of HITES or otherwise in procuring the contract or forbearing to do or having done any act in relation to obtaining or execution of the contract or any other contract with HITES for showing or forbearing to show

favour or disfavor to any person in relation to the contract or any other contract with HITES.

2.3 The BIDDER will not engage in collusion, price fixing, cartelization, etc. with other counterparty(s).

2.4 The Bidder(s) will not pass to any third party any confidential information entrusted to it, unless duly authorized by HITES.

2.5 The Bidder(s) will promote and observe ethical practices within its Organization and its affiliates.

2.6 BIDDER shall disclose the name and address of agents and representatives and Indian BIDDERS shall disclose their foreign principals or associates.

2.7 The Bidder(s) will not make any false or misleading allegations against HITES or its Associates.

2.8 BIDDER(s) shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.

2.9 The BIDDER further confirms and declares to HITES that the BIDDER is the original manufacture or its authorised agent/integrator and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to HITES or any of its functionaries, whether officially or unofficially to award the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

2.10 The BIDDER while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of HITES or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

2.11 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

2.12 The BIDDER commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.

2.13 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of HITES, or alternatively, if any relative of an officer of HITES has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.

The term 'relative' for this purpose would be as defined in Section 2(77) of the Companies Act 2013

2.14 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of HITES.

2.15 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract, and will not enter into any undisclosed agreement or understanding with other Bidders, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.16 The BIDDER will not commit any offence under the relevant Indian Penal Code, 1860 or Prevention of Corruption Act, 1988; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the HITES as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.

2.17 The BIDDER will not instigate third persons to commit offences outlined above or be an accessory to such offences.

2.18 The Bidder(s)/Contractors(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly the Bidder(s)/ Contractors(s) of Indian Nationality shall furnish the name and address of the foreign Principal(s), if any.

2.19 The Bidder(s) shall not approach the courts while representing the matters to IEM and the Bidder(s) will await their decision in the matter.

Clause.3. Previous contravention and Disqualification from tender process and exclusion from future contracts

3.1 The BIDDER declares that no previous contravention occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process

3.2 The BIDDER agrees that if it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

If BIDDER before award or during execution has committed a contravention through a violation of Clause 2, above or in any other form such as to put his reliability or credibility in question, HITES is entitled to disqualify the BIDDER from the tender process.

Clause.4. Equal treatment of all Bidders/Contractors / Subcontractors

4.1 The Bidder(s)/Contractor(s) undertake(s) to demand from his Subcontractors a commitment in conformity with this Integrity Pact.

4.2 HITES will enter into agreements with identical conditions as this one with all Bidders and Contractors.

4.3 HITES will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Clause.5. Consequences of Violation / Breach

5.1 Any breach of the aforesaid provision by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle HITES to take all or any one of the following action, wherever required:-

i. To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.

ii. If BIDDER commits violation of Integrity Pact Policy during bidding process, he shall be liable to compensate HITES by way of liquidated damages amounting to a sum equivalent to 5% to the value of the offer or the amount equivalent to Earnest Money Deposit/Bid Security, whichever is higher.

iii. In case of violation of the Integrity Pact after award of the contract, HITES will be entitled to terminate the contract. HITES shall also be entitled to recover from the contractor liquidated damages equivalent to 10% of the contract value or the amount equivalent to security deposit/ performance guarantee, whichever is higher.

iv. To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.

v. To recover all sums already paid by HITES, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from HITES in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid amount.

vi. To encash the advance bank guarantee and performance guarantee /warranty bond, if furnished by the BIDDER, in order to recover the payments already made by HITES, along with interest.

vii. To cancel all or any other contract with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to HITES resulting from such cancellation/recession and HITES shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

viii. To debar the BIDDER from participating in future bidding processes of HITES for a minimum period of five (5) years, which may be further extended at the discretion of HITES or until Independent External Monitors is satisfied that the Bidder (s) will not commit any future violation.

ix. To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.

x. In cases where irrevocable Letters of credit have been received in respect of any contract signed by HITES with the BIDDER, the same shall not be opened.

xi. Forfeiture of performance guarantee in case of a decision by HITES to forfeit the same without assigning any reason for imposing sanction for violation of the pact.

5.2 HITES will be entitled to all or any of the actions mentioned in para 5.1(i) to (x) of this pact also on the commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal Code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

5.3 The decision of HITES to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent External Monitor(s) appointed for the purposes of this Pact.

Clause. 6. Fall Clause

The BIDDER undertakes that it has not supplied/is not supplying similar product /systems or subsystems OR providing similar services at a price/charge lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India or PSU and if it is found any stage that similar product/systems or sub systems was supplied by the BIDDER to any to the Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to HITES, if the contract has already been concluded.

Clause. 7. Independent External Monitor(s)

7.1 HITES is in the process of renewal of appointing the Independent External Monitor(s) (hereinafter referred to as IEM(s)) for this Pact in consultation with the Central Vigilance Commission (CVC). Contact details of IEM shall be notified after receipt of IEM nomination from CVC.

7.2 The responsibility of the IEM(s) shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

7.3 The IEM(s) shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

7.4 Both the parties accept that the IEM(s) have the right to access all the documents relating to the project/ procurement, including minutes of meetings.

7.5 As soon as the IEM(s) notices, or has reason to believe, a violation of this pact, he will so inform the CEO/CMD.

7.6 The BIDDER(S) accepts that the IEM(s) have the right to access without restriction to all project documentation of HITES including that provided by the BIDDER. The BIDDER will also grant the IEM(s), upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to subcontractors engaged by the BIDDER. The IEM(s) shall be under contractual obligation to treat the information and documents of the BIDDER/ Subcontractor(s) with confidentiality.

7.7 HITES will provide to the IEM(s) sufficient information about all meetings among the parties related to the Project provided such meeting could have an impact on the contractual relation between the parties. The parties will offer to the IEM(s) option to participate in such meetings.

7.8 The IEM(s) will submit a written report to the CEO/CMD of HITES within 3 to 5 weeks from the date of reference or intimation to him by HITES/BIDDER.

Clause.8. Criminal charges against violating Bidder(s)/Contractor(s)/Subcontractor(s)

If HITES obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if HITES has substantive suspicion in this regard, HITES will inform the same to the Chief Vigilance Officer, HLL

Clause.9. Facilitation of Investigation
In case of any allegation of violation of any provisions of this Pact or payment of commission, HITES or its agencies shall be entitled to examine all the documents, including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

Clause.10. Law and Place of Jurisdiction
Both the Parties agree that this Pact is subject to Indian Law. The place of performance and hence this Pact shall be subject to Delhi/ NCR Jurisdiction.

Clause.11. Other legal Actions
The actions stipulated in the Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

Clause.12. Validity and Duration of the Agreement
This Pact begins when both parties have legally signed it. It expires for the Contractor/Successful bidder 12 months after the last payment under the contract or the complete execution of the contract to the satisfaction of the both HITES/Consignee and the BIDDER/Seller, including warranty period, whichever is later, and for all other Bidders/unsuccessful bidders 6 months after the contract has been awarded.

If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged / determined by Chairman and Managing Director/ CEO of HITES.

Clause. 13. Other provisions

13.1 Changes and supplements as well as termination notices need to be made in writing. Both the Parties declare that no side agreements have been made to this Integrity Pact.

13.1 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

13.1 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions

IN WITNESS THEREOF the parties have signed and executed this pact at the place and date first above mentioned in the presents of following witnesses:

HLL Infra Tech Services Ltd.	**Bidder**
_____	_____
Witness	Witness
1…….	1…….
2…….	2…….

* Provisions of these clauses would be amended /deleted in line with the policy of the HITES in regard to involvement of Indian agents of foreign suppliers.

APPENDIX-B

No. P-45021/2/2017-PP (BE-II)
Government of India
Ministry of Commerce and Industry
Department for Promotion of Industry and Internal Trade
(Public Procurement Section)

Udyog Bhawan, New Delhi
Dated: 04th June, 2020

To

All Central Ministries/Departments/CPSUs/All concerned

ORDER

Subject: Public Procurement (Preference to Make in India), Order 2017– Revision; regarding.

Department for Promotion of Industry and Internal Trade, in partial modification [Paras 2, 3, 5, 9(a), 9(b) and 10(b) modified and Para 3A added] of Order No.P-45021/2/2017-B.E.-II dated 15.6.2017 as amended by Order No.P-45021/2/2017-B.E.-II dated 28.05.2018 and Order No.P-45021/2/2017-B.E.-II dated 29.05.2019, hereby issues the revised 'Public Procurement (Preference to Make in India), Order 2017" dated 04.06.2020 effective with immediate effect.

Whereas it is the policy of the Government of India to encourage 'Make in India' and promote manufacturing and production of goods and services in India with a view to enhancing income and employment, and

Whereas procurement by the Government is substantial in amount and can contribute towards this policy objective, and

Whereas local content can be increased through partnerships, cooperation with local companies, establishing production units in India or Joint Ventures (JV) with Indian suppliers, increasing the participation of local employees in services and training them,

Now therefore the following Order is issued:

1. This Order is issued pursuant to Rule 153 (iii) of the General Financial Rules 2017.

2. **Definitions**: For the purposes of this Order:

   'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

   'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under this Order.

   'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order.

.....Contd. p/2

'Non - Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%, as defined under this Order.

'L1' means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.

'Margin of purchase preference' means the maximum extent to which the price quoted by a "Class-I local supplier" may be above the L1 for the purpose of purchase preference.

'Nodal Ministry' means the Ministry or Department identified pursuant to this order in respect of a particular item of goods or services or works.

'Procuring entity' means a Ministry or department or attached or subordinate office of, or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.

'Works' means all works as per Rule 130 of GFR- 2017, and will also include *'turnkey works'*.

3. Eligibility of 'Class-I local supplier'/ 'Class-II local supplier'/ 'Non-local suppliers' for different types of procurement

(a) In procurement of all goods, services or works in respect of which the Nodal Ministry / Department has communicated that there is sufficient local capacity and local competition, only 'Class-I local supplier', as defined under the Order, shall be eligible to bid irrespective of purchase value.

(b) In procurement of all goods, services or works, not covered by sub-para 3(a) above, and with estimated value of purchases less than Rs. 200 Crore, in accordance with Rule 161(iv) of GFR, 2017, Global tender enquiry shall not be issued except with the approval of competent authority as designated by Department of Expenditure. Only 'Class-I local supplier' and 'Class-II local supplier', as defined under the Order, shall be eligible to bid in procurements undertaken by procuring entities, except when Global tender enquiry has been issued. In global tender enquiries, 'Non-local suppliers' shall also be eligible to bid along with 'Class-I local suppliers' and 'Class-II local suppliers'.

(c) For the purpose of this Order, works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

3A. Purchase Preference

(a) Subject to the provisions of this Order and to any specific instructions issued by the Nodal Ministry or in pursuance of this Order, purchase preference shall be given to 'Class-I local supplier' in procurements undertaken by procuring entities in the manner specified here under.

.....Contd. p/3

(b) In the procurements of goods or works, which are covered by para 3(b) above and which are divisible in nature, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:

i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract for full quantity will be awarded to L1.

ii. If L1 bid is not a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such 'Class-I local supplier' subject to matching the L1 price. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such balance quantity may also be ordered on the L1 bidder.

(c) In the procurements of goods or works, which are covered by para 3(b) above and which are not divisible in nature, and in procurement of services where the bid is evaluated on price alone, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:

i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract will be awarded to L1.

ii. If L1 is not 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier', will be invited to match the L1 price subject to Class-I local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price.

iii. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the 'Class-I local supplier' within the margin of purchase preference matches the L1 price, the contract may be awarded to the L1 bidder.

(d) "Class-II local supplier" will not get purchase preference in any procurement, undertaken by procuring entities.

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4. **Exemption of small purchases**: Notwithstanding anything contained in paragraph 3, procurements where the estimated value to be procured is less than Rs. 5 lakhs shall be exempt from this Order. However, it shall be ensured by procuring entities that procurement is not split for the purpose of avoiding the provisions of this Order.

5. **Minimum local content**: The local content requirement to categorize a supplier as 'Class-I local supplier'/ 'Class-II local supplier'/ 'Non-local supplier' shall be as defined in the Para "2" of the Order. No change is permissible on this account. However, if any nodal Ministry/ Department finds that for any particular item, pertaining to their nodal ministry/department, the definition of Local Content, as defined in the Order, is not workable/ has limitations, it may notify alternate suitable mechanism for calculation of local content for that particular item.

6. **Margin of Purchase Preference**: The margin of purchase preference shall be 20%.

7. **Requirement for specification in advance**: The minimum local content, the margin of purchase preference and the procedure for preference to Make in India shall be specified in the notice inviting tenders or other form of procurement solicitation and shall not be varied during a particular procurement transaction.

8. **Government E-marketplace**: In respect of procurement through the Government E-marketplace (GeM) shall, as far as possible, specifically mark the items which meet the minimum local content while registering the item for display, and shall, wherever feasible, make provision for automated comparison with purchase preference and without purchase preference and for obtaining consent of the local supplier in those cases where purchase preference is to be exercised.

9. **Verification of local content**:
   a. The 'Class-I local supplier'/ 'Class-II local supplier' at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for 'Class-I local supplier'/ 'Class-II local supplier', as the case may be. They shall also give details of the location(s) at which the local value addition is made.

   b. In cases of procurement for a value in excess of Rs. 10 crores, the 'Class-I local supplier'/ 'Class-II local supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

   c. Decisions on complaints relating to implementation of this Order shall be taken by the competent authority which is empowered to look into procurement-related complaints relating to the procuring entity.

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d. Nodal Ministries may constitute committees with internal and external experts for independent verification of self-declarations and auditor's/ accountant's certificates on random basis and in the case of complaints.

e. Nodal Ministries and procuring entities may prescribe fees for such complaints.

f. False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

g. A supplier who has been debarred by any procuring entity for violation of this Order shall not be eligible for preference under this Order for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, in the manner prescribed under paragraph 9h below.

h. The Department of Expenditure shall issue suitable instructions for the effective and smooth operation of this process, so that:

i. The fact and duration of debarment for violation of this Order by any procuring entity are promptly brought to the notice of the Member-Convenor of the Standing Committee and the Department of Expenditure through the concerned Ministry /Department or in some other manner;

ii. on a periodical basis such cases are consolidated and a centralized list or decentralized lists of such suppliers with the period of debarment is maintained and displayed on website(s);

iii. in respect of procuring entities other than the one which has carried out the debarment, the debarment takes effect prospectively from the date of uploading on the website(s) in the such a manner that ongoing procurements are not disrupted.

10. **Specifications in Tenders and other procurement solicitations**:

a. Every procuring entity shall ensure that the eligibility conditions in respect of previous experience fixed in any tender or solicitation do not require proof of supply in other countries or proof of exports.

b. Procuring entities shall endeavour to see that eligibility conditions, including on matters like turnover, production capability and financial strength do not result in unreasonable exclusion of 'Class-I local supplier'/ 'Class-II local supplier' who would otherwise be eligible, beyond what is essential for ensuring quality or creditworthiness of the supplier.

c. Procuring entities shall, within 2 months of the issue of this Order review all existing eligibility norms and conditions with reference to sub-paragraphs 'a' and 'b' above.

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d. If a Nodal Ministry is satisfied that Indian suppliers of an item are not allowed to participate and/ or compete in procurement by any foreign government, it may, if it deems appropriate, restrict or exclude bidders from that country from eligibility for procurement of that item and/ or other items relating to that Nodal Ministry. A copy of every instruction or decision taken in this regard shall be sent to the Chairman of the Standing Committee.

e. For the purpose of sub-paragraph 10 d above, a supplier or bidder shall be considered to be from a country if (i) the entity is incorporated in that country, or ii) a majority of its shareholding or effective control of the entity is exercised from that country; or (iii) more than 50% of the value of the item being supplied has been added in that country. Indian suppliers shall mean those entities which meet any of these tests with respect to India."

10A. Action for non-compliance of the Provisions of the Order: In case restrictive or discriminatory conditions against domestic suppliers are included in bid documents, an inquiry shall be conducted by the Administrative Department undertaking the procurement (including procurement by any entity under its administrative control) to fix responsibility for the same. Thereafter, appropriate action, administrative or otherwise, shall be taken against erring officials of procurement entities under relevant provisions. Intimation on all such actions shall be sent to the Standing Committee.

11. **Assessment of supply base by Nodal Ministries**: The Nodal Ministry shall keep in view the domestic manufacturing / supply base and assess the available capacity and the extent of local competition while identifying items and prescribing minimum local content or the manner of its calculation, with a view to avoiding cost increase from the operation of this Order.

12. **Increase in minimum local content**: The Nodal Ministry may annually review the local content requirements with a view to increasing them, subject to availability of sufficient local competition with adequate quality.

13. **Manufacture under license/ technology collaboration agreements with phased indigenization**: While notifying the minimum local content, Nodal Ministries may make special provisions for exempting suppliers from meeting the stipulated local content if the product is being manufactured in India under a license from a foreign manufacturer who holds intellectual property rights and where there is a technology collaboration agreement / transfer of technology agreement for indigenous manufacture of a product developed abroad with clear phasing of increase in local content.

14. **Powers to grant exemption and to reduce minimum local content**: The administrative Department undertaking the procurement (including procurement by any entity under its administrative control), with the approval of their Minister-in-charge, may by written order, for reasons to be recorded in writing,

a. reduce the minimum local content below the prescribed level; or
b. reduce the margin of purchase preference below 20%; or

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c. exempt any particular item or supplying entities from the operation of this Order or any part of the Order.

A copy of every such order shall be provided to the Standing Committee and concerned Nodal Ministry / Department. The Nodal Ministry / Department concerned will continue to have the power to vary its notification on Minimum Local Content.

15. **Directions to Government companies**: In respect of Government companies and other procuring entities not governed by the General Financial Rules, the administrative Ministry or Department shall issue policy directions requiring compliance with this Order.

16. **Standing Committee**: A standing committee is hereby constituted with the following membership:

Secretary, Department for Promotion of Industry and Internal Trade—Chairman
Secretary, Commerce—Member
Secretary, Ministry of Electronics and Information Technology—Member
Joint Secretary (Public Procurement), Department of Expenditure—Member
Joint Secretary (DPIIT)—Member-Convenor

The Secretary of the Department concerned with a particular item shall be a member in respect of issues relating to such item. The Chairman of the Committee may co-opt technical experts as relevant to any issue or class of issues under its consideration.

17. **Functions of the Standing Committee**: The Standing Committee shall meet as often as necessary, but not less than once in six months. The Committee
   a. shall oversee the implementation of this order and issues arising therefrom, and make recommendations to Nodal Ministries and procuring entities.
   b. shall annually assess and periodically monitor compliance with this Order
   c. shall identify Nodal Ministries and the allocation of items among them for issue of notifications on minimum local content
   d. may require furnishing of details or returns regarding compliance with this Order and related matters
   e. may, during the annual review or otherwise, assess issues, if any, where it is felt that the manner of implementation of the order results in any restrictive practices, cartelization or increase in public expenditure and suggest remedial measures
   f. may examine cases covered by paragraph 13 above relating to manufacture under license/ technology transfer agreements with a view to satisfying itself that adequate mechanisms exist for enforcement of such agreements and for attaining the underlying objective of progressive indigenization
   g. may consider any other issue relating to this Order which may arise.

18. **Removal of difficulties**: Ministries /Departments and the Boards of Directors of Government companies may issue such clarifications and instructions as may be necessary for the removal of any difficulties arising in the implementation of this Order.

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19. **Ministries having existing policies**: Where any Ministry or Department has its own policy for preference to local content approved by the Cabinet after 1st January 2015, such policies will prevail over the provisions of this Order. All other existing orders on preference to local content shall be reviewed by the Nodal Ministries and revised as needed to conform to this Order, within two months of the issue of this Order.

20. **Transitional provision**: This Order shall not apply to any tender or procurement for which notice inviting tender or other form of procurement solicitation has been issued before the issue of this Order.

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APPENDIX-C

Restrictions under Rule 144 (xi) of the GFR, 2017

Annex III

Model Clause /Certificate to be inserted in tenders etc.

(While adhering to the substance of the Order, procuring entities and GeM are free to appropriately modify the wording of the clause/ certificate based on their past experience, local needs etc.)

Model Clauses for Tenders

I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder from a country which shares a land border with India" for the purpose of this Order means: -
   a. An entity incorporated, established or registered in such a country; or
   b. A subsidiary of an entity incorporated, established or registered in such a country; or
   c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
   d. An entity whose *beneficial owner* is situated in such a country; or
   e. An Indian (or other) agent of such an entity; or
   f. A natural person who is a citizen of such a country; or
   g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

IV. The *beneficial owner* for the purpose of (iii) above will be as under:

   1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.
      Explanation—

      a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;

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b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. *[To be inserted in tenders for Works contracts, including Turnkey contracts]* The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

Model Certificate for Tenders (for transitional cases as stated in para 3 of this Order)

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I hereby certify that this bidder is not from such a country and is eligible to be considered."

Model Certificate for Tenders

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the

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Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate for Tenders for Works involving possibility of sub-contracting

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate for GeM:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this vendor/ bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this vendor/ bidder fulfills all requirements in this regard and is eligible to be considered for procurement on GeM. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

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