REPUBLIC OF KENYA

KISII COUNTY GOVERNMENT

ARAB BANK FOR ECONOMIC DEVELOPMENT IN AFRICA

SAUDI FUND FOR DEVELOPMENT

MINISTRY OF HEALTH TENDER

DOCUMENT FOR

PROPOSED CANCER CENTRE AT THE KISII TEACHING AND REFERRAL HOSPITAL

SUPPLYING, INSTALLATION, COMMISSIONING, OPERATION, MAINTENANCE AND HANDOVER OF MEDICAL EQUIPMENT

GENERAL REQUIREMENTS
QUALIFICATION INFORMATION
SPECIFICATIONS

Tender	Tender Number	Tender Document	Tender Description
6.	MOH/NCCP/ICB/015/2023-2024	Lot 1	Outpatient Equipment
7.	MOH/NCCP/ICB/016/2023-2024	Lot 2	Oncology (Radiotherapy) Equipment
8.	MOH/NCCP/ICB/017/2023-2024	Lot 6	Diagnostic Laboratory Equipment
9.	MOH/NCCP/ICB/018/2023-2024	Lot 8	Operation Theatres Equipment
10.	MOH/NCCP/ICB/019/2023-2024	Lot 11	Central Sterilization Supplies Department (CSSD)

MEDICAL EQUIPMENT

CLOSING DATE: 5TH APRIL 2024 AT 10.00 A.M. LOCAL TIME

SCHON ASSOCIATES

NARCO ENGINEERING CONSULTANTS

Issue Date: 20th February 2024

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INVITATION FOR TENDERS

COUNTRY:	**KENYA**
PROJECT NAME:	**CONSTRUCTION AND EQUIPPING OF A NEW CANCER DIAGNOSTIC AND TREATMENT CENTRE AT KISII TEACHING AND REFERRAL HOSPITAL**
TENDER NO:	**See Table below**
TENDER NAME:	**SUPPLYING, INSTALLATION, COMMISSIONING, OPERATION, MAINTENANCE AND HANDOVER OF MEDICAL EQUIPMENT**
CLOSING DATE:	**5TH APRIL 2024 AT 10:00 A.M. KENYAN TIME**

1. The Government of the Republic of Kenya has obtained a loan from the Arab Bank for Economic Development in Africa and the Saudi Fund for Development to finance the Construction, Equipping and Commissioning of a new Cancer Diagnostic and Treatment Centre at Kisii Teaching and Referral Hospital and it is intended that part of the proceeds of the said loan will be applied towards the costs of the Works.
2. The Ministry of Health invites sealed Tenders from eligible Tenderers for the Construction, Equipping and Commissioning of a new Cancer Diagnostic and Treatment Centre at Kisii Teaching and Referral Hospital (hereinafter called the Works) and the remedying of any defects therein.
3. Eligible interested Tenderers may obtain further information, addendums or clarifications in respect to this Tender from the Ministry website www.health.go.ke. All eligible Tenderers are advised to regularly check the website during the bidding period.
4. A complete set of the Tender documents may be downloaded from the Ministry's website www.health.go.keor public procurement information portal: www.tenders.go.ke, free of charge. Eligible Tenderers downloading the Tender document MUST forward their company's details to procurement@health.go.ke so that any addendum/ clarifications can be sent to their email address.

   Requests for clarification to be sent either by mail to Principal Secretary, Ministry of Health P. O Box 30016 Nairobi, Kenya or through email address procurement@health.go.ke, at any time, but not later than 14 days before the closing date for submittal of bids.

   The Tender is comprised of the following:

Tender	Tender Number	Tender Document	Name of Tender
6	MOH/NCCP/ICB/015/2023-2024	Lot 1	Outpatient Equipment
7	MOH/NCCP/ICB/016/2023-2024	Lot 2	Oncology (Radiotherapy) Equipment
8	MOH/NCCP/ICB/017/2023-2024	Lot 6	Diagnostic Laboratory Equipment
9	MOH/NCCP/ICB/018/2023-2024	Lot 8	Operation Theatres Equipment
10	MOH/NCCP/ICB/019/2023-2024	Lot 11	Central Sterilization Supplies Department (CSSD)

   Interested bidders may participate on their own or as a joint venture. All partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms. A copy of the agreement entered into by the joint venture partners shall be submitted with the tender.
5. A Pre-Tender site visit will be held at the *site located opposite Kisii School along Kericho-Kisii Highway on* ***Monday; 11th March 2024 at 09:00 a.m****. The site has a conspicuous signpost that reads "Proposed Kisii Cancer Centre".*

6. The **original** and **one copy** of the Tender Document shall be placed inside of a sealed envelope, clearly marked with, "[Name of the TENDER] ", reference number with a warning "**Do Not Open until** [***5th April 2024*** *at* ***10.00 a.m.*** **(Kenyan Time**)].
7. If the envelopes and packages with the tenders are not sealed and marked as required, the Client will assume no responsibility for the misplacement, loss, or premature opening of the tender.
8. Every Tender must be accompanied by a **Tender Security of 2% of the Total Tender Amount** or equivalent amount in the currency of the Tender.
9. Tenders must be delivered to the address below,

   The Principal Secretary,
   Ministry of Health,
   Afya House Building, Cathedral Road,
   P.O. Box 30016-00100,
   NAIROBI.

   or be deposited in the Tender Box located on 1st Floor of Afya House, Ministry of Health, Cathedral Road, Nairobi, so as to be received on or before ***10:00 a.m. on 5th April 2024***.

   Electronic bidding will *not* be permitted. Late tenders will be rejected.

10. Tenders will be opened immediately thereafter at the GTZ Boardroom located at Afya House Ground Floor.

    Head Supply Chain Management Services
    For: Principal Secretary

FORM OF TENDER

(To be submitted with Every Lot)

Date:
.....
Invitation of Tenders No.:
.....

To: [Name of the Employer /Issuer of Invitation of Tenders] [Address of the Employer /Issuer of Invitation of Tenders]

Dear Sirs,

Subject: Invitation of Tenders No.....
For *[Name of Project]*

1. Having examined the tender documents, including, in particular, the Conditions of Contract, the Specifications, Drawings and Bills of Quantities *[as well as Addenda Nos. .....and....., if any]* we, the undersigned, offer to supply, install, test, commission and handover *[insert description of the Lots]* (hereinafter referred to as the Works) and to remedy any defects therein, all in conformity with the said tender documents for the sum of:

.....

[Insert amount in figures]

.....

.

[Insert amount in words]

or such other sum as determined in accordance with the said Conditions of Contract and other documents of such contract as may be concluded between us.

2. We undertake, if our Tender is accepted, to commence the Works as soon as reasonably possible after receipt of the Engineer's notice to commence and to complete the whole of the Works within the Time for Completion.

3. We undertake, if our Tender is accepted, to provide a performance bank security in an amount equivalent to …….. percent of the Contract Price for the due performance of the Contract, such performance security being in accordance with the requirements stated in the tender documents and the form prescribed therein.

4. We agree to abide by this Tender for a period of 120 days from the closing date for the submittal of tenders, and this Tender shall remain valid and binding upon us for the said duration and may be accepted by you at any time before expiry of the period stated.

5. Until a formal contract is prepared and executed, this Tender and your written acceptance thereof shall constitute a binding contract between us.

6. We confirm that we recognize that you are not bound to accept the lowest or any other bid received by you.

Yours truly,

[Name of Tenderer]
By: [Signature of Authorized Representative] [Name of Authorized Representative] [Designation/Capacity]

Witness: *[Signature]*
[Name] [Occupation] [Address]

PART I – GENERAL REQUIREMENTS

1. The Language of the Tender, Brochures, Equipment Display Panel, Instructions, Manuals and Warranty **must** be in **English**.
2. The tender is open to Original Equipment Manufacturers (OEM) and or their local agents and they are allowed to form a consortium where all the equipment in the LOT may not be provided by one OEM. In the case of a consortium, the consortium agreement must be provided with the nomination of the lead member that will be responsible for the tender.
3. Tenderers must bid for a WHOLE Lot or multiple Lots but NOT part of a Lot. Failure to comply with this condition will lead to disqualification for the incomplete Lot.
4. The specifications provided describe the basic requirements for equipment. Tenderers are requested to submit with their offers the detailed specifications, drawings, catalogues, etc for the products they intend to supply.
5. Tenderers must indicate on the specifications sheets whether the equipment offered comply with each specific requirement.
6. All the dimensions and capacities of the equipment to be supplied shall not be less than those required in these specifications. Deviations from the basic requirements, if any, shall be explained in detail in writing with the offer, with supporting data such as calculation sheets, etc. The Employer reserves the right to reject the products, if such deviations shall be found critical to the use and operation of the products.
7. The tenderers are requested to present information along with their offers as follows:
    a) Shortest possible delivery period of each product.
    b) Information on proper representative and/or workshop for back-up service/repair and maintenance including their names and addresses.
    c) Provide information for all the activities and areas of specialties including relevant licenses, registration, and certifications.
    d) Manufacturers authorization for all the products being supplied specifying name, model number and country of origin and status of equipment production for all such equipment without any alteration, in the case where the bidders are not OEMs.
    e) Documentary evidence of the instruments proposed for in the form of brochures or catalogues.
8. The following general requirements will apply to the tenderers participating in this tender for assurance of support of products and services being offered.
    a) The service provider should have a strong office base established in the country with demonstrated support service.
    b) The service provider should have a direct Business Channel office in Kenya to handle the entire Region for not less than 5 years
    c) There has to be proof of investment in capacity building especially in the Customer Support with Well-trained factory Engineers.

d) There has to be clear evidence of regular update / follow up on various technical trainings from the manufacturers to keep up to date with the challenges in new technology.

e) There has to be proof of investment in all relevant support Tools required to maintain large install base.

f) There has to be a demonstration of current market share in the region and proof of current customer support capacity, with respect to uptime, downtime and contractual service delivery.

g) There has to be proof of continuous availability of spare parts and consumables required for the proper operation of the equipment

h) There has to be written proof of support for the equipment being supplied for the next 10 years in terms of technical and spare parts availability.

i) Bidder to provide a written proposal for delivery, installation, commissioning, supply of parts and training.

j) Bidder to provide a written proposal for service, maintenance, and reagents for 2 years post warranty for the following medical equipment:

    1. Imaging Equipment (eg. X-Ray, Ultrasound, CT-Scan, MRI)
    2. Laboratory Equipment (eg. Biochemistry and Haematology Equipment)
    3. Radiotherapy Equipment (eg. Linear Accelerator and Brachytherapy)
    4. ICU & Operating Theatre (eg. Ventilators and Anesthetic machines)

PART II – QUALIFICATION INFORMATION

This shall apply to every supplier whether bidding for a single Lot or a Multiple of Lots.

MANDATORY REQUIREMENTS

Item	Description	Yes	No
1.	Copy of a valid Certificate of Incorporation or /Business Registration		
2.	Copy of Pin Number from Kenya Revenue Authority (KRA)/ Internationally Recognized body		
3.	Copy of Valid Tax Compliance from their respective country of residence		
4.	Copy of Current & valid Single Business Permit		
5.	The bidder should show evidence of a strong office base established in the country and the region with demonstrated support service for not less than 12 months		
6.	The bidder shall establish to the Employer's satisfaction, proof of similar contracts (Hospitals) successfully completed in the last 10 years indicating the contract sums and Client references		
7.	Detailed project work plan and delivery schedule is required. Bidders will be evaluated against time to deliver the full functionality and adoption of the facility		
8.	Written power of attorney of the signatory of the tender to commit the bidder for Consortiums, a joint venture agreement and power of attorney to commit the others.		
9.	Financial Capability (As supported by Audited Accounts for the last five (5) years		
10.	The Bidder shall provide details of line(s) of credit available to the bidder, including amount(s) and name of bank(s) making available such line(s) of credit and contact details		
11.	The bidders and must provide information for all the activities and areas of specialties including relevant licenses, registration, and certifications.		
12.	Attach copies of Recommendation letters from three of your major clients having undertaken similar assignment		
13.	Documentary evidence of the equipment/instruments proposed in the form of brochures or catalogues		
14.	The bidder shall provide a manufacturer authorization specifying name, model number and country of origin and status of equipment production for all such equipment without any alteration		

Item	Description	Yes	No
15.	Total Compliance to Specifications with Clause-by-Clause Statement of Compliance (SOC) of the response in the stipulated format		
16.	The bidder should demonstrate Proof of availability of local training capacity		
17.	Every Tender (Lot or Lots) must be accompanied by a Bid Bank Guarantee of 2% of Total Tender Amount in the tender currency.		
	Bidders must meet ALL the mandatory requirements to qualify for Technical Evaluation		

PART III INSTRUCTION TO TENDERS

A. GENERAL

1. Purpose of Tender Invitation

   Tenders are invited by **The Ministry of Health**.
   (hereinafter referred to as the Purchaser) for the supply of **Medical Equipment** (the Goods) required for the **Kisii Cancer Centre** Project (the Project) and described in the tender documents accompanying these Instructions.

2. Interpretation

   The terms used in these Instructions shall have the same meanings assigned to them in Article I (Definitions and Interpretation) of Part I (General Conditions of Contract) of the tender documents, subject to any amendments stated in Part II (Special Conditions of Contract). The words "tender" and "bid" are used here interchangeably and shall have the same meaning and any derivative of either shall have the same meaning as the corresponding derivative of the other.

3. Financing

   The Purchaser I the Government of the Republic **of Kenya** (hereinafter referred to as the Beneficiary) has applied for I obtained financing from **BADEA and SFD** (hereinafter referred to as the financing institution(s)) for the Project and part of such financing will be applied towards meeting the cost of the Goods. However, the proceeds of such financing will only be paid by the financing institution(s) at the request of the Beneficiary in accordance with the loan(s)/ financing agreement(s).

4. Eligibility

   4.1. Except as otherwise expressly stated in these Instructions, this invitation to bid is open to all suppliers having the legal capacity to bid and enter into contracts. Bidders shall not at the time of tendering or thereafter be ineligible to bid or subject to boycott under the rules applied by the financing institution(s) referred to in Clause 3 of these Instructions.

   4.2. Unless the bidders are manufacturers or producers of the type of goods required and will manufacture or produce the Goods, they must be authorized agents or marketing representatives of such manufacturers or producers.

   4.3. No bidder shall be affiliated or associated with a firm engaged by the Purchasers as consultants for the preparation of designs specifications or other documents for procurement of the Goods.

5. Eligibility of Goods and Services

   Goods and incidental services required under the tender documents shall not be produced

wholly or partly in any country subject to boycott under the rules applied by the financing institution(s) referred to in Clause 3 of these Instructions.

6. Language

The tender, contract documents, correspondence and other related documents shall be in **English** Language(s)

7. Tender Documents

The tender documents comprise all the following:

a) Invitation to Tender.
b) Instructions to Tenderers.
c) Form of Tender.
d) Form of Tender Security.
e) Conditions of Contract:

Part I: General Conditions of Contract.

Part II: Special Conditions of Contract.

f) Technical Specifications.
g) Price Schedule.
h) Form of Agreement.
i) Form or Performance Security.
j) Form of Bank Guarantee for Advance Payment

The above-mentioned tender documents and other related documents, as may be issued by the Purchaser or agreed with the successful bidder before award of the Contact, shall apply in accordance with the order of precedence stated in the Contract Agreement.

8. Receipt of Tender Documents and Contact Person

The tenderer shall confirm in writing by mail, telex or facsimile transmission receipt of the tender documents and advise the Purchaser of the name, address and facsimile number of the person authorized to receive, on behalf of the prospective tenderer, any further information and instructions by the Purchaser and/or any addenda to the tender documents.

9. Costs of Bidding

The tenderer shall bear all costs associated with the preparation and submission of its tender. The Purchaser shall, under no circumstances, be responsible for such costs.

10. Single Bids

No bidder may submit either separately or as a partner in a joint venture more than one bid, except, however, where alternative bids are allowed.

11. Closing Date for Submittal of Bids

Bids shall be submitted and delivered by mail, courier service or by the bidder or any agent thereof in person not later than **10:00** hours on **5th April 2022** at the address of the Employer stated below:

The Principal Secretary, Ministry of Health,

Afya House Building, Cathedral Road, P.O. Box 30016-00100, NAIRO BI.

Any bid received after the closing time stated in this Clause will be rejected and returned unopened to the bidder submitting such bid.

12. Amendment of Tender Documents

The Purchaser may, at any time before the closing time for submittal of bids, amend the tender documents by issuing an addendum or addenda in writing to all prospective bidders who obtained the tender documents. Such addendum or addenda shall form part of the tender documents and all prospective bidders shall promptly acknowledge by mail, telex or facsimile transmission the receipt of the same. The time for submittal of bids may be extended as appropriate by the Purchaser to enable prospective bidders to take any addendum into account in the preparation of their bids.

13. Clarification of Tender Documents

Any prospective bidder may at any time, but not later than 14 days before the closing date for submittal of bids, request in writing clarification of any matter stated in the bidding documents and the Purchaser will respond to such request in writing by circular letter to all prospective bidders who obtained the tender documents, but without identifying the source of the request for clarification.

B. PREPARATION OF TENDERS

14. Forms and Schedules

The bidder shall use, fill-in and furnish the Form of Tender (shown as Annex I to the Tender Documents), Price Schedule (s), Form of Tender Security and any other forms and schedules contained in the tender documents. The tenderer shall also submit with its bid any information or material required under these Instructions and may, if necessary, provide additional sheets. Failure to use and fill-in the forms which are mandatory in accordance with the above may result in rejection of the bid. All entries shall either be typed or printed in indelible ink, without interlineations or erasures.

15. Bid Prices

15.1. The bidder shall state in the price schedule the unit prices, where applicable, and the total price of its bid.

15.2. The unit rates and prices and the total price of the bidder shall be deemed to include all taxes, duties and other levies payable by the bidder in any country. But insofar as the bidder is liable to pay any taxes, duties or levies imposed under the laws of the Purchaser's country, the unit rates and prices and the total price quoted by the bidder shall not be deemed to include such taxes, duties and levies except insofar as they have been in force 28 days before the closing date for submittal of bids.

15.3. Prices to be indicated in the price schedule shall be stated in the following manner:

a) For goods to be supplied locally from the Purchaser's country, the price of the Goods shall be stated including all custom duties, sales and other taxes and levies with a breakdown showing the following:

(i) the price of the Goods ex-works or factory or ex-warehouse.

(ii) taxes, duties and levies including, without limitation, excise taxes, sales taxes and custom duties paid or payable on materials and components for the manufacture or assembly of the Goods the price of which is quoted ex-works (ex-factory) or on previously imported goods quoted ex- warehouse or showroom.

(iii) the price for inland transportation, insurance and other local costs incidental to delivery of the Goods, if so required in the tender documents, to their final destination.

(iv) the price of other incidental services required in the tender documents in connection with the supply of the Goods.

b) For goods to be supplied from outside the Purchaser's country, the price of the Goods shall be stated CIF, FOB, CFR port of destination, CIP or CPT (named place), as required in accordance with the terms of delivery stated in the tender documents. The following components of the price, if any, shall be identified and stated:

(i) the price for inland transportation, insurance and other local costs incidental to delivery of the Goods from the port of entry to their final destination, if so required in the tender documents.

(ii) the price of other incidental services required in the tender documents in connection with supply of the Goods.

15.4. The terms ex-works, CIF, FOB and other abbreviations, referred to in these Instructions or in the tender documents in connection to the terms of delivery of the Goods, shall be interpreted in accordance with and governed by the current edition of Incoterms published by the international Chamber of Commerce.

15.5. The statement of components of the price referred to in Clause 15.3 of these Instructions is solely required for the purpose of comparison of bids.

15.6. Unless otherwise stated in the tender documents, the prices of the Goods quoted by the bidder shall be fixed and not subject to any adjustment.

16. Bid Currencies

16.1. Except as otherwise stated in the tender documents, prices of goods and incidental services, which will be supplied by the bidder from within the country of the Purchaser, shall be quoted in the currency of the Purchaser's country. But the bidder may quote part of its total price in one or more foreign currencies (not exceeding three) if it will procure part of the materials for, or components of, the Goods from outside the Purchaser's country. The bidder shall justify quotation in a combination of local and foreign currencies by reference to the quantities and costs of such imported materials or components of the Goods.

16.2. Unless otherwise stated in the tender documents, prices of the Goods and incidental services to be supplied from outside the Purchaser's country shall be quoted in the currency of the bidder's home country or, if so allowed in the bidding documents, in a currency widely used in international trade. However, the bidder may quote part of its total price in one or more other currencies (not exceeding three) if it will procure part of the materials for, or components of, the Goods from outside its home country. The bidder shall justify quotation in a combination of currencies by references to the quantities of such materials and/or components procured from outside its home country.

17. Evidence of Eligibility and Qualifications of the Bidder

The bidder shall submit with its tender documents establishing, to the satisfaction of the Purchaser, the eligibility and qualifications of the bidder at the time of submission of its bid. Such documents shall include the following:

(i) An authenticated copy of a recent certificate of its registration in its home country and a certificate from the Chamber of Commerce of that country that it carries on business in the said country.

(ii) If the bidder will not be the manufacturer or producer of the Goods, evidence that it is an authorized agent or marketing representative of the manufacturer or producer or that it has been specifically authorized by the manufacturer or producer to supply the Goods to the Purchaser.

(iii) Evidence of financial, technical and production capability of the bidder to perform the Contract.

(iv) If the bidder does not carry on business in the Purchaser's country, evidence that the bidder is or will be represented by an agent in that country capable of performing the supplier's obligations relating to maintenance, repair and stockpiling of spare parts, as stipulated in the tender documents.

18. Confirmation of Eligibility and Compliance of the Goods with the Tender Documents

18.1. The bidder shall state the country or countries of origin of the Goods and incidental services, if any, in order to enable the Purchaser to ascertain compliance with the requirement of eligibility stated in Clause 5 of these Instructions. Documentary evidence, in the form of certificate(s) of origin, confirming such compliance shall be furnished at the time of shipment.

18.2. The bidder shall furnish with its bid documentary evidence of conformity of the Goods to the bidding documents. Such evidence may be in the form of literature, drawings and data and shall consist of the following:

(i) A detailed description of the essential technical performance characteristics of the Goods.

(ii) A list giving full particulars, including available sources and current prices of spare parts, special tools and other items necessary for the proper and continuing functioning of the Goods for years after commencement of the use thereof or such other period as stated in the tender documents.

(iii) A detailed comparison of the technical specifications of the Goods proposed to be supplied by the bidder with the technical specifications stated in the bidding documents, so as to demonstrate conformity of the Goods to the latter technical specifications or otherwise indicate deviations therefrom. For the purpose of such comparison, it should be noted that references in the bidding documents to standards for workmanship, materials or equipment and any brand names or catalogue numbers are intended to be descriptive only. Alternative standards, brand names and/or catalogue numbers may be accepted by the Purchaser provided it is demonstrated to its satisfaction that they are equal or better than those stated in the tender documents.

19. Period of Tender Validity

Tenderers shall remain bound by their tenders for a period of **120** days from the final closing date for submittal of bids. Any tender stated to be valid for a shorter time may be rejected by the Purchaser.

20. Tender Security

20.1. The tender shall be accompanied by a tender security in the form of a certified cheque or of a bank guarantee issued or endorsed by a bank acceptable to the Purchaser. Such bank guarantee shall be in the form prescribed in the tender documents and shown in Annex II thereto and shall be valid for the same period of the required tender validity.

20.2. Any tender not accompanied by the required tender security will be rejected. The tender security of a joint venture must be in the name of the joint venture partners submitting the tender.

20.3. The tender securities of unsuccessful tenderers will be returned to them within 30 days after the expiration of the period of tender validity.

20.4. The tender security of the successful tenderer will be released promptly after signature of the Agreement and submittal by the said tenderer of the said tender of the performance security required under Article IV of the General Conditions of Contract.

20.5. The tender security of a tenderer shall be forfeited by it:

a) If the tenderer withdraws its tender before expiry of the period of tender validity.

b) In the case of the successful tenderer, if it fails within the prescribed time limit either to sign the Agreement or furnish the required performance security.

21. Signature of Tender

The tender and copies thereof shall be signed by the tenderer or a person duly authorized on its behalf. Proof of such authorization in the form of a power of attorney shall accompany the tender. All pages of the bid where entries or amendments have been made shall be initialed by the tenderer or on its behalf by a person duly authorized as aforesaid.

C. SUBMISSION OF TENDERS

22. Format of Tender

Tenders shall be submitted in one original comprising all documents listed in Clause 23 of these Instructions, together with the section containing the form of bid and Appendix to the bid and clearly marked "ORIGINAL". In addition the tenderer shall submit **One (1)** copies of the bid each clearly marked "COPY". In case of any discrepancy between the Copies and Original, the Original shall prevail.

23. Contents of Tender

The tender shall, in accordance with the requirements stated in the tender documents, comprise the following:

(a) The tender form and completed Price Schedule,

(b) The tender security,

(c) Documentary evidence confirming eligibility of the Bidder and the Goods,

(d) The completed schedules of supplementary information,

(e) All information on any subcontract envisaged.

24. Sealing and Marking of Tenders

24.1. The tenderer shall put and seal the Original and each Copy of its tender in separate envelopes marked "ORIGINAL" and "COPY". The envelopes shall then be put in an outer envelope which shall be sealed. All such envelopes shall be addressed to the Purchaser at his address stated in Clause 11 of these Instructions, bear the name and identification number of the Project or Contract and a warning that they shall not be opened before the date for opening of bids.

24.2. The inner envelopes shall state the name and address of the tenderer for returning the tender to it in case it is not received at or before the closing time for submittal of bids.

25. Modification, Substitution or Withdrawal of Tenders

The tenderer may modify, substitute or withdraw its tender by written notice to the Purchaser before the closing time for submittal of bids. Such modification, substitution or withdrawal shall be contained in a sealed envelope marked as "Modification", "Substitution" of "Withdrawal of Tender". No modification, substitution or withdrawal of a tender will be accepted after the closing time for submittal of bids.

D. BID OPENING AND EVALUATION

26. Bid Opening

26.1. Bids will be opened by the Purchaser in a session to which all bidders will be invited, the time and place being stated in the invitation addressed to the tenderers. Each bidder may attend in person, or designate an authorized representative to attend on its behalf, and shall sign a register of attendance.

26.2. Envelopes marked "Withdrawal" or "Substitution" will be opened first and the name of the bidder submitting the same shall be announced. Bids for which notice of withdrawal thereof or substitution therefor was duly received before the closing time for submittal of bids will not be opened.

26.3. The remaining bids, will then be opened and the Purchaser will announce the bidders' names, the bid prices, including any alternative bid prices, the presence (or absence) of tender security and any such other details as the Purchaser may consider appropriate. The envelopes marked "Modifications" will then be opened and their content read out in appropriate detail.

26.4. The Purchaser will prepare minutes of the tender opening session, including the information announced during the session. Such minutes are for the administrative purposes of the Purchaser and the bidders shall not be entitled to receive copies thereof.

27. Confidentiality of Process of Evaluation of Bids

All information concerning the examination, clarification and evaluation of bids and the recommendation for award are confidential and will not be disclosed to bidders or to any person not officially concerned with such process until award to the successful bidder. Any attempt by any bidder to influence the process of evaluation of bids or award will lead to the rejection of its bid.

28. Clarification of Bids

The Purchaser may request any bidder to clarify any matter in its bid, including the breakdown of its unit rates. Such request will be made in writing, but no bidder will be allowed to make, through any clarification given by it, any change in the price or substance of its bid.

29. Determination of Responsiveness of Bids

29.1. Prior to the detailed evaluation of bids the Purchaser will examine each tender to determine whether it: (a) meets the eligibility criteria set forth in Clauses 4 and 5 of these instructions, (b) has been properly signed, (c) is accompanied by the required bid security, (d) is valid for the period required and, (e) is substantially responsive to the requirements of the tender documents. For this latter purpose, a substantially responsive tender is one which conforms to all terms, conditions and specifications stated in the tender documents without any material deviation or reservation. A material deviation or reservation is one which: (i) affects in a substantial way the price, scope, quality, performance or the required timing of execution and completion of the works, or (ii) limits in any substantial way, inconsistent with the tender documents, the rights of the

Purchaser or obligations of the tenderer, and (iii) whose rectification would unfairly affect the competitive position of the tenderers who have presented substantially responsive bids.

29.2. If a tender is found not to be substantially responsive, it may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation and it will be rejected by the Purchaser.

30. Correction of Errors

30.1. The tenders determined to be substantially responsive will be checked by the Purchaser for any arithmetical errors. The Purchaser shall have the right to correct such errors using the following method:

a) Where there is a discrepancy between the amounts stated in figures and the amount stated in words, the latter shall govern.

b) Where there is an error in any amount resulting from the multiplication of a unit rate for an item by the quantity thereof, the unit rate shall govern and the product of the multiplication shall be corrected accordingly, unless in the opinion of the Purchaser there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total stated will govern and the unit rate will be corrected accordingly.

c) The total tender price will be recalculated on the basis of correction of errors in the manner stated in paragraph (b) above, or if there are no such errors by correcting any errors in the summation of the prices for the various line items in the Price Schedule(s). The total price arrived at after either of these corrections shall be deemed to be the correct total price of the tender, unless the total price stated in the tender is lower than the corrected total tender price, in which case the former shall be deemed as the correct tender price and the tenderer shall be deemed to have offered a discount to be applied pro rata to the prices of all items in the schedule of prices.

d) The correction and adjustment of the tender prices and total tender price resulting from the application of the methods for correction stated above shall be binding on the tenderer and if the tenderer does not accept the corrected amount of its bid, it shall forfeit its tender security.

E. EVALUATION AND COMPARISON OF TENDERS

31. The Bids to be Evaluated:

Only bids determined to be substantially responsive will be evaluated and compared with one another by the Purchaser.

32. Currency of Evaluation

For the purpose of evaluation and comparison of the bids, all bid prices will be converted to the currency of the Purchaser's country at the selling rates of exchange published on the day of opening of bids by the Central Bank or an institution performing the functions of a central bank in the purchaser's country.

33. Determining the Lowest Evaluated Bid

33.1. For evaluation of the bids, the Purchaser will determine the evaluated bid price for each bid by adjusting the bid price, as determined in accordance with Clauses 30 and 32 of these Instructions, as follows:

a) Excluding provisional sums.

b) Making an appropriate adjustment on sound technical and/or financial grounds for any quantifiable acceptable deviations or reservations or alternative offers.

c) Making an allowance in financial terms for completion time or times, which are different, if allowed, from those stated in the tender documents.

d) Taking into account the cost of mandatory spare parts and services incidental to the supply of goods, if such services are required.

e) Taking into account the availability in the Purchaser's country of spare parts and after-sales services for any equipment to be supplied by the bidder.

f) Taking into account the projected operating and maintenance costs during the life of any equipment to be supplied by the bidder as well as the performance and productivity of such equipment.

g) Applying any other criteria stated in the bidding documents.

33.2. The estimated effect of price adjustment provisions in the Conditions of Contract over the period of execution of the Contract shall be disregarded in the evaluation of bids.

34. Preference for Certain Bidders

34.1. The Purchaser will grant a margin of preference in the comparison of bids for goods manufactured or produced in the Purchaser's country and/or in the country of member countries of the financing institution(s)1, provided the following conditions are satisfied:

(i) The cost of the goods net of taxes and duties, includes a value added in one of the countries referred to above of not less than 20% of the exfactory bid price of the goods.

(ii) The bidder is owned or beneficially owned to the extent of not less than 50% by nationals of that country.

34.2. The margin or preference to be accorded to the bidder eligible therefore will not exceed the amount of custom duties and other import taxes or the CIF or CIP price (or equivalent) on the basis of the lowest evaluated bid or 15% of such price, whichever is lower.

F. AWARD OF CONTRACT

35. Award

Subject to Clause 36 and to the application of Clause 34 of these Instructions, the Purchaser will award the Contract to the successful bidder satisfying the requirements of qualifications under Clause 17 of these Instructions and whose bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest evaluated bid as determined in accordance with Clause 33 of these Instructions.

36. Annulment of Tender Procedure

The Purchaser reserves the right to accept or reject any tender or to annul the tendering process and reject all tenders at any time prior to the award of the Contract, without thereby incurring any liability to the affected tenderer or tenderers or any obligation to inform the affected tenderer or tenderers of the grounds for the Purchaser's action.

37. Notification of Award

37.1. Prior to expiration of the period of validity of bids, as such period may be extended with the agreement of the successful bidder, the Purchaser will notify the successful bidder in writing by registered letter or by cable, telex or facsimile, that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") shall specify the sum which the Purchaser will pay to the Supplier in consideration of the supply of the Goods, the remedying of any defects therein as prescribed by the Contract and the provision of any incidental services required in the tender documents (such sum hereinafter and in the Conditions of Contract called "the Contract Price").

37.2. Pending signature and entry into force of the Contract, the notification of award will constitute a contract between the Purchaser and the successful bidder.

38. Signature of Contract

The successful bidder shall, on such date as notified to it by the Purchaser, sign the Agreement (in the form shown in Annex III) constituting the Contract for the supply of the Goods and any incidental services required in the tender documents.

39. Furnishing of Performance Security

Within 30 days of receipt of the Letter of Acceptance or notification of contract award, the successful bidder shall furnish the Purchaser with a Performance Security in

accordance with the General Conditions of Contract, being in conformity with the form prescribed for this purpose in the tender documents (Annex IV).

40. Failure to Sign Contract or Furnish Performance Security

Failure of the successful bidder to comply with the requirements of Clause 38 and/or Clause 39 of these Instructions shall constitute a breach of contract and cause for annulment of the award, forfeiture of the bid security, and any such other remedy the Purchaser may take under the Contract. The Purchaser may also resort to awarding the Contract to the next ranked bidder or call for new bids.

PART IV - GENERAL CONDITIONS OF CONTRACT

ARTICLE-I DEFINITIONS & INTERPRETATION

1.1 In the Contract, unless the context otherwise requires, the following terms shall have the meaning assigned to each of them hereunder:

a) "Goods" means any equipment, machinery, merchandise or material to be supplied under the Contract and includes any accessories or spare parts required thereunder.

b) "Supplier" means the person, firm, company or entity supplying the Goods.

c) "Purchaser" means the entity or organization purchasing the Goods and stated in the Special Conditions.

d) "Contract" or "Agreement" means the agreement entered into between the Supplier and the Purchaser for the supply of the Goods including all documents listed therein as constituting part thereof.

e) "Contract Price" means the price of the Goods required to be paid by the Purchaser to the Supplier pursuant to the Contract.

f) "General Conditions" means the General Conditions of Contract provided for herein.

g) "Special Conditions" means the Special Conditions of Contract provided for in Part II of the Conditions of Contract.

h) "Specifications" means specifications of the Goods as shown in the Bidding Documents.

i) "The Services" means such ancillary services as transportation and insurance of the Goods, as provided for in the Contract, as well as incidental services to the supply of the Goods, as may be required under the Contract, such as installation and commissioning, provision of technical assistance, training and other services.

1.2 In the Contract, unless the context otherwise requires, words denoting the singular include the plural and vice-versa, and references in any document constituting part of the Contract to articles, clauses or sections are references to articles, clauses or sections of that document, while reference to a specified Appendix or Annex is a reference to that Appendix or Annex of the Contract.

ARTICLE-
II
APPLICATION OF THE GENERAL CONDITIONS, CONTRACT DOCUMENTS

2.1 The Contract Documents shall be as defined in the Contract Agreement and shall be taken as mutually explanatory of one another. In case of ambiguity or discrepancy, the Contract Documents shall prevail in the order specified in the Contract Agreement.

2.2 The Contract Documents constitute the entire agreement between the parties and shall supersede any previous correspondence between the parties not specifically incorporated in the Contract Documents.

ARTICLE-III
THE SUPPLIER TO INFORM HIMSELF FULLY

3.1 The Supplier shall be deemed to have examined the General Conditions, Special Conditions, Specifications, Appendices, Drawings and other Contract Documents and to have investigated and taken into account any conditions relevant to local conditions within the Purchaser's country that may affect the Supplier's performance of its obligations under the Contract.

ARTICLE-IV
PERFORMANCE SECURITY

4.1 Within 30 (thirty) days after the Supplier's receipt of notification of award of the Contract in the form of Letter of Acceptance, the Supplier shall furnish a performance security to the Purchaser in an amount equivalent to 10% of the Contract Price. The performance security shall cover the Warranty Period specified in the Special Conditions.

4.2 The performance security shall be denominated in the currency of the Contract or in another freely convertible currency acceptable to the Purchaser, and shall be in one of the following forms and issued by a bank acceptable to the Purchase:

a) An unconditional and irrevocable bank guarantee in the form provided in Annex-IV hereto.

b) A standby letter of credit, the amount of which shall be payable to the Purchaser on the presentation of a simple statement that the Supplier has failed to carry out its obligations under the Contract.

4.3 The performance security shall be discharged by the Purchaser not later than 30 (thirty) days following the date of fulfillment of the Supplier's obligations under the Contract including the Warranty obligations of the Supplier stated in Article XVIII hereof as supplemented by the Special Conditions.

ARTICLE-V
PATENTS

5.1 The Supplier warrants that the Goods and any materials used in their manufacturing shall not be such as to cause the Purchaser to become liable for any infringement of any patent, registered design, trademark, proprietary know-how or copyright or anything analogous or similar and the Supplier shall indemnify and hold harmless the Purchaser against any liability (howsoever arising or described) that may be incurred by the Purchaser as a result of the breach by the Supplier of the terms of this provision.

ARTICLE-VI
TIME SCHEDULE FOR DELIVERY

6.1 The Supplier shall, prior to the signing of the Contract Agreement, provide to the Purchaser for approval a time schedule for delivery of the Goods which shall be within the time specified in the Bid and according to the specific requirements (if any) stated in the Special Conditions or in any of the Contract Documents. The approved time schedule shall be binding upon signing of the Contract Agreement.

ARTICLE-VII
INSPECTION AND TESTING BEFORE SHIPMENT

7.1 The Purchaser or its designated agent or representative, shall be entitled at all reasonable times during manufacture, storage and packing of the Goods to inspect and examine them and to witness, at the Purchaser's own cost, tests on the Supplier's premises of the materials, workmanship and performance of the Goods or any component part thereof, and if part of the Goods is being manufactured on other premises, the Supplier shall obtain for the Purchaser permission to inspect, examine and witness tests as if the Goods were being manufactured on the Supplier's premises. Such inspection, examination or testing shall not release the Supplier from any obligation under the Contract.

7.2 The Supplier shall give the Purchaser not less than twenty-one (21) days notice in writing of the date on, and the place at which any Goods will be ready for testing and the Purchaser shall give the Supplier ten (10) days notice in writing of its intention to attend the tests. If the Purchaser fails to attend at the place so named on the date the Supplier has stated in its notice, the Supplier may proceed with the tests and the Purchaser shall be deemed to have waived its right to attend. The Supplier shall forthwith forward to the Purchaser duly certified copies of the test reports.

7.3 Where the Specifications provide for tests on the premises of the Supplier or of any Sub-Supplier, the Supplier, except insofar as otherwise specified in the Contract, shall provide free of charge such adequate office space, reasonable facilities, labour, materials, electricity, fuel, stores, apparatus and instruments as may be required for carrying out such tests efficiently.

7.4 As and when the Purchaser is satisfied that the Goods or any part thereof shall have passed the tests referred to in this Article which it has attended, the Purchaser shall issue to the Supplier a Shop Inspection Certificate to that effect within seven (7) days after the tests have been performed.

7.5 In case the Purchaser is not attending any shop test of which it was given due notice, the Supplier may issue the certificate after the part or parts of the Goods subject of such notice shall have successfully passed the tests, and it shall submit such certificate to the Purchaser via special courier service or by facsimile. If within ten (10) days after receipt of such certificate by the Purchaser, no objection has been made by the Purchaser, this certificate shall be deemed to have been accepted by the Purchaser.

7.6 If after inspecting, examining, or testing the Goods or any part thereof the Purchaser shall decide that such Goods or any part thereof are defective, it may require the Supplier to rectify the defects or replace the defective parts of the Goods.

ARTICLE-VIII
PACKING

8.1 The Supplier shall provide such packing of the Goods as is required in the Special Conditions or in any of the Contract Documents.

8.2 Without prejudice to the generality of Section 8-1 hereof:

a) The final packing shall be such that the weight and dimensions of packages are within reasonable limits in order to facilitate handling, storage and transportation.

b) Each crate, case box, package or bundle shall have labels and/or tags made from strong waterproof material and marked in indelible and non-fading ink, securely attached thereto. These labels or tags shall indicate at least the name of the manufacturer, the type of Goods or components and the quantity it contains so that it can be easily checked upon delivery. A packing list shall be included in each crate or box.

c) Each package delivered under the Contract shall be consecutively numbered and shall also be marked with a code number or other identification to be approved by the Purchaser so that various components of the Goods which are shipped disassembled and which may not be interchangeable can be identified, collected and stored at site together. Additional information and/or colour codings that may reasonably be required by the Purchaser to facilitate identification, shipment to stores or site handling and storage will also be provided.

d) In addition to labels and markings indicated above, all packages, cases or boxes shall be clearly and boldly marked on two opposite sides and on the top as follows:

CONSIGNEE (The Purchaser)

DESTINATION

CONTRACT NUMBER

NAME OF SUPPLIER

WEIGHT AND DIMENSIONS

SERIAL NUMBER

CODE NUMBER

ARTICLE-IX
DELIVERY AND DOCUMENTS

9.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified by the Purchaser in its Schedule of Requirements and the Special Conditions.

9.2 For the purposes of the Contract, "FOB", "CIF", and "CIP" and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of the International Rules for the Interpretation of the Trade Terms published by the International Chamber of Commerce, commonly known as INCOTERMS.

9.3 Shipping documents to be provided by the Supplier shall be as stipulated in the Special Conditions.

ARTICLE-X
INSURANCE

10.1 Where the Goods are to be supplied under the Contract on CIF, CIP or C&I basis, the Goods shall be fully insured by the Supplier in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in an amount equal to that, and in the manner, stipulated in the Special Conditions.

ARTICLE-XI
TRANSPORTATION

11.1 Where the Goods are required to be supplied FOB, transportation of the Goods up to the vessel receiving the Goods shall be arranged and paid for by the Supplier.

11.2 Without prejudice to the provisions of Section 11-1 hereof, the responsibility for arranging transportation of the Goods and the costs thereof shall depend upon the basis on which the Goods are to be delivered. In all cases the responsibilities of either party shall be governed by the INCOTERMS.

11.3 In all cases, transportation of the Goods after delivery shall be the responsibility of the Purchaser.

ARTICLE-XII
INCIDENTAL SERVICES AND SPARE PARTS

12.1 The Supplier shall provide such incidental services as specified in the Special Conditions.

12.2 The Supplier shall provide such spare parts as are required in the Special Conditions. The Supplier also undertakes to provide, on the request of the Purchaser, spare parts necessary for the operation and proper functioning of the Goods. Such undertaking shall be valid and binding for the period indicated in the Special Conditions.

ARTICLE-XIII
CHANGE ORDERS - VARIATIONS

13.1 The Purchaser shall be entitled to:

a) Increase or decrease the quantity of the Goods or any item or items thereof within the limit of the percentage stated in the Special Conditions, and the Contract Price shall be increased or decreased accordingly by applying the unit price stated in the Contract for the Goods or item thereof subject of increase or decrease in quantity pursuant to this provision.

b) Make any change or modification in the designs, specifications and/or schedule of delivery of the Goods under the contract. However in case of such modification or in case of a variation in the quantity of the Goods or any item thereof exceeding the percentage stated in the Special Conditions, the Supplier and the Purchaser shall negotiate in good faith and agree on an increase or decrease in the Contract Price, as may be reasonable in the circumstances, and shall agree on the manner of payment of any agreed increase.

ARTICLE-XIV
BASIS AND PAYMENT OF CONTRACT PRICE

14.1 Unless otherwise stipulated in the Special Conditions, the Contract Price shall be fixed and not subject to revision.

14.2 Payment of the Contract Price shall be made in the manner stated in the Special Conditions.

14.3 Should the Supplier require an advance payment, such advance payment, not exceeding 20% of the Contract Price, may be made upon the submission of an invoice and a Bank Guarantee in the form provided in Annex-V hereto.

14.4 Requests for payment shall be in writing and shall include all documents required under the Contract and satisfy all conditions prescribed therein.

ARTICLE -XV
ASSIGNMENT

15.1 The Supplier shall not assign or transfer any of its rights or obligations under the Contract without the written consent of the Purchaser.

ARTICLE-XVI
EXTENSION OF TIME FOR PERFORMANCE OF THE SUPPLIER'S OBLIGATIONS

16.1 The Supplier shall guarantee and strictly comply with the delivery dates and time limits set forth in the Contract, which shall be deemed of the essence of the Contract. In the event of

any delay arising in any phase of performance by the Supplier of his obligations under the Contract, the Supplier shall promptly give notice to the Purchaser of the delay or expected delay with the reasons therefore, not later than seven (7) days after the occurrence of the alleged cause of delay. The Supplier shall at all times use its best efforts to act with diligence to cure any such delay.

16.2 If the Supplier shall deem that any delay justifies an extension of time in accordance with the provisions hereof, it shall submit a request in writing to the Purchaser for extension of time for its performance under the Contract. The Purchaser will grant the Supplier such extension of time if the Purchaser is satisfied, after substantiation of the Supplier's written request therefor, that:-

(i) such delay in the Supplier's performance was due to unforeseeable causes beyond the Supplier's control or caused by a Force Majeure event, as defined in Article XIX hereof; and

(ii) the Supplier has, from the occurrence of the event causing such delay, used its best efforts to cure any delay of the Supplier's performance resulting therefrom. Any extension of time granted by the Purchaser in accordance with the provisions of this Article shall be notified to the Supplier in writing and shall be for that period of time which the Purchaser deems justified and reasonable under the circumstances.

ARTICLE-XVII
LIQUIDATED DAMAGES

17.1 To the extent that the time for performance of the Supplier's obligations under the Contract has not been extended in accordance with the provisions of Section 16-2 hereof and subject to the provisions of Article XIX hereof, should the Supplier fail to perform any of its obligations under the Contract, and in particular its obligation to effect the shipment of any item of the Goods by the time or times specified in the Delivery Schedule, the Purchaser shall have the right to deduct from the Contract Price or demand and receive from the Supplier, as liquidated damages for delay for every week or part of a week of delay after the date scheduled for performance or delivery according to the Delivery Schedule, the amount specified in the Special Conditions.

17.2 The total liability of the Supplier for liquidated damages under the Contract shall be limited to ten per cent (10%) of the Contract Price.

17.3 If the Purchaser shall demand the payment of any of the liquidated damages specified herein, the Supplier shall pay to the Purchaser the said liquidated damages by means of telegraphic or telex transfer remittance within thirty (30) days after receipt by the Supplier of the Purchaser's invoice.

17.4 The payment of liquidated damages pursuant to this Article shall be without prejudice to any other right or remedy that the Purchaser may be entitled to under the Contract or by law.

ARTICLE-XVIII
WARRANTY

18.1 The Supplier warrants that the Goods are new, unused and are manufactured in accordance with the current state of the art. The Supplier also warrants that the Goods and any part thereof, whether manufactured by the Supplier or procured from a sub- supplier shall be free from any defect in design, materials or workmanship.

18.2 The warranty stated herein shall remain .valid for the period specified in the Special Conditions (the Warranty Period). The Warranty Period shall start after the Goods have been delivered to the final destination indicated in the Contract.

18.3 If at any time within the Warranty Period, the Purchaser alleges the existence of a defect in the Goods the particulars of such defect shall be promptly notified to the Supplier who shall be afforded a reasonable opportunity for inspection of the same.

18.4 Promptly upon receipt of such notice the Supplier shall either remedy, repair or replace the Goods.

18.5 The Warranty Period shall be extended by any period during which the Goods shall have been inoperative by reason of any defect therein or omission on the part of the Supplier. Further, in the event that any part or parts are replaced in accordance with this Article (either by the Supplier or by its sub-supplier(s)), the Warranty Period for such part or parts shall be extended for a further period, which shall be the greater of six calendar months from the date of the replacement of such part or parts, or the un- expired portion of the Warranty Period. A similar extension to the initially extended Warranty Period shall occur if the replacement part or parts need to be replaced again during the initially extended Warranty Period.

18.6 The Purchaser, or any of its duly authorized representatives, shall promptly notify the Supplier by telex/telegram or facsimile of the discovery of any defect for which a claim is to be made under this Article. Such notice shall include full particulars as to the nature of the defect and the extent of such defect which at the date of the notice is apparent. The Supplier shall have no obligation under the Warranty for any defects discovered during the Warranty Period, unless notice of such defects is received by the Supplier no later than thirty calendar days after the expiry of the Warranty Period. The Supplier shall have no obligation with respect to defects discovered after the expiration of the Warranty Period, as such period may be extended pursuant to Article 18-5 hereof.

18.7 The Supplier shall remedy at its expense any defect against which the Goods or any part thereof is warranted under this Article by making all necessary repairs and replacements at its expense in his Plant or such other place as directed by the Purchaser. If the Supplier delays or fails to remedy the defect within 21 days of sending the notice to it, the Purchaser or its authorized representatives shall in their discretion cause the necessary repairs or replacements to be made elsewhere for the account of the Supplier, provided, however, that the Purchaser shall have used reasonable endeavours to mitigate the cost of such repairs or replacement. For the avoidance of doubt, the Supplier shall reimburse the Purchaser for all costs reasonably incurred by the Purchaser in effecting repairs at any place other than the Supplier's Plant.

18.8 The Supplier shall guarantee all repairs and replacements effected to the Goods other than by the Supplier during the Warranty Period, provided that the Purchaser shall have given the Supplier reasonable notice to enable the Supplier to attend to and/or supervise or direct such repairs or replacements. For the avoidance of doubt, it is agreed that if the Supplier fails to attend to or supervise such repairs, after having been given notice, it shall nonetheless guarantee any and all such repairs or replacements that are effected to the Goods.

ARTICLE-XIX
FORCE MAJEURE

19.1 In the event of any delay brought about by war, hostilities, blockade, revolution, insurrection, mobilization, civil commotion, act of the public enemy, strikes, lock- outs, plagues or other epidemics, quarantines, earthquakes, accidents, fire (not caused by negligence of the Supplier, its servants or agents), storm damage or any identical or similar event affecting the Supplier's performance of its obligations under the Contract in general, and the delivery of the Goods in accordance with the Delivery Schedule of the Goods in particular, the Supplier shall be allowed such extension of time as may be agreed with the Purchaser subject, expressly to a detailed written application for such extension being lodged with the Purchaser within ten working days of the occurrence of such Force Majeure.

19.2 The Supplier shall not be entitled to extension of time, under this Article or Section 16-2, for the delivery of the Goods or the performance of any other obligation of the Supplier under the Contract, unless:

(i) the Supplier has duly given the notices provided for in Section 16-1 and in 19-1 above; and

(ii) the delay has not in any way been caused or contributed to by any error, neglect or default of the Supplier or any its directors, servants or agents; and

(iii) The Supplier has taken all reasonable steps to avoid or mitigate the delay whether before or after the occurrence of the event causing the delay.

19.3 The Purchaser shall be entitled to dispute the occurrence of any event of Force Majeure or the duration thereof or whether any event constitutes an event of Force Majeure as defined above or whether the occurrence of such event of Force Majeure actually delays the delivery of the Goods or the performance of any other obligation of the Supplier thereby entitling the Supplier to any extension of time as set out above or the duration of such extension of time requested.

19.4 In the event that the Purchaser exercises any of its rights under Section 19-3 above and, if an agreement cannot be reached between the Supplier and the Purchaser on the matter, such matter shall be referred to arbitration in accordance with Article XXV hereof.

19.5 At all times, the onus shall be on the Supplier to establish the facts entitling it to rely on this Article and in particular, without prejudice to the generality of the foregoing, that the requirements set out in Paragraphs (i), (ii) and (iii) of Section 19-2 hereof have been satisfied.

19.6 If a Force Majeure event occurs and its effect continues for a period of 90 days, either party may give to the other notice of termination of the contract which shall take effect 14 days after the giving thereof. If, at the end of the 14 - day period, the effect of the force majeure continues, the Contract shall terminate.

ARTICLE-XX DEFAULT AND TERMINATION

20.1 Subject to the provisions of Articles XVI and XIX hereof, in the event:

a) the Supplier fails to provide the Performance Security in accordance with Article IV hereof; or

b) the Supplier fails to deliver the Goods or any part thereof within the Time Schedule of Delivery specified in the Contract; or

c) the Supplier, having delivered part of the Goods, fails or refuses to remedy any defect brought to its notice by the Purchaser; or

d) the Supplier shall have otherwise defaulted in the performance of any of its obligations under the Contract;

the Purchaser may, by 30 (thirty) days' notice, terminate the Contract. The Contract shall be deemed terminated if the default is not remedied before the expiry of the 30 (thirty) days.

20.2 If the Purchaser fails to pay to the Supplier any amount due to the Supplier within 60 (sixty) days of the request for payment, and such amount or any part thereof is not contested by the Purchaser within 30 (thirty) days of the receipt of the request, the Supplier may, by a written notice of 30 (thirty) days (after the expiry of the initial 60 days period), terminate the Contract. The Contract shall be deemed terminated if the Purchaser fails to remedy the default before the expiry of the 30 (thirty) days notice.

20.3 If the Supplier shall have become voluntarily or involuntarily dissolved, or become bankrupt or insolvent (howsoever such bankruptcy or insolvency may be evidenced) or shall have taken steps to compound with its creditors, or proceedings are commenced for its voluntary or involuntary winding-up, or if the Supplier shall carry on its business under a receiver for the benefit of its creditors or any of them, the Contract shall thereupon be terminated without any notice, court proceedings or other legal procedure of any kind, all of which are hereby expressly waived.

20.4 In the event that the Contract is terminated pursuant to any of the above provisions of this Article or if the Contract is terminated under the provisions of Article 19-6 hereof, the Supplier shall be entitled, insofar as the price of any part of the Goods delivered or Services executed is not covered by payments made prior to the date of termination, to such price at the rates and prices stated in the Contract. Subject to the foregoing, the Supplier shall also be entitled to:

a) the price of any part of the Goods ordered by the Purchaser, which have been shipped to the Purchaser or of which the Purchaser is legally liable to accept delivery, such Goods becoming the property of the Purchaser upon payment therefore by the Purchaser;

b) the price of any part of the Goods ordered by the Purchaser which are ready for shipment to the Purchaser, where manufacture and assembly of the same, whether by the Supplier or by a sub-supplier thereof, is complete, provided that such part of the Goods becomes the property of the Purchaser, upon payment therefore by the Purchaser;

Provided that the Supplier shall not be entitled to payment under (a) and (b) above unless and until the Purchaser shall have received such part of the Goods at the final destination and accepted the same.

20.5 Notwithstanding anything contained in this Article or in any of the Contract Documents, if the Contract is terminated as a result of the default of the Supplier, the Purchaser shall be entitled to purchase all, or any part of the Goods not supplied by the Supplier and obtain any of the Services not executed by the Supplier, from another source as the Purchaser may, in its sole discretion, decide and shall be entitled to deduct from the payments due to the Supplier or claim and recover from the Supplier any cost the Purchaser has incurred over and above the amount of the Contract Price and also to recover, by way of deduction from the amounts due to the Supplier or otherwise, the amount of any damages or loss suffered by the Purchaser as a result of the default of the Supplier in carrying out its obligations.

ARTICLE-XXI
NON-WAIVER

21.1 Failure of or delay by either party to exercise any rights or remedies provided for herein or by law or to properly notify the other party in the event of breach, shall not release the other party from any of its obligations under the Contract (including warranties in the case of the Supplier) and shall not be deemed a waiver of any right of that party to insist upon strict performance of the Contract or as a waiver of any rights or remedies which that party may have under the Contract and shall not be deemed as acquiescence in any subsequent default in the performance of the terms and conditions of the Contract.

21.2 The shipping or delivery by the Supplier or receiving or acceptance of or payment by the Purchaser for the Goods or for any designs or drawings therefor shall not be deemed a waiver of any rights in respect of any prior failure by the Supplier to comply with any of the provisions of the contract. No purported oral modifications to the Contract by the Purchaser shall operate as a waiver of any of the terms thereof.

ARTICLE-XXII
LANGUAGE – NOTICES

22.1 Any document, order, request or communication to either party shall be in writing in the language or one of the languages specified in the Special Conditions. Should any document be in a language other than the above, certified translation of the same in the language or one of the languages specified in the Special Conditions shall be provided.

22.2 Any notice or request to be given or to be made by any party to the other under the Contract or in connection therewith may be given by telex, facsimile or letter. Such notice or request shall be deemed to have been duly given when it shall be delivered by hand, mail, telex or facsimile to the other party at its address specified in the Contract or any other address as that party may designate by notice to the other.

ARTICLE-XXIII
APPLICABLE LAW

23.1 The Contract shall be subject to and shall be construed in accordance with the laws for the time being in force in the country of the Purchaser.

ARTICLE-XXIV
TAXES

24.1 Any taxes, dues, fees, stamp duties or any other levies in the country of the Supplier or any other place outside the country of the Purchaser shall be borne by the Supplier.

24.2 Any taxes, dues, fees, stamp duties or any other levies in the country of the Purchaser for the importation of the Goods or in relation to any matter relating to the Contract, other than income tax imposed on the personnel of the Supplier providing incidental services required by the Contract, shall be borne by the Purchaser.

ARTICLE-XXV
SETTLEMENT OF DISPUTES

25.1 Any dispute between the parties to the Contract and any claim by either party against the other arising from the Contract and which could not be settled amicably by the parties within 60 (sixty) days from the date of notice by either party to the other, shall be submitted to [the court of competent jurisdiction in the Purchaser's country/arbitration by an Arbitral Tribunal as provided for in the Special Conditions]

PART V - SPECIAL CONDITIONS OF CONTRACT

1. **General**
   The Special Conditions of Contract herein stated shall supplement the General Conditions of Contract. Wherever there is a conflict, these Special Conditions shall prevail over the General Conditions.

2. **Definitions** The Purchaser is **Ministry of Health**

3. **Performance Security**
   The performance security shall be equal to 10% of the total Contract Price and shall be valid **to the end of Defects Liability Period.**

4. **Inspection and Testing**
   The inspection and testing required by the Purchaser shall be carried out according to the following procedure:

   Equipment to be factory tested to the relevant British standards and test certificate issued.

   The contractor shall supply all instruments and equipment necessary to carry out site tests and shall arrange with other sub-contractors for the testing of associated equipment which may affect the performance of the plant installed under this sub-contract works.

5. **Delivery and Documents**
   (i) The Supplier shall, upon shipment, notify the Purchaser by cable, telex or facsimile of the full details of the shipment including description and quantity of goods, the liner or vessel, the bill of lading number and date of shipment, port of loading and port of delivery.
   (ii) The Supplier shall promptly forward the following documents to the Purchaser:
   - Original of negotiable, clear, on board bill of lading and a non-negotiable copy of the bill of lading.
   - 4 copies of the packing list indicating contents.
   - Insurance certificate.
   - Inspection and/or testing certificate issued by the authorized inspection agency.
   - Certificate of origin.

   The document mentioned above shall be received by the Purchaser at least one week prior to the arrival of the Goods.

6. **Schedule of Delivery**
   The delivery of Goods shall be according to the following Schedule of Requirements:

   ……

   ……

   ……

7. Insurance

The comprehensive insurance, referred to under Article X of the General Conditions of Contract shall be equal to 110% of the "CIF/CIP" value of the goods on "all risks" basis, including war risks and strikes.

8. Contract Price

The Contract Price shall not be subject to any revision or adjustment unless explicitly stated herein.

9. Payment of Contract Price

(i) The method and terms of payment of the Contract Price to the Supplier shall be as follows:

a) The supplier will be entitled to payment from time to time for materials and/or any work carried out under this Sub-Contract, the value of which shall be determined by the Consultant Engineer and included in Payment Certificate to the Main Contractor under the Main Contract. The Nominated Sub-Contractor will be informed by the Quantity Surveyor when such payments are certified and should he not receive from the Main Contractor the payment due within the period stipulated in the Conditions of Sub- Contract he should immediately report to the Architect and the Engineer.

b) Unless otherwise agreed by the Architect all materials relating to this Sub-Contract must be delivered to the site before payment for such items may be certified.

c) Materials delivered to site will be valued and amount certified shall be a maximum of 70% of the equipment/material contract value.

(ii) The currency or currencies in which payment is to be made to the Supplier under this Contract shall be in accordance with the Contract Price currency which has been quoted in the Supplier's tender, including other currencies which the Supplier shall have indicated in its bid as required by him, unless otherwise stated herein.

(iii) Unless payments are to be made by letter of credit, payments shall be effected by the Purchaser within a period not exceeding days of receiving the Supplier's invoice and other documents required under Section 5 (ii) hereof, except for any advance payment required which shall be made within the aforesaid period against the Supplier's invoice and the bank guarantee provided for in Section 14.3 of the General Conditions.

10. Change Orders and Variations

The change orders and variations referred to under Article XIII of the General Conditions may take any one or more of the following forms:

(i) Amendment of design or specifications of certain components which are required to be specially designed or manufactured for the Purchaser.
(ii) The method of shipment or packing.
(iii) Increase or decrease of quantities limited to **15%** of the original quantities of goods specified in the Contract.
(iv) Place of delivery.

11. Subcontracting

The Supplier shall notify the Purchaser in writing of any subcontract it intends to conclude for manufacturing or supplying part(s) of the Goods. Such notification, in its original tender or later, shall not relieve the Supplier from any liability or obligation under the Contract. The total amount of subcontracts shall not exceed .....

% of the Contract Price.

12. Packing

The Supplier shall provide packing that shall be sufficient to withstand rough handling during loading, transport or storage. Further specific requirements of packing shall be as follows:

Meet the manufacturer's recommended material/Equipment packaging standards

.....

.....

.....

13. Transportation

(i) If Goods are required to be supplied on CIF or C&F price basis, transport of the Goods shall be arranged and paid for by the Supplier up to the destination specified in the Contract.

(ii) If Goods are required to be supplied on FOB price basis, the Supplier shall arrange and pay for transport of the Goods up to and including loading of the Goods on board the vessel.

(iii) Other requirements of transportation of the Goods are as follows:

……

……

……

14. Spare Parts

The Supplier shall carry sufficient ex-stock supply of consumable (fast- moving) spare parts required for operation for a period of not less than **2 years**. Other spare parts shall be supplied as promptly as possible, but in any case within six months of placement of order and establishment of a letter of credit.

15. Incidental Services

The incidental services required under Section 12.1 of the General Conditions are;

(i) ……

(ii) ……

(iii)……..

16. Change Orders - Variations

The percentage specified for the purpose of Article XIII of the General Conditions is

……% of the quantity of the Goods or an item of the Goods, as the case maybe.

17. Liquidated Damages

The liquidated damages payable under Article XVII of the General Conditions shall be..... *(state currency and amount)* for each week of delay.

18. Warranty Period

The warranty period under Section 18.2 of the General Conditions shall be **At least 2 years from the date of Commissioning.**

19. Language(s) of the Contract

The **English** language(s) is/are designated for the purpose of Section 22.1 of the General Conditions. In case the Contract is made in more than one language and in case of divergence between the texts in different languages, the text in the **English** language shall prevail.

20. Notices

The following addresses are designated for the purpose of Section 22.2 of the General Conditions.

For the Purchaser:

Mailing Address:

……

……

……

……

Telex: ……

Fax: ……

Email: ……

For the Supplier:

Mailing Address:

……

……

……

……

Telex: ……

Fax: ……

Email: ……

21. Settlement of Disputes

The formation of the Arbitral Tribunal and the rules relating to arbitration for settlement of disputes pursuant to Article XXV of the General Conditions shall be in accordance with the following:

……

……

……

PART VI – MINIMUM EQUIPMENT NEEDED

LOT 1: OUTPATIENT EQUIPMENT

	CONSULTING ROOMS	
S/NO.	**EXPECTED EQUIPMENT**	QTY
1.	Examination couch	4
2.	Emergency Trolley	2
3.	Diagnostic set (Wall mounted)	4
4.	Blood pressure Machine (Wall Mounted)	4
5.	Electrical suction machines	3
6.	Wall mounted Examination lights	4
7.	Oxygen flow meters	2
8.	Stethescopes	8
9.	Wall suction units	2
10.	X-ray viewer	4
	DRESSING AND TREATMENT ROOM	
11.	Procedure trolley	2
12.	Portable electrical suction units	2
13.	Examination couch	2
	TRIAGE (2No.)	
14.	Weighing Scale	2
15.	Blood pressure Machine	2
16.	Thermometer	5

LOT 2: ONCOLOGY (RADIOTHERAPY) EQUIPMENT

S/NO.	EXPECTED EQUIPMENT	QTY
	CT-SIMULATOR	
1.	CT-Simulator	1
	CANCER TREATMENT	
2.	Digital Linear Accelerator	1
3.	Brachytherapy Unit	1
4.	Anesthetic machines	1
5.	Brachytherapy Table	1
6.	General Purpose Suction Unit	1
7.	Operation Light (LED)	1
8.	Patient Trolley	2
9.	Emergency/Resuscitation Trolley	1
10.	Patient Monitor	1
11.	Infusion Pump	2
12.	Oxygen Flow meters	1

LOT 6: DIAGNOSTIC LABORATORIES EQUIPMENT

S/NO.	EQUIPMENT	QTY
1.	Microtomes	2
2.	Tissue Embedding Station	1
3.	Cytocentrifuge	1
4.	Paraffin Wax Dispenser	1
5.	Tissue Processor	1
6.	Cassette Printer	1
7.	Cryostat	1
8.	Automated Slide Stainer	1
9.	Slide Scanner	1
10.	Microscope With Digital Camera	1
11.	Grossing Station	1
12.	Cover Slipper	5
13.	Scanning Electron Microscope	1
14.	Auto Stainer	1
15.	Liquid Based Cytology	1
16.	Fully Automated 5 Part Diff Haematology Analyzer	1
17.	Binocular Microscope	6
18.	Refrigerator (2 To 8 Deg)	5
19.	Flow Cytometer	1
20.	Biochemistry Immunoassay Electrolyte Integrated Analyzer	1
21.	Coagulometer	1
22.	Blood Gas Analyzer	1
23.	Centrifuge	3
24.	Thermometer -20 /100	4
25.	Thermometer -30 /100	4
26.	Freezer	2
27.	Micropipetts-Single Channel Set Of 5	5
28.	Lab Distiller	5
29.	Automated DNA/RNA Sample Prep	1

S/NO.	EQUIPMENT	QTY
30.	Real-Time PCR	1
31.	Thermocycler With GEL DOC	1
32.	Digital PCR System, Desktop	1
33.	Lab Deionizer	1
34.	Micropipette-Multi Channel Set Of 5	5
35.	Biological Safety Cabinet Class II	2
36.	PCR Cabinet	2
37.	Microcentrifuge	2
38.	Refrigerated Centrifuge	3
39.	Sequencer	1
40.	Fragment Analyser	1
41.	Ice Flaking Machine	1
42.	Multiplex Protein Array System Based On Xmap Technology	1
43.	Microbiological Incubator	1
44.	Electronic Balance	2
45.	Vertical Floor Standing Autoclave	1
46.	Water Bath	2
47.	Block Heaters	2
48.	Ph Meter	2
49.	Timer, Digital	2
50.	Vortex Mixer	4
51.	Id/Ast Microbiology System	1
52.	Bacterial Blood Culture System	1
53.	Cross Matching	1
54.	Plasma Thawer	1
55.	Blood Donor Couch	10

LOT 8: OPERATION THEATRES EQUIPMENT

S/NO.	EXPECTED EQUIPMENT	QTY
	2 GENERAL SURGERY	
1.	Anaesthetic machines	4
2.	Operation tables (with kidney Bridge)	3
3.	Operation theatre LED lights with inbuilt IP Camera & voice capability	2
4.	Electrosurgical units (with bipolar resection capability)	4
5.	Digital X-ray viewer	4
6.	Electrocautery LEEP Machine	1
7.	Thermo-Ablation Device	1
8.	Cryotherapy Unit	1
	THEATRE RECOVERY	
9.	Fluid warmer	2
10.	Patient Trolleys	8
11.	Refrigerators	2
12.	Instrument Trolleys	4
13.	Resuscitaire	2
14.	C-Arm	1
15.	Syringe pumps	5
16.	Infusion pumps	5
17.	Operation Microscope (Transplant Procedures)	1
18.	Endoscopy tower	1
19.	Complete Laparoscopic towers with 4K image quality (Either on pendant or trolley)	1

LOT 11: CENTRAL STERILIZATION SUPPLIES DEPARTMEMT (CSSD)

S/NO.	EXPECTED EQUIPMENT	QTY
	STERILIZATION UNIT	
1.	Autoclave	2
2.	Washer Disinfection	1
3.	Ultrasonic washer unit	1
4.	Dissembling and sorting Table	1
5.	Water Jet System	1
6.	Hydrogen Peroxide Low Temperature Plasma Sterilizer	1
7.	Working table (stainless steel)	1
8.	Packaging and sorting Table	2
9.	Cart/ Cabinet for storage and execrating sets	1
10.	Package sealing machine	2
11.	Pressure steam gun/ Water for cart washing	1
12.	Carrying Carts and shelves (stainless steel) for storage.	4
13.	Table flash Autoclave	1
14.	Gas Plasma sterilizer	1

PART VII – TECHNICAL SPECIFICATIONS

4.1 SUMMARY OF TECHNICAL SPECIFICATIONS

The Goods and Related Services shall comply with the following Specifications and Standards:

LOT NO.	***Item No***	***Name of Goods or Related Service***	***Technical Specifications and Standards***	***COMPLIED YES/NO***	***COMMENTS***
	[insert item No]	*[insert name]*	*[insert TS and Standards]*		

4.2 DETAILED TECHNICAL SPECIFICATIONS AND STANDARDS

LOT 1: OUTPATIENT EQUIPMENT

LOT 1-1: Examination couch

Item Code No.	Department	Section	Item Description
LOT 1-1	Outpatient	Consulting Room	Examination Couch

1. General Description

Examination Couch Stainless Steel with Mattress

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Constructed from
3.2. Fully adjustable headrest. Top of Polished SS Sheet.
3.3. Top is upholstered and covered with washable plastic material
3.4. Legs fitted with thick high-quality nylon gromets.
3.5. 5 cm 50PU density foam cushioned top covered with leathered Rexene of 2mm thickness
3.6. Top dimensions – L = 72inch X W= 24inch H= 32 inches
3.7. All the Stainless Steel should be seamless conforming to 304 grade/ 16 gauge and polished finished
3.8. Box with three drawers and three cabinets.
3.9. Should have sliding footstep.
3.10. The head section should be raised with mechanical pneumatic

LOT 1-2: Resuscitation Trolley

Item Code No.	Department	Section	Item Description
LOT 1-2	Outpatient	Consulting Room	Resuscitation/Emergency trolley

1. General Description

Resuscitation trolley for use in ICU. Epoxy coated mild steel, with drawers, protection perimeter and defibrillator holder. The Unit should be mobile on four castors, 2 lockable

2. Composition

2.1.	Main unit,		

3. Performance Specifications

3.1. Main Unit

3.1.1. Should be durable with Ergonomic handle and should have easy grip

3.1.2. Height should be 40-45”

3.1.3. Should have 6-8 drawers of sizes 3x3”,2x6”,1x9”

3.1.4. Should have interchangeable 3”,6”,9” drawers which run smoothly on good quality channels

3.1.5. Should have provision of side storage which allows storage of variety accessories like can, storage bins, glove storage, sharp container set

3.1.6. An over bridge can with baskets, shelves and bins to keep important things

3.1.7. Should have AMS top surface & advance polymer material which is easy to clean. It should not dent, chip flake or corrode

3.1.8. Should be easily rolling and has toe brakes

3.1.9. Should have I.V. pole with clamps ach 3” drawer should have provision for 25-30 compartments

3.1.10. Should have twin swivel castors & central lock

3.1.11. Should be CE and ISO 9001/2000 and FDA approved

3.1.12. Should have CPR board & O2 cylinder holder

LOT 1-3: Diagnostic set

Item Code No.	Department	Section	Item Description
LOT 1-3	Outpatient	Consulting Room	Diagnostic Set

1. General Description

Diagnostic Set Wall Mounted

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. 3.5-volt Ophthalmoscope and otoscope set suitable for Wall-mounting with locking collars and locking device. Must include light intensity rheostat in the handle and automatic on/ off cradle switches. All screws, wall plugs etc. necessary for mounting the unit on the wall must be included.

i. Ophthalmoscope, mirror type with 3.5 volt Halogen/LED lamp, sliding focusing device from -25 to +40 diopters and five apertures including a slit, pinhole, large hole fixation or white line grid and red-free filter.

ii. Otoscope, fibre-optic with 3.5 volt Halogen/LED lamp 2mm, 3mm, 4mm and 5mm polypropylene flanged specula.

iii. Two spare lamps for ophthalmoscope and two spare lamps for the otoscope.

iv. Wall mounting facility with locking collars, mains operated and +-3m spiral cord with sealed 3pin plug.

v. Locking device to secure Ophthalmoscope and otoscope heads to handles

Specula for item No. ii and spare lamps must be freely available.

LOT 1-4: Blood pressure Machine

Item Code No.	Department	Section	Item Description
LOT 1-4	Outpatient	Consulting Room	Blood Pressure Machine (Aneroid Type)

1. General Description

Sphygmomanometer - Aneroid Type

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Should be aneroid type,

3.2. Should have ISI mark.

3.3. Should have a measuring range from 0 to 300 mmHg,

3.4. Should be provided with adult arm cuffs of size medium &

3.5. The dial mano meter markings and graduations should be permanent and clearly visible and filled with pigments, with diameter of minimum diameter of 160 mm.

3.6. Body & Bezel – Aluminum die casted (Powder coated), screw type bezel

3.7. Sensing-corrugated phosphorous bronze twin capsule bellows.

3.8. Movement mechanism – Brass

3.9. Connection: brass, nickel plated for 3-4 mm rubber hose.

3.10. Dial – Aluminum

3.11. Pointer – White coated, thin & sharp made of phosphorous Bronze

3.12. Window lenses – Clear plastic.

3.13. All plastic parts, if any used should not crack, flake, peel or disintegrate in normal use.

3.14. The inflating rubber bag should be capable of withstanding an internal pressure of 450 mmHg without leaking.

3.15. The Machine shall be wall mounted

3.16. The inflating bulb should be soft and should not have any joints or ridges.

3.17. The fastening arrangements of the cuff should be of hook and loop type (Velcro)

3.18. The threading and fastening arrangement of the cuff should show no sign of slip or failure when subjected to the maximum test conditions.

3.19. The rubber tubes used should have an internal diameter of 3 ± 0.5mm and the external diameter should not be less than 8mm.

3.20. The tubes should be fitted with male and female leur connectors.

Item Code No.	Department	Section	Item Description
LOT 1-4	Outpatient	Consulting Room	Blood Pressure Machine (Aneroid Type)
3.21. Should provide a carry bag to keep the whole system safe and sound. All parts should be replaceable in case of breakage.			

LOT 1-5: Electrical Suction Machines

Item Code No.	Department	Section	Item Description
LOT 1-5	Outpatient	Consulting Room	Electrical Suction Machines
1. General Description			
Sunction machine suitable for use in theatre, for both adult and pediatric use. Should be constructed from coated non-corrosive, extreme heat resistance material and electrically insulated and mobile on antistatic castors φ 60 mm, 2 No. lockable, with high level push handle.			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	High flow rate	40 litres per minute.	
3.1.2.	Suction vacuum	Maximum 700mmHg	
3.1.3.	Suction pump	oil free	
3.1.4.	Jars	2 X 2 liter polycarbonate autoclavable and unbreakable complete with overflow devices and valves.	
3.1.5.	Vacuum gauge	Graduated in mmHg and kPa.	
3.1.6.	Vacuum control	Adjustable at the front panel	
3.1.7.	Switch	Main on front panel and foot switch (water proof type)	
3.1.8.	Cable towage	On back with reversible cleats	
3.1.9.	Anti-bacterial filters	Available preferable autoclavable	
3.1.10.	Suction tubing connection	Antistatic neoprene or silicone	
3.1.11.	Safety	Overflow pump protection	
3.1.12.	Handle	High level push handle type	
3.1.13.	Movements	Mobile on four antistatic castors 2 No. lockable.	
4.	Physical characteristics		
4.1.	Main unit	Mobile on castors with push handle	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug BS standard, 3m long cord with PE	

Item Code No.	Department	Section	Item Description
LOT 1-5	Outpatient	Consulting Room	Electrical Suction Machines
5.2.	Ambient temperature	10^{o} C to 40^{o} C	
5.3.	Relative humidity	20% to 90%	
6.	Accessories	The following accessories will be provided as startup kits.	
6.1.	Sterilizable, silicone tubing	5 Set	
6.2.	Bacterial filters	1 Box	
6.3.	Foot switch	1 No.	
6.4.	Cannula with handle for general purpose	4 Sets	
7.	Quality standards		
7.1.	Manufacturing standards	EN 10079-1, IEC 60601-1, ISO 9001, ISO 13485	
	Conformity to standards	CE and FDA marked	
8.	Local back up service		
8.1.	Available	Should be available locally	
8.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff	
9.	Delivery point		
9.1.	See Schedule	For inspection and testing	
9.2.	Nil		
10.	Pre installation requirements		
	Nil		
11.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
12.	Training		
12.1.	User Training	On site user training on operation and daily up keep	
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance	
13.	Technical documentations		

Item Code No.	Department	Section	Item Description		
LOT 1-5	Outpatient	Consulting Room	Electrical Suction Machines		
13.1.	User manuals	2 Sets			
13.2.	Service Manual	1 Set			
13.3.	Drawings	Nil			
14.	Commissioning				
14.1.	Testing and commissioning of the machine to the satisfaction of the user.				
15.	Warranty				
15.1.	Equipment	Minimum of one year after commissioning on all parts.			
15.2.	Equipment System	Nil			

LOT 1-6: Wall Mounted Examination Lights

Item Code No.	Department	Section	Item Description
LOT 1-6	Outpatient	Consulting Room	Wall Mounted Examination Lights

1. General Description

The LED technology should be of highly engineered optical system which delivers the precisely controlled natural white light that is so important for an accurate examination.

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

Should have mobile Floor Stand
SLSE50-CM or Wall/Ceiling Mount

STANDARD DESIGN FEATURES

3.1. High-intensity of 39,000 lux (3623 fc) at 24" (61 cm)

3.2. 4000 K color temperature

3.3. CRI (Color Rendering Index) of 92

3.4. Natural white light

3.5. LED light module with at least 40,000-hour life

3.6. Universal input voltage

3.7. Drift-free K-arm with 42" (107 cm) arm range

3.8. IEC 60601-1/ 60601-2-41 certified

3.9. Should have European CE or USA certificate

3.10. Should be supplied with European or USA country of origin certificate.

LOT 1-7: Oxygen Flow Meters

Item Code No.	Department	Section	Item Description
LOT 1-7	Outpatient	Consulting Room	Oxygen Flow meters

1. General Description

Oxygen Flow meter with Humidifier:

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Should be duly USFDA or CE marked by the European notified

3.2. The Flowmeter should be fitted with BS standard Medical Oxygen Probe.

3.3. Back Pressure Compensated flow meter will be of accurate gas flow measurement with control within a range of 0 to 15 Lpm.

3.4. It should meet strict precision and durability standard.

3.5. The flow meter body should be made of brass chrome plated materials.

3.6. The flow tube and shroud components should be made of clear, impact resistant polycarbonate.

3.7. Flow Tube should have large and expanded 0 – 5 lpm range for improved readability at low flows.

3.8. Inlet filter of stainless-steel wire mesh to prevent entry of foreign particles.

3.9. The humidifier bottle should be made of unbreakable & Reusable of polycarbonate material and autoclavable at 134 degree centigrade.

LOT 1-8: Stethescope

Item Code No.	Department	Section	Item Description
LOT 1-8	Outpatient	Consulting Room	Stethescope

1. General Description

Stethescope:

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Patient friendly Non-Chill Rim

3.2. Solid stainless steel / anodized aluminium chest piece

3.3. Frame should be stainless steel

3.4. Excellent Acoustic Diaphragm and comfortably fit with soft sealing ear tips

3.5. Anatomically correct headset & comfortably angled

3.6. Single lumen tubing in a variety of popular colours

3.7. Y PVC tubing

3.8. European CE certification or USFDA certification or equivqlent certification

3.9. Quality Certificate of manufacturer like OHSAS-18001 or ISO 9001- 14001/9001-2008/ 9001-13485 should be attached to ensure quality

LOT 1-9: Wall Suction Units

Item Code No.	Department	Section	Item Description
LOT 1-9	Outpatient	Consulting Room	Wall Suction Unit

4. General Description					
Ward Wall Vacuum Units:					
5. Composition					
5.1.	Main unit				
6. Description of the medical supply unit design type					
6.1. Should be duly USFDA or CE marked by					
6.2. Vacuum Unit should be wall mounted and should consists of Suction Controller/ Regulator & Collection bottle of 1000ml. with mounting arrangement.					
6.3. The Vacuum unit should be fitted with BS standard Vacuum probe.					
6.4. The vacuum regulator should be step-less adjustable and have large vacuum gauge providing indication of the suction supplied by the regulator.					
6.5. Safety trap should be provided inside the jar to safeguard the regulator from overflowing.					
6.6. The unit should be consisting of reusable 1000ml. shatter resistant bottle, each made up of poly carbonate material and fully autoclavable at 1340C.					

LOT 1-10: X-Ray Viewer

Item Code No.	Department	Section	Item Description
LOT 1-10	Outpatient	Consulting Room	X-ray Viewer

1. General Description

X-RAY-VIEW BOX (LED Light)

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

A) Product & Manufacturer Quality Standards:

3.1. Should be FDA/ CE approved product.

3.2. Manufacturer and Supplier should have ISO 13485 certification for quality standards.

B) TECHNICAL CHARACTERISTICS

3.3. Should be ultra-thin X ray film illuminator using LED light

3.4. It should have a thickness of 30 mm

3.5. It should be suitable for viewing 14''x17' film.

3.6. Should have position to insert 8 films in 2 rows.

3.7. The LED light must have a life span of more than 50,000 hours.

3.8. It should have easy insertion & removal of the film.

3.9. It should have homogeneous illumination more than 95% and maximum intensity of over 10,000 lux.

3.10. It should have an on-off switch along with digital feather touch dimmer and a button to set the intensity

3.11. It should have fully electronic continuous brightness control, with adjustment range of approximately 90%.

3.12. It should be directly connected to power supply without any external adapters.

3.13. It should have flicker free high frequency light for reduction of eye strain.

3.14. It should have external fuses for protection against power surge.

3.15. 10 step Digital dimmer facility with step up/step down intensity of 500 lux or less.

3.16. Should have automatic film sensor

3.17. Should have facility to switch on only the section where the film needs to be viewed.

C) Power supply:

3.18. 240V, AC, 50Hz. Single phase

LOT 1-11: Procedure Trolley – Dressing and Treatment Room

Item Code No.	Department	Section	Item Description
LOT 1-11	Outpatient	Consulting Room	Procedure Trolley

1. General Description					
Procedure/Dressing Trolley					
2. Composition					
2.1.	Main unit				
3. Description of the medical supply unit design type					
3.1. Overall approx. Size: 780mmL x 500mmW x 900mmH 3.2. Approximate shelf dimension 750mmL x 500mmW. 3.3. Tubular CRC frame mounted on four castors of minimum 100mm dia and should be pre-treated and epoxy coated finish. 3.4. Two S.S. of 304 grade shelves with protective railings on three sides. 3.5. Should have provision for holding bowel and bucket. 3.6. Warranty: 2year					

LOT 1-12: Portable Electrical Suction Units

Item Code No.	Department	Section	Item Description
LOT 1-12	Outpatient	Dressing and Treatment Room	Portable Electrical Suction Unit
1. General Description			
Suction machine suitable for use in theatre, for both adult and pediatric use. Should be constructed from coated non-corrosive, extreme heat resistance material and electrically insulated and mobile on antistatic castors φ 60 mm, 2 No. lockable, with high level push handle.			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	High flow rate	40 litres per minute.	
3.1.2.	Suction vacuum	Maximum 700mmHg	
3.1.3.	Suction pump	oil free	
3.1.4.	Jars	2 X 2 liter polycarbonate autoclavable and unbreakable complete with overflow devices and valves.	
3.1.5.	Vacuum gauge	Graduated in mmHg and kPa.	
3.1.6.	Vacuum control	Adjustable at the front panel	
3.1.7.	Switch	Main on front panel and foot switch (water proof type)	
3.1.8.	Cable towage	On back with reversible cleats	
3.1.9.	Anti-bacterial filters	Available preferable autoclavable	
3.1.10.	Suction tubing connection	Antistatic neoprene or silicone	
3.1.11.	Safety	Overflow pump protection	
3.1.12.	Handle	High level push handle type	
3.1.13.	Movements	Mobile on four antistatic castors 2 No. lockable.	
4.	Physical characteristics		
4.1.	Main unit	Mobile on castors with push handle	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug BS standard, 3m long cord with PE	
5.2.	Ambient temperature	10^{o} C to 40^{o} C	
5.3.	Relative humidity	20% to 90%	

Item Code No.	Department		Section	Item Description
LOT 1-12	Outpatient		Dressing and Treatment Room	Portable Electrical Suction Unit
6.	Accessories	The following accessories will be provided as startup kits.		
6.1.	Sterilizable, silicone tubing	5 Set		
6.2.	Bacterial filters	1 Box		
6.3.	Foot switch	1 No.		
6.4.	Cannula with handle for general purpose	4 Sets		
7.	Quality standards			
7.1.	Manufacturing standards	EN 10079-1, IEC 60601-1, ISO 9001, ISO 13485		
	Conformity to standards	CE and FDA marked		
8.	Local back up service			
8.1.	Available	Should be available locally		
8.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff		
9.	Delivery point			
9.1.	See Schedule	For inspection and testing		
9.2.	Nil			
10.	Pre installation requirements Nil			
11.	Installation and testing			
	Complete installation and setup of the machine as per manufacturer's instructions			
12.	Training			
12.1.	User Training	On site user training on operation and daily up keep		
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance		
13.	Technical documentations			
13.1.	User manuals	2 Sets		
13.2.	Service Manual	1 Set		
13.3.	Drawings	Nil		
14.	Commissioning			

Item Code No.	Department	Section	Item Description
LOT 1-12	Outpatient	Dressing and Treatment Room	Portable Electrical Suction Unit
14.1.	Testing and commissioning of the machine to the satisfaction of the user.		
15.	Warranty		
15.1.	Equipment	Minimum of one year after commissioning on all parts.	
15.2.	Equipment System	Nil	

LOT 1-13: Examination Couch - Dressing and Treatment Room

Item Code No.	Department	Section	Item Description
LOT 1-13	Outpatient	Consulting Room	Examination Couch

1. General Description

Examination Couch Stainless Steel with Mattress

2. Composition

1.2.	Main unit				

3. Description of the medical supply unit design type

3.11 Constructed from round polished SS Pipes

3.12 Fully adjustable headrest. Top of Polished SS Sheet.

3.13 Top is upholstered and covered with washable plastic material

3.14 Legs fitted with thick high-quality nylon gromets.

3.15 5 cm 50PU density foam cushioned top covered with leathered Rexene of thickness

3.16 Top dimensions – L = 72inch X W= 24inch H= 32 inches

3.17 All the Stainless Steel should be seamless conforming to 304 grade/ 16 gauge and polished finished

3.18 Box with three drawers and three cabinets.

3.19 Should have sliding footstep.

3.20 The head section should be raised with mechanical pneumatic

LOT 1-14: Weighing Scale – Triage

Item Code No.	Department	Section	Item Description
LOT 1-14	Outpatient	Consulting Room	Weighing Scale

1. General Description

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Mobile Weighing Scale with height meter
3.2.
3.3.
3.4. With mechanical height rod able to measure between 70cm-2000cm
3.5.
3.6. Easy to clean platform with reset to zero function
3.7. With flat tread area platform approximately 360mm (W) X 630mm (D)
3.8.
3.9.
3.10. Displays weight with BMI function
3.11. Graduation approximately 500g.
3.12. Warranty 2 years
3.13. With Calibration Certificate
3.14. FDA/ CE Marked
3.15. With heavy duty transport castors
3.16. Operator and service manuals to be provided

LOT 1-15: Blood Pressure Machine – Triage

Item Code No.	Department	Section	Item Description
LOT 1-15	Outpatient	Consulting Room	Blood Pressure Machine (Aneroid Type)

1. General Description

Sphygmomanometer - Aneroid Type

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Should be aneroid type,
3.2. Should have ISI mark.
3.3. Should have a measuring range from 0 to 300 mmHg,
3.4. Should be provided with adult arm cuffs of size medium & large and paediatric cuff.
3.5. The dial mano meter markings and graduations should be permanent and clearly visible and filled with pigments, with diameter of minimum diameter of 160 mm.
3.6. Body & Bezel – Aluminum die casted (Powder coated), screw type bezel
3.7. Sensing-corrugated phosphorous bronze twin capsule bellows.
3.8. Movement mechanism – Brass
3.9. Connection: brass, nickel plated for 3-4 mm rubber hose.
3.10. Dial – Aluminum
3.11. Pointer – White coated, thin & sharp made of phosphorous Bronze
3.12. Window lenses – Clear plastic.
3.13. All plastic parts, if any used should not crack, flake, peel or disintegrate in normal use.
3.14. The inflating rubber bag should be capable of withstanding an internal pressure of 450 mmHg without leaking.
3.15. The inflating bulb should be soft and should not have any joints or ridges.
3.16. The fastening arrangements of the cuff should be of hook and loop type (Velcro)
3.17. The threading and fastening arrangement of the cuff should show no sign of slip or failure when subjected to the maximum test conditions.
3.18. The rubber tubes used should have an internal diameter of 3 ± 0.5mm and the external diameter should not be less than 8mm.
3.19. The tubes should be fitted with male and female leur connectors.
3.20. Should provide a carry bag to keep the whole system safe and sound. All parts should be replaceable in case of breakage.

LOT 1-16: Thermometer – Triage

Item Code No.	Department	Section	Item Description
LOT 1-18	Outpatient	Consulting Room	Thermometer

1. General Description

Digital Thermometer

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Range of temperature measurement 32 ^{0}C- 42^{0}C (89.60F-109.40F)
3.2. Can be calibrated in both centigrade and Fahrenheit, but if only one option is available, then Centigrade is preferable.
3.3. Buzzer signal function.
3.4. Takes 10-15 seconds to measure temperature.
3.5. Can be used in the armpit/axilla, orally and rectally.
3.6. Accuracy of temperature ± 0.1 0C and ± 0.2 F.
3.7. User's interface: LCD display
3.8. Manufacturer should be ISO13485 approved
3.9. Product should be FDA/CE approved

LOT 1-17: Vital Signs Monitor

Item Code No.	Department	Section	Item Description
LOT 1-17	Outpatient	Triage	Vital Signs Monitor

1. General Description

Vital signs Monitor suitable for use in operating theaters. Should be capable of continuous measuring/ monitoring of the following parameters in adults, neonatal and pediatric.

- SpO_2
- Temperature
- Blood pressure
- Pulse Rate
- ECG

2. Composition					
2.1.	Main unit				
3. Performance Specifications					
3.1.	Main Unit				
3.1.1.	The unit should be a model or type on current production capable of measuring/monitoring the following parameters				
3.1.2.	$_2$, with reusable sensor	0 - 100% ± 3%			
3.1.3.	Pulse Rate	30-300 bpm ± 1%			
3.1.4.	Temperature	$0\text{-}50^0C$ ± 0.1%			
3.1.5.	NIBP	Mean 10- 300mmHg ± 5 mmHg			
3.1.6.	IBP	Mean 50 – 300mm Hg ± 1 mmHg			
3.2.	Display	At least 12 inches color touch screen type/rotary knob			
3.2.1.		6 to 8 waveforms mode with large font			
3.3.	Printer	Inbuilt, thermal array or equivalent			
3.3.1.		Two speed, selectable			
3.3.2.		Port for external printer			
3.4.	Networking	Port for networking with Ethernet or equivalent Or Serial Port RS 232			
3.5.	Input				
3.6.	Storage	Capable of storing patient data			
4.	Safety requirements				
4.1.	Audio and visual alarm	For all parameter.			
4.2.	Alarm setting limits	Adjustable by user			

Item Code No.	Department	Section	Item Description
LOT 1-17	Outpatient	Triage	Vital Signs Monitor
4.3.	Low battery indicator	Audio and visual alarm	
4.4.	Internal battery	Provided, rechargeable, can operate for at least 3 hours	
5.	Physical characteristics		
5.1.	Main unit		
5.2.	Dimensions	Portable with a recharge dock or equivalent recharging un it	
6.	Operating environment		
6.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord BS type with PE	
6.2.	Ambient temperature	10^{o} C to 40^{o} C	
6.3.	Relative humidity	20% to 90%	
7.	Accessories	The following accessories will be provided as startup kits.	
7.1.	SpO_2 connection cable and sensor (finger probe), reusable	2 Sets	
7.2.	Adult cuff	2 Sets	
7.3.	Peadiatric cuff	2 Sets	
7.4.	Temperature connection cable and probe (reusable)	2 Sets	
7.5.	Recording paper	2 sets of 5 rolls	
7.6.	ECG Cable	1 No.	
7.7.	Grounding lead	1 No.	
8.	Quality standards		
8.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485	
8.2.	Conformity to standards	Directive 2004 / 108 / EC, CE and FDA approved	
9.	Local back up service		
9.1.	Available	Should be available locally	
9.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables and qualified and skilled technical staff	
10.	Delivery point		
10.1.	See Schedule	For inspection and testing	
10.2.	Nil		

Item Code No.	Department	Section	Item Description
LOT 1-17	Outpatient	Triage	Vital Signs Monitor
11.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
12.	Training		
12.1.	User Training	On site user training on operation and daily up keep	
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance	

LOT 2: ONCOLOGY EQUIPMENT

LOT 2-1 CT Simulator

Item Code No.	Department	Section	Item Description
LOT 2-1	Oncology	CT Simulator Room	CT Simulator

Section A: General Requirements

These specifications describe the requirements for the supply, delivery, installation, Commisioning and acceptance testing of a CT Simulator for advanced simulation in planning conventional 3-D CRT, IMRT and VMAT treatments for the Kisii Cancer Centre Project.

Clause	Specification	Type	Yes/No	Details
1.	**Basic Requirements** *(M refers to mandatory requirement and D desired requirements)*			
1.1	Tenderers are invited to submit offers for the supply and installation of ONE complete set of Computed Tomography Simulator, its associated accessory and ancillary equipment items (hereinafter referred as the "Equipment") and related services for the Kisii Cancer Centre (KCC). The offer shall be comprehensive without hidden costs.	M		
1.2	The Equipment on offer shall be specifically designed for clinical use and shall be able to fulfil all the specific requirements of KCC.	M		
1.3	Both the hardware and software of the Equipment on offer shall have an upgradable architecture. Tenderers shall provide detailed information on the pathway of technology upgrade.	M		
1.4	The provision of all hardware and software licenses in this contract shall be valid for the entire serviceable life of the Equipment on offer.	M		
1.5	The functions/ features of the proposed model shall be ready in the market on the Tender closing date. Tenderers shall provide documentary proof to substantiate that their products are in compliance with this requirement.	M		
1.6	Itemized prices of the Equipment on offer shall be included in the Tender returns.	M		
1.7	Tenderers shall state if there is any proposal of marketing a new or more technologically advanced product other than that quoted for in the Tender within 12 months from the date of	M		

Item Code No.	Department	Section	Item Description
LOT 2-1	Oncology	CT Simulator Room	CT Simulator

Section A: General Requirements

These specifications describe the requirements for the supply, delivery, installation, Commisioning and acceptance testing of a CT Simulator for advanced simulation in planning conventional 3-D CRT, IMRT and VMAT treatments for the Kisii Cancer Centre Project.

Clause	Specification	Type	Yes/No	Details
	Tender return. Should a new or more technologically advanced product become available within these 12 months and no such statement has been made, the successful Tenderer shall replace the supplied or installed product with the new product without any charge to KCC at the discretion of KCC.			
1.8	Tenderers shall provide future information pertaining to the new features of the Equipment on offer anticipated to be available at the time of installation.	M		
1.9 1	The wining tenderers shall provide equipment layout drawings for the floor area used by the Equipment as well as the network layout drawings for areas involved.	M		
1.10	The Equipment on offer shall be fully functional according to the specifications and compatible with the building and building service provisions at KCC. The Equipment on offer shall be designed, manufactured and installed to operate with optimum performance and to the complete satisfaction of the end-user of KCC. All components, items and parts of the Equipment on offer are deemed to have been allowed for by the Tenderers in their Tender price. There shall be no missing items that prohibit full functioning of the Equipment on offer.	M		
1.11 1	The successful Tenderer shall coordinate and cooperate with the end-user and other involved parties in the delivery, storage, installation, testing and commissioning of the Equipment and all other related works until the installation is satisfactorily completed and accepted.	M		
1.12 1	Tenderers are required to state the details of all environmental conditions, service conditions, service connections and tolerance limits required for the Equipment on offer to ensure	M		

Item Code No.	Department	Section	Item Description
LOT 2-1	Oncology	CT Simulator Room	CT Simulator

Section A: General Requirements

These specifications describe the requirements for the supply, delivery, installation, Commisioning and acceptance testing of a CT Simulator for advanced simulation in planning conventional 3-D CRT, IMRT and VMAT treatments for the Kisii Cancer Centre Project.

Clause	Specification	Type	Yes/No	Details
	satisfactory operation of the equipment, e.g., the temperature, humidity, ventilation, electrical supply and power requirements, water supply and flow etc.			
1.13 1	The successful Tenderer shall also be responsible for liaising with other contractors of KCC to undertake the interfacing with KCC's plants/ systems for the works related to the installation. Tenderers can obtain the information of other contractors from KCC as and when necessary.	M		
1.14 1	Tenderers shall acquaint themselves with the conditions and provisions of the building and building services of the installation site relating to and in connection with the installation and operation of the CT Simulator. Additional cost, if any, incurred to the successful Tenderer arising from incompatibilities, inadequacies and/or other site constraints found in the installation stage shall be deemed to have been borne in the submitted Tender price.	M		
1.15 1	Tenderers shall guarantee to maintain the functionality and technical performance specifications of the Equipment on offer for at least 10 years effective from the date of acceptance under normal operation and maintenance conditions.	M		
2.	**Total Solution Requirements** Tenderers shall provide the following for KCC's consideration:			
2.1	A detailed proposal on how the CT Simulator and image workstations on offer can be connected to the Picture Archiving and Communication System (PACS), Radiology Information System (RIS) and Hospital Information System (HIS) of KCC to achieve an effective and efficient digital image/ data exchange for filmless operation.	M		

Item Code No.	Department	Section	Item Description
LOT 2-1	Oncology	CT Simulator Room	CT Simulator

Section A: General Requirements

These specifications describe the requirements for the supply, delivery, installation, Commisioning and acceptance testing of a CT Simulator for advanced simulation in planning conventional 3-D CRT, IMRT and VMAT treatments for the Kisii Cancer Centre Project.

Clause	Specification	Type	Yes/No	Details
2.2	A proposal and a policy on software and hardware upgrades of the Equipment on offer during and after the warranty period.	M		
2.3	A proposal and a policy on technology substitution to ensure that immature obsolescence can be avoided. The proposal shall include the commitments of the Tenderers to supply and install the state-of-the-art software and hardware technology on the date of delivery.	M		
2.4	A proposal on technical and specialist support on operational and functional aspects of the Equipment on offer during and after the warranty period. The proposal shall include the commitments of the Tenderers to provide the proposed support. Tenderers shall specify if local and/or overseas specialists shall provide such support. The qualifications and expertise of the specialists who provide such support shall be indicated in the Tender returns.	M		
2.5	A proposal on training of KCC staff on equipment operation and applications as well as technical training for the biomedical team of the client. The proposal shall include commitments of the Tenderers on future training provisions in the event of hardware and software upgrades.	M		
2.6	A proposal for maintenance arrangements and service support during the warranty period and a proposal for post warranty Comprehensive Maintenance Contract (CMC) for at least 5 years.	M		

- END OF SECTION A -

SECTION B: APPLICABLE DOCUMENTS AND STANDARDS

The following documents shall be applicable for these Specifications to the extent specified hereinafter:

- International Electrotechnical Commission, Medical Electrical Equipment, Part 1: General requirements for Safety, Rep. IEC 601-1, IEC, Geneva (1988)

- International Electrotechnical Commission, Medical Electrical Equipment, Part 2-29: Particular requirements for the safety of radiotherapy simulators, Rep. IEC 601-2-29, IEC, Geneva (1999)

- International Electrotechnical Commission, Radiotherapy simulators: Guidelines for functional performance characteristics, Rep. IEC 61170, IEC, Geneva (1993)

- International Electrotechnical Commission, Medical Electrical Equipment: Requirements for the safety of radiotherapy treatment planning systems, Rep. IEC 62083, IEC, Geneva (2000)

- "Setting up a Radiotherapy Programme: Clinical, Medical Physics, Radiation Protection and Safety Aspects", IAEA, Vienna (2008) (http://www-pub.iaea.org/MTCD/publications/PDF/pub1296_web.pdf)

- "Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards", IAEA, Vienna (2014) (http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1578_web-57265295.pdf)

- "Quality Assurance Programme for Computed Tomography: Diagnostic and Therapy Applications"IAEA Human Health Series 19, Vienna (2012) (http://www-pub.iaea.org/books/IAEABooks/8751/Quality-Assurance- Programme-for-Computed-Tomography-Diagnostic-and-Therapy-Applications)

- All the applicable International Atomic Energy Agency Safety Standards.

In the event of conflict between the documents listed above and the content of these Specifications, the content of the Specifications shall take precedence to the extent of the conflict.

SECTION C: FUNCTIONAL AND PERFORMANCE REQUIREMENTS

The System shall meet the following functional and performance requirements:

- The simulator shall be a CT scanner for radiotherapy treatment simulation.

- The CT scanner shall have a carbon fibre flat table-top with indexing facilities (for all kinds of immobilization system used in radiotherapy) identical to that of linear accelerators units at the Site.

- The CT scanner shall have conventional in-built lasers or light beams, which indicate the coincidence of the centre of rotation and scan position.

- An external radiotherapy laser system shall be incorporated to provide reference marks on patient skin or on any immobilization device. It is desirable for the external lasers to have easy alignment adjustability and to have positional stability with time.

- The entire CT Simulation system must be interconnected (all the workstations, any laser systems, printers etc.) and the CT scanner shall be capable of being networked with all radiotherapy treatment planning systems at the Site to allow transfer of CT data sets to the treatment planning systems in DICOM format.

SECTION D: MAIN CT SIMULATOR REQUIREMENTS

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
2.	**Gantry System**			
2.1	The continuously rotating tube-detector assembly shall be driven by slip-ring technology or equivalent.	M		
2.2	Rotational time per $360^{o} \leq 0.6$ second, preference given to one with fastest time.	M		
2.3	Diameter of gantry aperture ≥ 80 cm.	M		
2.4	Scan field of view (FOV) shall be 50 cm or larger.	M		
2.5	Extended FOV shall be minimum 70 cm or larger.	M		
2.6	Gantry tilting of at least $\pm 30^{o}$.	M		
2.7	A touch panel control unit that provides visual guidance on anatomical positioning shall be located on each side of the CT table on the front cover of the gantry housing.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
2.8				
2.9	A digital display of the patient couch vertical height and horizontal position shall be incorporated in the gantry.	M		
2.10	Laser lights (axial/ sagittal/ coronal) for scan plane localization with an accuracy of ± 2 mm or better.	M		
2.11	Integrated intercom system for 2-way communication between the operator at the control console and the patient inside the gantry.	M		
2.12	Electrical and/or mechanical interlocks to disable the triggering of X-ray exposure when the doors of the scan room are not properly closed.	M		
2.13	Auto-light instruction/ X-ray indication during examination for patients with impaired hearing.	M		
2.14	Tenderers are required to provide details on the effective cooling methods for dissipation of heat generated from the high-voltage generator, X-ray tube and gantry assembly.	M		
3.	**Couch:**			
3.1.	The couch top material must be carbon fibre, flat bed type, with minimum dimensions of 235 cm x 40 cm, having horizontal moving range of 170 cm or more.			
3.2.	The speed of horizontal movement must be variable with a maximum speed of at least 100 mm per second.			
3.3.	The accuracy (reproducibility) of the table top must be better than ± 0.25 mm.			
3.4.	The scannable range should be at least 120 cm.			
3.5.	It must be able to take a maximum weight of 180 kg or more without any change in stated performance specifications (such as the positioning accuracy);			

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
4.	**Data Acquisition System**			
4.1.	Stable, low drift with high dose efficiency and good linearity.	M		
4.2.	Decay time for detector scintillator ≤ 3 μs.	M		
4.2.1.	Preference will be given to the shortest decay time. Tenderers shall quote the value for reference.	D		
4.3.	Afterglow ≤ 0.1 % after 3 ms.	M		
4.3.1.	Preference will be given to the lowest afterglow after 3 ms. Tenderers shall quote the value for reference.	D		
4.4.	X-ray photon absorption efficiency ≥ 95 % at 120 kVp.	M		
4.5.	Detector geometric efficiency along z-axis ≥ 70 %.	M		
4.6.	Automatic calibration of detectors. Tenderers shall state the method of calibration employed.	M		
4.7.	Number of detector rows ≥ 16.	M		
4.7.1.	Preference will be given to a detector with a maximum number of detector rows. Tenderers shall quote the maximum number of detector rows for reference.	D		
4.8.	Number of acquisition channels ≥ 16.	M		
4.8.1.	Preference will be given to a detector with a maximum number of acquisition channels. Tenderers shall quote the maximum number of acquisition channels for reference.	D		
4.8.2.	Number of slices acquired simultaneously per gantry rotation shall be at least 16.	M		
4.8.3.	Preference will be given to a maximum number of slices acquired simultaneously per gantry rotation. Tenderers shall quote the maximum number of slices for reference.	D		
4.8.4.	Preference will be given to a maximum number of slices reconstructed per gantry rotation. Tenderers shall quote the maximum number of slices for reference.	D		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
4.9.	The total number of detector elements shall be ≥ 19,500.	M		
4.10.	The minimum slice thickness for data acquisition shall be ≤0.75 mm.	M		
4.10.1.	Preference will be given to a minimum slice thickness ≤ 0.6mm.	D		
4.11.	The maximum detector coverage at the isocenter along the z-direction shall be ≥ 19 mm.	M		
4.11.1.	Preference will be given to a maximum detector coverage. Tenderers shall quote the maximum detector coverage for reference.	D		
4.12.	The maximum detector coverage at the isocenter along the z-direction for the thinnest slice available shall be ≥ 10 mm.	M		
4.12.1.	Preference will be given to a maximum detector coverage for the thinnest slice available. Tenderers shall quote the maximum detector coverage for the thinnest slice available for reference.	D		
4.13.	Preference will be given to a detector that integrates the electronic components (microchips, conductors etc.) directly at the photo diode to minimize electronic noise and improve the signal-to-noise ratio (SNR) for optimized dose efficiency and image quality.	D		
	X-ray Generator			
4.14.	Three-phase, high frequency inverter system with microprocessor control.	M		
4.15.	kVp range: from 80 kVp to 140 kVp in at least three user-selectable steps.	M		
4.16.	The mA range from 30 mA to 400 mA, with step size of 5 mA or both better.			
4.17.	Peak anode heat dissipation rate of at least 800 kHU / min or better.			
4.18.	Rated power output ≥ 50 kW.	M		
4.19.	Incorporation of protection circuits for the safe operation of the X-ray generator.	M		
5.	**X-ray Tube**			

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
5.1.	The X-ray tube shall be of dual focus, heavy duty and durable type. Please state the size of the focal spots;	M		
5.2.	Small focal spot size (IEC 60336/2020) shall be ≤ 0.5 mm^2.	M		
5.3.	Large focal spot size (IEC 60336/2020) shall be ≤ 1.4 mm^2.	M		
5.4.	Effective anode heat storage capacity ≥ 7.5 MHU.	M		
5.5.	Preference will be given to the offer with the highest effective anode heat storage capacity. Tenderers shall quote the value for reference.	D		
5.6.	Incorporated with a heat overload protection system for the X-ray tube.	M		
5.7.	The radiation leakage of the X-ray tube housing shall comply with the current standard of IAEA/KENRA	M		
6.	**Patient Supporting System**			
6.1.	A motorized carbon fiber flat couch with indexed immobilization features shall be provided to mimic the treatment couch of the radiation treatment machines used in KCC. Tenderers shall provide detailed listing of integrated immobilization accessories that will be delivered with the system.	M		
6.2.	The flat couch shall be designed in such a way that it allows an easy and fast attachment of standard treatment immobilization casts, head rests, head rings of the stereotactic frames, and other accessories onto the CT couch during CT scanning in a similar way as that on the treatment couch during radiotherapy treatment.	M		
6.3.	The flat couch shall include an indexing system as used on the treatment couch of the radiation treatment machines of KCC.	M		
6.4.	Minimum table height ≤ 580 mm (measured from the side edge of the couch to the finished floor level).	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
6.5.	Table vertical travel speed shall be variable with a maximum speed ≥ 30 mm/second.	M		
6.6.	Longitudinal scan range of the table shall be 170 cm or more.	M		
6.7.	Maximum table longitudinal travel speed shall be ≥ 100 mm/second.	M		
6.8.	Accuracy of the table longitudinal positioning shall be ± 0.25 mm or better at a patient load of 180 kg.	M		
6.9.	Maximum patient load for scanning shall be ≥ 200 kg.	M		
6.10.	The table horizontal and vertical motions shall be independent.	M		
6.11.	Foot pedals controlling vertical table movement on either side of the table.	M		
6.12.	Manual override of motorized table movement.	M		
6.13.	Remote control of table movement at the control console.	M		
6.14.	The performance and accuracy of the CT table motions shall meet the recommendations of the Report of the AAPM Radiation Therapy Committee Task Group No. 66 (TG-66). Tenderers shall provide full details of the compliance.	M		
6.15.	Provision of an intravenous (IV) pole integrable with the CT table.	M		
6.16.	Provision of table side rails for attaching additional accessories.	M		
7.	**Operation and Control Console**			
7.1.	The operation and control console on offer shall be capable of executing scanning procedure, controlling all examination functions, performing image reconstruction and data processing.	M		
7.2.	The image reconstruction and analysis functions can be performed in the background while scanning.	M		
7.3.	**Hardware requirement:**	M		
7.3.1.	Provision of a keyboard, bar code scanner, mouse or trackball as input devices.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
7.3.2.	Two LCD colour monitors with screen size not less than 19" diagonally, resolution not less than 1280 × 1024.	M		
7.3.3.	The host computer CPU shall be of the latest model available in the market. Tenderer shall quote the type and the speed of the host CPU on offer.	M		
7.3.4.	RAM size for system operations shall be at least 16.0 GB.	M		
7.3.5.	Tenderers shall offer a hard disk of the highest capacity compatible with the scanner for raw data and image data storage but not less than 1TB.	M		
7.3.6.	Hard disk capacity for image data storage shall be 1TB or higher.	M		
7.3.7.	Tenderers shall quote the number of uncompressed 512×512 images that can be stored at their storage capacity provided. Not to be less than 200,000. The largest capacity available in the market shall be offered by the Tenderers.	M		
7.3.8.	Provision of one number of DVD/CD-R drive and/or MOD drive for reading and writing of DICOM image data and 3D objects. 200 recording media compatible to either device on offer shall be provided.	M		
7.3.9.	Uninterrupted Power Supply (UPS) for data protection of not less than 30 minutes capacity in the event of power failure shall be provided for the host computer.	M		
7.3.10.	The host computer shall be capable of multi-tasking all scanning control, system operation and image archiving.	M		
7.3.11.	Reconstruction matrix shall be 512×512 or larger.	M		
7.3.12.	The system offer shall be capable of off-centred reconstruction.	M		
7.3.13.	The speed of image reconstruction with full image quality (512×512 matrix) shall be 16 images/second or faster. The faster the better	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
7.3.14.	Interpolation technique shall be incorporated. Tenderers shall specify the type of interpolation used.	M		
7.3.15.	At least three different reconstruction algorithms on raw data shall be incorporated. Tenderers shall provide details of the algorithms.	M		
7.3.16.	Preset scan protocols for different anatomical regions.	M		
7.3.17.	Not less than 90 user-defined examination protocols for different anatomical regions covering the whole body.	M		
7.3.18.	Multiple user-recordable auto-voices for patient instructions during scanning.	M		
7.3.19.	Display of CTDI and DLP values on the operating console.	M		
7.3.20.	Auto-viewing of acquired images.	M		
7.3.21.	Auto-transfer of acquired images to the image servers in RT Centre of KCC.	M		
7.3.22.	Auto-transferring for 2D post-processing.	M		
7.3.23.	Auto-transferring for 3D reconstruction.	M		
7.3.24.	Capable of fetching patient information from Radiology Information System (RIS) via DICOM modality worklist.	M		
7.3.25.	Data link directly with the CT image processing consoles or equivalent and all image post-processing workstations on offer.	M		
7.3.26.	Provision of interfacing with one contrast medium injector with initialization of injection at the operating console.	M		
8.	**CT Scanner Performance**			
8.1.	Dedicated scan protocols for infants and children shall be incorporated.	M		
8.2.	An automatic on-line exposure control shall be provided to modulate the tube current during a scanning procedure for reducing the overall dose to patients. Tenderers shall provide details of this feature.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
8.3.	Tube current adjustment according to the patient size.	M		
8.4.	Tube current modulation along the z-axis.	M		
8.5.	Angular tube current modulation.	M		
8.6.	Tube current modulation along z-axis and angular modulation shall be available concurrently.	M		
8.7.	Provision of automatic kVp and scan parameters selection depending on the selected type of examination.	D		
8.8.	The CTDIvol at 120 kVp for 32 cm body phantom shall be 9.5 mGy/100 mAs or lower.	M		
8.9.	The CTDIvol at 120 kVp for 16 cm head phantom shall be 16 mGy/100 mAs or lower.	M		
8.10.	The system shall provide warning messages before the start of a scan to alert users to optimize the scanning technique if a set of prescribed scan sequences exceeds the maximum tube loading.	M		
8.11.	Synchronized scanning and contrast injection between the CT scanner and injector shall be available.	D		
8.12.	The system shall support multiple volume scans to be programmed in a single session.	M		
8.13.	**Scout Scan (Topogram) Mode**			
8.14.	Selection of at least 2 scans perspectives including PA and lateral.	M		
8.15.	Scan length at the maximum FOV ≥ 1,750 mm.	M		
8.16.	Maximum scan speed ≥ 100 mm/sec.	M		
8.17.	Automatic positioning of the patient to the selected slice location from the quick overview scans with an accuracy of ±1 mm or better.	M		
1.1.	A display of cut lines on the scout view in relation to the position of the planned slices.	M		
1.2.	Capable of manual interruption of the scout scan once desired anatomy has been covered.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
1.3.	**Axial Scan Mode**			
1.4.	Maximum scanning speed ≤ 0.6 second per rotation. The faster the speed the better.	M		
1.5.	Scan length at the maximum FOV ≥ 1,600 mm. Please state the max scan length at Max FOV.	M		
1.6.	Slice thickness shall be selectable and executable from ≤ 0.75 mm (FWHM) to ≥ 10 mm (FWHM) with not less than 3 intermediate selections in between.	M		
1.7.	Simultaneous scanning, reconstruction and display of images shall be supported.	M		
1.8.	The fastest scan cycle time (scan, reconstruction and display) at 512×512 matrix ≤ 2 seconds.	M		
1.9.	**Dynamic Scan Mode:**			
1.10.	Maximum scanning speed ≤ 0.5 second per rotation.	M		
1.11.	Maximum duration of one single acquisition ≥ 60 seconds.	M		
1.12.	Multiple series of scans can be programmed into a single run with pauses in between.	M		
1.13.	Minimum pause interval between scans of multiple series ≤ 5 seconds.	M		
1.14.	Spiral scan triggered by the arrival of contrast medium. Tenderers shall provide details on the triggering mechanism.	M		
1.15.	One or more regions of interest (ROI) can be used for scan triggering by the arrival of contrast medium.	M		
1.16.	Interval of CT number measurement for scan triggering ≤ 0.5 second.	M		
1.17.	Allow manual triggering of continuous volume spiral scan by monitoring CT number against time.	M		
1.18.	**Spiral (Helical) Scan Mode**			
1.19.	Maximum scanning speed ≤ 0.5 second per rotation.	M		
1.20.	Maximum duration of one single acquisition ≥ 100 seconds.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
1.21.	Maximum length of a single-spiral scan without cooling delay ≥ 1,500 mm.	M		
1.21.1.	Preference will be given to a maximum scan length ≥ 1,900 mm.	D		
1.22.	Maximum scanning speed ≥ 70 mm/second.	M		
1.23.	Minimum delay for X-ray start time ≤ 3 seconds.	M		
1.24.	Multiple volume scans can be programmed into a single run with breathing pauses in between.	M		
1.25.	Minimum inter-scan delay ≤ 5 seconds.	M		
1.26.	Maximum number of programmable multiple volume scan groups ≥ 6.	M		
1.27.	Slice thickness selection shall be independent of pitch value.	M		
1.28.	Variable pitch factor shall be selectable:	M		
1.28.1.	Pitch factors shall be selectable from a range of 0.625 to 1.5 or wider.	M		
1.28.2. **1**	Achievable image quality shall be the same for all volume pitch settings. Tenderers shall state the recommended pitch for optimal image quality.	M		
1.29.	Capable of multi-directional volume scan groups.	M		
1.30.	Reconstructed slice thickness shall be selectable from ≤ 0.65 mm to ≥ 7.5 mm with intermediate selections in between.	M		
1.31.	Prospective and retrospective reconstruction at any table position in 0.1 mm increment.	M		
1.32.	Prospective overlapping and contiguous reconstruction across multiple continuous scan boundaries.	M		
1.33.	Automatic modification of the shape of x-ray beam to block unused portion of x-ray at the beginning and end of a spiral scan to minimize unnecessary radiation.	D		
2.	**Respiratory Gating Scan Mode**			
2.1.	A full package of respiratory gating system (Varian Respiration Gating for Scanners	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	(RGSC) or Elekta) including software and hardware that is compatible with the CT Simulator on offer shall be provided.			
2.2.	All relevant acquisition and analysis software for accounting the effect of respiratory motion of the patient during a scan shall be included.	M		
2.3.	Maximum continuous scan time allowed shall be 100 seconds or longer.	M		
2.3.1.	Preference will be given to the offer with maximum continuous scan time of 200 seconds or longer.	D		
2.4.	The system shall automatically calculate optimal scan parameters for 4D CT after the user has entered the estimated respiratory rate of the patients.	D		
2.5.	Provision of a dedicated scan protocol for slow breathers with respiratory rate ≤ 6 bpm. The scan range for this scan protocol shall be longer than 34 cm. Tenderers shall provide information to substantiate this feature.	D		
2.6.	Image representations in average, minimum and maximum intensity projection formats.	M		
2.7.	Image analysis and processing in axial, sagittal and coronal views.	M		
2.8.	Multi-phase reconstruction.	M		
2.9.	Prospective respiratory gating: Allows CT acquisition to be synchronized with an amplitude or phase defined trigger signal from the respiratory curve in a mode of either free breathing or deep inspiration breath hold.	M		
2.10.	Retrospective respiratory gating: 4D images acquisition with the respiratory waveform tracked and recorded with an external respiratory gating system.	M		
2.11.	Provide spiral (helical) mode for retrospective 4D CT study.	M		
2.12.	Provide hardware and software interface for connection with the respiratory gating system provided.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
2.13.	Online display and record of the respiratory curve on the control console.	M		
2.14.	A wireless visual coaching device shall be provided and installed for coaching the patients in various respiratory-gated CT image acquisitions.	M		
2.15.	The successful Tenderer shall confirm with KCC for the model and technical details of the respiratory gating system before the installation of the system on the CT Simulator offered.	M		
3.	**Image Quality**			
3.1.	Low contrast detectability shall be better than 5.0 mm at 0.3 % contrast in a 10 mm slice taken with a CATPHAN phantom (20 cm) or equivalent. Tenderers shall state the acquisition parameters at which the detectability is measured.	M		
3.2.	Maximum high contrast spatial resolution shall be equal to or better than 14 lp/cm at 0 % MTF or equivalent. Tenderers shall state the acquisition parameters at which the spatial resolution is measured.	M		
3.2.1.	Preference will be given to a maximum high contrast spatial resolution ≥ 17.4 lp/cm at 0 % MTF.	D		
3.3.	Cross field uniformity (maximum deviation in a 20 cm water phantom) shall be +/- 5 HU or better.	M		
3.4.	Image reconstruction matrix shall be 512 × 512 or larger.	M		
3.5.	Provision of latest iterative reconstruction algorithms or modified filtered back projection process to reduce noise components for better image quality and radiation dose reduction.	M		
4.	**Image Presentation**			
4.1.	Display of scan date, time and patient demographic data automatically on the screen of the control console and film.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
4.2.	Display matrix ≥ 1024 × 1024.	M		
4.3.	Image display by number or by anatomical location.	M		
4.4.	Visualization filter selection ≥ 6.	M		
4.5.	Multiple image display with user-selectable image layouts.	M		
4.6.	Image rotation and flip.	M		
4.7.	Magnification or zoom capability.	M		
4.8.	Display of slice lines representing the slice positions on the corresponding scout view.	M		
4.9.	Reference image display for localization of the scan plan. Simultaneous display of axial CT image and corresponding quick overview image on a reduced scale.	M		
4.10.	Continuous window/ level adjustment, not less than 3 presets for different predetermined regions.	M		
4.11.	Dual-window display.	M		
4.12.	CT number display range: -1000 to +3000 Hounsfield Units (HU) or better.	M		
4.13.	Graphic and text annotations.	M		
4.14.	Cine display for not less than 500 images per series at 512 × 512 matrix.	M		
4.15.	Cine display speed control with not less than 10 frames/second at 512 × 512 matrix.	M		
5.	**Image Analysis**			
5.1.	Display of grid coordinates for spatial reference.	M		
5.2.	Selection of region of interest (ROI) for:	M		
5.2.1.	Area calculation.	M		
5.2.2.	Volume calculation.	M		
5.2.3.	Mean value, standard deviation, pixel number, minimum and maximum CT numbers.	M		
5.2.4.	Histograms.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
5.3.	Display of one to three ROIs or more on a single image.	M		
5.4.	Measurement of CT number at 5 × 5 pixels or less.	M		
5.5.	At least 3 measurements of distance, angle, and area can be displayed at one time.	M		
5.6.	Different cursor types available: cross-hair, box, circle etc.	M		
5.7.	Plotting of variation of CT numbers across an image.	M		
5.8.	Plotting of variation of CT numbers at an selected ROI across time for sequential images.	M		
5.9.	Image annotation and labelling.	M		
6.	**Image Processing**			
6.1.	Concurrent scanning, image reconstruction, filming and archiving.	M		
6.2.	Selectable priority queue for prospective and retrospective image reconstruction from raw data sets.	M		
6.3.	Display field of view shall be variable in size and centre.	M		
6.4.	Provision of a reconstruction algorithm to reconstruct image by using a truncated projection dataset.	M		
6.5.	Provision of software for reduction of volume artefacts, motion artefacts to increase image quality.	M		
6.6.	Retrospective image reconstruction using different image reconstruction algorithms and visualization filters.	M		
6.7.	Real-time multi-planar reconstruction along different axis.	M		
6.8.	Reconstruction along different axis shall be isotropic in size.	M		
6.9.	Provision of algorithms for surface and volume rendering.	M		
6.10.	Provision of a software package for the cerebral and body perfusion evaluation following contrast bolus injection.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
6.11.	Provision of a reconstruction algorithm in which calculated single energy CT projection and image data is reconstructed into CT images that contain relative electron density values independent of the kV used.	O		
6.12.	Provision of metal artifact reduction functions to reduce streak artifacts in the images caused by large, high density metal objects such as prosthetic hips and surgical screws.	M		
6.13.	The metal artifact reduction algorithm shall base on single energy adaptive raw data mixing or equivalent and shall not require special acquisition protocols.	M		
6.14.	The metal artifact reduction functions shall be applicable in retrospective reconstruction of image data associated with metal artefacts.	M		
6.15.	Preference will be given to the provision of dedicated algorithms for precise metal artifact reduction for different implants such as hip implants, dental filling, neuro coils, thoracic coils, pacemakers, etc.	D		
6.16.	Preference will be given to metal artifact reduction functions that can be used in combination with iterative reconstruction and extended FOV.	D		
7.	**Filming and Archiving**			
7.1.	Drag and drop filming.	M		
7.2.	One button print image series.	M		
7.3.	One button print image page.	M		
7.4.	Multi-image formats.	M		
7.5.	DICOM 3.0 basic grayscale print service class.	M		
7.6.	DICOM print to DICOM-compliant printer.	M		
7.7.	Image storage and retrieval in DICOM 3.0 format using DVD/CD media with a DICOM viewer.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
8.	**Multi-format Dry Imager**			
8.1.	ONE multi-format dry imager with built-in automatic film processor using dry processing technology capable of accepting digital image data.	M		
8.2.	DICOM 3.0 compatible, Print SCP, capable of printing images from the CT Simulator on offer and other imaging modalities in KCC.	M		
8.3.	DICOM 3.0 conformance statement of the imager shall be provided.	M		
8.4.	The successful Tenderer shall undertake to supply and install all the interfaces, cabling, and components essential for the full operation of the imager.	M		
8.5.	The warm up time for the dry imager and for the first printing of a 14”×17” dry film shall be less than 15 minutes.	M		
8.6.	Capable of printing not less than two formats on one film.	M		
8.7.	The imager shall have at least one film tray online, with an additional or swappable second film tray of different film size.	M		
8.8.	Capacity of each tray shall be more than 100 sheets of films.	M		
8.9.	Each film tray can accept different film sizes, which is user selectable. Changing from one film size to another shall not require special tools.	M		
8.10.	Loading and unloading films from the tray can be done under daylight.	M		
8.11.	Multiple film sizes: 14”×17”, 11”×14” and 8”×10”.	M		
8.12.	Spatial resolution: 250 dpi or higher.	M		
8.13.	Grey scale: 12 bits or better.	M		
8.14.	Maximum optical density shall be 3.0 or higher.	M		
8.15.	Output rate: ≥ 50 films per hour for 14”×17” film size and ≥ 70 films per hour for	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	8"×10" film size at 250 dpi or higher resolution.			
8.16.	Imager calibration shall not be required on each imager start- up. The calibration is done only as required or at user desired time points.	M		
8.17.	Image memory: at least 256 MB.	M		
8.18.	Density and contrast setting shall be adjustable.	M		
8.19.	Built-in densitometer for film quality control.	M		
8.20.	The dry imager on offer shall have at least one network interface (Ethernet) for DICOM print.	M		
8.21.	Five boxes (at least 100 sheets/box) of dry film shall be provided, film size(s) to be determined by the end-user.	M		
9.	**Thin Client Post Processing Workstations**			
9.1.	Provision of a server-client post-processing system for the CT Simulator. The successful Tenderer shall provide and install one set of server and two sets of independent client workstations for 4D data review, virtual simulation and radiotherapy planning purposes at KCC. The successful Tenderer must also provide cable connections and installation of the server and client workstations such that all the client workstations can communicate with the CT Simulator console. The image processing features for the workstations shall be similar to that of the console workstation as stated in Clause 9. The thin-client solution for the CT Simulator shall provide the following features:	M		
9.1.1.	Advanced 3D post-processing system that supports server- client architecture shall be provided.	M		
9.1.2.	The system should be based on Oracle, SQL or other equivalent database.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
9.1.3.	Client operating system should be compatible with Windows 10 or higher.	M		
9.1.4.	Load balancing and auto-bandwidth compression.	M		
9.1.5.	Provision of anti-virus, anti-spyware and anti-hacking solution. The solution provided shall not affect the normal performance of the CT Simulator on offer.	M		
9.1.6.	Provision of at least TWO concurrent user licenses with a maximum number of slices for concurrent rendering ≥ 24,000.	M		
9.2.	**Hardware requirements for the server:**	M		
9.2.1.	The server shall have load balancing capability.	M		
9.2.2.	The server shall be capable of doing auto compression of images depending on available bandwidth.	M		
9.2.3.	**Processor**: 2 × Intel 8 Core or higher.	M		
9.2.4.	RAM size for system operation ≥ 64 GB.	M		
9.2.5.	RAID with Flash-based Cache of 1 GB or better.	M		
9.2.6.	Graphical Processing Unit: 2 × NVIDIA GPU with a total of 16 GB internal memory on-board.	M		
9.2.7.	Capacity for image data storage ≥ 1 TB.	M		
9.2.8.	The number of uncompressed 512 × 512 images that can be stored at the storage capacity ≥ 1,000,000.	M		
9.2.9.	Operating System: Windows Server 2008 R2, 64 Bit - Enterprise Edition or higher.	M		
9.2.10.	Keyboard, mouse and administrator monitor.	M		
9.2.11.	One set of DVD/CD-R drive for reading and writing of DICOM image data and 3D objects. The DVD/CD-R drive shall meet the following requirements: a. DICOM 3.0 standard b. Support DICOM 3.0 point to point send, receive and pull/query protocol	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
9.2.12.	Uninterrupted Power Supply (UPS) of appropriate kVA with at least 30 minutes backup for the server shall be provided.	M		
9.3.	**Requirements for the client workstations:**	M		
9.3.1.	The successful Tenderer shall provide two sets of client workstations each with the following hardware requirements:	M		
9.3.2.	CPU: 64 bit dual processor (Intel Xeon or equivalent).	M		
9.3.3.	Processor frequency: ≥ 2.5 GHz.	M		
9.3.4.	OS: Windows 8, 64 bit Edition or equivalent or higher	M		
9.3.5.	RAM: ≥ 16 GB.	M		
9.3.6.	Dual image monitors, keyboard, mouse/trackball and hard disk.	M		
9.3.7.	The monitors shall be of medical grade LCD colour monitor with the following features:	M		
9.3.8.	Screen size not less than 21-Inch in diagonal.	M		
9.3.9.	Resolution not less than 1600 × 1200 matrix landscape type or 1200 × 1600 matrix portrait type, adjustable by rotation.	M		
9.3.10.	Viewing angle > 178^{o} for both horizontal and vertical.	M		
9.3.11.	Brightness > 420 cd/m^2.	M		
9.3.12.	Contrast ratio > 1500:1.	M		
9.3.13.	All associated software and hardware supporting dual monitor display shall be provided.	M		
9.3.14.	The workstation shall each be provided with DVD/CD recording device with the latest and fastest speed in the market, or other optical disc drive appropriate for the reading and saving of images.	M		
9.3.15.	Not less than 50 recording media compatible with the device on offer shall be provided for each workstation.	M		
9.3.16.	A portable image viewing application software shall be included in the DVD/CD	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	so that exported DICOM images could be viewed on a MS Windows-based personal computer.			
9.4.	**Network functions:**			
9.4.1.	The successful Tenderer shall undertake to install and connect the server and client workstations in such a way that it is fully communicable in both ways with the local RT network, the Radiology RIS & PACS and HMIS	M		
9.4.2.	The workstations shall be able to retrieve and send images from and to the local RT network and the Radiology RIS & PACS through network.	M		
9.4.3.	The workstations on offer shall be fully DICOM compatible and shall include the DICOM Viewer software.	M		
9.4.4.	Image transfer protocols shall support DICOM 3.0 standard.	M		
9.4.5.	Support DICOM worklist display and management.	M		
9.5.	**Each client workstation shall provide standard image display functions including:**	M		
9.5.1.	Multiple image display with user selectable image layouts.	M		
9.5.2.	Windowing and leveling/ Zoom/ Black and white inversion.	M		
9.5.3.	Calibration and measurement of lengths and angles.	M		
9.5.4.	CT ROI measurement (Hounsfield Units).	M		
9.5.5.	Annotation.	M		
9.5.6.	Magnification.	M		
9.5.7.	Cine loop display of dynamic study.	M		
9.5.8.	3D reconstruction software with the following features: a. Shaded Surface Display (SSD) / Volume Rendering	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	b. Slicing of 3D and slice plane mapping c. 3D object real-time rotation d. Transparency and colouring of 3D display e. Time varying display of 3D image f. Editing functions including contouring, threshold and volume growing, etc. g. Disarticulation and bone density structure removal from displayed images h. Navigation mode/ Flythrough i. Preset protocol for applications			
10.	**Advanced Clinical Applications on Client Workstations**			
10.1.	4D gating application with the following features: (Clauses 20.1.1 to 20.1.4 shall be integrable to the operating console as well where applicable)	M		
10.1.1.	Able to read the respiratory waveform file form an external respiratory gating system.	M		
10.1.2.	Automatic sorting and saving of the CT image data into multiple bins. The application should be able to do binning in 10 phases or 20 phases.	M		
10.1.3.	Creation of average, maximum and minimum intensity image projection of any selected phases.	M		
10.1.4.	The application shall be able to examine for the integrity of the motion profile generated by the respiratory gating device.	M		
10.1.5.	Display of complete 4D volumes in sagittal, coronal, and axial planes for quick respiratory motion evaluation.	M		
10.1.6.	Display of movie-looped view for assessment of tumor motion.	M		
10.1.7.	Side-by-side visualization of time resolved intensity projection, average CT and respiratory cine loop of the same patient. Contouring performed on any image is reflected on all other images.	D		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
10.1.8.	Able to plot the amplitudes of tumour movement against respiratory phase in three directions: up-down, forward- backward, left-right as tumour movement curves. Allow easy identification of the phase with minimal tumour movement.	D		
10.1.9.	Provide tools for motion assessment.	M		
10.2.	**Multi-modality review and contouring functions:**	M		
10.2.1.	Synchronous viewing of multiple series of different modalities on one patient for comparison.	M		
10.2.2.	Support image types for comparison: 3D/4D CT, PET, PET-CT, MRI, Cone Beam CT and SPECT.	M		
10.2.3.	Up to 4 series can be compared side-by-side.	M		
10.2.4.	Automatic co-registration among series based on anatomical landmarks.	M		
10.2.5.	Skin and threshold-based segmentation.	M		
10.2.6.	Provide contouring tools (freehand/ brush/ nudge).	M		
10.2.7.	Contour on any orientation including oblique.	M		
10.2.8.	Parallel contouring: contouring performed on any image is reflected on all other related images.	M		
10.3.	**Advanced contouring functions: (Optional)**	O		
10.3.1.	Auto-Contouring for organs-at-risk: brain, heart, lungs, liver, kidneys and femoral heads.	O		
10.3.2.	User configurable organ templates.	O		
10.3.3.	Contour copy and warping between image series.	O		
10.4.	**Deformable registration**	O		
10.4.1.	Deformable registration of image series (multi-modality image support including CT, MR, PET-CT images). Support region-of-	O		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	interest based registration and multiple registrations per image pair.			
10.4.2.	Saving of registered/ aligned/ deformed images as a new image series.	O		
10.4.3.	Provide registration quality checking tool such as spyglass, deformation vector map, deformation magnitude color map, etc.	O		
10.5.	Dose display functions:	O		
10.5.1.	Display dose volumes overlaid on any supported image type and allow side-by-side comparison.	O		
10.5.2.	Display related dose volume histograms.	O		
10.5.3.	Employ deformable registration between current and prior dose volumes and images for dose assessment.	O		
10.6.	**Virtual simulation application:**	M		
10.6.1.	The application shall be able to automatically import scan datasets after scanner acquisition for efficient patient simulation workflow.	M		
10.6.2.	Able to read source to skin distance.	M		
10.6.3.	Absolute localization of treatment isocenter.	M		
10.6.4.	Generation of Digitally Reconstructed Radiographs (DRR) images.	M		
10.6.5.	Visualization and analysis of treatment beam geometry and beam modifier including multi-leaf collimator and blocks.	M		
10.6.6.	The virtual simulation application shall support DICOM-RT objects including RT structure set, RT plan and RT image.	M		
10.6.7.	Reference point/ isocenter management.	M		
10.6.8.	Direct laser steering for supported laser systems.	M		
10.6.9.	DICOM data exchange with supported laser systems.	M		
10.6.10.	Virtual laser view for display of laser lines on 3D patient model based on volume rendering technique.	D		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
10.6.11.	The virtual simulation software tools shall be available directly on the operating console.	M		
11.	**Patient Laser Marking System**			
11.1.	Provision and installation of a ceiling-mounted laser system with one movable laser to project the sagittal plane and one fixed laser to project the transverse plane.	M		
11.2.	Provision and installation of two wall-mounted laser systems, each consists of one movable laser to project the coronal plane and one fixed laser to project the transverse plane.	M		
11.3.	Provision of a built-in control system to compare the computed isocenter location with the laser positions.	M		
11.4.	The system shall support auto calibration.	M		
11.5.	Provision of a remote control to adjust the laser in 6 degrees of freedom.	M		
11.6.	Provision of a phantom for QA of the laser system.	M		
11.7.	Position accuracy shall be within ± 0.1 mm or better.	M		
11.8.	Projection precision shall be within ± 0.5 mm up to a distance of 4 m.	M		
11.9.	All lasers offered shall be of Class II laser product with output power not greater than 1 mW.	M		
11.10.	The focusable line width of the lasers shall be within 1 mm.	M		
11.11.	The laser colour shall be agreeable to the end-user.	M		
11.12.	The mounting of lasers shall be precise, strong, stable, and durable. The successful Tenderer shall provide all necessary mounting materials.	M		
11.13.	The system shall be able to accept exported coordinates from the virtual simulation workstation/ control console on offer and the treatment planning systems used in the KCC.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
12.	**DICOM 3.0 Standard and Network Connectivity**			
12.1.	The successful Tenderer shall offer a comprehensive software and hardware package for direct network connection of the CT Simulator, image server and client workstations on offer with the PACS/ image workstations/ laser printers of the RT Centre. The network connection shall comply with KCC's prevailing policies and guidelines on data security and access control on networked devices.	M		
12.2.	Network speed: Gigabit (10/100/1000) Ethernet.	M		
12.3.	Image transfer at 25 images per second for 512×512 image or faster.	M		
12.4.	The successful Tenderer shall ensure successful network archiving of CT images (including structural images, dynamic series and post-processed images or colour maps) to the PACS and demonstrate the archived images can be successfully retrieved and displayed in the image workstations of PACS.	M		
12.5.	The successful Tenderer shall liaise with the vendor of PACS of KCC to work on the network connection and perform connectivity test as stated above.	M		
12.6.	**Networking protocols:**	M		
12.6.1.	DICOM 3.0 basic grayscale print service class.	M		
12.6.2.	DICOM 3.0 send, receive and query/ retrieve.	M		
12.6.3.	Point-to-point send, receive and query/ retrieve.	M		
12.7.	DICOM and IHE conformance standards:	M		
12.7.1.	DICOM 3.0 modality work list service class.	M		
12.7.2.	DICOM 3.0 storage service class.	M		
12.7.3.	Service Class User (SCU) for image send.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
12.7.4.	Service Class Provider (SCP) for image retrieve.	M		
12.7.5.	DICOM 3.0 query/ retrieve service class.	M		
12.7.6.	DICOM 3.0 storage commitment service class.	M		
12.7.7.	DICOM 3.0 basic grayscale print service class.	M		
13.	**Integration with Radiology Information System (RIS)**			
13.1.	The successful Tenderer shall be responsible for the integration of the CT Simulator on offer with KCC's RIS with the following features:	M		
13.2.	A comprehensive hardware and software package to enable the DICOM modality worklist server class for the control console shall be offered.	M		
13.3.	The modality worklist for the console shall be able to query the HIS and RIS by name, HKID, modality, or scheduled date, and to download the patient demographics directly to the scanner via the PACS Broker.	M		
13.4.	Tenderers shall provide a detailed proposal for the RIS integration with specifications for the system on offer for the end-user's consideration.	M		
13.5.	The required gateway hardware and software shall be provided to connect the CT Simulator to HIS/ RIS.	M		
13.6.	All necessary data ports, cables, trunking, interface and software shall be provided and installed by the successful Tenderer.	M		
13.7.	The successful Tenderer shall ensure that there is sufficient license in our PACS Broker for enabling the functions mentioned above. The successful Tenderer shall be responsible for any additional license cost.	M		
13.8.	Tenderers shall specify any pre-requisite conditions on the RIS program for complete RIS integration.	M		
14.	**Contrast Media Injector**			

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
14.1.	ONE set of dual head contrast media injector shall be offered. The injector shall be equipped with the following features:	M		
14.2.	The control of the injector shall be integrable with the control console so that synchronized scanning and contrast injection can be achievable.	M		
14.3.	The injector shall have a remote-control console located in the control room.	M		
14.4.	The contrast delivery mechanism shall include safety features designed for maximizing patient and operator safety. An extravasation detection system or equivalent compatible with the injector shall be provided.	M		
14.5.	The injector delivery powerhead shall allow for single and dual head contrast delivery mode.	M		
14.6.	The injector shall be of pedestal mount with a wide base equipped with at least two lockable casters.	M		
14.7.	Flow rate: Flow rate parameters: 0.1 - 10 ml/sec Flow rate running tolerance: 0.2 ml/sec or +/- 20 %	M		
14.8.	Peak pressure: 50 - 325 PSI or 345 - 2240 kPa	M		
14.9.	Phase delay: 0 - 600 sec adjustable in increments of 1 sec	M		
14.10.	Inject delay: 0 - 600 sec adjustable in increments of 1 sec	M		
14.11.	Scan delay: 0 - 600 sec adjustable in increments of 1 sec	M		
14.12.	The injector shall be equipped with a syringe warmer to minimize the loss of heat from the preheated contrast.	M		
14.13.	The injector shall be able to store the parameters of not less than 40 protocols in its memory. Password protection shall also be available.	M		
14.14.	The injector shall be able to inject both contrast and saline at the same time in a	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	percentage of 10 % to 90 % of contrast in increments of 5 %.			
14.15.	The console and delivery powerhead shall be equipped with a colour touch screen display for operation.	M		
14.16.	At the console's touch screen display in the CT control room, the operator shall be able to: a. enter protocol parameters b. save protocols c. delete protocols d. recall protocols e. enable/start/stop a drip injection f. enable/start/stop an injection g. review achieved parameters of delivered protocols	M		
14.17.	At the powerhead's touch screen display in the CT scan room, the operator shall be able to: a. enter protocol parameters b. recall protocols c. fill/expel syringes d. enable/start/stop a patency check injection e. enable/start/stop a drip injection f. enable/start/stop an injection	M		
14.18.	Provision of a manual knob at the powerhead which allows the operator to move the plunger.	M		
14.19.	Light indicators shall be available at the powerhead for indicating different status of the system, e.g. power up, alarm etc.	M		
14.20.	A remote hand switch shall be included to allow operator to perform injections at a distance from the powerhead.	M		
14.21.	A series of power up tests shall be performed to monitor the status of the system when the machine is switched on.	M		
14.22.	Functioning parameters of the injector shall be monitored during the course when the system is 'enabled' and delivering an injection.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
14.23.	Prior to the delivery of the bulk injection, a test injection of a small volume of saline shall be performed to determine the patency of the intravenous site.	M		
14.24.	Prior to the delivery of the main injection, an injection of a small volume of contrast followed by a small volume of saline shall be delivered to the patient to determine the optimal scan delay needed to capture the contrast agent in the area of interest.	M		
14.25.	Prior to the delivery of the bulk injection, a low flow rate injection of a small volume of saline shall be delivered to keep the fluid pathway open.	M		
14.26.	The end flow rate shall be automatically calculated by the system and displayed on the console.	M		
14.27.	All mounted syringes are isolated from any electrical contact with the injector.	M		
14.28.	The injector shall have an automatic syringe fill-up function.	M		
14.29.	Provision of one single touch function on the powerhead touch screen to flip the display graphics 180˚ for proper viewing orientation.	M		
15.	**Accessory Items**			
15.1.	The exact make, model and/or sizes of the accessory items on offer shall be agreeable to the end-user.	M		
15.2.	Two numbers of full length light-weighted lead aprons of 0.5 mm lead equivalent with the following features:	M		
15.2.1.	Double-sided with full front and rear protection.	M		
15.2.2.	Aprons shall be fastened with a board Velcro strapping at the upper back and have Velcro fasteners on the long waist belt.	M		
15.3.	One number of wall mounted lead apron rack with suspended hanger arms capable of storing not less than four lead aprons.	M		
15.4.	One number of drip stand.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
15.5.	One number of patient stretcher.	M		
15.6.	One number of patient wheel chair.	M		
15.7.	One number of medical grade radiolucent flexible patient transfer board (introducing no artefact when imaged) for easy transfer of the patient between the CT table and the stretcher trolley.	M		
15.8.	One medical footstool with handrail. The stool shall be made of strong chrome-plated frame. The step surface covered with non-skid ribbed rubber matting and the legs rest on reinforced rubber tips.	M		
15.9.	One number of injection trolley.	M		
15.10.	One number of contrast medium warmer.	M		
15.11.	One number of blanket warning cabinet.	M		
15.12.	Two numbers of 2-layer trolleys for temporary storage of setup accessories.	M		
15.13.	One mobile cart for storage of tattoo tool to facilitate tattoo procedures.	M		
15.14.	One set of forced air warming blanket to keep patient warm during CT simulation.	M		
15.15.	Provision of 200 numbers of syringe sets for the contrast injector offered.	M		
15.16.	One small size medical grade refrigerator for emergency drug storage in the CT Simulator Suite.	M		
15.17.	Two numbers of wall mounted single unit oxygen flow regulator assembly.	M		
15.18.	Two numbers of wall mounted high suction regulator assembly.	M		
15.19.	One set of portable/ handheld SpO2 oximeter.	M		
15.20.	One number of nurse trolley for resuscitation use which includes the following accessories: a. Disposable laryngoscope with Miller blades (two for each size 0/1/2/3) and Mac blades (five for each size 2/3/4) b. Disposable Ambu bags (Adult × 10, Pediatrics × 5 , Infant × 5)	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	c. Kidney dish (25 cm), Magill forceps, Artery forceps, mouth gag, tongue depressor d. SAM splints × 3 e. Universal bandage scissors f. Cardiac massage board g. One number of end tidal CO2 monitor			
15.21.	One set of AED defibrillator.	M		
15.22.	Two sets of battery-operated digital temperature and humidity monitoring devices.	M		
15.23.	Two numbers of dehumidifiers to be located in the scan and control rooms.	M		
15.24.	Provision of 4 numbers of ergonomically designed chairs for operators and other working staff.	M		
15.25.	Provision of a Hi-Fi system for patient's comfort.	M		
15.26.	One number of A4 colour laser printer for printing hardcopies of images. The printer shall be able to print images directly from the CT control console and the post-processing workstations. Provision of five complete sets of compatible toners.	M		
15.27.	Two sets of storage cabinets.	M		
15.28.	One set of 2-in-1 X-ray film viewing boxes, featuring 2 viewing areas each at 43 cm × 36 cm, slim type and with automatic detection of film for power on. Each X-ray film viewing box shall have brightness of not less than 2000 cd/m^2 and non-uniformity of less than 10 %. The choice shall be subject to the agreement with the end-user before delivery.	M		
15.29.	One number of white board.	M		
15.30.	One number of ceramic heater mounted on a mobile stand.	M		
15.31.	One set of TG-66 CT simulation laser QA device including two standard lock bars (CIVCO Medical Solutions).	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
15.32.	One set of phantom for daily CT simulation check (Model CT/SIM by Integrated Medical Technologies). The set shall be designed to comply with TG-142 requirements for CT simulator performance.	M		
15.33.	One DICOM orientation verification phantom (Model DOVe by Integrated Medical Technologies).	M		
15.34.	One multi-function end-to-end phantom that evaluates the entire radiotherapy process from simulation to treatment (Model DP-850 by Integrated Medical technologies). The phantom shall be designed to fully comply with TG-66 requirements for CT simulators. A sturdy carrying case shall be included.	M		
15.35.	One set of electron density phantom for electron density calibration (Model 062MA by CIRS). A sturdy carrying case shall be included.	M		
15.36.	One set of respiratory motion phantom including hardware and software (Model QUASAR pRESP by Modus QA). The following inserts shall also be included: a. Cedar Lung Tumour Insert (Split) b. 4D CT Imaging Insert	M		
15.37.	A laptop computer of at least 15" shall be provided for running QA programs. The laptop computer shall be preloaded with Windows Office applications and anti-virus software.	M		
16.	**Ancillary Items**			
16.1.	The CT Simulator offered shall be provided with all cables, cabinets, transformers, interfaces, control console(s) and other ancillary items necessary for full and satisfactory operation of the system.	M		
16.2.	Unless explicitly stated otherwise by the Tenderers, all installation works not specified in the Tender specifications but are essential to the successful installation and effective	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	functioning of the equipment shall be the responsibility of the successful Tenderer.			
17.	**Patient Monitoring CCTV System**			
17.1.	Provision of a CCTV system with four cameras for monitoring the patient activities in the scan room.	M		
17.1.1.	Two of the cameras shall have facilities for tele-zoom and pan-tilt operation by a remote control in the control room to monitor the patient from 2 different angles.	M		
17.1.2.	The other cameras shall have a view of wide angle coverage of the scan room.	M		
17.1.3.	At least one colour TV monitor of at least 21" shall be installed in the control room. The viewing angle shall be adjustable.	M		
17.1.4.	The TV monitor shall support multi-format and the format layout shall be adjustable by the user.	M		
17.1.5.	Tenderers shall propose the configuration of the system in their Tender returns for the end-user's consideration.	M		
18.	**System Security**			
18.1.	Tenderers shall provide reliable anti-virus, anti-spyware and anti-hacking solutions to the computers of the CT Simulator including all workstations and the thin client server on offer. The solution provided shall not affect the performance of the system. Details of the solution shall be stated.	M		
18.2.	Free upgrade and update for both the hardware and software for the above-mentioned security solutions shall be provided.	M		
18.3.	Provision of secure remote diagnosis and off-site maintenance for the CT Simulator on offer. The successful Tenderer is required to follow KCC network security policies and guidelines.	M		
19.	**System Upgradeability**			

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
19.1.	The successful Tenderer shall guarantee to provide, at no additional cost, within the warranty period, software upgrade to the all the components of the CT Simulator on offer, including all software in all workstations and all items offered where applicable.	M		
20.	**System Update**			
20.1.	The successful Tenderer shall guarantee to provide, at no additional cost, within the warranty and post warranty contract maintenance periods, software update to all the components of the CT Simulator on offer, including all software in all workstations and all items offered where applicable.	M		
21.	**Software License**			
21.1.	The software licenses for all clinical applications shall be permanent. Application software offered on a trial basis for a limited time will not be accepted.	M		
22.	**Power Supply Requirement**			
22.1.	All the equipment items supplied including the accessories, air conditioning system and other electrical facilities in the CT Simulator Suite shall remain in full operation within the specification throughout the following supply voltage range:	M		
22.2.	Three phases: 415/V AC ± 6 %, 50 Hz ± 2 %, 4-wire earthed neutral.	M		
22.3.	Single phase: 240V AC ± 6 %, 50 Hz ± 2 %.	M		
22.4.	The successful Tenderer shall provide technical solutions to suit the power supply condition without incurring any additional cost and affecting the overall performance and efficiency of the equipment.	M		
22.5.	The Equipment on offer shall comply with the relevant requirements of the latest edition of the Electrical Products (Safety) as per the relevant IEC and ISO standards.	M		
22.6.	The Equipment on offer shall comply with the relevant requirements of the latest	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	edition of Code of Practice for Electricity Regulation.			
22.7.	Two sets of as-fitted electrical wiring drawings shall be provided to KCC for record.	M		
22.8.	Tenderers shall provide supporting documents for the voltage dip immunity test of which the test was performed in accordance with IEC 61000-4-11 or equivalent.	M		
23.	**Equipment Safety**			
23.1.	The CT Simulator and its ancillary equipment items on offer shall comply with the latest relevant IEC Standards, including but not limited to IEC 60601 or equivalent. Variation form IEC 60601 shall be indicated.	M		
23.2.	The CT Simulator and its ancillary equipment items on offer shall comply with the electromagnetic compatibility (EMC) requirements of IEC 60601-1-2 or equivalent.	M		
23.3.	The CT Simulator and its ancillary equipment items on offer shall comply with IEC 61852 Medical electrical equipment - Digital imaging and communication in medicine (DICOM) - Radiotherapy objects.	M		
23.4.	The CT Simulator shall comply with IEC 60601-2-44 Medical electrical equipment - Part 2-44: Particular requirements for the basic safety and essential performance of X- ray equipment for computed tomography.	M		
23.5.	The CT Simulator shall comply with IEC 60601-2-29 Medical electrical equipment - Part 2-29: Particular requirements for the basic safety and essential performance of radiotherapy simulators (if applicable).	M		
23.6.	The CT Simulator and its ancillary equipment items on offer shall be suitable for operation in the presence of anesthetic gases.	M		
24.	**Brochures and Technical Data Sheets**			

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
24.1.	Tenderers are required to submit with the Tender returns 2 sets of brochures and technical data sheets necessary for full installation of the Equipment on offer including OEM items.	M		
25.	**Operation and Maintenance Manuals**			
25.1.	Two original hardcopies and softcopy of the manufacturer's operation manuals and one original hardcopy and softcopy of maintenance and service manuals for each unit of the system on offer shall be submitted with t h e delivery of the system. This requirement shall also apply to any OEM products included in the offer. The supplied documentation shall be in English and shall contain materials covering:	M		
25.1.1.	Detailed instructions on the proper operation and maintenance procedures for each of the equipment item on offer.	M		
25.1.2.	Principles of equipment design and operation.	M		
25.1.3.	Schematics and block diagrams, circuit diagrams down to component level, and wiring diagrams.	M		
25.1.4.	Installation, setup and calibration procedures.	M		
25.1.5.	Maintenance and fault diagnosis instructions and parts replacement instructions.	M		
25.1.6.	Enlarged views of mechanical assemblies.	M		
25.1.7.	Component layouts on printed circuit boards.	M		
25.1.8.	Flow charts, program listings, diagnostic parts list, mechanical parts list, electrical and electronic component parts list.	M		
25.2.	Softcopies of the manuals mentioned above shall be provided.	M		
25.3.	Users are allowed to make copies of the manuals for training or operational purposes.	M		
26.	**Local Operational Training**			
26.1.	The successful Tenderer shall provide operational training to a minimum of FOUR	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	members of KCC staff for not less than one week at no additional charges.			
26.2.	To be conducted by specialist(s) fully conversant with the operation and design of the CT Simulator on offer.	M		
26.3.	Training shall be conducted in English. The specialist(s) shall be conversant with English.	M		
26.4.	Training materials provided shall be in English.	M		
26.5.	The duration of the training and syllabus shall be specified and enclosed in the Tender return.	M		
26.6.	The training shall include classroom instructions on theory and also on-site practical training with the actual equipment.	M		
26.7.	The timetable and commencement date for the course shall be provided to KCC at least 3 months prior to the commencement of the course.	M		
26.8.	The commencement of the course shall be commensurate with the completion of installation and commissioning of the system.	M		
26.9.	The course of training shall include all materials such as notes, charts etc. for the participants. These materials shall be available at the time of training.	M		
26.10.	Additional on-site application training session(s) shall be arranged upon the request of RT Centre during the first year of operation of the equipment without additional cost.	M		
27.	**Local Maintenance Training**			
27.1.	The successful Tenderer shall provide maintenance training to at least TWO members of KCC maintenance staff at no additional cost.	M		
27.2.	The course shall be conducted by qualified personnel(s) from the factory fully conversant with the servicing, maintenance, operation and design of the equipment.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
27.3.	The instructor(s) shall be fully conversant with English. All training and training materials provided shall be in English.	M		
27.4.	The commencement of the course shall be commensurate with the completion of installation and commissioning of the system.	M		
27.5.	The course of training shall include all materials such as notes, charts etc. for the participants. These materials shall be available at the time of training.	M		
27.6.	The training shall include techniques in the setting up, calibration, trouble shooting, fault diagnosis, preventive maintenance procedures, use of special tools and test instruments for the CT Simulator on offer. Interpretation and understanding of circuits shall also be included.	M		
28.	**Overseas Operational/ Physicist Training**			
28.1.	The overseas operational/ physicist training shall include all necessary training materials and documents, return air tickets, boarding and lodging, local transportation costs and any registration fees except otherwise stated.	M		
28.2.	The successful Tenderer shall provide overseas training of not less than one week to ONE radiation therapist of the RT Centre.	M		
28.2.1.	The training shall be conducted by personnel fully conversant with the operation and design of the CT Simulator on offer.	M		
28.3.	The successful Tenderer shall provide overseas training of not less than one week to ONE Physicist of KCC.	M		
28.3.1.	The training shall be conducted by personnel fully conversant with the CT simulation, 4D CT, safety, dosimetry and radiation dose management.	M		
28.4.	Training shall be conducted in English. The trainer(s) shall be conversant with English.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
28.5.	Training materials provided shall be in English.	M		
28.6.	Full details of the training courses, including the recommended duration and a breakdown of the cost into tuition fees, boarding/lodging, return air fare etc. shall be clearly stated.	M		
28.7.	The commencement of the course shall be commensurate with the completion of installation, acceptance and commissioning of the CT Simulator on offer if practically permitted. KCC is at its sole discretion to choose the dates of the available courses.	M		
28.8.	Information on the commencement date, training centre location, syllabus and timetable etc. shall be provided at least 2 months prior to the commencement of the courses for consideration by KCC.	M		
28.9.	The training course shall include classroom instructions on theory and practical training and/or attachment at locations in US or Europe where the same model of equipment on offer is installed or at the factory.	M		
28.10.	The training course shall include all materials such as notes, charts, network diagrams, system design and commands for operation/ system administration etc. for the participants. These must be available at the commencement of the training course.	M		
29.	**Acceptance and Functional Tests**			
29.1.	The complete set of equipment, including OEM items and peripheral systems, shall be subject to acceptance and functional tests performed by KCC representatives with the following requirements:	M		
29.2.	KCC will not conduct acceptance and functional tests until it has received full certification from the supplier that the supplier has conducted its own tests and found that the equipment meets the specifications in the contract.	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
29.3.	The acceptance test shall include detailed specification testing to ensure that every performance meets with the figures as quoted and required by the Tender specifications.	M		
29.4.	The successful Tender may be required to use a report to present the performances of all the systems on offer. The format of report shall be agreeable to KCC.	M		
29.5.	In addition to the main system on offer, all other systems such as OEM items, accessories, building and building service provisions etc. shall also be subject to similar tests.	M		
30.	**Equipment Warranty**			
30.1.	The equipment warranty shall be provided for a period of 24 months commencing from the date of acceptance of the equipment on offer including the CT Simulator (X-ray tube, detector assembly and any parts thereof), peripheral equipment, all OEM items and all building service supplied and installed by the successful Tenderer. Replacement of any faulty parts and technical upgrades (software and hardware) shall be included with no additional cost.	M		
30.2.	The successful Tenderer shall provide comprehensive maintenance with at least 4 full sessions of preventive maintenance service on all equipment items including the CT Simulator, peripheral equipment and all OEM items on offer covering labour and all spare parts during the warranty period.	M		
30.3.	The successful Tenderer shall perform regular check and calibration for all the LCD monitors at least 2 times per year to ensure optimal image viewing conditions.	M		
30.4.	Tenderers shall submit in the Tender returns a yearly maintenance schedule indicating the number of preventive maintenance services and safety tests recommended by equipment	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	manufacturer for the CT Simulator and peripheral/ OEM equipment including the contrast media injector etc.			
30.5.	Normal working hours shall be defined as: 08:00 to 17:00 Monday to Friday except public holidays.	M		
30.6.	The service call for all equipment items shall be available with no additional cost during normal working hours even the subsequent repair work is carried out beyond the normal working hours.	M		
30.7.	Upon notification by the user of an equipment failure, or part thereof, the successful Tender shall attend to the fault within 2 working hours. This service shall include all necessary repairs and replacement of parts to restore the equipment to its normal operation within 4 hours or such other time agreed.	M		
30.8.	No overtime service charges shall be levied for maintenance/repair/ upgrade services.	M		
30.9.	24-hour emergency service call shall be available and provided upon request.	M		
30.10.	All maintenance records shall be documented and provided to KCC. The report shall record information including the following: a. Date and time notified b. Date and time of arrival on-site c. Description of malfunction and service performed d. Model no./ serial no. and location of the equipment e. Time spent to repair f. Total time out of service g. Parts used/replaced	M		
31.	**Uptime Guarantee**			
31.1.	During the warranty period, the successful Tenderer shall guarantee an equipment uptime of not less than 95 % of the total normal working hours. If the successful Tenderer fails to achieve an uptime of 95 %	M		

<table>
<tr><th colspan="5">Section B: Main CT Simulator Requirements</th></tr>
<tr><th>Clause</th><th>Specification</th><th>Type</th><th>Yes/No</th><th>Details</th></tr>
<tr><td>1.</td><td>CT Scanner:</td><td></td><td></td><td></td></tr>
<tr><td>1.1</td><td>The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;</td><td></td><td></td><td></td></tr>
<tr><td></td><td>averaged over each consecutive period of 3 months, the Waranty period shall be extended based on the following table:
<table>
<tr><td>% of Equipment Uptime (X)</td><td>Extension of Warranty</td></tr>
<tr><td>90 ≤ X < 95</td><td>1 month</td></tr>
<tr><td>85 ≤ X < 90</td><td>2 months</td></tr>
<tr><td>80 ≤ X < 85</td><td>3 months</td></tr>
<tr><td>Below 80</td><td>Further negotiation is required</td></tr>
</table></td><td></td><td></td><td></td></tr>
<tr><td>31.2.</td><td>“Down Time” is the time when the CT Simulator (including the contrast media injector and major peripheral items) is down and not available for use. It shall not include the time for any scheduled maintenance, system upgrade, and the time when the system is down due to the user’s misuse and negligence.</td><td>M</td><td></td><td></td></tr>
<tr><td>31.3.</td><td>“Down Time” will be calculated from the time a down system call is received by the successful Tenderer to the time of completion of the repair and issuance of a service report to KCC, counting only the time within the normal working hours as referred in the clause 30.9.</td><td>M</td><td></td><td></td></tr>
<tr><td>31.4.</td><td>“Up time” is calculated as the normal working hours minus “Down time”.</td><td>M</td><td></td><td></td></tr>
<tr><td>32.</td><td>Post Warranty Maintenance</td><td></td><td></td><td></td></tr>
<tr><td>32.1.</td><td>Tenderers shall quote on a yearly basis a 5-year post warranty maintenance service plan (from 2nd to 10th) for all equipment items including the CT Simulator (X-ray tube, detector assembly and any parts thereof), peripheral equipment and all OEM items. The quote shall be used for the calculation of the total life cycle cost.</td><td>M</td><td></td><td></td></tr>
</table>

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
32.2.	The maintenance service shall be carried out in accordance with the maintenance procedures as described in the relevant equipment service manuals.	M		
32.3.	At least 4 full sessions of preventive maintenance service shall be provided each year.	M		
32.4.	At least 2 sessions of regular check and calibration for each LCD monitor shall be provided each year to ensure optimal image viewing conditions.	M		
32.5.	At least ONE session of QA shall be provided per year in accordance with the manufacturer's recommendations and/or KCC physicist's protocol.	M		
32.5.1.	The QA report shall include the following measurement: a. X-ray tube leakage b. kVp, mAs and detector calibration results c. High-contrast spatial resolution d. Low contrast detectability e. CT number accuracy and linearity f. CTDIvol for head and body	M		
32.6.	The yearly maintenance service plan shall be a comprehensive maintenance service covering labour and all spare parts without any exceptions, i.e. including all major and minor items, all software and hardware licenses etc.	M		
32.7.	Tenderers shall give a breakdown of the maintenance charges for the main equipment and OEM items.	M		
32.8.	Tenderers shall guarantee to provide free software upgrade throughout the contractual maintenance period. The cost, if not explicitly quoted in the Tender return, will be considered covered in the proposal for maintenance service plan.	M		
32.9.	Prices quoted above shall be in exact amount. Annual adjustments with reference to the percentage change in the Consumer Price	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	Index published by the Central Bank of Kenya will not be considered.			
32.10.	The clauses 40.5 to 40.10 pertaining to the maintenance services shall also apply in the post warranty maintenance.	M		
33.	**Spare Parts and Special Tools**			
33.1.	Tenderers shall submit a list of recommended spare parts with ordering information details and itemized prices for maintenance use and a list of consumable items. The listed quantities of consumable items shall be sufficient for one year of normal operation.	M		
33.2.	Tenderers shall quote the average life span of the X-ray tube. The guaranteed exposure counts shall be stated. The method and unit of counting the exposure shall also be stated explicitly.	M		
33.3.	Tenderers shall state in their Tender returns whether the spare X-ray tube, detector assembly and other spare parts are kept locally or not. A list of the major spare parts kept in stock shall be submitted with the Tender returns. Regarding non-stock items, Tenderers shall state the turn-around time for: a. Normal air delivery b. Expedited air delivery	M		
33.4.	If the offered equipment has any protections such as special toolkits, access codes, passwords, software keys, hardware keys etc., the successful Tenderer shall be responsible to provide the above means free of charge or at a quoted price in the Tender return for the whole lifespan of the equipment on offer. The quoted price may be used at estimating the total life cycle cost of the equipment.	M		
33.5.	The successful Tenderer shall commit for maintaining production and supply of required spare parts to enable normal operation of the whole system of equipment	M		

Section B: Main CT Simulator Requirements				
Clause	**Specification**	**Type**	**Yes/No**	**Details**
1.	**CT Scanner:**			
1.1	The CT scanner shall be a whole body spiral, multi-slice (minimum 64 slices per rotation) CT scanner;			
	for not less than 10 years from the date of acceptance.			
33.6.	The successful Tenderer shall provide, at no additional costs, all technical information, special tools and diagnostic software for the preventive and corrective maintenance, routine calibration and quality assurance of the equipment on offer. All licensed software and hardware access keys and passwords necessary for the fault diagnosis and trouble- shooting shall also be provided.	M		

- END OF SECTION D –

LOT 2-2: Digital Linear Accelerator

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
General The Linear Accelerator model should be fully computer-controlled system with remote servicing capability. The Medical Linear accelerator system includes 1 set of Linear accelerator, independent Treatment Planning System and Oncology Information System. The offered equipment should be IAEA and KNRA Type Approved and should have the following technical features. Linear Accelerator must have the latest technology and should be fully computer controlled with the latest state of art digital control system. The unit shall meet all the radiation safety standards & Quality Assurance of its mechanical, electrical and electronic provisions set by regulatory bodies. These include: IEC 60601-1, IEC 60601-1:2005+AMD1:2012 CVS(22), Part 2-1 of IEC60601-2-1:2009+AMD1:2014 CVS (24), IEC 60976:2007 (25) IEC TR 60977:2008 (26) Part 2-68 of IEC 60301-2-68:2014 (27), IEC 62274:2005(28), IEC TR 62926:2019 (29), IEC TR 63183:2019(30) and IEC 61217:2011 (17) **System shall have all safety interlocks as per IAEA guideline FDA and/or CE certificate must be provided** All the equipment/ accessories quoted and supplied should be of latest model.			
LINAC	A dual energy (low and high photon and electron beams) linear accelerator should be able to perform various specialized treatment techniques such as: Three- Dimensional Conformal Radiotherapy (3D CRT); Intensity Modulated Radiation Therapy (IMRT); Volumetric Modulated Arc Therapy (VMAT); with adaptability for future upgrade to SRS/SRT		
Photon Beams	Energy: Up to three photon beams may be selected between 6MV and 15 MV		
	One Energy can be of high dose rate (FFF)		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	Dose Rate: the dose rate can be selected in fixed steps of 100 MU/min up to a maximum dose rate of 300, 400, or 600 MU/min.		
	Maximum Field Intensity at Dmax: The intensity at the depth of maximum buildup (Dmax) must not exceed 109% of the central axis intensity anywhere in the measurement plane of any field size.		
	Leakage: The X-ray absorbed dose must not exceed 0.1% of the absorbed dose at the is ocenter measured anywhere in the patient plane outside of the maximum u s e f u l beam. The neutron dose equivalent (Sievert) must not exceed 0.2% of the X-ray absorbed dose (Gray) at the isocenter		
	The patient plane is defined as a circular plane with a radius of 2 m, centered on and perpendicular to the axis of the beam at isocenter. The X-ray measurements may be averaged over an area not to exceed 100 cm2. In all other directions, the X-ray absorbed dose 1 m from the path of the electrons between the electron gun and the target or electron window does not exceed		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	0.1% of the absorbed dose at isocenter.		
	Collimator Transmission: The X-ray transmission of the upper and lower movable collimator must not exceed 0.5%.		
	Spot Size: The electron spot size must be less than 3 mm in diameter at the X-ray target.		
	Penumbra: The distance between the 20% and 80% isodose lines for a 10 x 10 cm2 field, measured at a depth of 10 cm with a 100 cm TSD along the major axes, measures less than or equal to 9 mm.		
	Field Size: The field size must be variable from 0.5 x 0.5 cm2 to 40 x 40 cm2 as measured at 100 cm TSD. The field size is defined as the distance along the radial and transverse axes between the points of 50% density on an Xray film taken at 100 cm TSD with minimum buildup.		
	Upper and Lower Independent Collimators: Asymmetrical collimation is provided for upper and lower sets of collimators. • Independent, asymmetrical Upper Collimator travel range: >20cm		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	• Energy: Up to three photon beams may be selected between		
Electron	Four (4), five (5), or six (6) electron beams that can be selected between 4 and 22 MeV. The specifications apply to a 15 x 15 cm2 electron applicator and 100 cm TSD		
	Dose Rate: up to 1000 Mu/min		
	Field Sizes: A set of electron applicators to be provided, with selection from 6 sizes: 6 x 6 cm2, 6 x 10 cm2, 10 x 10 cm2, 15 x 15 cm2, 20 x 20 cm2, and 25 x 25 cm2.		
	Accelerator System Features		
	RF Power Source: preferred klystron operated in linear amplifier mode and driven by a solid-state oscillator, with power and frequency automatically locked to required operating levels.		
	Gun: Capable to rapidly and precisely vary output dose rate and turn the beam on or off. This capability is especially important in dynamic dose delivery, where high-speed beam gating and elimination of dark current during beamoff time periods is important.		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	Accelerator section: preferred standing wave. Spectrum characteristics, with and without use of an energy switch, Radial and Transverse Steering Systems: ensure basic beam alignment in all modes, as well as gantry orientation. Ion chamber sensors, in conjunction with the steering coils and servo electronics, maintain beam symmetry changes to within 2% under all conditions.		
Dosimetry System	Reproducibility with Energy: Precision of the dosimetry measurement system for each energy to be within ±1%		
	The linearity as:		
	•1% for 20-999 MU • 2% for 10-20 MU • 3% for 5-10 MU		
	Reproducibility of Dose vs. Gantry Angle:		
	The precision of the dosimetry system must be ±1.5% at any gantry angle from 0 to 360 degrees		
	Reproducibility with Dose vs. Dose Rate: The dose rate dependence of the dosimetry system with variations in dose rate from minimum to maximum must be less than ±1%		
	Beam-Off Interlocks: The radiation beam must automatically terminate		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	in the event of any of the following:		
	Monitor Units 1 complete• Monitor Units 2 complete• Treatment time complete• Radial symmetry exceeds 2%• Transverse symmetry exceeds 2%• Excess dose rate• Excess dose per pulse• Excess dose per degree• Loss of ion chamber bias voltage• under dose rate		
LINAC Mechanical Features			
Gantry	Rotation Range: ±180° from the vertical		
	Target to Axis Distance: 100 ±0.2 cm		
	Mechanical and radiation isocenter accuracy		
	≤1 mm radius sphere for gantry,		
	≤2 mm radius sphere for gantry, collimator, and couch axes		
	Position Indicators		
	Scale Conventions • IEC Scale convention per IEC Publication IEC 60601-2-1 • IEC 1217 Scale convention per IEC Publication IEC 61217		
	Digital Readouts		
	Accuracy: ±0.5° •Resolution: 0.1°		
	Mechanical Scales: Accuracy: ±1.0° •Resolution: 1.0°		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	Target to Surface Distance Indicators • Optical Distance Indicator:		
	Accuracy: ±0.1 cm at 100 cm ±0.5 cm at 70 cm and 156 cm		
	Resolution: 0.5 cm • Mechanical Front Pointer:		
	Range: 70-110 cm • Accuracy: ±0.1 cm at 100 cm • Resolution: 0.2 cm		
	Isocenter Height (nominal): 129.5 cm		
	Extended Rotation Range: ± 165°		
	Position Indicators (gantry and console)		
	Digital Readouts: • Accuracy: ± 0.5° • Resolution: 0.1°		
	Mechanical Scales: Accuracy: ± 1.0° • Resolution: 1.0°		
Collimator	Field Size Collimation		
	Range: The field size is continuously variable from 0.5 x 0.5 cm2 to 40 x 40 cm2 as measured at 100 cm TSD. Field sizes larger than 35 x 35 cm2 are limited to a 49.5 cm diagonal (the diameter of the circle defined by the primary collimator at 100 cm TSD). The field size is defined as the distance along the radial and transverse axes between the points of 50% density		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	on an X-ray film taken at 100 cm		
	TSD with minimum buildup. 5.3.2 Position Indicators		
	Light and X-ray Field Coincidence: The field-defining light coincides to within 1.5 mm of the 50% isodensity line on an X-ray film. This is defined at 100 cm TSD with minimum buildup for any field size.		
	Couch and Couch Top		
	Capacity >200kg		
	Motion Controls		
	Two Hand Pendants control all axes of the Couch can be moved simultaneously through the pendants Side Panels		
Treatment Console	The Treatment Console must provide a streamlined front end to the delivery system. The console integrates use of the accelerator, MLC, and imager into one application on a single workstation. For image-guided radiotherapy using kV images, the console is used in combination with the KV Imager workstation. The Treatment Console uses a DICOM RT interface to communicate with the oncology information system and other information system databases.		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
Multileaf Collimator	The MLC offers 0.5 cm leaf resolution at isocenter for the central 20 cm of the 40 cm x 40 cm field. The MLC operates in static, dynamic, and conformal arc modes. The static mode provides efficient beam shaping for 3D conformal radiation therapy. The dynamic mode enables IMRT with both step-and-shoot and sliding window delivery. The conformal arc mode enables conformal arc therapy in which the leaves always conform to the outer boundary of the target as the gantry rotates around the patient.		
MV Imager	• The MV imaging system that allows for verification of patient setups, treatment portals, and Portal Dosimetry. • The detector is of modern technology, preferably amorphous silicon has an active imaging area of minimum 43 cm x 43 cm with a pixel resolution of 1280 x 1280. Image acquisition is supported before,		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	during, and after treatment. • Match and Review IGRT software is included for image analysis. • A motorized, robotic arm is used to position and hold the detector. • The movements of the arms will allow to position the detector along the X-Y-Z axes, remotely, from within the treatment room and form the console room. • The MV imager can be placed at isocentre in order to be used to utilities such as QA verification		
MV Image Based IGRT	• The MV-based IGRT should offer 2D/2D Match and Marker Match (orthogonal paired images) using Digitally Reconstructed Radiographs (DRRs) or simulator images as reference and remote arm options for easy and safe operation.		
Motorized Wedges	• An in-built motorized wedge should be provided		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	that can produce an effect of any wedge angle ranging 0 - 60 degrees.		
Radiation Leakage	Radiation leakage limits should be within appropriate agency guidelines as follows: • Photon Leakage: The photon leakage rate at any point one meter from the target outside the cone defined by the primary x-ray collimator should be less than 0.1% of the absorbed dose at the isocenter. • Collimator Transmission: The movable collimators should not permit transmission of radiation exceeding 0.5% of the central axis dose at Dmax measured in air for both photon energies. • Neutron Leakage: The neutron leakage rate should not exceed 0.15% expressed in neutron dose equivalent (REM) when added to the photon leakage for a 10 x 10 cm field at the isocenter at any point one meter from the target		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	when the jaws are closed. • In addition to meeting above specifications for radiation leakage, the linac should also meet all the mandatory safety and radiation leakage as per ICRP No.33.		
Photon Arc Therapy	• Bi-directional arc therapy should be included with Automatic calculation of Dose per Degree based on the Dose Rate selected and the Arc angle set.		
Portal Dosimetry	• Portal Dosimetry solution should be offered using of the MV imager to record the intensity patterns of IMRT and VMAT fields for pretreatment quality assurance of IMRT planning and delivery. • Portal Dosimetry should include integrated image acquisition mode for recording of IMRT and VMAT fields and image viewing and analysis software.		
kV Imaging System	The KV imaging system is to provide high-quality kV images in the		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	treatment room for target localization, patient positioning, and motion management. The following clinical capabilities must be supported: • Online setup correction based on either a kV-kV or kV-MV pair of radiographs • Automated and manual alignment of a pair of radiographs to their reference images • Acquisition of gated radiographs • Online setup correction based on radiopaque markers • Pretreatment verification of gated treatment portals using kV fluoroscopy • Remote couch motion to correct patient setups • Optional: Acquisition of Cone-beam CT (CBCT) scans		
Remote Couch Motion	Control of couch motion at the treatment console for • Corrective motions: small translations (in x, y, and z) and small rotation of the couch to fine-tune patient setups		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	• Planned motions: large rotations of the couch to sequence between non-coplanar fields and arcs		
Optional Treatment Procedures	• Optional High Dose Total Skin Electron Mode: The accelerator is capable of delivering electron treatments at high dose rates for the purpose of total body skin irradiation with electrons. The dose rate at 1.6 m is 888 MU/min, corresponding to nominally 2,500 MU at isocenter. This mode is available in 6 MeV or 9 MeV. • X-ray contamination at calibration point is <1%. • Symmetry at isocenter is ±2%. • Integrated dose monitor: 1 to 9,000 MU. • Exposure time: 0.1 to 99.9 min. • Optional Total Body Electron Mode: Delivers 9,000 MU at isocenter with all normal machine safety and dosimetry interlocks operational, and		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	delivers standard energies at standard dose rate ranges. • Special TBE accessory tray is provided. • All beams are calibrated at machine isocenter. • Integrated dose: 1 to 9,000 MU. • Exposure time: 0.1 to 99.9 min. • Optional Total Body Photon X-ray Mode: • Delivers 9,000 MU at isocenter with all normal machine safety and dosimetry interlocks operational, and delivers standard energies at standard dose rate ranges. Special TBI accessory tray is provided. • All beams are calibrated at machine isocenter. • Integrated dose: 1 to 9,000 MU. • Exposure time: 0.1 to 99.9 min.		
Dynamic Treatment Procedures	Standard Photon Arc Mode and optional Electron Arc Mode: The accelerator is capable of delivering the following dose over a preset gantry rotation of up to 360 degrees or any fraction thereof. MU per degree		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	(MU/DG) is automatically computed based on the preset total dose and the preset arc segment. • Precision: During Arc treatment, the position of the gantry deviates no more than 0.5 degrees from the desired instantaneous gantry angle, and the dose deviates no more than 0.20 MU from the desired instantaneous total dose, as specified by the user-preset total dose and arc segment. If these tolerances are exceeded, the dose delivery is suspended and the gantry position is targeted to the position dictated by the actual dose delivered. When the gantry is again within 0.5 degrees of the desired position, the treatment will resume. The Dose Position Interlock (DPSN) is asserted if the gantry is not positioned within 0.5 cm of the desired position within 3 seconds. The DPSN will terminate the beam immediately if the position deviates 3.0 degrees or more from the desired position, or the		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	dose delivered exceeds 0.45 MU for dose rates less than 600 MU/min (0.54 MU for dose rate 600 MU/min and 0.72 MU for dose rates greater than 600 MU/min, 11.1.2 Arc Dose Rate: The dose rate during a dynamic arc treatment is automatically modulated between zero and the ceiling dose rate selected in Physics Mode. • Arc Direction: accelerator may be programmed to perform arc therapy in either a clockwise or counterclockwise direction. • Dynamic Wedge Mode: utilizes Y-jaws to create wedge shaped dose distributions. Enhanced Dynamic Wedges of 10, 15, 20,25, 30, 45, and 60 degrees are included, with up to 30 cm (wedge direction) by 40 cm field sizes. • Optional Dynamic MLC Techniques • Intensity-modulated radiation therapy (IMRT) and conformal arc therapy are optional advanced dynamic procedures in which		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	the leaves of the MLC move during treatment. • Arc Dynamic MLC allows delivery of MLC fields as a function of gantry arc angle, also known as conformal arc therapy. An MLC shape change every 2° is possible. • Dose Dynamic MLC allows delivery of MLC fields as a function of percent dose delivered, also known as IMRT. Both dynamic IMRT (i.e., sliding window) and segmental IMRT (i.e., step-and-shoot) techniques are supported. Combinations of the two IMRT techniques also are supported. In addition, Dose Dynamic MLC enables treatment delivery with electronic compensation, in which MLC leaf motion simulates the dosimetric effect of a physical compensator.		
VMAT	The accelerator should be capable of delivering VMAT plans with one or two energies capable of delivering 0.10 to 20 MU		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	(60 MU for SRS beam) per degree over a preset gantry rotation of up to 360 degrees or any fraction thereof. Desired zero (0.0) MU per degree dose delivery control over a preset gantry rotation range is accommodated. MU per degree (MU/DG) is computed by TPS based on the dose and the arc segment as represented by the treatment plan. VMAT delivery should also provide the following capabilities: voidance: capability to interrupt the beam during the f the gantry, thus allowing to deliver partial or ed arcs MAT: Allowing to use the patient monitored breathing to am delivery and gantry rotation temporarily during the .		
Collision Detection System	• Collision Detection monitors the MLC collimator face with a plane of infrared light that emanates from a device located within the gantry or a touch ring. Any object that intrudes into this area, called the protection zone, triggers an emergency stop of		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	all accelerator motion.		
Auto Field Sequencing	• Auto Field Sequencing (AFS), for use with the 4D Integrated Treatment Console provides automated delivery of multiple coplanar and noncoplanar fields. With this time saving feature, the accelerator automatically acquires the mode up signal and machine setup information from the Treatment Console, and then allows the operator to remotely move the gantry, jaws, collimator, and Couch axes between coplanar and noncoplanar treatment fields. This feature eliminates the need to go back into the treatment room to alter the machine setup between treatment fields. AFS works in concert with the MLC to deliver both static and dynamic plans efficiently and smoothly.		
Gating system	• The gating system enables passive,		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	real- time monitoring of patient respiration for the purpose of intrafraction motion management. Two gating systems must be provided. Each system should include an infrared tracking camera, external marker block, workstation. The gating system supports gated treatment delivery and image acquisition on accelerators, gated simulation on compatible simulators, and gated CT acquisition on compatible third-party CT scanners (not all CT scanners are compatible). Depending on the capabilities of the CT scanner, the gating system supports both retrospective and prospective gating of CT scans.		
Information system	The information system will include a Server with rack and UPS and 8 client workstations • Preferably windows based • It will include the following features		

Item Code No.	Department	Section	Item Description
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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	• Patient demographic data • Diagnosis and staging entry • Agenda and resource planning • Reporting capability		
Treatment planning system	The treatment planning system will include 4 client workstations, 2 with calculation capabilities for 2D, 3DCRT, IMRT, VMAT, IGRT & SRS/SRT planning, and 2 with contouring and beam setup capabilities. The system should share the same database as the patient information system in order to avoid systematic data transfers of planning data.		
Immobilization package	Immobilization and Essential Accessories to be Included with the Unit The supplier should include the following key accessories at a minimum:-		
Carbon Fiber Immobilization Devices:	Carbon fiber standard baseplates (2), carbon fiber head and shoulder baseplate (2), foam head support (18 pieces), acrylic prone baseplate (1), carbon fiber wingboard (2) carbon fiber breast board (2), carbon fiber belly board (2), foam knee rest (2), foam foot rest (2), water tank (1), vacuum pump		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	(1) and table index bar (6).		
Accessories and Thermoplastic Masks:	Thermoplastic head mask (50), thermoplastic head and neck mask (40), thermoplastic head and shoulder mask (40), thermoplastic head mask IMRT (20) thermoplastic head and neck mask IMRT (20), thermoplastic head and shoulder mask IMRT (20), thermoplastic breast mask (20), thermoplastic pelvis mask (20), vacuum bags >40 x 60cm (4), vacuum bags >60 x 80cm (4), bolus 0.5 and 1cm (3 each), skin markers (3) and CT markers (3). • Head Base plate • Head support set, position "supine" • Head support, position "prone" • Head thermoplastic masks • Head and Neck thermoplastic masks • Head and Shoulder thermoplastic masks • Carbon fiber wingboard • Immobilization board for treating breast and thorax		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	with precise hand immobilization • Thermoplastic breast mask • Base plate for Abdomen and Pelvis made of carbon fiber • Thermoplastic mask for Abdomen and Pelvis Knee support device • Foot support device • Whole body immobilization vacuum bags 0/100cm • Whole body immobilization vacuum bags 50/70cm • Vacuum bags for special size order • Bolus 0.5cm • Bolus 1cm • Table index bar • Water bath for thermoplastic masks heating • Vacuum pump		
Dosimetry Package	The dosimetry serve system beam performance should meet internationally acceptable standards. The stable time for beam output should not be >0.5sec and the dose stability error not >2% in 5 days. The system should allow for a safety		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	interlock activation when longitude and lateral beam symmetry is => 2%. The ionization chamber should have a 4-channel structure. The system should include the following: water phantom, control software, dual channel electrometer, exradin ion chamber, electric lift table, calibration therapy ion chamber, calibration electrometer barometer, thermometer and a laptop.		
LINAC QA	**2. Features** Smartscan 3D Water Phantom System 1997-105 or equivalent, - OmniPro-Accept Advanced Acquisition and analysis software version 7 1997-120 or higher - OmniPro-Accept v. 7 RTPS i/f or higher		
Module for RTPS specific measurement	Triaxial ion chamber/diode detector cable (low noise), 5m on cable reel, Water phantom carriage, manually operated, including leveling frame Water reservoir carriage with uni-directional pump, power supply 230V Detector holder for CC and FC chambers as well		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	as third party detectors with a diameter of 10 mm to 15 mm Ionization chambers DS02-000 CC13 Ion chamber: 0.13 ccm, shonka plastic, waterproof, TNC triax,30 mm diameter for 4 - 6 MV photon and 8 - 12 MeV electron, 60 mm diameter for 15 -20 MV photon		
	Reference electrometer DOSE 1 Therapy Dose Meter Standard Version Triaxial ion chamber cable (low noise) thick version, 18 m on cable reel, TNC triax connector FC65-P "Farmer" type ion chamber: 0.65 ccm, POM, waterproof, TNC triax		
	Check sources Radioactive Check Device type CDC for cylindrical detectors Adapter for use of "Farmer" type chambers with CDC radioactive check dev Adapter for use of CC type chambers with CDC radioactive check device		
	Plates phantom SP34 or equivqlent Plate phantom consisting of 33 RW3 plates including storage Case RW3 Adapter plate for CC13		

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LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	RW3 or equivalent Adapter plate for FC65-P/FC65- G "Farmer" type, PTW 30010/30012 and NE 2571/2581 or equivalent.		
	Isocenter check device Base plate Disk phantom for isocenter check (base plate)		
	Daily QA Equipment: Capable of the following: High-resolution centerline measurements, Energy constancy checks, fieldsize flexibility and Light field check, has 125 ion chambers or more for dose output, flatness, symmetry, centre fieldsize and energy		
	Thermometer and barometer C300 Digital Barometer or equivalent C100 Laboratory Thermometer or equivalent		
OTHER SPECIFICATIONS	The target to axis distance should be 100 +0.2 cm. The isocenter shall lie within a sphere of radius 1 mm. The accelerator gantry shall be capable of rotation equal to or greater than 360 degrees with a variation of the mechanical and radiation iso centers during rotation of less than + l.0		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	mm throughout the entire rotation. Digital scales indicating gantry angle position shall be provided both in the treatment room and at the control console. Accuracy of the scales shall be + 0.5 degree. The distance from the end of the lower collimator to the isocenter shall be greater than 45 cm. The bottom of the blocking tray should be greater than 30 cm from the isocenter. The height of the isocenter above the finished floor shall be less than 135 cm. Digital scales indicating collimator angle position shall be provided both in the treatment room and at the control console. Accuracy of the scales shall be + 0.5 degree. A complete set of Preshaped beam blocks shall be provided. In-built ion chambers of high accuracy for dosimetry for both photon and electron beams should be specified.		
Treatment Couch (with indexed carbon fiber table top)	The maximum height of the couch shall be at least 40 cm above the isocenter. The lowest couch position shall be		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	less than 63 cm above the finished floor. Motions (except couch top rotation) shall be both manual and variable- speed motor driven. The linear accelerator's use of conformal therapy and intensity modulated radiation therapy requires an indexed carbon fiber couch top that is designed for precise and repeatable patient positioning. The couch should be motorized in 4 directions and controlled either from the treatment room or the console area. It should be integrated with the control system of the LINAC in order to allow daily shifts based on acquired MV images. Convenient digital scales in metric units shall be incorporated on the couch or on an in-room monitor which will allow the operator to check the orientation of the couch height and couch angle with respect to the gantry. Couch positions (except couch top rotation) shall also be displayed at the control console.		

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LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	Accuracy of the scales for vertical, lateral and longitudinal motions shall be within + 1 mm. Two hand pendants shall be provided.		
Treatment Room and Console Position Displays	For accuracy of patient set-up, digital displays of gantry rotation angle, collimator rotation angle, collimator jaw settings (symmetric and asymmetric), and treatment couch vertical position, lateral position, longitudinal position and turntable rotation angle about isocenter shall be provided both in the treatment room and at the operator console. Accuracy of collimator and gantry angle displays shall be + 0.5^0, with a resolution of 0.1^o. Accuracy of collimator jaw position displays shall be + 1 mm with a resolution of 1 mm. Accuracy of the couch vertical, lateral and longitudinal displays shall be + 2 mm with a resolution of 1 mm.		
Oncology Information and Image Management/ Treatment Record and Verify System	The vendor should provide a comprehensive Oncology Information & Image Management and Treatment Record & Verify System. The system shall assist in the integration of radiotherapy patient data		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	throughout the entire department which includes Linear Accelerators, CT-Simulator, Imaging Units in the hospital, Treatment Planning Systems. It shall also record and verify treatment parameters of patients undergoing treatment on the LINAC(s). The system shall be based on one single comprehensive self-integrated database, thereby eliminating the need for redundant entry of data used in different applications or imports\ exports from other applications. The system should provide the following functions: Record and Review Patient Diagnoses; Plan a course of treatment in advance so that treatments are readily delivered when the patient arrives; Write RT prescriptions that detail treatment techniques, fractions, and dose; Define treatment fields; Link setup fields and notes to treatment fields; Setup notes can include photos that show how to set up the patient; Track dose to specific sites; Define site breakpoints with		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	instructions that appear when the breakpoint will be exceeded; Store treatment plan information to avoid redundant and time-consuming data entry. MLC user operation should be accomplished entirely through the Oncology Information System (OIS), thereby eliminating the need for a separate control station for the MLC. Planned leaf shapes shall be incorporated directly into a patient's planned treatment field(s) in the electronic Chart. The MLC shape should automatically appear on the OIS treatment screen during the setup and treatment of any patient with a planned MLC shape. The shape shall be displayed simultaneously with all other pertinent treatment parameters. The system should have the capability of storing patient photos facilitating correct treatment. The digital patient photographs should upload to the database. After treatment of the first field, all subsequent fields shall be automatically and sequentially downloaded		

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LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	to start autosetup of the next field without requiring operator interaction at either the OIS console or In- Room Monitor. Port Films should be capable of being planned ahead for appropriate treatment sessions, completed with prompting from the system, and automatically recorded in the electronic chart. Port Film dose shall be capable of being accumulated, if desired. The system shall permit override of individual treatment parameters (couch longitudinal for example) and require a password and appropriate user rights to successfully complete the override. The record and verification station shall accept and store demographic data, notes or comments and diagnostic information for each radiotherapy patient. When the patient proceeds with tumor localization, treatment planning and simulation, the treatment parameters will also be entered into the patient's file automatically or manually.		

Item Code No.	Department	Section	Item Description
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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	A daily patient schedule and time management schedule must be capable of being displayed on the computer monitor at the record and verify workstation. This schedule shall include, at a minimum, the scheduled treatment time for each patient, the patient's identification number and the patient's name. The schedule shall be used to select a patient for treatment on the accelerator. The system should be capable of maintaining a record of field-specific and treatment- specific daily and cumulative doses for the target site and additional sites of interest. It shall be possible to specify a prescribed dose for each treatment site for every patient. The system shall prevent treatment if this dose will be exceeded upon completion of the treatment. A manual override shall be provided. Overriding prescribed dose limits by unauthorized personnel shall not be permitted. After the daily irradiation of a patient, the therapy		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	history will be updated and the given target doses, or doses calculated to other sites, shall be accumulated. The Operating System should provide a convenient and efficient means for the user to generate and to print hard copy reports of information contained in the database. The scheduler of the OIS should be capable of maintaining schedules for multiple departments and scheduling any resource desired by the site. It should have a graphical user interface for ease of customizing schedule views, changing appointment times and minimizing keystrokes. The OIS should provide the capability to integrate simulation, CT, MRI, PET, SPECT and electronic portal imaging system images into the OIS database to provide a readily available reference during the patient's course of treatment. Reviewing images immediately after acquisition from a remote location shall be permitted. The OIS shall		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	provide the additional feature of managing drug administration to patients. The Hardware should consist of the following: Two separate, but fully integrated servers, one each for data management and image management with back up with at least 120 GB capacity or more to handle busy department workload; 6 additional Image Workstations for Review and Approval; a latest 5 mega pixel digital camera (lithium ion battery with at least 16 GB memory card) for acquiring patient photos; a networked color image DICOM laser printer; capability for high speed internet connectivity for Online Service support. A camera having capable of taking both still as well as motion picture having latest configurations should be supplied. The unit should be able to integrate with the existing Record and Verify System.		
Linear Accelerator Commissioning			
Scope of Services – Acceptance testing	• BIDDER will perform the acceptance of the Oncology		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	Information System and High Energy Linear Accelerator using manufacturer protocol and will establish the important baseline values for the future use. • Bidder will submit the complete acceptance test report to the Project Implementation Team.		
Commissioning	Bidder will commission the linear accelerator based on the American association of medical physics Task group TG-106 report. Commissioning timelines are as specified below subject to discussion and agreement with the client • 2 weeks photon beam scanning inclusive of point data collection, • 2 weeks for electrons, and • 1 week for verification. • 2 weeks analysis and report writing. The bidder will perform quality assurance tests for the linear accelerator based on the American association of medical physics Task group TG142 recommendations.		

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ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	Bidder will device a QA strategy for performing on Daily, Monthly & Annual basis. Bidder's team and the client will establish institution-specific baseline and absolute reference values for all QA measurements. The team will meet regularly and monitor the measurement results against the established values to • ensure the machine performance • determine any significant dose deviations from the treatment planning calculations. In addition, the team will device a QA strategy for performing on Daily, Monthly & Annual basis.		
	1) Daily (Photons & Electrons): • Energy constancy- TPR 20/10 Phantom measurement using IAEA TRS 398 protocol • Flatness and Symmetry measurement (applicable only if appropriate QA device is provided by the hospital) o Output constancy		

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LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	○ Laser/ODI check IGRT-OBI imaging isocenter verification		
	2) Monthly (Photons & Electrons) • Absolute dose measurements • LINAC Mechanical QA • LINAC Radiation performance check • DMLC QA using film / EPID • Garden fence • Picket fence • DMLC Test patterns • DMLC output • Dynalog file Analysis • OBI Mechanical QA • OBI Imaging QA • CBCT Calibration (If required) • Arc Dosimetry • Picket fence test for static gantry angle • Picket fence test for VMAT delivery • Picket test with intentional errors for VMAT delivery • Dose rate & Gantry speed for VMAT delivery • MLC Speed test for VMAT delivery Bidder's Radiation safety officer and his team members will conduct the radiation survey of the radiation oncology facility as per IAEA		

Item Code No.	Department	Section	Item Description
LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	radiation safety code for radiotherapy.		
Commissioning of linear accelerator in treatment planning system to perform 2D, 3DCRT, IMRT and VMAT treatments	Bidder will perform treatment Planning System Commissioning and Quality Assurance - using IAEA Technical Report Series 430 for "Commissioning and Quality Assurance of Computerized planning system for Radiation treatment of Cancer". In addition to the above following newer technique algorithms will also be commissioned • Dose Volume Optimizer commissioning • Progressive Resolution Optimizer Commissioning Enhanced dynamic wedge commissioning • Portal Dose Image Prediction algorithm commissioning for portal dosimetry • Plan Geometry Optimizer for IMRT optimization 3D CRT- Commissioning and validation of - Physical wedges - Enhanced dynamic wedges - Field in Field techniques- Irregular field - Electronic compensator (if applicable) - Customized block (if applicable).		

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LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	• IMRT- Commissioning and validation of o DMLC o DVO o Clinical site-specific validation • IGRT - Commissioning and validation of o OBI- kV imaging o OBI – CBCT o MV imaging o kV-MV match • Special Procedures (If applicable) o Stereotactic Radio Surgery - Planning & Implementation o Stereotactic Radio Therapy- Planning & Implementation o Stereotactic Body Radiotherapy- Planning & Implementation o Hemi Body Irradiation Planning & Implementation o Cranio-spinal Irradiation - Planning & Implementation • RapidArc - Commissioning and validation of o Clifton ling test o Arc dosimetry		

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LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	○ Clinical site-specific validation • Respiratory gating - Commissioning and validation (If applicable) ○ Creation of 4D image set ○ Creation and Validation of Maximum intensity projection and minimum intensity projection CT images for Lung and Liver tumors ○ Deep breath-hold technique for breast cancer patients. ○ Selection of respiratory phase for the treatment of lung cancers • Bidder will perform the necessary QA to validate the data transfer from the server to linear accelerator, treatment planning system, contouring workstation and all the peripheral system.		
5Scope of Service	• Bidder will commission, validate and to perform CT simulation • Bidder will perform complete CT image quality QA using		

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LOT 2-2	Oncology	Radiotherapy	Digital Linear Accelerator
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/ REFERENCE**
	CAT phan phantom (Supplied along with ONCOLOGY INFORMATION SYSTEM and linear accelerator). • In addition, bidder team will setup QA protocol to check the data transfer from CT simulator to server. • Bidder will perform commissioning and QA of moving laser (if available)		

LOT 2-3 – Brachytherapy Unit

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
General description			
Technical Specifications	• Radioactive Source – Brachytherapy Unit • Iridium-192, metallic • Cylindrical configuration • Iridium-192 pellet- HDR: 0.6 mm diameter, 3.5 mm active length; PDR: 0.6 mm diameter, 0.5 mm active length • Capsule- HDR: 0.9 mm diameter, 4.52 mm length; PDR: 0.9 mm diameter, 2.97 mm length • Nominal activity- HDR: 370 GBq (10 Ci)*; PDR: 37 GBq (1 Ci) • Air Kerma Rate (HDR): 0.063 Gy/h (±5%) for 555 GBq at 1 m		
Source cable	• Iridium-192 source encapsulated in stainless steel • Capsule welded to a flexible stainless steel cable • Distance from distal cable tip to the beginning of the active pellet- HDR: 0.67 mm; PDR: 2.07 mm (To		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	ensure consistent "cable tip to source center" distance for HDR and PDR sources) • Cable diameter: 0.9 mm • Maximum extension length: 130 cm • The most distal 200 mm section of the cable is an ultraflexible cable. • Source manufactured according to ISO1677, ISO2919, ISO/TR4826, ISO9978 resulting in ISO source classification: C63333		
Transportable options	• Transportation Options system has been qualified as a Type A shipping container. • Afterloader capacity that can be converted to a transportable system for use in multiple locations.		
Afterloader	Meets the recommitments of the following standards: • Electrical safety of medical devices standard IEC 60601-1		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	• Collateral standards of IEC 60601-1 specific to afterloaders IEC 60601-2-17 • IAEA and US DOT-7A.		
Cable and drive parameters	• Nominal cable speed zero slip: approximately 60 cm/s • Source positioning accuracy: ±1 mm relative to the indexer		
Source placement	• Treatment channels • Dwells per channel • Step size: default 5 mm, programmable from 1-10 mm, in 1 mm increments • Minimum radius of curvature at the distal end of the catheter: 1.3 cm in a ring probe of diameter 2.6 cm and in a 5 Fr bronchial catheter • Method of source movement: commences at most distal dwell positions and steps back		
Afterloader shielding	• Safe material: Tungsten • Maximum storage capacity of safe: 555 GBq (15 Ci)		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	• Maximum Air Kerma Rate 1 m from afterloader: does not exceed 3 μGy/h for maximal load • Radiation shielding: Conforms to International • Electrotechnical Commission requirements (IEC 60601-2-17) ICRP codes and applicable NRC standards in the USA		
Room shielding	• Controlled by local codes and conditions of operation • Approximately 4 cm of lead or 35 cm of concrete is generally required		
Electrical Power Requirements	• System power rating: 240V / 50 Hz models available; 100 VA • In the event of a power failure, the afterloader is powered through the internal batteries to allow the source to retract to the safe.		
Environmental requirements	• Operating temperature range: +15 to +35°C		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	• Humidity range: 30% to 75% (non-condensing) • 36.1.3 Air pressure: 70 kPa - 110 kPa • 36.1.4 Weight & dimensions 130 kg 105 cm H x 51 cm W x 57.5 cm D		
Equipment classification	• Type of protection against electric shock: CLASS 1 • Degree of protection against electric shock: TYPE B • Degree of protection against harmful ingress of water: IP 40 • Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide • Class of operation: CONTINUOUS		
Safety equipment (emergency container)	• Emergency source container is designed to hold most applicators directly • 38.1.2Minimum shielding: 26 mm lead • 38.1.3 Minimum diameter (inner plastic container):		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	approximately 60 mm • 38.1.4 Container height (internal): 270 mm		
Brachytherapy Commissioning			
	• Bidder will help in selection of essential radiation dosimetry and equipment and Quality Assurance equipment required for commissioning and continuing the Quality Brachytherapy as per international standards.		
Scope of Services	• Bidder, along with local radiotherapy team will perform the acceptance of the Brachytherapy unit using manufacturer protocol. • The team will also perform detailed Electrical, Mechanical and Radiation checks during commissioning. • All the applicators will be checked mechanically, and Autoradiograph will be performed for all applicators to verify the source positional		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	accuracy within the applicator. • Bidder team will submit the complete acceptance test report to the Project Implementation Team.		
Radiation Safety Survey during source loading	• Bidder's Radiation Safety Officer (RSO) and team will perform detailed radiation leakage tests on the Brachytherapy treatment unit head and perform radiation survey around the installation as per IAEA Safety code for radiotherapy, to ensure the safety of the patient, public, radiation workers and the hospital before starting treatment. • During first source loading, the bidder will perform detailed radiation leakage tests on the Brachytherapy treatment unit head and perform radiation survey around the installation to ensure the safety of the patient, public		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	and radiation workers. • Bidder's RSO will formulate procedures for safe handling of radioactive isotopes from the moment it is received at the hospital. • The new source container upon receipt at the hospital will be surveyed and inventory will be made for safety and regulatory concerns.		
Regular Quality Assurance Procedures	**Daily Quality Assurance** • Source Activity/Decay • functioning of Door Interlock • Treatment interruption and recovery • Radiation Survey meters functionality check o Gamma area monitors functionality check.		
	Source loading Quality Assurance • Electrical, Mechanical and Radiation Checks will be performed after each source		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	loading. o Radiation leakage survey of treatment unit and installation, • Source positional accuracy using auto radiographs • Calibration of radioactive source against reference. • Temporal accuracy - Timer linearity and end error, against reference. • Swipe test of applicators • Then new source data will be entered in to the Treatment planning system and treatment times will be calculated and verified with a reference test patient o Mechanical Integrity of applicators, • Source positional accuracy– autoradiograph o Emergency interlocks and recovery of treatment after interruption.		
	Treatment Planning System (TPS) QA. • Digitizer- Accuracy of		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	digitization of point Co-ordinates. • Calculation Algorithm o Source specification required for TPS o Initial activity quoted by the supplier • Agreement of source decay corrections • Agreement between TPS and published/ • manual calculation for single source, at relevant points		
Clinical Implementation (RT)	**Patient Immobilization** Bidder will establish site specific immobilization protocol to perform • Head& Neck • Thorax • Abdomen • Pelvis • Extremities • Special procedures SRS, SRT, SBRT, Hemi body, craniospinal, mantle field technique, Total Body irradiation • Patient preparation • selection of immobilization devices		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	• Setup notes and documentation • Protocol for CT image acquisition for Radiotherapy planning • Protocol for MRI & PETCT image acquisition for Radiotherapy planning • Hands on Training of RT procedures • Setting up protocol for special procedures.		
	Planning Simulation • Bidder will assist the local team to perform the required CT simulation for all the new cancer patients so that they can be taken up for the further contouring treatment planning and delivery.		
	Treatment Planning • Bidder will perform treatment planning Selection of treatment technique Selection of modality, o Selection of field directions for complex field arrangements		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	○ Computation of dose distribution and verification of accuracy ○ Dose volume histogram ○ Clinical Implementation of Brachytherapy procedures.		
	Fabrication of Treatment Aids • Bidder team will assist the local team to create custom made block electron blocks.		
	Simulation of Treatment • Radiographic documentation of treatment ports. • Bidder will assist and teach the local team to check and approve every image of the treatment site at treatment machine prior to treatment of individual patient		
	Treatment • Transfer of treatment data to the treatment machine		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	• Initial verification of treatment set-up. • Verification of accuracy of repeated treatments. • Continual assessment of equipment performance • Periodic check protocol		
Training	1) The vendor should provide comprehensive training delivered by application specialists for the linear accelerators done on site during installation and to the full of the Department of Radiotherapy. The training period should be at least for four weeks or more. 2) Training in a well-advanced centre for two Radiation Oncologists, two Medical Physicists and two Radiotherapy Technicians for two weeks should be provided for the staff. 3) Maintenance/service training should be provided for two Biomedical		

Item Code No.	Department	Section	Item Description
LOT 2-3	Oncology	Brachytherapy Room	Brachytherapy Unit
ITEM	**PERFORMANCE SPECIFICATIONS**	**COMPLY(YES/NO)**	**OFFERING/REFERENCE**
	Service Engineers at the manufacturer's factory for not less than two weeks.		
Equipment Support and Services	The bidder should provide a warranty and support plan cover for the first 2 years and make an offer for CMC for five years post warranty.		
Immobilization package	Immobilization and Essential Accessories to be Included with the Unit The supplier should include the following key accessories at a minimum:-		
Check sources	Radioactive Check Device type CDC for cylindrical detectors Adapter for use of "Farmer" type chambers with CDC radioactive check dev Adapter for use of CC type chambers with CDC radioactive check device		

SUMMARY

Item	Description
1.	**Radiotherapy Equipment**
	A dual energy linear accelerator -Energy Linear Accelerator Complete with all software's and Accessories per Specifications
	Brachy Therapy complete with all accessories per specifications
	Dosimetry and accessories
	Immobilization accessories

LOT 2-4: Anesthetic Machine with Ventilator

Item Code No.	Department	Section	Item Description		
LOT 2-4	Oncology	Radiotherapy Room	**Anesthetic machine with ventilator**		
1.	General Description				
Inhalation anaesthetic machine with electronic ventilator complete with all accessories for low and high flow anaesthesia, adult, paediatric and infant application. It should include a patient monitor unit.					
2.	Composition				
2.1.	Main unit	1 Unit			
	Electronic Ventilator	1 Unit			
	Patient Monitor	1 Unit			
	Accessories complete start-up kit	1 Set			
3.	Performance Specifications				
3.1.	Main Unit				
3.1.1.	Anesthetic trolley with minimum 2 drawers and a table top, with yokes for Oxygen (O_2) and Nitrous Oxide (N_2O) portable cylinder and support for circle systems including hoses and absorbers and support for central pipeline gas system. Model on current production				
3.1.2.	Anesthetic trolley	With minimum of 2 drawers			
3.1.3.	Wheels	With castors, two with brakes			
3.1.4.	Gas delivery system	3 gas delivery system (O_2, N_2O and air) with both inlets for central gas pipeline system, and separate portable cylinders.			
3.1.5.	Yokes	To support portable Oxygen (O_2) and Nitrous Oxide (N_2O) cylinders, 11 liters each			
3.1.6.	Portable Oxygen (O_2) Cylinder connection	Bull nose type			
3.1.7.	Portable Nitrous Oxide (N_2O) cylinder connection	Pin Index type			
3.1.8.	Pressure regulators and gauges for O_2 and N_2O	Intergraded in the trolley			
3.1.9.	Central gas pipeline system	Standard BS connections and colour codes for O_2, N_2O, and Air,			
3.1.10.	Flow meter	Separate flow meter for O_2, Air, and N_2O			
3.1.11.	Breathing Circle System	Capable of performing Open, Semi-Open, Semi-Closed and Closed system			
3.1.12.	All patient connecting hoses	Corrugated, Transparent, autoclavable (134°C), φ 22 mm, with ISO connectors			

Item Code No.	Department	Section	Item Description
LOT 2-4	Oncology	Radiotherapy Room	**Anaesthetic machine with ventilator**
3.1.13.	CO_2 absorber	Integrated, complete with Soda lime and switch for Magill's circuit.	
3.1.14.	Accessories: To be provided as startup kits.		
	Adult Breathing circuit for ventilator	2 Unit	
	Paediatric Breathing circuit for ventilator	2 Unit	
	Face Mask, Adult, Sizes 1, 2, 3 transparent type	2 Sets	
	Face Mask, Paeds, Sizes 1, 2, 3 transparent type	2 Sets	
	Breathing Bag Adult (2 L)	2 Sets	
	Breathing Bag Paeds (1L)	2 Sets	
	Breathing Bag Baby (0.5L)	2 Sets	
	Magill's circuit complete with adult mask	2 Sets	
	Aynes Paed circuit	2 Sets	
	CO_2 absorber gas out let		
3.2.	Vaporizer	Minimum Halothane and Isoflurane	
3.2.1.	Compensation	Temperature, pressure and flow compensated	
3.2.2.	Range	About 0.2% to 4%	
3.2.3.	Accuracy	± 0.15%	
3.2.4.	Keyed filler according to ISO standards		
3.2.5.	Adjustment	Large hand wheel with Zero Lock	
3.2.6.	Ambient Temperature	15°C to 35°C at Normal pressure	
3.2.7.	Maintenance	Service free for a minimum period of 5 years of usage	
3.3.	Safety controls		
3.3.1.	O_2 supply failure	audible alarm with reset	
3.3.2.	Hypoxyguard	Minimum O_2 25%: Shut off supply	
		N_2O Shut off	
3.3.3.	O_2 Flush Gas Supply	Above 30 L/ Min 2-6 bars	

Item Code No.	Department	Section	Item Description
LOT 2-4	Oncology	Radiotherapy Room	**Anaesthetic machine with ventilator**
3.4.	Ventilator		
3.4.1.	Type	Microprocessor controlled and electrical/gas driven	
3.4.2.	Application	Suitable for adult, paediatric and infant application without changing parts between patient types	
3.4.3.		Ventilation with ambient air possible	
3.4.4.	Modes	Minimal manual, spontaneous, IPPV, PCV,SIMV +PS	
3.4.5.	Ventilator Parameter		
	Tidal Volume: IPPV	20 ml- 1600ml	
	P max (PEEP + 10)	Up to 70hPa	
	PEEP	about 1 to 20mbar	
	Frequency:	about 3 to 60/min	
	Insp flow	Max 150l/min	
	Pinsp (PEEP + 5)	Up to 70kPa	
	I: E ratio	5:1 to 1:5	
	In case of failure	Switch to room air automatically	
3.5.	Display	colour display minimum 6”	
3.5.1.	Display parameters	Minute Volume	
		Tidal Volume	
		Rate	
		Pressure Peak Response, PEEP,FiO2	
		Graphic Trends	
3.6.	Patient monitor	To be mounted on the anesthetic machine	
3.6.1.	Parameters	Pulse rate	
		SpO_2	
		Temperature: 2 probes	
		Blood pressure (NIPB and IPB)	
		ECG 3 leads	

Item Code No.	Department	Section	Item Description
LOT 2-4	Oncology	Radiotherapy Room	**Anaesthetic machine with ventilator**
3.6.2.	Display	Colour Display minimum 10”	
		5 Parameter display	
3.6.3	Accessories: To be provided as startup kits.		
	SpO_2 , Adult Sensor, Reusable	2 Pieces	
	SpO_2 , Paediatric Sensor, Reusable	2 Pieces	
	SpO_2 , Infant Sensor, Reusable	2 Pieces	
	Temperature	2 Probes	
	BP cuff, Large adult, reusable	2 Piece	
	BP cuff, adult, reusable	2 Piece	
	BP cuff, Small adult, reusable	2 Piece	
	BP cuff, Paed, reusable	2 Piece	
	BP cuff, Thigh, reusable	2 Piece	
	ECG 3 Leads Soda lime	2 Piece 3 containers of 5liter each	
4.	Physical characteristics		
4.1.	Main unit	mobile on casters	
	Outer dimensions	Compact design	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord with PE	
	Ambient temperature	10^{o} C to 40^{o} C	
	Relative humidity	20% to 90%	
6.	Backup Power supply		
6.1.	Internal battery	Internal battery	
7.	Quality standards		
7.1.	Manufacturing standards	ISO 13485, ISO 9001	
	Product conformity standards	EU-93/42/EEC, IEC 60601-1, EN 740 CE and FDA approved	
8.	Delivery point		

Item Code No.	Department	Section	Item Description		
LOT 2-4	Oncology	Radiotherapy Room	**Anaesthetic machine with ventilator**		
8.1.	See Schedule of equipment of equipment delivery				
9.	Pre installation requirements				
	Refer to schedule 6 and special condition in section 4l				
10.	Installation and testing				
	Complete installation and set-up of the machine at the hospital as per manufacturer's instructions				
11.	Training				
11.1.	User Training	On site user training on operation and daily up keep			
11.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
12.	Technical documentations				
12.1.	User manuals	2 printed Sets and electronic copy			
12.2.	Service Manual	1 Set			
13.	Commissioning				
13.1.	Testing and commissioning of the machine to the satisfaction of the user.				

LOT 2-5 Brachytherapy Table

Item Code No.	Department	Section	Item Description
LOT 2-5	Oncology	Brachytherapy Room	Brachytherapy Table
1. General Description			
Operating table suitable for use in theatre for major operations. It should be capable of performing lateral tilt, up-down movement, trendelenburg and reverse trendelenburg position, back section refraction and kidney bridge. The movement should be electrohydraulic with manual option control system			
2. Composition			
2.1.	Main unit		
3. Physical Specifications			
3.1.	Main Unit		
3.1.1.	Table top	Approx. Length 2000 X width 600 mm	
3.1.2.		X-ray Permeable	
3.2.	Head rest	Detachable	
3.3.	Leg rests	Detachable/separable	
3.4.	Material of main unit	Made of scratch resistant, hard wearing and easy to clean material	
3.5.	Height of table top	Adjustable, mechanical operated, 600mm to 1100mm	
3.6.	Table top movements		
3.6.1.	Trendelenburg	Forward: 25^{o}, Reverse: 25^{o}	
3.6.2.	Lateral – tilt	~20^{o} both to the left and right	
3.6.3.	Back- section refraction	90^{o}	
3.6.4.	Table top turn	180^{o}	
3.6.5.	Main unit movements	Mobile with antistatic castors with braking mechanism	
3.7.	Maximum load weight	250 Kg	
4.	Accessories	To be provided as startup kits.	
4.1.	Mattress	High density type easy to clean, 3” thickness with 4 sections, breathable, waterproof that does not stick to the table	
4.2.	Arm board with mattress	1 piece	
4.3.	Shoulder support with pads	2 pieces	

Item Code No.	Department	Section	Item Description
LOT 2-5	Oncology	Brachytherapy Room	Brachytherapy Table
4.4.	Foot board	1 set	
4.5.	Knee crutches	2 pieces	
4.6.	Screen frame	1 piece	
4.7.	Body support with pads	2 pieces	
5.	I. V. pole, adjustable height Orthopedic attachment	1piece 1 piece	
5.1.	Manufacturing standards	ISO 13485, ISO 9001	
5.2.	Product conformity standards	EU-93/42/EEC, CE and FDA approved	
6.	Delivery point		
6.1.	See hospital schedule	For Delivery, inspection and commissioning	

LOT 2-6: General Purpose Suction Unit

Item Code No.	Department	Section	Item Description
LOT 2-6	Oncology	Radiotherapy	General Purpose Suction Unit
1. General Description			
Suction machine suitable for use in theatre, for both adult and pediatric use. Should be constructed from coated non-corrosive, extreme heat resistance material and electrically insulated and mobile on antistatic castors φ 60 mm, 2 No. lockable, with high level push handle.			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	High flow rate	40 litres per minute.	
3.1.2.	Suction vacuum	Maximum 700mmHg	
3.1.3.	Suction pump	oil free	
3.1.4.	Jars	2 X 2 liter polycarbonate autoclavable and unbreakable complete with overflow devices and valves.	
3.1.5.	Vacuum gauge	Graduated in mmHg and kPa.	
3.1.6.	Vacuum control	Adjustable at the front panel	
3.1.7.	Switch	Main on front panel and foot switch (water proof type)	
3.1.8.	Cable towage	On back with reversible cleats	
3.1.9.	Anti-bacterial filters	Available preferable autoclavable	
3.1.10.	Suction tubing connection	Antistatic neoprene or silicone	
3.1.11.	Safety	Overflow pump protection	
3.1.12.	Handle	High level push handle type	
3.1.13.	Movements	Mobile on four antistatic castors 2 No. lockable.	
4.	Physical characteristics		
4.1.	Main unit	Mobile on castors with push handle	
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug BS standard, 3m long cord with PE	
5.2.	Ambient temperature	10° C to 40° C	

Item Code No.	Department	Section	Item Description
LOT 2-6	Oncology	Radiotherapy	General Purpose Suction Unit
5.3.	Relative humidity	20% to 90%	
6.	Accessories	The following accessories will be provided as startup kits.	
6.1.	Sterilizable, silicone tubing	5 Set	
6.2.	Bacterial filters	1 Box	
6.3.	Foot switch	1 No.	
6.4.	Cannula with handle for general purpose	4 Sets	
7.	Quality standards		
7.1.	Manufacturing standards	EN 10079-1, IEC 60601-1, ISO 9001, ISO 13485	
	Conformity to standards	CE and FDA marked	
8.	Local back up service		
8.1.	Available	Should be available locally	
8.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff	
9.	Delivery point		
9.1.	See Schedule	For inspection and testing	
9.2.	Nil		
10.	Pre installation requirements		
	Nil		
11.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
12.	Training		
12.1.	User Training	On site user training on operation and daily up keep	
12.2.	Maintenance training	Onsite maintenance training on preventive maintenance	
13.	Technical documentations		
13.1.	User manuals	2 Sets	
13.2.	Service Manual	1 Set	

Item Code No.	Department	Section	Item Description		
LOT 2-6	Oncology	Radiotherapy	General Purpose Suction Unit		
13.3.	Drawings	Nil			
14.	Commissioning				
14.1.	Testing and commissioning of the machine to the satisfaction of the user.				
15.	Warranty				
15.1.	Equipment	Minimum of one year after commissioning on all parts.			
15.2.	Equipment System	Nil			

LOT 2-7: Operation Light (LED)

Item Code No.	Department	Section	Item Description
LOT 2-7	Oncology	Brachytherapy	Operation Light (LED)
1. General Description			
Surgical light (Operating lamp) ceiling mounting type. The surgical light should consist of two lamp head, main and auxiliary (dual type). It should be constructed from light weight material preferable aluminum, and easily to disinfect. It should have emergency backup power supply to last for at least 2 hours. The Main Light should be fitted with a digital camera for ICT integration.			
2. Composition			
2.1.	Main unit and auxiliary lamp head		
3. Performance Specifications			
3.1.	Main and auxiliary lamp head		
3.1.1.	Diameter	main and auxiliary unit	
3.1.2.	Rotation	360^{o} along the central axis	
3.1.3.	Maximum light intensity	Above 150,000 lux at 1 meter each	
3.1.4.	Focus	Adjustable	
3.1.5.	Field	Constant to a depth of at least 500mm	
3.1.6.	Field	shadow less	
3.1.7.	Light colour Temperature	3600 to 4800 K Colour rendering index >95% Deeming range 30-100%	
3.1.8.	Lighting Control	Electronic system with touch button light intensity	
3.1.9.		Control mounted at a convenient place preferable on the head lamp.	
3.1.10.	Lighting Bulb	Low voltage LEDs service life >40,000 hours	
		Light field diameter of 300mm at 1 m	
3.1.11.	Mounting ceiling Height	Minimum 2.5m above floor	
3.2.	Accessories		
3.2.1.	All mounting accessories	Ceiling anchor plates,	
3.2.2.		Bolts, nuts and other necessary	
4.	Operating environment		
4.1.	Power Requirements	240V, A/c 50 Hz, Single phase, with PE	

Item Code No.	Department	Section	Item Description		
LOT 2-7	Oncology	Brachytherapy	Operation Light (LED)		
4.2.	Ambient temperature	10^{o} C to 40^{o} C			
4.3.	Relative humidity	20% to 90%			
5.	Emergency Backup power	To least for at least 2 hour			
5.1.		With sealed batteries			
		Automatic change over and charger unit			
6.	Quality standards				
6.1.	Manufacturing standards	ISO 13485, ISO 9001			
6.2.	Product conformity standards	EU-93/42/EEC, IEC 60601-1 FDA and CE approved			
7.	Local back up service				
7.1.	Available	Should be available locally			
7.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff			
8.	Pre installation requirements				
	Prepare roof for installation				
9.	Installation and testing				
	Complete installation and set-up of the machine at per manufacturer's instructions				
10.	Training				
10.1.	User Training	On site user training on operation and daily up keep			
10.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
11.	Technical documentations				
11.1.	User manuals	2 Sets			
11.2.	Service Manual	1 Set			
11.3.	Drawings				
12.	Commissioning				
12.1.	Testing and commissioning of the machine to the satisfaction of the user.				

LOT 2-8: Patient Trolley

Item Code No.	Department	Section	Item Description		
LOT 2-8	Oncology	Radiotherapy	Patient Trolley		
1. General Description					
Resuscitation patient trolley with IV pole , Oxygen Cylinders and with adjustable sides, constructed from chrome plated mild steel and mobile on castors					
2. Composition					
2.1.	Main unit				
3. Physical Specifications					
3.1.	Main Unit				
3.1.1.	Material of main unit	Tubular mild steel, chrome plated			
3.1.2.	Movements	Back rest, trendelenburg/reverse tendelenburg, up and down			
3.1.3.	Operation	By hydraulic mechanical system			
3.1.4.	Side guard rails	Foldable or drop down type			
3.1.5.	Mattress	High density, water proof and fire resistance			
3.1.6.	Mobile	On four antistatic castors diameter 150mm with brakes and central locking system			
3.1.7.	IV pole	Provided			
3.1.8.	Oxygen cylinder	Provided, Medium size 11kg (1.36m^2) mild steal			
3.1.9.	Resuscitation bags	Provided, adult and paed			
3.1.10.	Dimensions (Overall)	Approx. 2050 mm(L) X 780 mm (W) X 620 -900mm (H)			
3.1.11.	Weight to handle	approx. 200 kg			
4.	Quality Standards				
4.1.	Manufacturing standards	ISO 9001, ISO 13485			
4.2.	Conformity to standards	CE Standard			
5.	Delivery point				
5.1.	MLKH	Delivery point			
6.	Warranty				

Item Code No.	Department	Section	Item Description
LOT 2-8	Oncology	Radiotherapy	Patient Trolley
6.1.	Equipment	Minimum of one year after delivery	

LOT 2-9: Emergency/Resuscitation Trolley

Item Code No.	Department	Section	Item Description
LOT 2-9	Oncology	Patient Area	Resuscitation/Emergency Trolley

1. General Description

Resuscitation trolley for use in ICU. Epoxy coated mild steel, with drawers, protection perimeter and defibrillator holder. The Unit should be mobile on four castors, 2 lockable

2. Composition

2.1.	Main unit,		

3. Performance Specifications

3.1.
Main Unit

- 3.1.1. Should be durable with Ergonomic handle and should have easy grip
- 3.1.2. Height should be 40-45”
- 3.1.3. Should have 6-8 drawers of sizes 3x3”,2x6”,1x9”
- 3.1.4. Should have interchangeable 3”,6”,9” drawers which run smoothly on good quality channels
- 3.1.5. Should have provision of side storage which allows storage of variety accessories like can, storage bins, glove storage, sharp container set
- 3.1.6. An over bridge can with baskets, shelves and bins to keep important things
- 3.1.7. Should have AMS top surface & advance polymer material which is easy to clean. It should not dent, chip flake or corrode
- 3.1.8. Should be easily rolling and has toe brakes
- 3.1.9. Should have I.V. pole with clamps ach 3” drawer should have provision for 25-30 compartments
- 3.1.10. Should have twin swivel castors & central lock
- 3.1.11. Should be CE and ISO 9001/2000 and FDA approved
- 3.1.12. Should have CPR board & O2 cylinder holder

LOT 2-10: Patient Monitor

Item Code No.	Department	Section	Item Description
LOT 2-10	Oncology	Patient Area	Patient Monitor

1. General Description

Portable Bedside monitor suitable for use in ICU. Should be capable of continuous measuring/ monitoring of the following parameters in adults, neonatal and pediatric.

- SpO_2
- Temperature
- Blood pressure
- ECG
- Respiration
- CO_2
- Pulse Rate

2. Composition

2.1.	Main unit				

3. Performance Specifications

3.1.

3.2. Main Unit

Portable Bed side monitors	
Type	Roll stand Mounted type, complete with internal rechargeable battery
Application	monitor Can be used as a both bedside monitor and a trans
Parameter & waveforms	SpO2, Pulse rate, ECG, NIBP, IBP, Respiration, and temperature
SpO2, with reusable sensor	0 - 100% ± 3%
Pulse Rate	30-300 bpm ± 1%
Temperature	0-50^{0}C ± 0.1%
NIBP	Mean 10- 300mmHg ± 5 mmHg
IBP X2	Mean 00 – 300mm Hg ± 1 mmHg
CO2	0 to 99 mmHg ± 4 mmHg
Display	Minimum 12.0 inches color touch screen/scroll ty
	6 to 8 waveforms with large font
Networking	Wireless and wired connection to the central wor station
Storage	Capable of storing patient data and transferring to central workstation for viewing or printing.
Audio and visual alarm Printer	For all parameter. Inbuilt Thermal Printer
Alarm setting limits	Adjustable by user
Low battery indicator	Audio and visual alarm
Power Requirement	hours when fully charged Rechargeable internal battery, that can last at leas

Item Code No.	Department	Section	Item Description
LOT 2-10	Oncology	Patient Area	Patient Monitor
Wireless networking	Latest technology.		
4.	Accessories	The following accessories will be provided as startup kits.	
4.1.	ECG connection lead and reusable electrodes	2 Set	
4.2.	SpO_2 connection cable and sensor (finger probe), reusable	2 Sets	
4.3.	Adult cuff	3 Sets	
4.4.	Peadiatric cuff	2 Sets	
	Temperature connection cable and probe (reusable)	2 Sets	
4.5.	Recording paper	20 Boxes	
5.	Quality standards		
5.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485	
5.2.	Conformity to standards	Directive 2004 / 108 / EC, CE and FDA marked	
6.	Local back up service		
6.1.	Available	Should be available locally	
6.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables and qualified and skilled technical staff	
7.	Delivery point		
7.1.	See Schedule	For inspection and testing	
7.2.	Nil		
8.	Pre installation requirements		
	Nil		
9.	Installation and testing		
	Complete installation and setup of the machine as per manufacturer's instructions		
10.	Training		
10.1.	User Training	On site user training on operation and daily up keep	

Item Code No.	Department	Section	Item Description		
LOT 2-10	Oncology	Patient Area	Patient Monitor		
10.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
11.	Technical documentations				
11.1.	User manuals	2 Sets			
11.2.	Service Manual	1 Set			
11.3.	Drawings	Nil			
12.	Commissioning				
12.1.	Testing and commissioning of the machine to the satisfaction of the user.				
13.	Warranty				
13.1.	Equipment	Minimum of one year after commissioning on all parts.			
13.2.	Equipment System	Nil			

LOT 2-11: Infusion Pump

Item Code No.	Department	Section	Item Description		
LOT 2-11	Oncology	Patient Area	Infusion Pump		
1. General Description					
Infusion pump					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					

3.1. Main Unit

3.1.1. Should be operated on drip rate Peristaltic finger pump method.

3.1.2. Should be compatible with most of the IV set (macro/micro drip sets).

3.1.3. Should have the following flow rates.

3.1.4. IV Set ml/hr. drops/min

- 15 drops/ml 3~450ml/hr. 1~100drops/min
- 20 drops/ml 3~450ml/hr. 1~100drops/min
- 60 drops/ml 1~100ml/hr. 1~100drops/min

3.1.5. Should have a flow rate accuracy of ±10% and drip rate accuracy of ±2%.

3.1.6. Should have a volume infused display from 0 to 999.9ml.

3.1.7. Should have a purge and KVO facility.

3.1.8. Should have an audible and visual alarm for occlusion pressure, air alarm, door open, empty, low battery.

3.1.9. Should have a LCD display with backlight and graphical display of infusion.

3.1.10. Should have a minimum 2hr battery back up at highest delivery rate.

3.1.11. Should work with input 240Vac 50 Hz supply.

3.1.12. Should be CE and FDA marked

3.1.13. Copy of the certificate / test report shall be produced along with the technical

LOT 2-12: Oxygen Flow meters

Item Code No.	Department	Section	Item Description
LOT 2-12	**Oncology**	**Patient Area**	Oxygen Flow meters

4. General Description

Oxygen Flow meter with Humidifier:

5. Composition

5.1.	Main unit				

6. Description of the medical supply unit design type

6.1. Should be duly USFDA or CE marked by the European notified body
6.2. The Flow meter should be fitted with BS standard Medical Oxygen Probe.
6.3. Back Pressure Compensated flow meter will be of accurate gas flow measurement with control within a range of 0 to 15 Lpm.
6.4. It should meet strict precision and durability standard.
6.5. The flow meter body should be made of brass chrome plated materials.
6.6. The flow tube and shroud components should be made of clear, impact resistant polycarbonate.
6.7. Flow Tube should have large and expanded 0 – 5 lpm range for improved readability at low flows.
6.8. Inlet filter of stainless-steel wire mesh to prevent entry of foreign particles.
6.9. The humidifier bottle should be made of unbreakable & Reusable of polycarbonate material and autoclavable at 134 degree centigrade.

LOT 6: DIAGNOSTIC LABORATORIES

Lot 6-1 Microtomes

Item Code No.	Department	Section	Item Description		
LOT 6-1	Laboratory	Histology	Microtome		
1. General Description					
Rotary microtome suitable for paraffin and hard precision sectioning techniques. Motorized complete with hand wheel and knife carrier system.					
2.Composition					
2.1	Main unit				
2. Performance Specifications					
3.1	main Unit				
3.1.1	The unit should be a model or type on current production				
3.1.2	Thickness settings	Unique section thickness setting with removable knobs allowing operation with both the right and left hands			
		0.5µm to 60µm adjustable at intervals of 0.5µm to 5µ			
		Resettable electronic section counter			
		Two quick-trim stages (10 µm and 30 µm) independent from the preset fine section thickness			
3.1.3	Hand wheel	Long stroke length (64 mm) allows high quality sections of Macro / SuperMega cassettes			
		X/Y fine orientation with reproducible zero positioning			
		Manual coarse feed wheel			
		Specimen retraction (can be deactivated)			
3.1.4	Waste tray	Large, removable section waste tray covers the entire working area			
		Resettable electronic section counter			
3.1.5	Knife carrier system	Provided, Standard conventional knife			
3.1.6	Specimen orientation	Universal 8° and rotation 360°			
3.1.7	Accessories	Includes: Standard tools, brushed aluminum cover plate, dust cover, Conventional knives and operator guide			
4	Physical characteristics				
4.1	Dimensions	Table top model			

Item Code No.	Department	Section	Item Description		
LOT 6-1	Laboratory	Histology	Microtome		
5	Quality standards				
5.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
5.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
6	Local back up service				
6.1	Available	Should be locally available			
6.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
7	Delivery point				
7.1	See Schedule	For inspection and testing			
8	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
9	Training				
9.1	User Training	On site user training on operation and daily up keep			
9.2	Maintenance training	Onsite maintenance training on preventive maintenance			
10	Technical documents				
10.1	User manuals	2 Sets			
10.2	Service Manual	1 Set			
11	Commisioning				
11.1	Testing and commissioning of the machine to the satisfaction of the user.				
12	Warranty				
12.1	Equipment	Minimum of one year after commissioning on all parts.			
12.2	Equipment System	Nil			

LOT 6-2: Tissue Embedding Station

Item Code No.	Department	Section	Item Description		
LOT 6-2	Laboratory	Histology	Tissue Embedding Station		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Lighting system	LED lighting with five brightness settings offers optimal illumination for both the specimen and the accessory area. LED lighting uniformly illuminates the workspace.			
3.2	Capacity	featuring a 5 liter paraffin compartment, cold plate area for 72 base molds, and large heated workspace and specimen holding area storage for 300 standard base molds, 300 cassettes			
3.3	Reporting	Built-in literature tray for report storage			
3.4	Cold plate	User-adjustable cold plate temperature designed to reduce the occurrence of cracked blocks			
3.5	Accessory	Accessory area offers ten tool positions with five different hole sizes, • Small, medium and large size base molds - 12 each in number • Embedding cassettes – 500 in number			
3.6	Display	Intuitive, multi-lingual, touch screen control system			
3.7	Design	ParaTrimmer design, optimized for maximum productivity			
3.8	wax reservoir	atleast 5 L paraffin tank with a filtration system			
3.9	Forcep warmer	Should have forceps warmer, along with electrically heated forceps with 1mm, 2mm, 4mm tip.			
3. 10	Noise level	Operating noise level: >65 dB			
3.11	TEMPERATURES:	Wax reservoir 122 - 158 ºF (50 - 70 °C) Cold spot 41 ºF (5 °C) Hot spot 122 - 158 ºF (50 - 70 °C) Tissue storage 122 - 158 ºF (50 - 70 °C) Mold storage 122 - 158 ºF (50 - 70 °C)			

Item Code No.	Department	Section	Item Description		
LOT 6-2	Laboratory	Histology	Tissue Embedding Station		
		Cold plate Adjustable, 10 - 27 ºF (-12 to -3 °C) with a tolerance of ±1.8 ºF (1 °C			
3.12	Mains connection voltage	220-240v/50Hz.			
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-3: Cytocentrifuge

Item Code No.	Department	Section	Item Description		
LOT 6-3	Laboratory	Histology	Cytocentrifuge		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Capacity	Process twelve specimens at one time, allowing for several protocols at once			
3.2	Design	Polycarbonate window allows the operator to see the sealed head during cytocentrifugation			
3.3	control panel	Control panel allows user to control power and time, and monitor speed			
3.4	safety	Specimen safety alarm feature reminds users at one-minute intervals to remove specimens, protecting them from air-drying			
3.5	Applications	Multiple Applications: Cytology, Microbiology, Hematology/Oncology, Research/General Use			
3.6	programming	Accepts all protocols from previous generations of cytocentrifuges			
3.7	Power Requirements:	100-240 V, 50/60Hz			
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			

Item Code No.	Department	Section	Item Description		
LOT 6-3	Laboratory	Histology	Cytocentrifuge		
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-4: Paraffin Wax Dispenser

Item Code No.	Department	Section	Item Description		
LOT 6-4	Laboratory	Histology	**Paraffin Wax Dispenser**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	control		Digital temperature control		
3.2	Design		Aluminum inner tank for temperature control		
			Insulated outer tank prevents heat loss		
			Anti-microbial coating		
3.4	Capacity		Wax Reservoir Capacity: 7.5 L		
3.5	Power Requirements:		100-240 V, 50/60 Hz		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			

Item Code No.	Department	Section	Item Description		
LOT 6-4	Laboratory	Histology	**Paraffin Wax Dispenser**		
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-5: Tissue processor

Item Code No.	Department	Section	Item Description		
LOT 6-5:	Laboratory	Histology	Tissue Processor		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Design		Designed to process biological specimens from chemical fixation to wax infiltration		
			Uses programmable, gentle centrifugal force to augment the normal vertical agitation process associated with carousel processors.		
			Cassette baskets spin counterclockwise and clockwise within reagent container to improve processing		
			Immediate and delayed-start processing modes so you can process tissues when it's most convenient		
3.2	Capacity		Basket holds up to 120 cassettes		
3.3	Interface		Microprocessor unit can maintain up to ten processing programs to save on programming time		
3.4	program		Customizable spin speeds and programmable immersion time in each station to accommodate a variety of specimen types		
3.5	Accessories		Includes: Ventilation system, paraffin baths, and processing basket		
			Reagent vessel covers and charcoal-enhanced ventilation help control processing vapors for user safety		
	Power supply		100-240 V, 50/60 Hz		
4	Quality standards				

Item Code No.	Department	Section	Item Description		
LOT 6-5:	Laboratory	Histology	**Tissue Processor**		
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-6: Cassette Printer

Item Code No.	Department	Section	Item Description		
LOT 6-6:	Laboratory	Histology	**Cassette Printer**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Design		Maximize your efficiency – printing 2D data matrix barcodes on cassettes allows for the automation of sample identification in downstream processes		
			Barcodes printed on cassettes to provide a seamless link to LIS records with complete case identification information		
			High-quality printing system marks on every cassette with easy-to-read, permanent black type that enhances your lab's accuracy and sample integrity		
3.2	Speed		prints each cassette in ten seconds or less		
3.3	Size		Compact footprint to allow the printer to fit easily next to the grossing station		
3.4	Capability		►Print media type: Thermal transfer ribbon ►Print media capacity: Approximately 20,000 cassettes per rol ►Print speed: Approximately 10 seconds per cassette ►Connectivity: USB ►Print media color: Black		
3.5	Power Requirements		100-240 VAC, 50/60 Hz,		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				

Item Code No.	Department	Section	Item Description		
LOT 6-6:	Laboratory	Histology	**Cassette Printer**		
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-7: Cryostat

Item Code No.	Department	Section	Item Description		
LOT 6-7:	Laboratory	Histology	**Cryostat**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Design		• Allows rapid selection and adjustment of functions for efficient operation • Specimen fast-freeze function and chamber brightness can be accessed from the menu • Light-touch hand wheel requires minimal force to operate, increasing comfort • Additional knee space to support comfortable seated operation • Body-contoured arm rests improve posture and comfort during periods of prolonged use		
			• Cryochamber features 27 cooled specimen positions, including four fast-freeze stations to keep up with heavy workloads		
			Automatic specimen retraction on return stroke protects specimen and reduces carryover artifacts		
3.2	Features		• Chamber cooling to -35 ºC		

Item Code No.	Department	Section	Item Description		
LOT 6-7:	Laboratory	Histology	**Cryostat**		
			• Integrated peltier fast-freezing device rapidly cools to -60 ºC • Section thickness from 1 µm to 500 µm • Vertical stroke length of 60 mm • 28 mm horizontal feed range • 40 µm specimen retraction on return stroke • X/Y specimen orientation with 360º Z-axis rotation		
			Six specimen stages (30 mm), freezing medium (118 mL), cryostat oil (118 mL), section waste tray, debris brush, sectioning brush, tools and operator guide.		
3.5	Power Requirements		100-240 VAC, 50/60 Hz,		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				

Item Code No.	Department	Section	Item Description		
LOT 6-7:	Laboratory	Histology	**Cryostat**		
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-8:Automated Slide Stainer

Item Code No.	Department	Section	Item Description		
LOT 6-8:	Laboratory	Histology	**Automated Slide Stainer**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Design		• 26 reagent stations – enough to run several protocols. Fully editable, user defined protocols allow the user to perform multiple actions at once, saving time • Urgent start gives user the opportunity to prioritize "urgent" baskets without compromising those already in process		
			• Easy-to-use software schedules runs, allocates reagents, optimizes reagent layout, and calculates the most efficient route for each protocol to maximize throughput and minimize reagent carryover • Step-start capability allows protocols to be started from any step • Quality control system can be set to monitor reagent usage and batch throughput • PIN protection system secures operator's customized protocols and settings		
3.2	Accessories		**Includes:** • Unheated stainer; 35 stain pots (320 mL fill		

Item Code No.	Department	Section	Item Description		
LOT 6-8:	Laboratory	Histology	**Automated Slide Stainer**		
			volume) supplied, fitted. Heated stainer; 30 stain pots (320 mL fill volume) and five heater pots supplied, fitted. • Both models contain charcoal filter, staining baskets/carriers (5/pk x 2), three-well waterstation (two fitted), single pot covers (6/pk.), multi-pot covers (4/pk.), 2.5 m water inlet hose, spare staining pots (3/pk.), operator guide, operator guide CD		
3.5	Power Requirements		100-240 VAC, 50/60 Hz,		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			

Item Code No.	Department	Section	Item Description		
LOT 6-8:	Laboratory	Histology	**Automated Slide Stainer**		
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-9:Slide Scanner

Item Code No.	Department	Section	Item Description		
LOT 6-9:	Laboratory	Histology	**Slide Scanner**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Design		• 150-slide capacity and continuous loading with vertical slide arrangement. • Exceptional image quality for both brightfield and up to nine fluorescent filter positions available for single and multiple band cubes with advanced FISH scanning technique. • Up to 90x brightfield and fluorescent magnification by default.		
			• Motorized objective changer. • One high-quality monochrome camera is used for both brightfield and fluorescence with unique three-channel brightfield light source. • Automatic slide loading, previewing, barcode reading and scanning. • All-around system for high-volume slide scanning.		
3.5	Power Requirements		100-240 VAC, 50/60 Hz,		
4	Quality standards				

Item Code No.	Department	Section	Item Description		
LOT 6-9:	Laboratory	Histology	**Slide Scanner**		
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-10: Microscope with digital Camera

Item Code No.	Department	Section	Item Description		
LOT 6-10:	Laboratory	Histology	**Microscope with digital Camera**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Features		Nosepiece, 5-position, tilted backwards		
			• Consists of: - Binocular phototube with intergrated camera 30°/23 (50:50), reversed image camera port with interface 60N		
			The digital image will look like you see it through the eyepieces		
3.2	Application		Evaluation of structure, composition and growth of single cells and cell structures		
3.3	Specifications		• Left - transmitted-light illumination with whiteLED.		
			• Mechanical stage 75x50 R, rackless with hardcoat anodized surface.		
			• Nosepiece 5x brightfield.		
			•		
			• Objectives iPlan-Achromat 4x, 10x, 40x, 100x/1.25 Oil for (WD 0.27mm), incl. Immersion oil, 5 ml		
			• Left - transmitted-light illumination with whiteLED 10W,		

Item Code No.	Department	Section	Item Description		
LOT 6-10:	Laboratory	Histology	**Microscope with digital Camera**		
			or halogen reflector lamp 12V 35W		
			• Mechanical stage 75x50 R, rackless with hardcoat anodized surface, 220 x 150 mm stage plate.		
			• Microscopy camera color - Camera adapter 60N-C 2/3" 0.5x USB 3.0 hub Type-C		
			• Halogen reflector lamp 12V 35W - integrated 24V DC 60W power unit.		
			• Environmental conditions: +10°C to +40°C		
			• Camera Consumption: 9 W (24 V DC,0.375 A)		
3.5	Power Requirements		100-240 VAC, 50/60 Hz,		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				

Item Code No.	Department	Section	Item Description		
LOT 6-10:	Laboratory	Histology	**Microscope with digital Camera**		
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-11: Grossing Station

Item Code No.	Department	Section	Item Description		
LOT 6-11:	Laboratory	Histology	**Grossing Station**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Design		• Each station features two removable panels with one perforated plate and one specimen cutting board with removable legs		
			• The panels are capable of sliding across set rails for workspace flexibility and easy cleaning.		
			• Height Adjustability: Workstations are ADA compliant, and they adjust to accommodate professionals of varying heights.		
			• Features can be controlled using the new, integrated touchscreen.		
			• Stainless Steel Construction		
			• On-Demand Front Air System (FAS)		
			• Designed, engineered, and manufactured under the guidelines of ISO 9001:2015 with Design		
			• Safety notifications: On-screen warnings alert users of possible harmful conditions involving air ow and		

Item Code No.	Department	Section	Item Description		
LOT 6-11:	Laboratory	Histology	**Grossing Station**		
			optional formalin collection and dispensing systems.		
3.5	Power Requirements		100-240 VAC, 50/60 Hz,		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commissioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-12: Cover slipper

Item Code No.	Department	Section	Item Description		
LOT 6-12:	Laboratory	Histology	**Cover slipper**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	User Interface		Intuitive user interface features a touch screen panel		
		• Software should monitor the type of slide preparation, size and number of slips dispensed, and the number of baskets waiting to be cover slipped			
3.2	Specimen Recognition	Handles both histology and cytology samples simultaneously without user interaction while delivering user definable amount of mountant for each sample type			
3.3	Capacity	• Load-on-demand capabilities can manage up to eleven slide baskets at the same time			
		• Features unique ability to optically recognize and position slides during the coverslipping process			
		• Recognizes the position of each slide in a basket, removes each slide with a set of slide grippers and returns every slide while maintaining slide positioning			
3.4	Accessories	Set of two mountant purge trays, ventilation filter, set of two soft hair brushes, set of three suction cups.			
3.5	Power Requirements	100-240 VAC, 50/60 Hz,			
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				

Item Code No.	Department	Section	Item Description		
LOT 6-12:	Laboratory	Histology	**Cover slipper**		
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-13: Scanning Electron Microscope

Item Code No.	Department	Section	Item Description		
LOT 6-13:	Laboratory	Histology	**Scanning Electron Microscope**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Electron source		Electron Source: W fillament		
3.2	Resolution		Resolution: 3.0nm(30kv), 8.0nm(3kv), 15.0 nm(1.0kv)		
3.3	Accelerating voltage		: 0.5nm to 30 kv		
3.4	Magnification:		×5 to 300,000 (print size of 128mm× 96mm)		
3.5	Probe current:		1 PA to 0.3 uA^5		
3.6	Detectors:		SDD type detector ,options for Backscattered Electron detector(BED),Lowvacuum secondary electron detector(LSED)		
3.7	Low vacuum range		: 10 to 100 pA		
3.8	Maximum sample diameter and height:		150mm diameter , 48 mm Height		
3.9	Stage motorization:		Bult -in mortage function.XY-2 axis motor-drive eucentric stage X: 80mm Y:40mm Z 5 - 48mm Tilt:-10˚ to 90˚ Rotation: 360˚		
3. 10	Specimen stage		: XY-2 axis motor-drive eucentric stage X: 80mm Y:40mm Z 5 - 48mm Tilt:-10˚ to 90˚ Rotation: 360˚		
3.11	Image format		: BMP, SPG, TIFF		
3.12	Image pixes		: 320× 240 , 640× 480 , 1280 × 960 , 2560 × 1920 ,5120× 3840.		
3.13	PC:		PC monitor 23 inch LCD/LED touchscreen, windows 10 provided		

Item Code No.	Department	Section	Item Description		
LOT 6-13:	Laboratory	Histology	**Scanning Electron Microscope**		
3.14	Auto function		: Fully automatic gun alligment,Fillament adjustment,focus/stigmator/brightness/contrast		
3.15	Pumping system		: Fully automated vacuum system ;Turbo molecular pump(TMP:1) and Rotary pump(RP:1)		
3.16	EDS System		: Includes the standard DrySD detector withdetection area of 25mm2, resolution is <130eV		
3.17	Sputter Coater		: Better- combined (recommended) sputter and carbon coating system		
3.17	Power Requirements		100-240 VAC, 50/60 Hz,		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			

Item Code No.	Department	Section	Item Description		
LOT 6-13:	Laboratory	Histology	**Scanning Electron Microscope**		
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-14: Auto Stainer

Item Code No.	Department	Section	Item Description		
LOT 6-14:	Laboratory	Histology	**Auto Stainer**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	features		• Incorporates 2D Data Matrix Bar Coding for Slides and Reagents		
			• Has integrated digital bar code scanner		
			• Scans rapidly using high precision label detector technology		
			• One to 36 slide capacity, each individually programmable		
			• Easy, Windows based programming		
			• Bar code control of all protocol, reagent and slide operations		
			• Fast flow software logic enables flexible programming, operator ease of use and control of IHC costs		
			• Modular options with up to four units controlled from one PC		
			• Dual barcoding ensures that each slide receives the correct reagents		
			• Barcoding of slides and reagents simplifies the instrument loading and programming process		
3.2	Power Requirements		100-240 VAC, 50/60 Hz,		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			

Item Code No.	Department	Section	Item Description		
LOT 6-14:	Laboratory	Histology	**Auto Stainer**		
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-15: Liquid based Cytology

Item Code No.	Department	Section	Item Description		
LOT 6-15:	Laboratory	Histology	**Liquid based Cytology**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Features	Digital cervical cell analysis solution			
		Analyzing the cervical cell images taken by the device with AI algorithms			
		Conveniently identify the stage of cervical pre-cancer/cancer in women			
		Innovative solid staining technology			
		Supports same-day diagnosis and remote diagnostic service			
		Store digital images as records and support remote diagnosis services			
		Fully automated imaging and sample prep processes including staining, cleaning, drying, etc.			
3.2	Power Requirements	100-240 VAC, 50/60 Hz,			
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				

Item Code No.	Department	Section	Item Description		
LOT 6-15:	Laboratory	Histology	**Liquid based Cytology**		
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-16: Fully automated 5 part Diff Hematology Analyzer

Item Code No.	Department	Section	Item Description		
LOT 6-16:	Laboratory	Hematology	**Fully automated 5 part Diff Hematology Analyzer**		
1. General Description					
2. Composition					
	Main unit				
3	Description of the medical supply unit design type				
3.1	Measuring parameters	: Reticulocyte count ,WBC, RBC, HGB, HCT, MCV, MCH, MCHC, RDW-CV, RDW-SD, PLT, PCT, MPV, PDW, P-LCR, NE, NE%, LY, LY%, MO, MO%, EO, EO%, BA, BA%.			
3.2	Technology	Automated 5 part differantial with reticulocyte count, with continous loading of samples via the rack fed system. status indicator indicating different operating status.			
3.3	Measurement modes	CBC , CBC+DIFF , CBC+RET, CBC+DIFF+RET , Pre-dilution mode			
3.4	Memory Capacity	Fully automated analyzer with instant printing and Patient Memory Capacity of at least 30,000 patient with graphs			
3.5	Sample loading	Continuous loading of samples via rack fed system Up to 7 racks of 10 tubes			
3.6	Input method	Barcode reader for samples, reagent and control management			
3.7	Throughput	Throughput of Up to 90 samples/h (CBC + DIFF) and Up to 55 samples/h (CBC + DIFF + RET)			
3.8	Technology	DynaScatter Laser optical technology truly analyzes and differentiates WBCs in near-native state.			
		Both P-LCR and P-LCC parameters provide information for possible giant platelet, platelet aggregation, or fragment cell presence.			
		The DynaHelix Flow technology perfectly aligns WBC, RBC and PLT cells for high impedance counting through light scatter method			

Item Code No.	Department	Section	Item Description		
LOT 6-16:	Laboratory	Hematology	**Fully automated 5 part Diff Hematology Analyzer**		
		The DynaHelix Flow technology perfectly aligns RBCs for high impedance counting using direct cellura measurement			
		488 nm blue laser was newly integrated into the technology for reticulocyte count with nucleic acid stained with fluorescent dyes			
		Clot detection with Automatic re-measurement function occurs when unexpected alarms of equipment are detected			
		Has a reagent management system helps easier reagent bottle management.			
3.9	Tolerance	Within ±3.0% OR ±0.3 × 103 /µL (WBC: 0.20 to 95.0 × 103 /µL			
		Within ±3.0% OR ±0.08 × 106 /µL (RBC: 0.02 to 8.50 × 106 /µL)			
		Within ±10.0% OR ±20 × 103 /µL (PLT: 10 to 1500 × 103 /µL			
		Within ±1.5% OR ±0.2 g/dL (HGB: 0.10 to 25.0 g/dL)			
		within ±20% or ± 0.30% (RET%) (RET%: 0.50 to 30.00%)			
3. 10	Sample Volume	1.CBC: 32 µL 2.CBC + DIFF: 47 µL 3.CBC + RET: 47 µL 4.CBC + DIFF + RET: 47 µL 5.Pre-dilution mode: 20 µ(micro sampling capability)			
3.11	QC	westgard multirule function in QC mode with complete traceable QC records with L J plot			
3.12	Communication	HL7 based information system enables seamless bi-directional information transfer to laboratory information systems			
3.13	Printing	Provided with an external printer			
		Comprehensive list of reagents and consumables provided			
3.14	Power back-up	UPS provided during installation			
3.15	Start-up	To come with start-up reagent of upto 600 tests			

Item Code No.	Department	Section	Item Description		
LOT 6-16:	Laboratory	Hematology	**Fully automated 5 part Diff Hematology Analyzer**		
		Maintain rate of Consumables, spares and other accessories for 3 years			
3.16	Warranty:	Will provide two years manufacturers waranty and 5+ years comprehensive maintenance contract thereafter			
3.17	Power Requirements:	Line voltage: AC 100 to 240 V ±10% AC, 50/60 Hz			
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			

Item Code No.	Department	Section	Item Description		
LOT 6-16:	Laboratory	Hematology	**Fully automated 5 part Diff Hematology Analyzer**		
11.2	Equipment System	Nil			

LOT 6-17: Binocular Microscope

Item Code No.	Department	Section	Item Description		
LOT 6-17	Diagnostic Laboratories	Routine Lab	Binoculars Microscope		
1. General Description					
All-purpose microscopes for general laboratory use, with binocular head, inclined 45^{o}, build in graduated mechanical stage with control knob, with iris diaphragm, and filter holder, eye pieces, objective lens and illumination controls.					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
3.1.	Main Unit				
	Magnification	50 to 1000x or wider			
3.1.1.	Eyepieces	Paired 10x wide-field			
3.1.2.	Objective	Objectives iPlan-Achromat 4x, 10x, 40x, 100x/1.25 Oil for (WD 0.27mm), incl. Immersion oil, 5 ml			
3.1.3.	Optical System	Universal Infinity System			
3.1.4.	Observation Tube	Binocular			
3.1.5.	Angle of Inclination	45^{o}C			
3.1.6.	Interpupillary Adjustment Distance	> 40 – 70 mm			
3.1.7.	Condenser Type	Universal condenser, N.A. 0.9 or Abbe or Swing out			
3.1.8.	Mechanical Stage	Mechanical stage 75x50 R, rackless with hardcoat anodized surface.			
3.1.9.	X-Y motion control	Adjustable			
3.1.10.	X-Y motion vernier	0.1 mm or less			
3.1.11.	Vertical movements of stage	20mm or more			
3.1.12.	Focusing Control	Coarse Focusing - Stage Height Movement			
		Fine Focus Graduation			
3.1.13.	Illumination System	built in base illuminator, LED with			

Item Code No.	Department	Section	Item Description		
LOT 6-17	Diagnostic Laboratories	Routine Lab	Binoculars Microscope		
		Brightness control, mains operated.			
		Filters with colour temperature correction.			
		Mirror Unit for Natural Light Illumination			
4.	Physical characteristics				
4.1.	Main unit				
4.1.1.	Approximate dimensions				
5.	Operating environment				
5.1.	Power Requirements	240V, A/c 50 Hz			
5.2.	Humidity				
6.	Accessories				
6.1.	Storage	Lockable Cabinet/Box			
6.2.	AVR				
6.2.1.	Capacity	Over VA of the main Unit			
7.	Consumables				
7.1.	Nil				
8.	Quality standards				
8.1.	Manufacturing standards	IEC 60601-1,ISO 13485, ISO 9001			
8.2.	Conformity to standards	CE and FDA marked.			
9.	Delivery point				
9.1	See schedule				
10.	Pre installation requirements				
	Nil				
11.	Installation and testing				
	Testing at delivery point				
12.	Technical documentations				
12.1.	User manuals	2 Sets			
12.2.	Service Manual	2 Sets			

Item Code No.	Department	Section	Item Description		
LOT 6-17	Diagnostic Laboratories	Routine Lab	Binoculars Microscope		
12.3.	Drawings				
13.	Warranty				
13.1.	Equipment	One year after delivery on all parts			

LOT 6-18: Refrigerator (2 to 8 deg)

Item Code No.	Department	Section	Item Description
MOH-6-18	Diagnostic Laboratory	Routine lab	Refrigerator
1. General Description			
Refrigerator			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Material	Insulated galvanized steel	
3.1.2.	Type	Compressor, electrical	
3.1.3.	Door	Double door , glass type	
3.1.4. .	Temperatures range	2 to 8ºC stable ± 0.5ºC	
3.1.5.	Ambient temperature	10 º C to 35ºC	
3.1.6. .	storage capacity	1400L	
3.1.7.	Shelves	Provided, adjustable and extractable with dividers	
3.1.8. .	Temperature monitor	Digital display with temperature record history	
3.1.9. .	Control	Electronic, Microprocessor based	
3.1.10. .	Refrigerant	CFC free	
3.1.11. .	Alarm	Provided, audible and visible	
3.1.12. .	Power	240V, 50 Hz, a.c	
4.	Quality standards		
4.1.	Manufacturing standards	ISO 9001, ISO 13485, ISO 14001	
4.2.	Conformity to standards	CE and FDA marked.	
5.	Delivery point		
5.1.	See Schedule	For inspection and testing	
5.1.1.	Nil		
5.2.	Warranty		
5.2.1.	Equipment	Minimum of one year after commissioning on all parts.	

Item Code No.	Department	Section	Item Description
MOH-6-18	Diagnostic Laboratory	Routine lab	Refrigerator
5.2.2.	Equipment System	Nil	
5.2.3.	Accessories		
5.3.	Automatic Voltage Regulator (AVR)		
5.3.1. .	Capacity	Over VA of the main Unit	
5.3.2.	Input	Ac 240V, 50Hz, Single phase ± 15%	
5.3.3.	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	

LOT 6-19: Flow Cytometer

Item Code No.	Department	Section	Item Description		
MOH-6-19	Diagnostic Laboratory	Routine lab	**Flow Cytometer**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
3.1.			The flow cytometer should be easy to use, simple to maintain, and affordable.		
3.2.			Should be small enough to easily fit on a benchtop.		
3.3.			The system should be equipped with appropriate lasers, appropriate scatter detectors, appropriate fluorescence detectors.		
3.4.			Should be compact optical design, fixed alignment, and pre-optimized detector settings to make the system easier to use.		
3.5.			Positive displacement syringe pump		
3.6.			Easy to use automated system,		
3.7.			Robust Software developed to offer user-focused functionality with many automated, user-definable an administrative features.		
3.8			**Performance Specifications**		
			Optics • Laser power		
			Violet Excitation Laser (405nm)		
			Blue Excitation Laser (488nm)		
			Green (532nm)		
			Yellow Laser (561 nm)		
			Red Excitation Laser (638nm)		
		●	Optimized excitationfor minimized stray laser-line noiseand lossesto reflection		
		●	**Laser profile:** 10 x 50 µm flat-top laser providing robust alignment		
		●	**Emission filters:** Up to 14 color channels with wavelength-tuned		

Item Code No.	Department	Section	Item Description		
MOH-6-19	Diagnostic Laboratory	Routine lab	**Flow Cytometer**		
			photomultiplier tubes (PMTs); userchangeable, keyed filters		
		●	**Laser separation:** 150 μm		
		●	**Optical alignment:** Fixed alignment with prealigned welded fiber; no user maintenance required		
		●	**Onboard thermoelectric cooler:** No warm-up delay; fiber isn't affected by on/off		
		●	**Simmer mode:** Instant on/off reduces usage and/or aging by 10x; only keep it "on" when acquiring samples; reports hours of usage		
		●	**Flat top specified at the flow cell:** Coefficient of variation (CV) <3% over width of flat top		
		●	Upgradable according to field changes		
3.9			**Fluidics**		
			Flow cell: Quartz cuvette gel coupled to 1.2 numerical aperture (NA) collection lens, 200 x 200 μm		
			Sample analysis volume: 20 μL to 4 mL		
			Custom sample flow rates: 12.5–1,000 μL/min		
			Sample delivery: Positive-displacement syringe pump for volumetric analysis.		
			Sample tubes: Accommodates tubes from 17 x 100 mm to 8.5 x 45 mm. Should be able to handle a food, meat, fish sample for analysis.		
			Fluid-level sensing: Should be Active.		
			Standard fluid reservoirs: Should have 1.8 L focusing fluid tank, 1.8 L waste tank, 175 mL shutdown solution tank, and 175 mL wash solution tank		
			Fluid storage: All fluids should be stored within instrument		
			Extended fluidics option: Configuration for 10 L fluid.		
3. 10			**Automated maintenance cycles:** ≤15 min startup and shutdown—deep clean, sanitize, and debubble modes		
3.11			**Performance**		

Item Code No.	Department	Section	Item Description		
MOH-6-19	Diagnostic Laboratory	Routine lab	**Flow Cytometer**		
3.12			**Fluorescence sensitivity:** ≤80 molecules of equivalent soluble fluorochrome (MESF) for FITC, ≤30 MESF for PE, ≤70 MESF for APC		
3.13			**Fluorescence resolution:** CV <3% for the singlet peak of propidium iodide–stained chicken erythrocyte nuclei (CEN)		
3.14			**Data acquisition rate:** Up to 35,000 events/sec, 34 parameters, based on a 10% coincidence rate per Poisson statistics		
3.15			**Maximum electronic speed:** 65,000 events/sec with all parameters		
3.16			**Carryover:** Single-tube format: <1%		
3.17			**Forward and side scatter sensitivity:** Able to discriminate platelets from noise		
3.18			**Forward and side scatter resolution:** Optimized to resolve bacteria and fungi in Food and feed products, meat/fish and **meat products, and water matrices**		
3.19			**Forward scatter:** Photodiode detector with 488/10 nm bandpass filter Side scatter:		
			PMT with default 488/10 nm bandpass filter; optional 405/10 nm bandpass filter		
3. 20			**Fluorescence detectors:** 14 individual detectors		
3.21			**Electronic pulse:** Measured area, height and width pulse for all detectors		
3.22			**Violet side scatter resolution:** Can be configured for violet side scatter to better resolve particles from noise.		
3.23			**Minimum particle size:** 0.2 μm on side scatter using Recommended calibration kit		
3.24			**Automation**		
			Fully automated cleaning cycles		
			Fully automated start-up and shutdown		
			Auto sampler option for labs where throughput and automation are a priority Email alerts notify operator of status changes		

Item Code No.	Department	Section	Item Description		
MOH-6-19	Diagnostic Laboratory	Routine lab	**Flow Cytometer**		
			Volumetric sample system gives absolute count for every sample		
3.25			**Flexibility**		
			Fully upgradeable to a 4 laser system with 12 optical detectors plus Auto sampler Suitable for a wide range of applications (maximum particle size 100µm)		
3.26			**Sorting**		
			The cytometer should be equipped with a sorting feature for capturing and collecting cells of interest.		
			All the accessories associated to the flow cytometer		
			All reagents and materials to be used in and by the Flow cytometer All spares accompanying the flow cytometer		
			Should have all Installation Requirements covered as appropriate.		
3.27			**Data Management Requirements**		
			64-bit Windows 8 or later		
			Minimum screen resolution 1280x1024 16 GB RAM		
			Min 1TB hard disk space Workstation Minimum Specifications Small form chassis		
			Intel® HD Graphics 2000		
			180-W Energy Star efficient internal power supply Memory and Processor		
			16 GB RAM		
			Core™ i7 processor		
			Hard Drive and Data Storage Options		
			1TB or greater hard drive, 8-MB databurst cache 8x DVD reader		
			Monitor		
			LCD flat panel 21"		
			4 USB 2.0 ports (for peripheral devices) Peripheral Devices USB Entry Keyboard		
			USB Optical Mouse Networking		
			Ethernet LAN 10/100/1000		

Item Code No.	Department	Section	Item Description		
MOH-6-19	Diagnostic Laboratory	Routine lab	**Flow Cytometer**		
			Operating System should be appropriate and compatible		
3.28			**Other requirements**		
		(i)	During Quotation opening the selected suppliers to be available to give a summary the equipment to be supplied.		
		(ii)	Installation and Commissioning -to be done		
		(iii)	Operation and Service Manuals- All Manuals in English(Hard and soft copy)		
		(iv)	Warranty and Nearest service center - Two years warranty with one year spare replacement, if required.		
			- warranty CMC provision for at least 5 years		
			-Brochures for the equipment to be provided during quotation		
		(v)	Training - onsite training during installation/ commissioning and at least 10 test runs.		
			The trainer should have all the is required for training to ensure full training.		

LOT 6-20: BIOCHEMISTRY IMMUNOASSAY ELECTROLYTE INTERGRATED ANALYZER

Item Code No.	Department	Section	Item Description		
MOH-6-20	Diagnostic Laboratory	Chemistry	**BIOCHEMISTRY IMMUNOASSAY ELECTROLYTE INTERGRATED ANALYZER**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
3.1	Method		v Method: Photometric, Potentiometric and chemiflex		
3.2	Throughput		v Throughput: Up to 900 tests per hour		
3.3	Scalabilty		v Scalability: Up to 4 modules controlled by one System Control Module (SCM)*		
			v Integrated with Immunoassay		
			v Should have Continuous Access of Reagents, Calibrators, Controls and Consumables		
3.4	Reagent interface		v Reagent Interference: Reagents should not have Biotin Interference.		
3.5	Stat		v Flexible Stat Options: Prioritize single rack as needed or configure in multiple positions		
3.6	Sample type		v Sample type: Serum, plasma, urine, cerebrospinal fluid, whole blood.		
3.7	Capacity		v Sample Capacity: up to165		
3.8	Bar Code		v Sample Bar Code Types: Code 128, Standard Code 39, Interleaved 2 of 5, Codabar		
3.9	Storage		v Sample Result Storage: 100,000		
3. 10	Volume		v Dead Volume: 50 µL		
			v Sample Volume: Biochemistry 1.5–35 µL		
			Immunochemistry: 10-150 µL		
3.11	Carryover		v Sample Probe Carryover: ≤0.1 parts per million†		
3.12	Reagent capacity	1	v Reagent capacity: Up to 115 refrigerated reagent cartridges onboard plus patented ICT (Na+, K+, and Cl-)		

Item Code No.	Department	Section	Item Description		
MOH-6-20	Diagnostic Laboratory	Chemistry	**BIOCHEMISTRY IMMUNOASSAY ELECTROLYTE INTERGRATED ANALYZER**		
3.13	Reagent Type		v Reagent Type: 100% liquid ready-to-use		
3.14	Stability		v Reagent Onboard Stability: 5–65 days		
3.15	Calibration		v Calibration Frequency: 1 – 60 days Average 25 days		
			v Should have a Sample, Clot and Bubble Detection system		
			v Should have a Reagent Pressure Monitoring system		
			v Should have a Sample Interference Measurement for hemolysis, icterus, and lipemia		
			v Should have an On-Board Maintenance Records		
			v Online Error Code Help should be available.		
3.16	Communication		v Host Interface: HL7 or ASTM		
			v Remote Diagnostics should be available.		
3.17	Power		v Electrical Requirements: 240v 50Hz		
3.18	Water		v Water Requirements: Deionized water Average: 25 L/hr.		
			Supply with appropriate water system		
			v Noise Level (1 m): 55.9 dBA		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			

Item Code No.	Department	Section	Item Description		
MOH-6-20	Diagnostic Laboratory	Chemistry	**BIOCHEMISTRY IMMUNOASSAY ELECTROLYTE INTERGRATED ANALYZER**		
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-21: COAGULOMETER

Item Code No.	Department	Section	Item Description		
LOT 6-21	Diagnostic Laboratories	Chemis try	**COAGULOMETER**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1	Type		v The unit should be a tabletop fully automated model with at least 4 mechanical channels and 2 Optical channels.		
3.2	Test /methods		v The instrument should be capable of multiple testing methods; Clotting, Immune turbidimetric and Chromogenic substrate methods.		
			v Principle based on change in viscosity by electromagnetic clot detection system with multi-wavelength scanning.		
3.3	Wavelenth		v The instrument should have multiple wavelengths compatible for various test items such as D-Dimer,		
			v 700nm wavelength avoids sample turbidity and interference of hemoglobin absorption peak.		
3.4	sample rack		v The instrument should have interchangeable and extensible sample rack compatible with different types of tubes.		
3.5	CV		v The instrument should have a repeatability: CV (Specimen) =< 3.0% and the sample volume range should be 10ul-250ul.		
			v The instrument should be capable of continuous sample & reagent loading during the run.		
3.6	Accessories		v Should accommodate at least 1000 cuvettes.		

Item Code No.	Department	Section	Item Description		
LOT 6-21	Diagnostic Laboratories	Chemis try	**COAGULOMETER**		
3.7	Sample and reagent positions		v Minimum 30 sample positions and at least 16 reagent positions with at least 10 positions having a preheating option.		
			v Instrument should be able to detect automatically positive sample and reagent positions.		
			v Possibility of Auto Rerun and Auto Redilution of samples should be available.		
			v Positive sample and reagents level detection should be provided.		
3.8	Throughput		v Instrument should have a throughput of 200 Tests/hour and 25 samples/hour of mixed items.		
3.9	Communication		v Flexibility to rerun, add a test or delete a test, handling of stat sample at any time should be provided.		
			v Intelligent dual independent probes with temperature control and liquid surface induction.		
			v Provision for dual way HIS/LIS connection and IC card reagents / consumables protection.		
			v Built-in thermal printer supporting instant and batch printing.		
3. 10	Test menu		v The minimum test menu available should include PT, APTT, Fibrinogen, TT, Heparin, LMWH, PC, PS, D-Dimer, ATIII, FDP.		
3,11	QC		v Systematic original, reagents, quality controls and calibrators cover full range of use. Automatic dilution for samples and calibrators should be possible.		
3.12	Power		v Power Supply AC 100V~250V, 50/60HZ.		
4	Quality standards				

Item Code No.	Department	Section	Item Description		
LOT 6-21	Diagnostic Laboratories	Chemis try	**COAGULOMETER**		
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-22: BLOOD GAS ANALYZER

Item Code No.	Department	Section	Item Description		
LOT 6-22	Diagnostic Laboratories	Chemistry	**BLOOD GAS ANALYZER**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			v **General Description:** Blood gas analyzer, capable of measuring at minimum pCO2, pO2, pH, K+, Na+, Cl-, Ca++ and at least 15 calculated parameters in whole blood, serum and plasma. The unit should be automatic, with electronic digital read out, dilutor and in-built printer.		
3.2			v **Measuring parameters:** pCO2, pO2, pH, K+, Cl-, Ca++		
3.3			v **Calculated parameters:** At least 15 parameters		
3.4			v **Sample volume:** About 150ųl		
3.5			v **Measuring time:** about 2-5 seconds		
3.6			v **Temperature correction:** Automatic		
3.7			v **Display:** Large LCD display		
3.8			v **Printer:** In built		
3.9			v **Keypad:** Soft		
3. 10			v **Main unit type:** Bench top with Robust construction and easy to clean.		
3.11			v **Power Requirements :** 240V, A/c 50 Hz, Single phase.		
3.12			v **Ambient temperature:** 10^{o} C to 40^{o} C		
3.13			v **Relative humidity:** 20% to 90%		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			

Item Code No.	Department	Section	Item Description		
LOT 6-22	Diagnostic Laboratories	Chemistry	**BLOOD GAS ANALYZER**		
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-23: CENTRIFUGE

Item Code No.	Department	Section	Item Description		
LOT 6-23	Diagnostic Laboratories	Chemistry	**CENTRIFUGE**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			v General Description: Tabletop microprocessor-controlled model the unit should be a model or type on current production.		
3.2			v **Minimum speed:** Up to 6000 rpm		
3.3			v **Maximum RCF:** 2100G		
3.4			v **Display:** Multi-colored display with a timer.		
3.5			v **Safety System:** Door interlocking system and emergency lid opening in case of power failure.		
3.6			v **Alarms:** Automatic rotor detection with an automatic imbalance detection system with an automatic stop function**.**		
3.7			v **Rotor Type:** Swing out and fixed angle rotor.		
			v **Rotor 1 set:** Swing out rotor 5/7 ml X 14 pcs.		
			v **Rotor 2 set:** Swing out rotor 15 ml X 7 pcs.		
			v **Rotor 3 sets:** Angle rotor 15 ml X 32 pcs		
			v **Rotor 4 sets:** Angle rotor 5/7 ml X 32 pcs		
			v **Tube adapter:** 2 Sets for Angle and swing out rotors.		
			v **Rotor locking wrench:** 2 pieces.		
			v **Dimensions:** Tabletop model		
3.8			v **Power Requirements:** 240V, A/c 50 Hz.		

Item Code No.	Department	Section	Item Description		
LOT 6-23	Diagnostic Laboratories	Chemistry	**CENTRIFUGE**		
3.9			v **Ambient temperature:** 10° C to 40° C		
			v **Relative humidity:** 20% to 90%		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-24: THERMOMETER -20 /100

Item Code No.	Department	Section	Item Description		
LOT 6-24	Diagnostic Laboratories	Chemistry	**THERMOMETER -20 /100**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
			v Glass material		
			v Alcohol based.		
			v Able to register -20 – 100 ºC		

LOT 6-25: THERMOMETER -30 /100

Item Code No.	Department	Section	Item Description		
LOT 6-25	Diagnostic Laboratories	Chemistry	**THERMOMETER -30 /100**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
			• It is an instrument meant to measure both maximum and minimum air temperature. This item is to be used to monitor the variation of temperature within the laboratory.		
			• Scale -30 ºC – 50 ^{0}C; Division of 1 ^{0}C		
			• Precision +/- 1 ^{0}C		
			• Dimensions: 240 x 5 x 68mm		
			• In plastic body		
			• Internal and external use		

LOT 6-26 FREEZER

Item Code No.	Department	Section	Item Description		
LOT 6-26	Diagnostic Laboratories	Chemistry	**FREEZER**		
1. General Description					
2. Composition					
2. 1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			• **Material:** Insulated galvanized steel		
3.2			• **Compressor: electrical**		
3.3			• **Door: Single door**		
3.4			• **Net storage capacity: 450 litres**		
3.5			• **Temperatures range: Up to -20oC**		
3.6			• **Ambient temperature: 16oC to 32oC**		
3.7			• **Blood storage capacity: About 450 litre**		
3.8			• **Shelves: Provided, adjustable and extractable**		
3.9			• **Temperature Display: Digital**		
3. 10			• **v Control: Electronic, Microprocessor based**		
3. 11			• **Refrigerant: CFC free**		
3. 12			• **Alarm: Provided, audible and visible**		
3. 13			• **Power: 240V, 50 Hz.**		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			

Item Code No.	Department	Section	Item Description		
LOT 6-26	Diagnostic Laboratories	Chemistry	**FREEZER**		
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-27: MICROPIPETTS-SINGLE CHANNEL SET OF 5

Item Code No.	Department	Section	Item Description		
LOT 6-27	Diagnostic Laboratories	Chemistry	**MICROPIPETTS-SINGLE CHANNEL SET OF 5**		
1. General Description					
			Micropipette Single channel with variable volumes.		
			Volume ranges from:		
			0.1µL to 2.5µL.		
			0.5µL to 10µL.		
			5µL to 50µL.		
			20µL to 200µL.		
			100µL to 1000µL.		
			Fits the majority of tips with an aerosol barrier.		
			Should have filters to minimize the risk of contamination.		
			Should have an adjustable volume setting with click stop.		
			The internal components should be thermally insulated to improve accuracy.		
			Durable, strengthened structure with high chemical and UV resistance.		
			Light pipetting forces, comfortable handle and finger support.		
			No need to squeeze the pipette during pipetting.		
			Light and easy tip ejection.		

LOT 6-28 LAB DISTILLER

Item Code No.	Department	Section	Item Description		
LOT 6-28	Diagnostic Laboratories	Chemistry	**LAB DISTILLER**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			v **General Description:** Required for distilled water production for laboratory use.		
3.2			v **Operational Requirements:**		
			Double distillation plant not wall mounted		
3.3			**Output:** approx. 4 litres/ hour output.		
			Should provide instant distilled water flow.		
			Easy to operate, durable, safe for routine use.		
3.4			v **Quality of distillate:**		
			v pyrogen free.		
			v PH- 5.6 – 6.0		
			v High purity and low conductivity.		
			v Distilled water should be heavy metal, salts, pyrogen and iron free.		
			v Specific Conductivity at 25 deg C should be less than 0.4 x 10-6S/cm		
			v Glass material (or chemical inert material)		
			v Equipment should be thermal shock proof.		
			v Gas vent should be there to remove volatile impurities leaving the condensate free from gaseous impurities.		
			v Automatic low water cut off.		

Item Code No.	Department	Section	Item Description		
LOT 6-28	Diagnostic Laboratories	Chemistry	**LAB DISTILLER**		
			v Tubing should be made up of good quality rubber (heat resistant).		
			v **Power:** 240V, 50 Hz		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commissioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-29: AUTOMATED DNA/RNA SAMPLE PREP

Item Code No.	Department	Section	Item Description		
LOT 6-29	Diagnostic Laboratories	Molecular	**AUTOMATED DNA/RNA SAMPLE PREP**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			v **General Description:** Flexibility–should be able to handle different liquid modules of varying viscosity.		
			Should be able to perform Independent Z-axis movement.		
			Should have on-deck incubations to preserve reagents and samples.		
			Should have a Flexible with at least 12-positioned modular deck.		
			Should be supplied with contamination-Free HEPA/UV/LED enclosure.		
3.2			v **Volume Range:** 3µL – 50µL.		
3.3			v **Precision:** CV ≤3% at 3 µL. - 10µL.		
			v CV ≤2% at ≥ 10 µL - 50µL		
			v Deck Capacity: at least 12.		
3.4			v Multichannel Pipetting Function: Yes.		
			v Accessory supplies together Reagent Drop (up to 8), Independent Z Movement, Gripper, HEPA/UV enclosure.		
			v **Sample Format:** at least 96 well plate layout		
			v **Pipetting Head:** Multichannel Channel Function, Disposable Tip.		
			v Reagent Drop (at least 8 channels)		
			v **96-Tip Aspirator:** at least 1		

Item Code No.	Department	Section	Item Description		
LOT 6-29	Diagnostic Laboratories	Molecular	**AUTOMATED DNA/RNA SAMPLE PREP**		
			v Temperature Regulation Block: at least 3		
3.5			v **Reagent Cooling Block:** at least 1		
3.6			v **Plate Shaker:** at least 1		
3.7			v **Magnetic Block:** at least 1		
3.8			v **Plate Transporter type:** Gripper		
3.9			v **Liquid Level Sensing**		
3. 10			v **Technology of Nucleic acid extraction:** Paramagnetic Particle nucleic acid extraction Method		
3.11			v **Temperature**: Accuracy minimum not more than 0.3°C		
3.12			v **Magnetic Bead Recovery:** ≥ 98%		
3.13			v **Disinfection Lamp type:** UV light		
3.14			v **Operating System:** Windows Operating System		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			

Item Code No.	Department	Section	Item Description		
LOT 6-29	Diagnostic Laboratories	Molecular	**AUTOMATED DNA/RNA SAMPLE PREP**		
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commissioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-30 Real-Time PCR

Item Code No.	Department	Section	Item Description		
LOT 6-30	Diagnostic Laboratories	Molecular	**Real-Time PCR System with 96-well 0.2-mL block and tower desktop computer with monitor**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			**Features**		
			• The interactive touchscreen interface and simplified Design and Analysis Software make it easy to get started and stay organized.		
			• Software can be accessed either via desktop or online		
			• Wi-Fi–enabled connectivity		
			• Graphical interface allows easy editing of experimental conditions and viewing of plate layout		
3.2			• Sample capacity (wells): 96		
3.3			• Reaction volume: 0.2 mL block: 10–100 µL		
3.4			• Excitation source: Bright white LED		
3.5			• Optical detection: 96-well: 6 decoupled filters		
3.6			• Excitation/detection range: 450–680 nm/500–730 nm		
3.7			• Multiplexing: Up to 6 targets		
3.8			• Maximum block ramp rate: 96-well 0.2 mL block: 6.5°C/sec		

Item Code No.	Department	Section	Item Description		
LOT 6-30	Diagnostic Laboratories	Molecular	**Real-Time PCR System with 96-well 0.2-mL block and tower desktop computer with monitor**		
3.9			• Average sample ramprate:3.66°C/sec		
3. 10			• Temperature uniformity: 0.4°C, • Temperature accuracy: 0.25°C		
3. 11			• Compatible dyes: FAM/SYBR Green, VIC/JOE/HEX/TET, ABY/NED/TAMRA/Cy3, JUN, ROX/ Texas Red, Mustang Purple™, Cy®5/LIZ™, Cy®5.5		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commissioning				

Item Code No.	Department	Section	Item Description		
LOT 6-30	Diagnostic Laboratories	Molecular	**Real-Time PCR System with 96-well 0.2-mL block and tower desktop computer with monitor**		
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-31: THERMOCYCLER WITH GEL DOC

Item Code No.	Department	Section	Item Description		
LOT 6-31	Diagnostic Laboratories	Molecular	**THERMOCYCLER WITH GEL DOC**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			v High quality thermal cycler with large graphical display and modern designer housing.		
3.2			v Aluminum block for 2 x 48 x 0,2 ml tubes, 2 x 48-well microplates or 2 x 6 x 8-well 0.2 ml strips.		
3.3			v Maximum sample volume up to 50 µl.		
3.4			v Temperature gradient of maximum 20 °C over 8 rows for fast optimization of new applications, in block.		
3.5			v Block temperature range 3 to 99 °C.		
3.6			v Temperature range gradient 20 °C to 99 °C.		
3.7			v Maximum heating rate* 5.2 °C/s.		
3.8			v Average heating rage* 5.1 °C/s.		
3.9			v Maximum cooling rate* 4.1 °C/s.		
3. 10			v Average cooling rate* 4.0 °C/s.		
3. 11			v Excellent temperature uniformity of ± 0.2 °C at 55 °C.		
3. 12			v High control accuracy of ± 0.1 °C7'' color touchscreen.		
3. 13			v Quick block exchange system:		
3. 14			v Alternative block modules available: 96 well, 96 well gradient, 96		

Item Code No.	Department	Section	Item Description		
LOT 6-31	Diagnostic Laboratories	Molecular	**THERMOCYCLER WITH GEL DOC**		
			well silver, 96 well gradient		
3. 15			v silver, 60 well, 60 well gradient, 384 well, 384 well gradient, Twin 48, Twin 30, Twin combi		
3. 16			v Twin blocks can be controlled independently.		
3. 17			v Spreadsheet or graphical programming mode		
3. 18			v Large program memory for approx. 350 programs.		
3. 19			v Modern user management with 90 password protected directories.		
3. 20			v Software options: User specific quick start of the latest 5 programs, spreadsheet or graphical		
3. 21			v programming, program preview prior to start, extended self-test, save run log files, adjustable.		
3. 22			v Ramp rates, time and temperature increments, auto restart after power failure, Service Info File		
3. 23			v (SINF), Linear Gradient Tool, comprehensive user management tool with individual rights settings,		
3. 24			v Protocol Wizard:		
3. 25			v Heated lid with automatic pressure control (High Performance Smart Lid).		
3. 26			v Lid temperature between 30 and 110 °C.		
3. 27			v Power consumption of max. 850 Watt.		
3. 28			v Very low noise emission.		
3. 29			v Ethernet and USB A port.		

Item Code No.	Department	Section	Item Description		
LOT 6-31	Diagnostic Laboratories	Molecular	**THERMOCYCLER WITH GEL DOC**		
3. 30			v **Power:** 230 Volt, (50 - 60 Hz)		
3. 31			**GEL DOC SPECIFICATIONS:**		
3. 32			**General Description:** Three-position automated filter tray with your choice of pre-installed filters; broadband filter included Epi-white and epi-blue LED lights to enable a variety of gel imaging applications.		
3. 33			Large 11.6" integrated touch screen with user-friendly software to optimize image capture and analysis.		
3. 34			Easy access data storage (7 USB ports) for saving images on a USB drive, to the system or a network computer.		
3. 35			Wide front door: safety switch turns the UV light off when the door is open.		
3. 36			Compact design maximizes laboratory bench space.		
3. 37			UVP Elite UV Transilluminator with 16.8 x 21 cm illumination for a variety of gel sizes		
3. 38			High resolution 6.3 MP camera		
3. 39			Specifications/features UVP Solo Elite		
3. 40			**Camera features:**		
3. 41			6.3 MP, available in monochrome and color version with automated lens		
3. 42			3072 x 2048 pixel resolution		
3. 43			65,536 grey scales (16-bit)		

Item Code No.	Department	Section	Item Description		
LOT 6-31	Diagnostic Laboratories	Molecular	**THERMOCYCLER WITH GEL DOC**		
3. 44			Max. Sample Area: 16.8 x 21cm		
3. 45			CMOS sensor		
3. 46			**Darkroom features**		
3. 47			11.6" large integrated touch screen computer with 128GB of storage on a Solid-State Drive (SSD)		
3. 48			Integrated shut off UV door Safety switch.		
3. 49			3-position automated emission filter tray with pre-installed filters.		
3. 50			Overhead white and epi blue LEDs.		
3. 51			7 rear, one side USB ports for flash drive data export, USB-to-Ethernet connection or use with mouse of keyboard		
3. 52			Accessories to be included:		
3. 53			Broad band filter (535 - 660 nm), pre-mounted on the Elite mount		
3. 54			UVP Elite UV Transilluminator		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				

Item Code No.	Department	Section	Item Description		
LOT 6-31	Diagnostic Laboratories	Molecular	**THERMOCYCLER WITH GEL DOC**		
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-32 Digital PCR System, desktop

Item Code No.	Department	Section	Item Description		
LOT 6-32	Diagnostic Laboratories	Molecular	**Digital PCR System, desktop**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			• Easy and convenient qPCR-like workflow with only five minutes of hands-on time		
			• Reduced errors and manual inputs with all functions integrated into a single instrument		
			• Increased productivity with results in as little as 90 minutes		
3.2			• Reduced downtime with Smart Remote Support; show issues to Technical Support for speedy resolution		
3.3			• Digital PCR software enables intuitive setup, monitoring, and analysis - Security, auditing, and e-signature features for 21CFR part 11-compliance support		
3.4			• Compatible with Liquid Biopsy Digital PCR assays for oncology applications		
			Specifications		
3.5			Block Format: Non-interchangeable		
3.6			For Use With (Equipment): MAP16 Plate		
3.7			For Use With (Application): Digital PCR		
3.8			Enhanced optical multiplexing: With the ability to multiplex using up to four optical channels		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			

Item Code No.	Department	Section	Item Description		
LOT 6-32	Diagnostic Laboratories	Molecular	**Digital PCR System, desktop**		
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commissioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-33 LAB DEIONIZER

Item Code No.	Department	Section	Item Description		
LOT 6-33	Diagnostic Laboratories	Molecular	**LAB DEIONIZER**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			• **General Description:** Deionizer for production of pure water for laboratory use. Microprocessor based, compact design water purification system consisting of pre-water treatment, Reverse osmosis, Micro filters and UV treatment.		
3.2			**Capacity:** Minimum 8 litres per hour.		
3.3			**Pretreatment:** Provided, filter type, replaceable.		
3.4			**Reverse Osmosis:** Provided, Replaceable Membrane type with pump.		
3.5			**Micro filter:** Provided, Replaceable type.		
3.6			**UV treatment:** Provided, with replaceable lamps.		
3.7			**Pure water quality:**		
			Conductivity: Maximum 5µs/cm		
			Ionic Rejection: Minimum 95%		
			Bacterial and particles rejection: Minimum 99%		
3.8			**Display:** LCD display of conductivity and resistivity		
			Safety devices: Audi and Visual Alarm on water quality, water level, system failure		
3.9			**Dimensions:** Floor mounted top model		

Item Code No.	Department	Section	Item Description		
LOT 6-33	Diagnostic Laboratories	Molecular	**LAB DEIONIZER**		
3. 10			**Power Requirements**: 240V, A/c 50 Hz.		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-34 MICROPIPETTE-MULTI CHANNEL SET of 5

Item Code No.	Department	Section	Item Description		
LOT 6-34	Diagnostic Laboratories	Molecular	**MICROPIPETTE-MULTI CHANNEL SET of 5**		
1. General Description					
1.1			Micropipette Multi cannel with variable volumes.		
			Volume ranges from:		
			0.5µL to 10µL.		
			5µL to 50µL.		
			50µL to 300µL.		
			Fits the majority of tips with an aerosol barrier.		
			Should have filters to minimize the risk of contamination.		
			Should have an adjustable volume setting with click stop.		
			The internal components should be thermally insulated to improve accuracy.		
			Durable, strengthened structure with high chemical and UV resistance.		
			Light pipetting forces, comfortable handle and finger support.		
			No need to squeeze the pipette during pipetting.		
			Light and easy tip ejection.		

LOT 6-35 Biological Safety Cabinet Class II

Item Code No.	Department	Section	Item Description		
LOT 6-35	Diagnostic Laboratories	Molecular	**Biological Safety Cabinet Class II**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			**Features**		
			Class II biological safety cabinets combine safety, energy efficiency		
			Programmable UV light extends bulb life and saves energy		
3.2			**Technical Specifications:-**		
			Internal Dimensions: 1200 x 780 x 495 mm (W x H x D)mm		
			External Dimension: 1300 x 2200 x 795 mm (W x H x D)mm		
			Usable Work Surface: 0.56 m2		
			Working height of front window: 200mm		
			Maximum window opening (for cleaning, loading/unloading): 773mm		
			Work surface height: 750-950mm		
			Max load capacity of one-piece work surface: 50kg		
			Power supply: 230V, 50/60Hz		
			Filter Specification: HEPA H 14 EN 1822, 99.999% at 0.3µm particle size		
			Certification Standards: EN 12469; GS Nord Cert-TÜV		
			Interior outlets: One double, right side		
			Service valve ports: Up to 4 (installed through access ports)		
			Slope of front window: 10 degree °		

Item Code No.	Department	Section	Item Description		
LOT 6-35	Diagnostic Laboratories	Molecular	**Biological Safety Cabinet Class II**		
			Noise level: <55 dB (A)		
			Exhaust volume of cabinet 250mm opening: 400 m3/h (230 CFM)		
			Adjustable floor stand 1.2 m, Provides variable work height of 750-950mm in 50mm increments		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

Item Code No.	Department	Section	Item Description		
LOT 6-35	Diagnostic Laboratories	Molecular	**Biological Safety Cabinet Class II**		

LOT 6-36 PCR CABINET

Item Code No.	Department	Section	Item Description		
LOT 6-36	Diagnostic Laboratories	Molecular	**PCR CABINET**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			v **UV Source (254nm):** In 3 separate chambers:		
			Pre-filter chamber (dual UVC light tubes)		
			Inside the workstation (25W x 2)		
			Air recirculatory at the bottom (dual UVC light tubes)		
			v **UV Safety:** UV shut-off switches in all the chambers Red LED ambient light to indicate UV on.		
3.2			v **White light:** Overhead white LED lights brightly illuminate the work area.		
3.3			v **Filter module:** 2-stage filter module: Carbon pre-filter HEPA filter.		
3.4			v **Timer:** 15 minutes, 30 minutes, custom (up to 99 minutes).		
3.5			v **Work surface:** Antimicrobial coated stainless steel and aluminum.		
3.6			v **Shelves:** 2		
3.7			v **External Dimensions (H x W x D):** 39 x 32.5 x 24.25 (inch.)		
3.8			v **External Dimensions (H x W x D):** 29 x 31 x 21.5 (inch.)		

Item Code No.	Department	Section	Item Description		
LOT 6-36	Diagnostic Laboratories	Molecular	**PCR CABINET**		
3.9			v **UV Intensity:** 570 µW/cm2.		
3. 10			**Re-circulator Air Flow:** 560 ft/min.		
3. 11			**HEPA Air Flow*:** Low: 4 ft/min Medium: 53 ft/min High: 110 ft/min		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-37: MICROCENTRIFUGE

Item Code No.	Department	Section	Item Description		
LOT 6-37	Diagnostic Laboratories	Molecular	**MICROCENTRIFUGE REFRIGERATED**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			General Description: Tabletop microprocessor-controlled model the unit should be a latest version.		
			Minimum speed: Up to 300-14800 rpm		
			Maximum RCF: 21000G		
			Display: should be easy to use.		
			Safety System: Door interlocking system and emergency lid opening in case of power failure.		
			Alarms: Automatic rotor detection with an automatic imbalance detection system with an automatic stop function**.**		
			Rotor Type: Swing out and fixed angle rotor.		
			24 x 1.5/2.0 mL Rotor		
			CFC free refrigirants		
			Dimensions: Tabletop model		
			Power Requirements: 240V, A/c 50 Hz.		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			

Item Code No.	Department	Section	Item Description		
LOT 6-37	Diagnostic Laboratories	Molecular	**MICROCENTRIFUGE REFRIGERATED**		
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-38 Refrigerated Centrifuge

Item Code No.	Department	Section	Item Description		
LOT 6-38	Diagnostic Laboratories	Molecular	**Refrigerated Centrifuge**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			Centrifuge has a capacity up to 1.6L and can spin up to 76 x 5/7 mL blood tubes and 16 x 50mL conical tubes with biocontainment and is ideal for routine applications		
3.2			Quickly and securely swap between 14 unique rotor options with the tool-less Auto-Lock rotor exchange. Secure locking system allows easy push-button installation and exchange of rotors.		
3.3			Advanced rotor management system maximizes acceleration, braking and residual load imbalance for each rotor and bucket option		
3.4			Compact dimensions optimize work area and ergonomic height and curved design ensure easy sample loading and unloading and easy cleaning.		
3.5			Motorized lid latch enables one finger downward motion for easiest closing and locking of centrifuge lid		
3.6			Capacity: 4 x 400 mL		
3.7			Max. RCF: 25,830 x g with Microliter 30 x 2 rotor		

Item Code No.	Department	Section	Item Description		
LOT 6-38	Diagnostic Laboratories	Molecular	**Refrigerated Centrifuge**		
			Max. Speed: 15,200 rpm (Microliter 30 x 2 rotor)		
3.8			Display: LED		
3.9			Drive System: Direct, Brushless Induction Low Profile		
3. 10			Memory: Stores up to 6 programs		
3. 11			Profile (Acceleration/Braking): 9 Accel/10 Braking		
3. 12			Program Storage: Up to 6 programs via push button and high contrast LCD interface		
3. 13			Voltage 230 V		
3. 14			Safety Features: SMARTSpin Imbalance detection, finger-pinch prevention, crash-proof construction		
3. 15			Type: General Purpose Centrifuge		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			

Item Code No.	Department	Section	Item Description		
LOT 6-38	Diagnostic Laboratories	Molecular	**Refrigerated Centrifuge**		
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commissioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-39: Sequencer

Item Code No.	Department	Section	Item Description		
LOT 6-39	Diagnostic Laboratories	Molecular	**Sequencer**		
1. General Description					
2.			Composition		
2.1.			Main unit		
2.1.1.			Description of the medical supply unit design type		
2.1.1.1.			Fully Automated 8-capillary Fluorescence based Genetic Analyzer		
2.1.1.2.			Certification: CE/ FDA certified		
2.1.1.3.			An 8-capillary system that can be easily upgraded to a 24-capillary system anytime		
2.1.1.4.			Sequencing ,Sequencing – Basecalling and trimming, Fragment and HID ,analysis – Peak,detection and sizing. Fragment analysis, HID analysis		
2.1.1.5.			Advanced multiplexing capabilities for DNA fragment analysis with up to six unique dyes		
2.1.1.6.			Operating temperature 15 to 30°C (59 to 86°F)		
2.1.1.7.			8-well strips 96 well plate		
2.1.1.8.			Up to 368 samples per day (using run module ShortReadSeqPOP7)		
2.1.1.9.					
2.1.1.10.			Data Collection Software breaks ground in user-friendly navigation , Powerful, integrated data collection and primary analysis software that provides real-time assessment of data quality		
2.1.1.11.			Powerful, integrated data collection and primary analysis software that provides real-time assessment of data quality		
			Minimum Requarements :Hard Drive: 2x 500GB SATA 3.0		

Item Code No.	Department	Section	Item Description		
LOT 6-39	Diagnostic Laboratories	Molecular	**Sequencer**		
			Gb/s and 8 MB Data Burst Cache, Memory: 16 GB (2x 8GB) 1600 MHz DDR3 Non-ECC. 4th Gen Intel Core I7 Processor- 3.1 GHz Turbo Processor, Operating System: Windows 7 SP1		
2.1.1.13.			Applications-specific kits and reagents required to perform sequencing and fragment analysis should be available from the same supplier.		
2.1.1.14.			Suitable UPS for running the system with minimum of 30-min backup.		
2.1.1.15.			Electrical requirement: 220 volt, 50 Hz.		
2.1.1.16.			Starter reagents for 500 full sequencing reactions & fragment analysis (DNA standards for 1000 fragment analysis samples).		
			Consumables for 3,000 full sequencing reactions and sufficient number of capillary arrays, and all other consumables to run 20,000 samples should be included in the offer & supplied in 4 instalments over a period of 05 years as and when required. All consumables for sequencing and fragment analysis should be quoted separately and the prices of all the items should be frozen for seven years.		
2.1.1.18.			Warranty: Five years.		
2.1.1.19.			CMC for five years after warranty period		
		IMPORTANT CLAUSES			
2.2.			Detailed literatures (all originals) with technical specifications and features to be sent along with the offer.		
2.3.			Complete installation and testing of the equipment to its		

Item Code No.	Department	Section	Item Description		
LOT 6-39	Diagnostic Laboratories	Molecular	**Sequencer**		
			specifications and operator training by vendor service engineer to be done at the site of installation free of cost on the operation of the instrument, chemistry options and software.		
2.4.			Availability of local service support and response time for a service call during and after warranty should be specified.		
2.5.			List of referenced users of the quoted model along with their full contact details (including telephone numbers and email IDs) should be enclosed with the offer.		

LOT 6-40 Fragment Analyser

Item Code No.	Department	Section	Item Description		
LOT 6-40	Diagnostic Laboratories	Molecular	**Fragment Analyser**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			Parallel capillary electrophoresis system used for nucleic acid QC in low throughput labs.		
3.2			Separate 12 samples in parallel in as little as 15 minutes		
3.3			Choose between three different capillary array lengths for the required blend of speed or resolution		
3.4			Minimise instrument preparation time with no daily array handling requirements and room-temperature stable reagents		
3.5			See clear results with separation resolution as good as 3 bp from fragments under 300 bp		
3.6			Improve lab efficiency by loading and programming samples while a separation is currently running		
3.7			Move samples up or down in queue to adjust run priorities		
3.8			Use quality metrics for RNA (RQN) and genomic DNA (GQN) to remove subjective quality assessments		
3.9			Kits provide a wide dynamic range covering two orders of magnitude; Achieve accurate molarity calculations with reliable smear analysis		

Item Code No.	Department	Section	Item Description		
LOT 6-40	Diagnostic Laboratories	Molecular	**Fragment Analyser**		
3.1			IQ/OQ services available for use in GMP environments		
3. 11			Desktop PC supplied with a comprehensive 3-year warranty through HP		
3. 12			The Fragment Analyzer system which is a parallel capillary electrophoresis instrument that improves lab efficiency allowing you to separate 12 samples in parallel in as little as 15 minutes. This system is designed to eliminate laboratory bottlenecks so you can focus on results.		
3. 13			The Fragment Analyzer system should perform DNA QC and RNA QC for a broad range of samples including, gDNA, small RNA, cfDNA, large DNA fragments, and total RNA. The diversity of sample types these systems can separate make these instruments ideal for individualised workflows, including NGS library QC and CRISPR workflows.		
3. 14			Should be supplied with a compatible UPS		
3. 15			Power supply should be 240V, 50Hz		
4	Quality standards				
4.1	Manufactu ring standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			

Item Code No.	Department	Section	Item Description		
LOT 6-40	Diagnostic Laboratories	Molecular	**Fragment Analyser**		
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-41 Ice Flaking Machine

Item Code No.	Department	Section	Item Description		
LOT 6-41	Diagnostic Laboratories	Molecular	**Ice Flaking Machine**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			Ice maker of acompact in size, made of highly durable material with energy efficient features. Increased efficiency gives quick production of ice flakes with ice making capacity from 50 kg/24h up to 60 kg/24h. Self-contained storage bin to eliminate the need of a separate storage unit.		
3.2			High quality stainless steel construction		
3.3			Fully automatic operation system		
3.4			Fluorine-free foam thermal cover ensures good insulation		
3.5			High speed compact clear flake ice-production		
3.6			Use CfC free refrigerants		
3.7			Power supply 240v, 50Hz		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				

Item Code No.	Department	Section	Item Description		
LOT 6-41	Diagnostic Laboratories	Molecular	**Ice Flaking Machine**		
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-42 Multiplex Protein Array System based on xMAP Technology

Item Code No.	Department	Section	Item Description		
LOT 6-42	Diagnostic Laboratories	Molecular	**Multiplex Protein Array System based on xMAP Technology**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			Multiplex Bead based Suspension assay system for detection and analysis of more than 25 proteins, DNA (genotyping, presence absence experiments) and RNA (gene expression, detection) in a single sample at same time.		
3.2			System should have LED excitation and CCD as a detector for reporter and classification channels.		
3.3			Complete system with all sample processing, acquisition and analysis components and calibration/validation kits included.		
3.4			Should be open system with kits and reagents available through multiple vendors.		
3.5			Have option to design custom assays for specific application in lab for DNA, RNA and protein detection and analysis.		
3.6			Dedicated software for complete acquisition, analysis, calculation, and export of data in publication quality format.		
3.7			A branded compatible online UPS (minimum 2 hrs backup) and a compatible Latest computer system with all required software		
3.8			Minimum 2year onsite warranty and supply of spares		

Item Code No.	Department	Section	Item Description		
LOT 6-42	Diagnostic Laboratories	Molecular	**Multiplex Protein Array System based on xMAP Technology**		
			at least for 10 years from the delivery and installation of the equipment.		
3.9			Post Warranty CMC guarantee and cost included in the tender for LCC consideration but not and part of the quote.		
3. 10			**Accessories needed:**		
			Branded certified ultrasonic water bath.		
			1.5 ml tube and plate mixer with heating block.		
			2 additional conjugation/coupling kits.		
			calibration/verification kits.		
			Magnetic separator/ washing block for 96 well flat bottom and conical well plates.		
			At least 3 different colour microsphere beads included (minimum 106 beads of each colour)		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				

Item Code No.	Department	Section	Item Description		
LOT 6-42	Diagnostic Laboratories	Molecular	**Multiplex Protein Array System based on xMAP Technology**		
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-43: Microbiological Incubator

Item Code No.	Department	Section	Item Description		
LOT 6-43	Diagnostic Laboratories	Molecular	**Microbiological Incubator**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			The unit is used in a standard laboratory. It is constructed from robust,corrosion free outer material . Interior part is constructed from high grade stainless steel with two heights adjustable stainless steel trais. Its electronically adjustable temperature control, with inbuilt digital temperature indicator , and time control.		
3.2			Main Unit: Incubator		
3.3			Temperature range: Ambient +5˚C to 105˚C		
3.4			Accuracy: ±0.1		
3.5			Temperature Control: Microprocessor control with vacuum fluorescent display.		
3.6			Display: Intuitive user interface for setting temperature.		
3.7			Door Seal: Lockable incubator door for restricted access with sith replaceable silicon rubber.		
3.8			Air movement: Natural air circulation		
3.9			Timer: Advanced digital timer for daily or weekly on/off cycles.		
4			Uniformity of temperature: Temperature uniformity as good as ±0.2˚C.		
4.1			Interior material: Stainless steel easy to clean with rounded corners.		

Item Code No.	Department	Section	Item Description		
LOT 6-43	Diagnostic Laboratories	Molecular	**Microbiological Incubator**		
4.2			Safety Device: Safe containment with automatic over temperature alarm and thermostat.		
4.3			Compact benchtop incubator with robust construction and easy to clean.		
4.4			Internal Capacity is 66 litres.		
4.5			Power Requirements: 240V, A/C 50 HZ, Single phase.		
4.6			Ambient temperature: 18˚CTO 32˚C		
4.7			Relative humidity: 80% Non-condensing in service.		
4.8			Shelves: 2 supplied /max 13		
4.9			Consumables /reagents: N/A		
5			Quality standards		
5.1			Manufacturing standards		
5.2			Conformity to standards: CE and FDA marked		
5.3			Local Back up service:		
			Capacity to service equipment : Spare parts shall be provided.local has qualified and trained and skilled staff.		
5.4			Delivery point: Proposed Kisii Teaching and Referral Hospital Cancer Centre		
			See schedule		
			Hospital		
5.5			Pre installation requirements		
			Nil		
			Installation and testing		
			Complete installation and setup of the machine at various sites as per manufacturers's instructions.		
5.6			Training		
			User training: Installation, Commissioning and user		

Item Code No.	Department	Section	Item Description		
LOT 6-43	Diagnostic Laboratories	Molecular	**Microbiological Incubator**		
			training will be conducted by Engineers		
			Maintenance training		
5.7			Technical documentations		
			User manuals: 2 sets of user manual shall be provided.		
			Service manual : 1 set of service manual shall be provided.		
5.8			Commissioning		
			Testing and commissioning of the machine to the satisfaction of the user		
5.9			Warranty: 1 Year Warranty		
			Equipment Minimum of one year after commissioning on all parts: Equipment will have one year warranty whereby spares will be changed incase of faulty at no extra cost.		

LOT 6-44 Electronic Balance

Item Code No.	Department	Section	Item Description		
LOT 6-44	Diagnostic Laboratories	Molecular	**Electronic Balance**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
			A high resolutiona graphic diplay with a stainless steel pan makes it ideal for research and quality assurance labs; science education; precision counting;		

Item Code No.	Department	Section	Item Description		
LOT 6-44	Diagnostic Laboratories	Molecular	**Electronic Balance**		
			and production and manufacturing applications needing precision results.Level indicator and adjustable feet ensure proper balance setup for optimum weighing result.		
			Backlit LCD with 24mm high digits. High resolution display with transparent wind shilded cover		
			Weighing range : 210g		
			Reproducibility – 0.1mg: 0.0001g		
			Pan size – 80mm.		
			Automatic Internal adjustment		
			Electrical adapter for mains: 230-240V/50-60 HZ.		
			Tare & other adjustments: Tare function, Applications • Weighing • Parts counting • Percentage weighing • Dynamic / animal weighing • Density determination • Checkweighing • Net total weighing		
			OIML Weight Sets 1mg-200g supplied with balance		
			Includes a 5 year warranty RTB and calibration certificate		
			Warranty: 1 Year warranty period against labor and manufacture defects +		

Item Code No.	Department	Section	Item Description		
LOT 6-44	Diagnostic Laboratories	Molecular	**Electronic Balance**		
			2 Years extended warranty		

LOT 6-45 Vertical floor standing Autoclave

Item Code No.	Department	Section	Item Description		
LOT 6-45	Diagnostic Laboratories	Molecular	**Vertical floor standing Autoclave**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
			Sterilization of wrapped clinical instruments, non-wrapped solid products,distilled water and non-medicinal liquid preparations, in open bottles. Vertical floor standing Chamber case, lid and external case made of AISI-316L/ AISI-304 stainless steel. Total volume 83 litres usable volume 80 litres		
			Application: Sterilization of wrapped clinical instruments, non-wrapped solid products,distilled water and non-medicinal liquid preparations, in open bottles.		
			Sterilization agent: equipped with an independent integrated steam generator		
			Sterilization cycle: Adjustable number of initial prevacuum pulses, Fractioned vacuum (from 1 to 3 pre-vacuum). with integrated printer (Ref. IT-TS).		
			Sterilization temperature range: Min.- max. sterilization temperature 105 - 134°C, Programs: 12 predefined and 38 user free.		
			Pressure equalization: Bacteriological filter for air inlet and its replaceble		
			Sterilization chamber design and capacity: 75 Litres usable volume ,40 X 60 cm deep with AISI-316L stainless steel construction		
			Sterilization Chamber door: Hydraulic door blocking system while existing positive pressure in the chamber, Top loading		
			Control unit: Digital microprocessor with a 5'' TFT touchscreen for an easy programming. 5'' TFT touchscreen for an easy programming such as current temperature, current pressure, both in numbers and in graphs,including water status or heating status.50 programs and the first 14 are predefined and protected. The rest of the programs are editable with the different parameters settings. The programs are editable with different parameter settings		
			Steam generator: Heating element inbult ,230 v ,50/60 Hz		
			Water to steam generator: Automatic clean water feed to the integrated steam generator from the		

Item Code No.	Department	Section	Item Description		
LOT 6-45	Diagnostic Laboratories	Molecular	**Vertical floor standing Autoclave**		
			independent water tank, with water level sensors included in both locations		
			Printer: With built in integrated thermal printer		
			Safety features: Safety valve and thermostat. Have an open lid sensor. Hydraulic door blocking system while existing positive pressure in the chamber.		
4.1			**Physical characteristics**		
			Main unit: Vertical floor standing		
			Operating environment		
			Power Requirements: 230 v ,50/60 Hz		
			Ambient temperature: 10 to 35˚C (59 to 86˚F)		
			Relative humidity: 0 to 95% (non-condensing)		
5.1			**Accessories**		
			Stainless steel wire basket: 3 assorted sizes of wire basket provided		
			Stainless steel container: 3 stainless steel busket		
			Printing papers: Supplied with 10 rolls of thermal printer paper		
6.1			Quality standards: AD 2000 Merkblatt Pressure vessels• 2014/68/UE Pressure equipment EN-61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements • EN-61010-2-040 Part 2-040: Requirements for laboratory autoclaves		
			Manufacturing standards: Comply with EN ISO 9001:2008 certification comply with ISO 13485:2016 certification		
			Conformity to standards: CE and FDA 21 cfr marked		
7.1			Local back up service		
			Available		
			Capacity to service equipment:		
			Delivery point		
			See Schedule: Inspection, installation and commissioning to be done per schedule		
			Pre installation works - Nil		
8.1			**Installation and testing**		
			Complete installation and setup of the machine as per manufacturer’s instructions: The equipment will be installed as per manufacturers instructions bylocal bionedical engineers		
9.1			**Training**		
			User Training: User training tobe conducted by local biomedical engineers		

Item Code No.	Department	Section	Item Description		
LOT 6-45	Diagnostic Laboratories	Molecular	**Vertical floor standing Autoclave**		
			Maintenance training: Onsite maintenance training on preventive maintanance to be done by local biomedical engineers		
10.1			**Technical documentations**		
			User manuals: Two copies both hard and soft Provided		
			Service Manual: Two copies both hard and soft Provided		
			Commissioning: The equipment installation and commisioning to be done by local biomedical engineers		
			Testing and commissioning of the machine to the satisfaction of the user:		

LOT 6-46 Water Bath

Item Code No.	Department	Section	Item Description		
LOT 6-46	Diagnostic Laboratories	Molecular	**Water Bath**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1		Used in laboratory, robust constructed, seamless stainless steel, inbuilt temperature control and indicator. Uniform and constant liquid temperature attainable. Capable of accommodating a number of test tubes.			
		Temperature range: '+5˚C to 100˚C			
		Accuracy: ±0.1˚C			
		Temperature control: Advanced microprocessor controller is designed for extended functionality.			
		Display: Digital Controller for temperature and time.			
		Timer: Auto -ON and Auto OFF adjustable.			
		Liquid temperature uniformity: Constant temperature in the chamber ± 0.2˚C at 37˚C.			
		Temperature stability: ± 0.1oC at 37˚ C			
		Interior material: Seamless Stainless steel			
		Heater: Heater mounted on both sides and bottom			
		Insulation: poxypowder -coated steel			
		Internal Volume: 20 litres			
		Safety Device: Over temperature safety circuitry prevents thermal runaway.			
4.1		Physical characteristics			
		Main unit: Bench top, Robust construction and easy to clean			
		Capacity internal: 18 litres			
		Operating environment			

Item Code No.	Department	Section	Item Description		
LOT 6-46	Diagnostic Laboratories	Molecular	**Water Bath**		
		Power Requirements: 230V 50HZ AC 1PHSE			
		Ambient temperature: Ambient temperature: 15oC to 45oC			
		Relative humidity: Up to 80% non condensing			
5.1		**Accessories**			
		Stainless steel lid: Provided			
			Tube rack φ 16 mm: Provided		
			Lid with holes: 6-Hole Concentric Ring Cover supplied		
			Consumables/Reagents: nil		
6.1			Quality Standards		
			Manufacturing standards: Compliance: UL, RoHS, WEEE		
			Conformity to standards: CE Marked		
7.1			**Local back up service**		
			Available:		
			Capacity to service equipment:		
			Delivery point: Proposed Kisii Teaching and Referral Hospital Cancer Centre		
			Complete installation and setup of the machine as per manufacturer's Instructions:		
8.1			**Training**		
			User Training		
			Maintenance training		
			Technical documentations		
			User manuals: 2 sets provided		
			Service Manual: 1 set provided		
			Drawings: Nil		
			Testing and commissioning of the machine to the satisfaction of the user.		
9.1			**Warranty**		
			Equipment: One year Warranry		
			Equipment System: Nil		

LOT 6-47 Block Heaters

Item Code No.	Department	Section	Item Description		
LOT 6-47	Diagnostic Laboratories	Molecular	**Block Heaters**		
1. General Description					
2. Composition					
2.1. Main unit					
3. Performance Specifications					
	Main Unit				
Dry bath with advanced microprocessor control which can be widely applied to sample reservation, enzyme reservation and reaction, DNA amplification, electrophoresis degeneration and serum coagulation etc.					
	Digital Dry Bath / Block Heater, 4 Blocks				
	Digital Dry Bath / Block Heater. Digital display, robust and compact design. Sample preparation, Enzyme preservation, Enzyme-substrate reactions, DNA				
	4 blocks				
	Digital display, robust and compact design. Sample preparation, Enzyme preservation, Enzyme-substrate reactions, DNA amplification, Electrophoresis gel degeneration & Serum coagulation				
	+5˚c to 130˚c (Ambient temperature 25˚				
	≤±1.0				
	Range of configuration to hold 1, 2 and 4 interchangeable modular blocks to accommodate a variety of vessels and applications				
	Block: 24 x ø13 mm , 1 Pc Block: 15 x ø16 mm , 1 Pc Block: 12 x ø18 mm, 1 Pc Block: 8 x ø20 mm, 1 Pc				

LOT 6-48 pH Meter

Item Code No.	Department	Section	Item Description		
LOT 6-48	Diagnostic Laboratories	Molecular	**pH Meter**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
			Bench top PH meter ideal for wide range of applications , micro processor based and can perform upto 5 point PH calibration,log upto 2000 data point sets with time/date stamp and easily transfer the data via diff interfaces.		
			Bench top PH meter microsprocerssor based with digital diplay indicating selectable read modes and stability indicator give you flexibility and control over your testing.		
			(-2 to 20) ph		
			LCD display , graphical with backlight		
			8157BNUMD ROSS Ultra epoxy-body pH/ATC electrode		
			Electrode stand provided		
			NIST or DIN buffer groups availlable with choice to manually enter custom buffer values.		
			240V , 50Hz universal AC adaptor or 4 AA batteries sold separately		
			Delivery to Kisii cancer centre		
			3 years manufacturers warranty		
			CE, TUV 3-1, FCC Class A certifications		

LOT 6-49 Timer, Digital

Item Code No.	Department	Section	Item Description		
LOT 6-49	Diagnostic Laboratories	Molecular	**Timer, Digital**		
1. General Description					
			Four-Channel Countdown Alarm Digital Timer/Stopwatch with Memory Recall, 5004		
			Timing Capacity: 99 hours, 59 minutes, 59 seconds. Massive ¾" high display allows viewing from across the lab		
			Supplied: clip, stand, magnet, battery, Certificate		
			Includes: Easel stand, lapel clip, hole for lanyard and magnetic back, two-year silver-oxide battery, sturdy ABS plastic case		
			Four Channel Alarm Timer. Extra-loud, 70 db alarms for 1 minute or can be silenced manually		
			Its microcomputer chip permits setting 4 separate channels simultaneously in any combination of countdown or countup (stopwatch). Set any countdown time from 99 hours, 59 minutes, 59 seconds to 1 second with an accuracy of 0.01%.		
			Countdown or countup (stopwatch).Additional features include stopwatch, time-out, and time-of-day clock. Finger-size keys make it easy to set times and change channels.		
			Massive ¾" high display allows viewing from across the lab. Initiate up to four tests Simultaneously. Remarkable memory returns display to previously programmed countdown time at the touch of a button.		

LOT 6-50 Vortex Mixer

Item Code No.	Department	Section	Item Description		
LOT 6-50	Diagnostic Laboratories	Molecular	**Vortex Mixer**		
1. General Description					
			Designed for accurate speed control with digital diplay ,continuous and touch modes for continuous mixing or pulsing of samples		
			Digital Vortex Mixer		
			200 - 3000 rpm		
			3 seconds 1500rpm (touch) 6 seconds 3000rpm (continuous)		
			2mm		
			230V UK/EU/CHN plug 50/60 Hz		
			Supplied with a DC Adaptor		

LOT 6-51 ID/AST Microbiology system

Item Code No.	Department	Section	Item Description		
LOT 6-51	Diagnostic Laboratories	Molecular	**ID/AST Microbiology system**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			· Technology that represents a smart way to automate ID/AST testing. Should provide rapid,		
			automatic, standardised validation of every test result.		
			· The system that uses a phenotypic expert system which is capable of recognizing unusual results (i.e., mixed cultures) and new resistance phenotypes.		
			· Results should have indicator to each isolate that shows		
			the level of confidence in the susceptibility results:		
			· MIC* results from a cultured isolate in as little as 5 hours		
3.2			· CONNECTIVITY		
			Link to other computers and software		
			Connect easily to your Laboratory Information		
			System (LIS) with BCI Link (Bi-directional		
			Computer Interface)		
3.3			· MANAGE DATA AND SAMPLE		
			WORKFLOW		
			software simplifies lab operations		
			Provides real-time instrument and sample		
			information at your fingertips		
			Results accessible from any device, any location		
			Real-time cumulative statistical functions		
			(e.g. antibiograms)		
			Enables remote access by multiple users and		
			real-time connectivity to an existing LIS		
3.4			· RESULTS AT A GLANCE		
			Immediate automatic validation and transfer of high		
			confidence results to the LIS (auto-posting)		

Item Code No.	Department	Section	Item Description		
LOT 6-51	Diagnostic Laboratories	Molecular	**ID/AST Microbiology system**		
			Easy-to-use and familiar Windows® layout		
			Quick access to ID and AST results.		
			Rapid result searches by patient, bench, date tested,		
			organism, technician, accession number, etc.		
3.5			· FLEXIBILITY		
			Simultaneous access from multiple		
			workbenches		
			The barcoding system		
			Simultaneous multi-user access.		
			RELIABLE, SAFE, RAPID		
			Closed system: no aerosols, splattering or spills		
			Full traceability with pre-applied barcodes		
			· Lightweight: reduced waste and biohazard disposal		
			costs while minimising storage space		
			· EUCAST† and CLSI* compliant AST formulations		
			available producing MICs based on reference CLSI and		
			ISO MIC methods		
3.6			· BROAD ID/AST TEST MENU		
			Susceptibility types		
			Gram negative Bacilli – more than 60 antimicrobials and ESBL		
			Staphylococci &/or Enterococci – more than 52 antimicrobials,		
			4 high level aminoglycoside screens and ICR†† test		
			Streptococci – more than 10 antimicrobials and ICR test and		
			gentamicin synergy		
			Streptococcus Pneumoniae – more than 13 antimicrobials		
			YST (Yeast) -atleast 6 antifungals		
			SAVE TIME AND STREAMLINE		
			short hands-on-time		
3.7			ELECTRICAL REQUIREMENTS		
			• or 220/240 VAC (50-60 Hz)		
3.8			HEAT DISSIPATED		
			• 682 BTU/Hr. (nominal)		
3.9			ENVIRONMENTAL REQUIREMENTS		

Item Code No.	Department	Section	Item Description		
LOT 6-51	Diagnostic Laboratories	Molecular	**ID/AST Microbiology system**		
			• Operating ambient temperature range of 20˚C to 30˚C		
			• Operating humidity range: 20% to 80% relative		
			humidity, non-condensing		
			ALTITUDE		
			• up to 2,000 m		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
	Complete installation and setup of the machine as per manufacturer's instructions				
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-52 Bacterial Blood Culture System

Item Code No.	Department	Section	Item Description		
LOT 6-52	Diagnostic Laboratories	Molecular	**Bacterial Blood Culture System**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			Fullyautomated state of the art microbial detection system .		
			Microprocessor controlled with LCD display, keyboard and patient management system.		
			240 cells		
			Bottle handling process is as easy as 1,2,3.		
			Barcode scanner reads bottle ID and LIS accession number.		
3.2			Automatic QC		
3.3			Instant Visual and Audio alerts.		
			provide 500 startup bottles		
			Standards will be supplied.		
			It’s a floor stnding model		
3.4			240V, A/c 50 Hz,		
3.5			UL 61010-1, IEC 61010-1		
3.6	certificates		CE marked		
3.7			have trained and skilled staff that offer maintenance.		
3.8			Spare parts shall be available locally and we have trained staff.		
3.9			Routine maintenance shall be as per manufacturer documentation in service/technical manual.		
4.1			Manuals		
			2 sets user		
			1 set service		

Item Code No.	Department	Section	Item Description		
LOT 6-52	Diagnostic Laboratories	Molecular	**Bacterial Blood Culture System**		
4.2			perform the testing and commissioning of the equipment to user satisfaction.		
4.3			One year warranty.		

LOT 6-53 cross matching

Item Code No.	Department	Section	Item Description		
LOT 6-53	Diagnostic Laboratories	Molecular	**cross matching**		
1. General Description					
2. Composition					
2.1.	Main unit				
3. Performance Specifications					
	Main Unit				
3.1			***Main features:***		
		• Full Automation			
		• Continuous Access			
		• Fast Turnaround Time			
		• STAT Priority			
		• Broad Test Menu			
		• User Friendly Interface- wide range of assays including:			
			Ø ABO Type,		
			Ø Reverse Type		
			Ø Donor Confirmation		
			Ø ABO Type Newborn		
			Ø Rh and Kell Phenotype		
			Ø Weak D		
			Ø Antibody Screen (3-cell)		
			Ø Antibody Identification (3 panels)		
			Ø Crossmatch		
			Ø DAT (IgG)		
			• Intuitive user interface		
			• Color, touchscreen monitor		
			• Fluidics Module		
			• One system liquid		
			• Add system liquid or remove waste any time during a run		
			• LED user interface for linear rack loading		
			• Accommodates 20 samples and 16 liquid reagents		
			• Immediate bar code read		
			• LED user interface for continuous loading		
			• Accommodates 32 strips		
			• All strips feature 2D bar codes for resource management		

Item Code No.	Department	Section	Item Description		
LOT 6-53	Diagnostic Laboratories	Molecular	**cross matching**		
			• Forced-air incubator reduces turn-around-time		
			• Continuous flow washer		
			• Microstrip centrifuge		
			• Image analysis reader provides real time test results		
			• A quick turnaround time and a flexible loading system		
3.2			***Sample & Reagent dispensing unit***		
			• *One syringe with a capacity of 1 ml (liquid handling)*		
			• *Mixing (microplate)*		
			• *Level sensor system electronic*		
			• *Clot detection*		
			• *Sample dispensing time high*		
			• *Reagent dispensing time high*		
			• *No Carry over*		
3.3			***Sample identification unit***		
			• *Barcode scanner –primary tubes*		
			• *Automatically barcode reader*		
			• *Sample tube capacity-20 sample tubes*		
			• *Automatic checking of required reagent volume*		
3.4			***Incubation unit***		
			ü *Temperature range 5^0c above room temperature to 50^0 c*		
			ü *Waste tank level sensor*		
3.5			***Management system***		
			ü *Computerized*		
			ü *Hard disk*		
			ü *Keyboard – alphanumeric*		
			ü *Monitor (Touch screen)*		
			ü *Can be interfaced with blood bank software*		
3.6			***Power requirement***		
			ü *24v/50-60z*		
4	Quality standards				
4.1	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485 and UL 3101-1			
4.2	Conformity to standards	IVD- Directive 98/79/EC ,CE and FDA marked			

Item Code No.	Department	Section	Item Description		
LOT 6-53	Diagnostic Laboratories	Molecular	**cross matching**		
5	Local back up service				
5.1	Available	Should be locally available			
5.2	Capacity to service equipment	Agent shall have adequate facilities, spare parts, consumables/filters and qualified and skilled technical staff			
6	Delivery point				
6.1	See Schedule	For inspection and testing			
7	installation and testing				
Complete installation and setup of the machine as per manufacturer's instructions					
8	Training				
8.1	User Training	On site user training on operation and daily up keep			
8.2	Maintenance training	Onsite maintenance training on preventive maintenance			
9	Technical documents				
9.1	User manuals	2 Sets			
9.2	Service Manual	1 Set			
10	Commisioning				
10.1	Testing and commissioning of the machine to the satisfaction of the user.				
11	Warranty				
11.1	Equipment	Minimum of one year after commissioning on all parts.			
11.2	Equipment System	Nil			

LOT 6-54 Plasma Thawer

Item Code No.	Department	Section	Item Description		
LOT 6-54	Diagnostic Laboratories	Molecular	**Plasma Thawer**		
1. General Description					
2.			Composition		
2.1.			Main Unit		
3.			Description of the medical supply unit design type		
			Operational Requirements:		
3.1			Benchtop, Compact size		
3.2.			Thawing Capacity: 8 bags or more		
3.3.			Should have Stainless Steel Tank of 22G, and an insulated lid covered with 20G Stainless Steel.		
3.4.			Should be fitted with compartments that have removable rack/tray system for securely holding the plasma bags and ensuring that entry ports are not contaminated with water.		
3.5.			Should be a microprocessor controlled water bath based system operating at a temperature at 4 ºC +/- 0.2 ºC or alternative can also be safely set at 37 ºC +/-0.2 ºC.		
3.6.			Digital, electronic system with provision for programmable temperature adjustment setting with LED display with temperature resolution of 0.1 ºC		
3.7.			The default chamber temperature setpoint is 36.5 °C.		
3.8.			**Median Thaw Times** **For plasma stored at -30°C** 250ml flat 10 minutes 300ml flat 14 minutes 250ml flat, thick plastic 16 minutes 250ml folded 17 minutes 500ml flat apheresis 18 minutes		
3.9.			Chamber volume and high capacity heater enhance heat transfer efficiencies for faster thawing		
3.10.			Should have a system to drain the chamber without lifting or tilting, and should be fitted with a shut off valve.		
3.11.			Polished stainless steel tank and baskets. Bacteria-resistant powder coated exterior.		

Item Code No.	Department	Section	Item Description		
LOT 6-54	Diagnostic Laboratories	Molecular	**Plasma Thawer**		
3.12.			Compatible with Input voltage: 240V 50 Hz Single phase AC		
3.13.			Should have an integrated voltage stabilizer or external servo stabilizer of appropriate ratings meeting ISI Specifications (Input 160-260 V and output 220-240 V and 50 Hz).		
3.14.			Resettable over current breaker shall be fitted for protection.		
			Quality standards		
3.15.			Manufacturing should be compliant with ISO 13485 and ISO 9001:2008.		
3.16.			Should be compliant with European CE Class IIA and/or US FDA		
3.17.			Equipment must meet electrical safety specifications of IEC 61010-1		
			Additional requirements:		
3.18.			All equipment should specify qualifications for design, installation, operation and performance.		
3.19.			Validation and calibration reports should have traceability to applicable national and international standards.		
3.20.			Complete with comprehensive set of spare parts, and a suitable capacity voltage stabilizer and Suitable UPS with maintenance free batteries for minimum one-hour back-up for each equipment should be supplied with the system.		
3.21.			Warranty for 2 years and CMC/AMC for Three years with spare parts availability.		
3.22.			The make, rating, model, description, specifications, price quantity of each item should be furnished separately.		
3.23.			Necessary catalogues, technical write up in English, should be attached with the offer both in hard and electronic copies.		
3.24.			Performance, efficiency, other factors as applicable should be furnished.		
3.25.			Demonstration and continued comprehensive training for lab staff and support services till familiarity with the system.		
3.26.			Should provide electronic and hard copies of User Manual (English), Service manual (English) and Complete construction details with respect to material specification, thickness, finish etc.		
3.27.			Should provide a set of equipments for providing calibration (eg thermometer) and routine Preventive Maintenance as per manufacturer documentation in service/technical manual.		

Item Code No.	Department	Section	Item Description		
LOT 6-54	Diagnostic Laboratories	Molecular	**Plasma Thawer**		
3.28.			Should provide Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.		

LOT 6-55 Blood Donor Couch

Item Code No.	Department	Section	Item Description		
LOT 6-55	Diagnostic Laboratories	Molecular	**Blood Donor Couch**		
1. General Description					
		Electric adjustment of backrest, seat and leg sections as well as height and footrest adjustment in fast, quiet and secure movements. Comfortable, soft cushioning for maximum comfort when sitting and reclining, even after several hours. Perfect ergonomics thanks to low access heights, wide reclining surface, innovative five-position armrests and large twin-wheel castors. Independently certified product safety and superb reliability.			
2.			Composition		
2.1			Comfort, functionality and ergonomics: With stepless motorised adjustment and intelligent and intuitive operation via the selection and control keys of the control element, with 3, 4 or 5 motors promises high levels of seated and reclining comfort in all situations. The couch quickly and smoothly moves to any required or preferred position-from seated, relax and bed positions to the emergency Trendelenburg position-at the touch of a button.		
3.			Physical Specifications		
3.1.			Surface in reclined position (L x W) 220 x 60 cm		
3.1.1.			Blood Donor couch with 3-5 motors, with/without central locking,comfortable pillows, integral foam armrests. Mobility and braking 10 cm twin-wheel castors with central locking system		
3.1.2.			Backrest - 5° to 78°		
3.1.3.			Dimensions: Backrest - 5° to 78° Seat section 0° to 22° Leg section - 25° to 0° Armrest (L x W) 58 x 13 cm Footrest travel length 25 cm Height adjustment 21 cm (54 – 75 cm)		
3.1.4.			Maximum patient weight: 220 kg		
4.			Quality Standards		
4.1.			ISO 9001		
4.2.			CE Standard		
5.			Delivery point		
5.1.			For delivery, installation and testing		
6.			Warranty		
6.1.			Minimum of one year after delivery		

LOT 6-56 Blood Component Separation Equipment

Item Code No.	Department	Section	Item Description		
LOT 6-56	Diagnostic Laboratories	Molecular	**Blood Component Separation Equipment**		
1. General Description					
		Blood component separators should be supplied with capacity to fit the bag systems with in-line filters as specified in the relevant section and should offer the following minimum features:			
2.			Composition		
2.1.			Main unit		
3.			Description of the medical supply unit design type		
3.1.			BagPRESS plus retains the robust build quality and flexibility of,BagPRESS. Centrifuged blood may be processed into components using top/top and top & bottom technology and with the widest range of bloodpack system.		
3.2.			Once complete, up to 3 seals can be automatically made on the red cell or plasma lines (e.g. 1 on red cell line and 2 on plasma line). This whole process is hands free and takes less than 2 min 30 sec, leaving users free to load and unload additional BagPRESS plus or perform laboratory tasks whilst BagPRESS plus maintains assurance that consistent product quality is maintained		
3.3.			A sensor system for: top red cells		
3.3.1.			Complete process control.		
3.3.2.			The top sensor used in the top / top processes is now active during the top and bottom separation. This means that in the unlikely event that the red cells threaten to overrun into the plasma then the red cells will be detected and the tubing clamped, ensuring red cell free plasma, every time. The top sensor is used to detect air which is diverted into the SAG-M (additive) pack prior to plasma expression into the plasma pack. At completion of plasma expression red cells are detected and AG-M is automatically added to the red cells in the primary pack whilst the air remains in the SAG-M pack		
3.3.3.			Better yield of blood products.		
3.3.4.			Reduced risk of haemolysis.		
3.3.5.			As the separation process is automatic, a single person can operate several machines, simultaneously, the automation of the process also means that the blood components obtained are high quality and standardised		
3.3.6.			Alarms to ensure a safe process.		

Item Code No.	Department	Section	Item Description		
LOT 6-56	Diagnostic Laboratories	Molecular	**Blood Component Separation Equipment**		
3.3.7.			The separation programmes should allow flexibility to satisfy customised needs.		
3.3.8.			Should be fitted with auto-taring balances to monitor and record the weight of all blood products (including plasma).		
3.3.9.			Should be capable of interlacing different steps of the procedure for a faster separation time.		
3.4.			Should feature automatic pressing of air out of the plasma bag.		
3.5.			Separators should be equipped with a suitable bar code scanner for reading of operator identification badge, the donor number and any other information as required.		
3.6.			Should be equipped with a graphical user interface for easy, step by step monitoring of the procedure.		
			If the bag systems offered include break cannulas that can be opened automatically, the separators should be capable of this procedure. If such is the case; portable openers should also be included in the offer (one with every separator). Automatic breaking of break cannulas should not increase haemolysis.		
3.8.			**DATA MANAGEMENT** Pall Data includes FTP (File Transfer Protocol) functionality to allow fully automated and secure data transfer into your main IT system allowing automated integration of component weights and full audit compliance of who processed every donation, when, how long the process took and on which BagPRESS plus.		
3.9.			The data management system mentioned above should be capable of bi- directional interface with NBTS's blood bank data management system - PROGESA (refer to relevant section).		
3.10.			Detailed directions for use must be included with each separator. Instructions for all addons must also be included (if applicable). Instructions must be available in English language.		
3.11.			Instructions for use must be version controlled and changes notified by an appropriate means.		
3.12.			All equipment should be compatible with the local electricity supply		
3.13.			CE Marked, Standards to which conformity is declared: EN 60601, EN60601-1-2		

Item Code No.	Department	Section	Item Description		
LOT 6-56	Diagnostic Laboratories	Molecular	**Blood Component Separation Equipment**		
3.14.			The supplier shall deliver, install and commission the equipment specified above in the Blood Processing Laboratory. He must ensure the correct functioning, freedom from faults and safety. He shall provide the necessary skilled personnel, certified testing instruments (valid calibration certificates for the testing instruments may be requested during installation) and accessories for the proper installation and acceptance testing of the equipment.		
			Acceptance testing means that the machines have been installed, commissioned, validated and integrated within the quality parameters and according to the specifications and conditions of the tender. Validation should include Installation Qualification (IQ), Operation Qualification (OQ) and Performance Qualification (PQ). These tests shall have to be carried out by the supplier alone, jointly with NBTC or by NBTC alone as applicable. The supplier should supply NBTC with test certificates together with details of test results upon which the certificates are based. On successful acceptance, the NBTC shall issue a Certificate of Acceptance, in case the agreed tests are successfully completed.		
3.15.			On-site training, guidance and support should be provided after the commissioning of the equipment. Certificates of attendance should be presented to all those who attend the full training sessions.		

LOT 8: OPERATION THEATRES

LOT 8-1: Anesthetic Machines

Item Code No.	Department	Section	Item Description		
LOT 8-1	Operations Theatre	General Surgery	**Anesthetic machine with ventilator**		
1. General Description					
Inhalation anaesthetic machine with electronic ventilator complete with all accessories for low and high flow anaesthesia, adult, paediatric and infant application. It should include a patient monitor unit.					
2. Composition					
2.1.	Main unit	1 Unit			
	Electronic Ventilator	1 Unit			
	Patient Monitor	1 Unit			
	Accessories complete start-up kit	1 Set			
3. Performance Specifications					
3.1.	Main Unit				
3.1.1.	Anesthetic trolley with minimum 2 drawers and a table top, with yokes for Oxygen (O_2) and Nitrous Oxide (N_2O) portable cylinder and support for circle systems including hoses and absorbers and support for central pipeline gas system. Model on current production				
3.1.2.	Anesthetic trolley	With minimum of 2 drawers			
3.1.3.	Wheels	With castors, two with brakes			
3.1.4.	Gas delivery system	3 gas delivery system (O_2, N_2O and air) with both inlets for central gas pipeline system, and separate portable cylinders.			
3.1.5.	Yokes	To support portable Oxygen (O_2) and Nitrous Oxide (N_2O) cylinders, 11 liters each			
3.1.6.	Portable Oxygen (O_2) Cylinder connection	Bull nose type			
3.1.7.	Portable Nitrous Oxide (N_2O) cylinder connection	Pin Index type			
3.1.8.	Pressure regulators and gauges for O_2 and N_2O	Intergraded in the trolley			
3.1.9.	Central gas pipeline system	Standard BS connections and colour codes for O_2, N_2O, and Air,			
3.1.10.	Flow meter	Separate flow meter for O_2, Air, and N_2O			
3.1.11.	Breathing Circle System	Capable of performing Open, Semi-Open, Semi-Closed and Closed system			
3.1.12.	All patient connecting hoses	Corrugated, Transparent, autoclavable (134°C), φ 22 mm, with ISO connectors			

Item Code No.	Department	Section	Item Description
LOT 8-1	Operations Theatre	General Surgery	**Anaesthetic machine with ventilator**
3.1.13.	CO_2 absorber	Integrated, complete with Soda lime and switch for Magill's circuit.	
3.1.14.	Accessories: To be provided as startup kits.		
3.1.15.	Adult Breathing circuit for ventilator	2 Unit	
3.1.16.	Paediatric Breathing circuit for ventilator	2 Unit	
3.1.17.	Face Mask, Adult, Sizes 1, 2, 3 transparent type	2 Sets	
3.1.18.	Face Mask, Paeds, Sizes 1, 2, 3 transparent type	2 Sets	
3.1.19.	Breathing Bag Adult (2 L)	2 Sets	
3.1.20.	Breathing Bag Paeds (1L)	2 Sets	
3.1.21.	Breathing Bag Baby (0.5L)	2 Sets	
3.1.22.	Magill's circuit complete with adult mask	2 Sets	
3.1.23.	Aynes Paed circuit	2 Sets	
3.1.24.	CO_2 absorber gas out let		
3.2.	Vaporizer	Minimum Halothane and Isoflurane	
3.2.1.	Compensation	Temperature, pressure and flow compensated	
3.2.2.	Range	About 0.2% to 4%	
3.2.3.	Accuracy	± 0.15%	
3.2.4.	Keyed filler according to ISO standards		
3.2.5.	Adjustment	Large hand wheel with Zero Lock	
3.2.6.	Ambient Temperature	15°C to 35°C at Normal pressure	
3.2.7.	Maintenance	Service free for a minimum period of 5 years of usage	
3.3.	Safety controls		
3.3.1.	O_2 supply failure	audible alarm with reset	
3.3.2.	Hypoxyguard	Minimum O_2 25%: Shut off supply	
3.3.3.		N_2O Shut off	
3.3.4.	O_2 Flush Gas Supply	Above 30 L/ Min 2-6 bars	
3.4.	Ventilator		

Item Code No.	Department	Section	Item Description
LOT 8-1	Operations Theatre	General Surgery	**Anaesthetic machine with ventilator**
3.4.1.	Type	Microprocessor controlled and electrical/gas driven	
3.4.2.	Application	Suitable for adult, paediatric and infant application without changing parts between patient types	
3.4.3.		Ventilation with ambient air possible	
3.4.4.	Modes	Minimal manual, spontaneous, IPPV, PCV,SIMV +PS	
3.4.5.	Ventilator Parameter		
	Tidal Volume: IPPV	20 ml- 1600ml	
	P max (PEEP + 10)	Up to 70hPa	
	PEEP	about 1 to 20mbar	
	Frequency:	about 3 to 60/min	
	Insp flow	Max 150l/min	
	Pinsp (PEEP + 5)	Up to 70kPa	
	I: E ratio	5:1 to 1:5	
	In case of failure	Switch to room air automatically	
3.5.	Display	colour display minimum 6”	
3.5.1.	Display parameters	Minute Volume	
		Tidal Volume	
		Rate	
		Pressure Peak Response, PEEP,FiO2	
		Graphic Trends	
3.6.	Patient monitor	To be mounted on the anesthetic machine	
3.6.1.	Parameters	Pulse rate	
		SpO_2	
		Temperature: 2 probes	
		Blood pressure (NIPB and IPB)	
		ECG 3 leads	
3.6.2.	Display	Colour Display minimum 10”	
		5 Parameter display	

Item Code No.	Department	Section	Item Description
LOT 8-1	Operations Theatre	General Surgery	**Anaesthetic machine with ventilator**
3.6.3.	Accessories: To be provided as startup kits.		
	SpO_2 , Adult Sensor, Reusable	2 Pieces	
	SpO_2 , Paediatric Sensor, Reusable	2 Pieces	
	SpO_2 , Infant Sensor, Reusable	2 Pieces	
	Temperature	2 Probes	
	BP cuff, Large adult, reusable	2 Piece	
	BP cuff, adult, reusable	2 Piece	
	BP cuff, Small adult, reusable	2 Piece	
	BP cuff, Paed, reusable	2 Piece	
	BP cuff, Thigh, reusable	2 Piece	
	ECG 3 Leads Soda lime	2 Piece 3 containers of 5liter each	
4.	Physical characteristics		
4.1.	Main unit	mobile on casters	
	Outer dimensions	Compact design	
5.	Operating environment		
5.1.	Power Requirements	240V, A/c 50 Hz, Single phase, 3 Pin Plug, 3m long cord with PE	
	Ambient temperature	10^{o} C to 40^{o} C	
	Relative humidity	20% to 90%	
6.	Backup Power supply		
6.1.	Internal battery	Internal battery	
7.	Quality standards		
7.1.	Manufacturing standards	ISO 13485, ISO 9001	
	Product conformity standards	EU-93/42/EEC, IEC 60601-1, EN 740 CE and FDA approved	
8.	Delivery point		
8.1.	See Schedule of equipment of equipment delivery		
9.	Pre installation requirements		

Item Code No.	Department	Section	Item Description		
LOT 8-1	Operations Theatre	General Surgery	**Anaesthetic machine with ventilator**		
	Refer to schedule 6 and special condition in section 4l				
10.	Installation and testing				
	Complete installation and set-up of the machine at the hospital as per manufacturer's instructions				
11.	Training				
11.1.	User Training	On site user training on operation and daily up keep			
11.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
12.	Technical documentations				
12.1.	User manuals	2 printed Sets and electronic copy			
12.2.	Service Manual	1 Set			
13.	Commissioning				
13.1.	Testing and commissioning of the machine to the satisfaction of the user.				

LOT 8-2: Operation Tables (with Kidney Bridge)

Item Code No.	Department	Section	Item Description
LOT 8-2	Main Theatre	Operating theatres	**Operating Theatre Table**
1. General Description			
Operating table suitable for use in theatre for major operations. It should be capable of performing lateral tilt, up-down movement, trendelenburg and reverse trendelenburg position, back section refraction and kidney bridge. The movement should be electrohydraulic with manual option control system			
2. Composition			
2.1.	Main unit		
3. Physical Specifications			
3.1.	Main Unit		
3.1.1.	Table top	Approx. Length 2000 X width 600 mm	
3.1.2.		X-ray Permeable	
3.2.	Head rest	Detachable	
3.3.	Leg rests	Detachable/separable	
3.4.	Material of main unit	Made of scratch resistant, hard wearing and easy to clean material	
3.5.	Height of table top	Adjustable, mechanical operated, 600mm to 1100mm	
3.6.	Table top movements		
3.6.1.	Trendelenburg	Forward: 25º, Reverse: 25º	
3.6.2.	Lateral – tilt	~20º both to the left and right	
3.6.3.	Back- section refraction	90º	
3.6.4.	Table top turn	180º	
3.6.5.	Main unit movements	Mobile with antistatic castors with braking mechanism	
3.7.	Maximum load weight	250 Kg	
4.	Accessories	To be provided as startup kits.	
4.1.	Mattress	High density type easy to clean, 3” thickness with 4 sections, breathable, waterproof that does not stick to the table	
4.2.	Arm board with mattress	1 piece	
4.3.	Shoulder support with pads	2 pieces	

Item Code No.	Department	Section	Item Description
LOT 8-2	Main Theatre	Operating theatres	**Operating Theatre Table**
4.4.	Foot board	1 set	
4.5.	Knee crutches	2 pieces	
4.6.	Screen frame	1 piece	
4.7.	Body support with pads	2 pieces	
5.	I. V. pole, adjustable height Orthopedic attachment	1piece 1 piece	
5.1.	Manufacturing standards	ISO 13485, ISO 9001	
5.2.	Product conformity standards	EU-93/42/EEC, CE and FDA approved	
6.	Delivery point		
6.1.	See hospital schedule	For Delivery, inspection and commissioning	

LOT 8-3: Operation theatre LED lights with inbuilt IP Camera & voice capability

Item Code No.	Department	Section	Item Description
LOT 8-3	Operations Theatre	General Surgery	**Operating Theatre light**, Ceiling Type LED Technology

1. General Description					
Surgical light (Operating lamp) ceiling mounting type. The surgical light should consist of two lamp head, main and auxiliary (dual type). It should be constructed from light weight material preferable aluminum, and easily to disinfect. It should have emergency backup power supply to last for at least 2 hours. The Main Light should be fitted with a digital camera for ICT integration.					
2. Composition					
2.1.	Main unit and auxiliary lamp head				
3. Performance Specifications					

3.1.	Main and auxiliary lamp head	
3.1.1.	Diameter	main and auxiliary unit
3.1.2.	Rotation	360º along the central axis
3.1.3.	Maximum light intensity	Above 150,000 lux at 1 meter each
3.1.4.	Focus	Adjustable
3.1.5.	Field	Constant to a depth of at least 500mm
3.1.6.	Field	shadow less
3.1.7.	Light colour Temperature	3600 to 4800 K Colour rendering index >95% Deeming range 30-100%
3.1.8.	Lighting Control	Electronic system with touch button light intensity
3.1.9.		Control mounted at a convenient place preferable on the head lamp.
3.1.10.	Lighting Bulb	Low voltage LEDs service life >40,000 hours
		Light field diameter of 300mm at 1 m
3.1.11.	Mounting ceiling Height	Minimum 2.5m above floor
3.2.	Accessories	
3.2.1.	All mounting accessories	Ceiling anchor plates,

Item Code No.	Department	Section	Item Description
LOT 8-3	Operations Theatre	General Surgery	**Operating Theatre light**, Ceiling Type LED Technology
3.2.2.		Bolts, nuts and other necessary	
4.	Operating environment		
4.1.	Power Requirements	240V, A/c 50 Hz, Single phase, with PE	
4.2.	Ambient temperature	10° C to 40° C	
4.3.	Relative humidity	20% to 90%	
5.	Emergency Backup power	To least for at least 2 hour	
5.1.		With sealed batteries	
		Automatic change over and charger unit	
6.	Quality standards		
6.1.	Manufacturing standards	ISO 13485, ISO 9001	
6.2.	Product conformity standards	EU-93/42/EEC, IEC 60601-1 FDA and CE approved	
7.	Local back up service		
7.1.	Available	Should be available locally	
7.2.	Capacity to service equipment	Agent shall have adequate facilities, spare parts, and qualified and skilled technical staff	
8.	Pre installation requirements		
	Prepare roof for installation		
9.	Installation and testing		
	Complete installation and set-up of the machine at per manufacturer's instructions		
10.	Training		
10.1.	User Training	On site user training on operation and daily up keep	
10.2.	Maintenance training	Onsite maintenance training on preventive maintenance	
11.	Technical documentations		
11.1.	User manuals	2 Sets	

Item Code No.	Department	Section	Item Description		
LOT 8-3	Operations Theatre	General Surgery	**Operating Theatre light**, Ceiling Type LED Technology		
11.2.	Service Manual	1 Set			
11.3.	Drawings				
12.	Commissioning				
12.1.	Testing and commissioning of the machine to the satisfaction of the user.				

LOT 8-4: Electrosurgical Units (with bipolar resection capability)

Item Code No.	Department	Section	Item Description
LOT 8-4	Operations Theatre	General Surgery	**Electrosurgical Unit**
1. General Description			
High frequency electro surgical (diathermy) machine suitable for general surgery. The unit should be microprocessor based and capable of performing cutting, coagulation and blend functions at varying power output and complete with foot switch, electrodes and a cart (trolley).			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Output power	Nominal high frequency output of about 300W adjustable up and down with touch button keys or convenient controls. With automatic output regulation against excess impedance (TUR)	
3.1.2.	Cutting:	Monopolar, bipolar and blend functions	
		Activation by finger-switch and/or foot switch	
3.1.3.	Coagulation	Monopolar, bipolar, low forced and spray	
		Activation by finger switch and / or foot switch	
3.1.4.	Bipolar	Very low voltage	
3.1.5.	Wave form	Modulated pulse or Hemostatic or equivalent	
3.1.6.	Display	Digital Read out	
3.1.7.	Active patient electrode	Active patient electrode with standard electrode handle, with finger switch and connecting cable, reusable and autoclavable at 134^{o}C	
3.1.8.	Patient plate	Patient (in different) plate, reusable rubber With connecting cable, autoclavable at 134^{o}C	
3.1.9.	Foot Switch	Two pedal foot switch for cut and coagulation water proof, explosion proof, cable length about 5 m.	
3.1.10.	Safety/ alarm devices		
	Dosage rate control	Audible and visual alarm	
	Leakage current	Audible and visual alarm	
	Patient plate split	Audible and visual alarm	
	Short circuit	Audible and visual alarm	
4.	Physical characteristics		

Item Code No.	Department	Section	Item Description
LOT 8-4	Operations Theatre	General Surgery	**Electrosurgical Unit**
4.1.	Main unit	Mounted on mobile cart	
5.	Operating environment		
5.1.	Power Requirements	240V, A/C 50 Hz, Single phase, 3 Pin Plug, 3m long cord with PE	
5.2.	Ambient temperature	10° C to 40° C	
5.3.	Relative humidity	20% to 90%	
6.	Accessories: To be provided as startup kits.		
6.1.	Standard electrode handle, with finger switch and connecting cable, reusable	3 Pcs	
6.2.	Monopolar standard surgical electrode set consisting of stainless steel container or plastic container complete with standard electrode set (blades, lancet, knives, needles, wire loops, balls and plates).	2 Sets	
6.3.	Bipolar forceps with connecting cable, reusable	3 Pcs	
6.4.	Standard assorted sizes of bipolar forceps, reusable	1 Set	
6.5.	Patient (in different) plate, reusable rubber With connecting cable	2 Pcs	
6.6.	Foot Switch-Monopolar	1 Pc	
6.7.	Foot Switch-Bipolar		
6.8.	Bipolar Cable	2 Pcs	
6.9.	Active Patient Electrode	2 Set	
7.	Quality standards		

Item Code No.	Department	Section	Item Description		
LOT 8-4	Operations Theatre	General Surgery	**Electrosurgical Unit**		
7.1.	Manufacturing standards	ISO 13485, ISO9001			
7.2.	Product conformity standards	EU-93/42/EEC, IEC 60601-1, EN 740 CE and FDA approved			
8.	Delivery point				
8.1.	See attached schedule on delivery				
9.	Installation and testing				
9.1.	Complete installation and set-up of the machine at the delivery sites as per the schedule				
10.	Training				
10.1.	User Training	On site user training on operation and daily up keep			
10.2.	Maintenance training	Onsite maintenance training on preventive maintenance			
11.	Technical documentations				
11.1.	User manuals	2 Sets + Soft			
11.2.	Service Manual	2 Sets + soft			
12.	Commissioning				
12.1.	Testing and commissioning of the machine as per the contract.				

LOT 8-5: Digital X-ray viewer

Item Code No.	Department	Section	Item Description
LOT 8-5	Operation Theatre	General Surgery	Digital X-Ray Viewer

7. General Description

X-RAY-VIEW BOX (LED Light)

8. Composition

8.1.	Main unit				

9. Description of the medical supply unit design type

G) Product & Manufacturer Quality Standards:

9.1. Should be FDA/ CE approved product.
9.2. Manufacturer and Supplier should have ISO 13485 certification for quality standards.

H) TECHNICAL CHARACTERISTICS

9.3. Should be ultra-thin X ray film illuminator using LED light
9.4. It should have a thickness of 30 mm
9.5. It should be suitable for viewing 14''x17' film.
9.6. Should have position to insert 8 films in 2 rows.
9.7. The LED light must have a life span of more than 50,000 hours.
9.8. It should have easy insertion & removal of the film.
9.9. It should have homogeneous illumination more than 95% and maximum intensity of over 10,000 lux.
9.10. It should have an on-off switch along with digital feather touch dimmer and a button to set the intensity
9.11. It should have fully electronic continuous brightness control, with adjustment range of approximately 90%.
9.12. It should be directly connected to power supply without any external adapters.
9.13. It should have flicker free high frequency light for reduction of eye strain.
9.14. It should have external fuses for protection against power surge.
9.15. 10 step Digital dimmer facility with step up/step down intensity of 500 lux or less.
9.16. Should have automatic film sensor
9.17. Should have facility to switch on only the section where the film needs to be viewed.

I) Power supply:

9.18. 240V, AC, 50Hz. Single phase

LOT 8-6: Electrocautery LEEP Machine

Item Code No.	Department	Section	Item Description
LOT 8-6	Operation Theatre	General Surgery	Electrocautery LEEP Machine

1. General Description

2.1.	Main unit				

3. Description

4. Specifications:

4.1. Should have electrosurgical generator with isolated power output and LED display located in front for precise power selection, deliver and easy to use
4.2. Should have provision of choice to CUT, BLEND and COAGULATE. Wave form to accommodate subtle differences in technique and electrode performance
4.3. Should have RF output frequency 450 kHz power cut 0-100 watt
4.4. Should have flash faceplate membrane
4.5. Should have microprocessor control for increased precession, accuracy, safety, reproducibility
4.6. Should have pneumatic foot pedal for maximum safety
4.7. Should have audible safety features including distinct tones for each operating setting
4.8. Should have automatic self-test mechanism ensuring accurate system operation
4.9. Should have high airflow efficiently capturing smoke plume with a variable speed control
4.10. Should have triple stage filtration to capture airborne particulate matter, vapour and odour with a 99.99% efficiency level
4.11. Should be virtually maintenance free
4.12. Should have replacement filters available
4.13. Following standard accessories should be provided:-
4.14. hand piece adaptor, patent return(single use), smoke evacuator package, smoke evacuator prefilter, smoke evacuator reducers, smoke evacuator disposable tubing
4.15. ball electrode, electrode of various sizes with 12 cm shaft length
4.16. Graves coated speculums-small, medium and large size, coated lateral vaginal wall retractor
4.17. Re-usable metal cartridge syringe, integrated cart
4.18. Should be CE/ FDA approved
4.19. Warranty should be of at least 2 years with 5 years CMC guaranty after the expiry of warranty period
4.20. Installation and commissioning will be the responsibility of the supplier
4.21. After sale service should be provided.

Spare parts:

4.22. Company should give undertaking regarding the availability of spare parts of the quoted model for next 10 years.

5.	**Accessories:-**		

Item Code No.	Department	Section	Item Description
LOT 8-6	Operation Theatre	General Surgery	Electrocautery LEEP Machine

	a. Monopolar Footswitch:- 02 No.		
	b. Bipolar Footswitch:- 01 No.		
	c. Reusable hand switching Pencil: - 02 Nos.		
	d. Reusable Patient Plate : - 02nos.		
	e. Bipolar Forceps: - 01No.		
	f. Forceps Cord:- 02Nos.		
	g. Universal Adaptor: - 01No.		

LOT 8-7: Thermal-Ablation Device

Item Code No.	Department	Section	Item Description
LOT 8-7	Operation Theatre	General Surgery	**Thermal-Ablation Device**

1. General Description

1.1. The system should be state of the art, top of the line model for Radio Frequency Induced Thermal Ablation Technology.

2. Composition

2.1.	Main unit				

3. Required specifications and accessories

3.1. System should include a Radiofrequency generator (Single generator system having capability of performing multiple organ system ablation) for various organ ablation with required following specifications;

- The system should be usable for ablation in liver, lung, bone, kidney, Thyroid, ENT, Gynae with single generator system having capability of performing multiple organ system ablation (Multi-functionality system)
- The system should be capable of generating power of at least 200 W and output frequency should be 400KHz
- The system should be capable of generating temperature of at least 95 deg C.
- The system should be able to support electrode of variable lengths.
- The system should be capable of ablating target volumes of up to 6 cm diameter
- The system should have needle track ablation facility.
- The system should be compatible to use with Ultrasound, DSA (Fluoroscopic) CT and open surgery.
- The system should have LCD touch screen / switch / knob for easy to use.
- The system should have facility for of display real-time power, current, impedance, temperature, and time during operation.
- Treatment algorithms in memory is desirable
- Probe cooling system is desirable to prevent carbonization.
- Pump should be provided with all necessary accessories like tubing etc. at no extra cost.
- System should have self –Test facility.

3.2. Specifications of Probes

- The probes should be disposable
- Probe Specifications: compatible probes must be able to meet the following requirements:
  - Probe Diameter of 1.0 to 1.8 mm should be available with various lengths and adjustable active tips for treating various lesions. Along with that, special Thyroid probes of diameter 1 and 1.2 mm should also be available
  - Probe Lengths up to 20 cm should be available to allow access to deeper areas. Probes should be available in different designs, to enable control of ablation volume. These should allow target volume selection from 1 cm diameter up to 6 cm diameter
  - Probe Active tip of different sizes from 5mm going up to 4 cm, in 5mm steps is desirable.

Item Code No.	Department	Section	Item Description
LOT 8-7	Operation Theatre	General Surgery	**Thermal-Ablation Device**

3.3. Safety Features

- System should have Probe Test system with ability to check integrity of probe Intra-operatively.
- System should have safety mechanism to limit excessive high temperature/power delivery.
- The system should have ability to display all alert conditions and error messages.

3.4. Accessories:

- Mobile Trolley for mounting and transporting of RF unit to be provided.
- The vendor should supply 250 probes (25 every year in the month of January for 10 years).
  - Vendor will quote the unit price of probe. Cost for 250 probes will be calculated from it.
  - Final comparison for determining the L-1 bidder shall be made taking into consideration the cost of the equipment, post warranty CAMC for 6th to 10th year and the total cost of probes (250) for entire life of the equipment i.e. for 10 years calculated from unit cost submitted.
- However, vendor will be paid yearly only for the number of probes procured that year and not for total 250 probes upfront at the time of purchase of machine.
- During price negotiation, rate contract for probes will be made based on the unit price of probes submitted in the price bid.

3.5. UPS of appropriate KV should be supplied to run the entire system for at least completion of ongoing procedure if there is any power failure.

3.6. Upgrading requirements:

- A free, comprehensive software update (compatible with the offered platform) guarantee for 10 years (after installation) of the RFA unit must be provided.

3.7. Guarantee/Warranty:

- Two years comprehensive on-site warranty of entire system (Spares and labour), without exclusion, including UPS and all other accessories. This will be followed by 5 years CMC to be quoted separately and implemented yearly post warranty.
- After the warranty period, 5 years of CAMC will start.
- Warranty & guarantee will cover all the equipment and accessories supplied by the vendor including all third party items.

3.8. Essential requirement:

i. Offered unit must be FDA and/or CE approved. Please enclose its valid certificate
ii. Supplier must ensure availability of expertise service and maintenance at site of installation.
iii. Uninterrupted availability of spare parts and repair for next ten years must be assured.
iv. Original product data sheets, complete manuals and other necessary documents should be provided. Photocopies of these documents or printouts of the email/ web pages will not be accepted.
v. When required, information other than those in the data sheets should be provided as a separate document from the principals only and should refer to the

Item Code No.	Department	Section	Item Description
LOT 8-7	Operation Theatre	General Surgery	**Thermal-Ablation Device**

specific sections being addressed. When standard vendor with the bid response (offer/ compliance statement), clarification should accompany in the form of certificate from the principals only. In absence of this, the vendor data sheet will prevail for the purpose of evaluation and decision of the technical committee shall be final and binding on the supplier.

vi. The vendor has to station one application specialist and service engineer at site for a period necessary to familiarize the medical and technical staff to understand the protocols and enable them to achieve fast and efficient service.

vii. Mention the number (with addresses, phone numbers, e mails) of installations of the quoted unit in Kenya for reference purposes.

viii. Supplier should be able to provide services in case of breakdown within 24 hrs after call registration. In case delay of more than 2 days then supplier will provide alternate RFA machine of similar functionality.

LOT 8-8: Cryotherapy Unit

Item Code No.	Department	Section	Item Description
LOT 8-8	Operation Theatre	General Surgery	**Cryotherapy Unit**

1. General Description

Technical Specifications of Cryotherapy unit with airflow technology

2. Composition

2.1.	Main unit				

3.

3.1. The equipment should be based on latest air flow technology for therapeutic purposes.
3.2. The cooled air should reach the therapeutic location via an application tube.
3.3. Air current flow should be able to regulate according to needs.
3.4. It should have intelligent air flow control system with temperature up to -60°C.
3.5. Equipment should use Room air drawn into the device filtered and cooled to the required therapy temperature.
3.6. It should have auto self-detection controlling system.
3.7. It should have continuous compressing for an immediate use (standby mode).
3.8. It should have provision of self-defrosting system for the best cooling performance.
3.9. Display should be user friendly for easy and practical operation preferably inbuilt English and/or Hindi language.
3.10. It should work on power supply of 220-250 V - 50/60 Hz.
3.11. Power consumption should be not more than 1500 VA.
3.12. It should have graded air flow of at least 1000 l/min.
3.13. It should have standby and defrost mode with automatic defrosting.
3.14. It should be supplied with hose of 150cms or more.
3.15. 5, 10, 15 mm and angled nozzles should be included.
3.16. Accessories to allow hands-free/static operation should be included in the standard offer.
3.17. All available Accessories with functionality be included in technical and price quotations that would be frozen for the entire duration of warranty/CMC.
3.18. It should be equipped for mobile operation.
3.19. CVT/UPS and other safety features should be provided for equipment and manpower working on it.
3.20. The Unit should have USA/European Certification on safety and quality assurances.

General

3.21. Equipment should conform to European CE/US FDA standards.
3.22. 2 years Warranty + 5 Years CMC, including all the software upgrades.
3.23. Undertaking to honour Warranty/CMC to be given by both, the Principal/Manufacturer and the Kenyan Vendor.

LOT 8-9: Fluid warmer

Item Code No.	Department	Section	Item Description
LOT 8-9	Operations Theatre	Recovery Area	Fluid Warmer

1. General Description

2. Composition

2.1.	Main unit				

3. Description of the medical supply unit design type

3.1. Flow Rates should be from kvo to 150ml/min
3.2. Should have temperature range of 36^0 to 42^0C
3.3. Should be easily transportable
3.4. Should able to attach to IV pole and standard electrical sockets
3.5. Should use dry heat technology
3.6. Should have audible and visual alarms for Temperature
3.7. Should have automatic cutoff for set temperature
3.8. Should be easy to use and to clean
3.9. Calibration certificate should be issued during the installation
3.10. 50 disposable adult and 50 no. of pediatric warming sets should be supplied along with each machine
3.11. Warm up time should be less than 60 seconds
3.12. Consumables should have built in filter
3.13. Should have safety certificate from a competent authority
3.14. Should be CE / FDA certified
3.15. Should meet electrical and functional safety with relevant certificates attached from recognized authorities.

LOT 8-10: Patient Trolleys

Item Code No.	Department	Section	Item Description
LOT 8-10	Operations Theatre	General Surgery	General Purpose Trolley
1. General Description			
General purpose trolley constructed from epoxy coated mild steel frame, with shelves. The Unit should be mobile on four castors , 2 lockable			
2. Composition			
2.1.	Main unit,		
3. Performance Specifications			
3.1.	Main Unit	Mobile type	
3.1.1.	Material	Epoxy coated mild steel	
	Shelves	Two stainless Steel shelves with three guard rails on each	
3.1.2.	Top	Stainless steel tray with three guard rails	
3.1.3.	Castors	Provided, heavy duty, , 2 with brakes	
3.1.4.	Push/Pull handle	Provided	
4.	Quality standards		
4.1.	Manufacturing standards	ISO 9001	
4.2.	Conformity to standards	CE approved	
5.	Delivery point		
5.1.	See Schedule	For inspection, installation and testing	
5.2.	Nil		

LOT 8-11: Refrigerators

Item Code No.	Department	Section	Item Description
LOT 8-11	Operation Theatre	Theatre Recovery and (Common Use)	Non frost Refrigerator, Food
1. General Description			
1.1. Refrigerator, food.			
2. Composition			
2.1.	Main unit		
3. Performance Specifications			
3.1.	Main Unit		
3.1.1.	Material	Insulated galvanized steel	
3.1.2.	Type	Compressor, electrical	
3.1.3.	Door	Two door, freezer and lower compartment	
3.1.4.	Total net capacity	350 litres	
3.1.5.	Temperatures range	-4^{o}C to + 10^{o}C adjustable	
3.1.6.	Ambient temperature	10 ^{o} C to 35^{o}C	
3.1.7.	Shelves	Provided, adjustable and extractable	
3.1.8.	Thermometer	Digital, external mounted, with temperature record history	
3.1.9.	Control	Electronic, Microprocessor based	
3.1.10.	Refrigerant	CFC free	
3.1.11.	Alarm	Provided, audible and visible	
3.1.12.	Dimensions		
3.1.13.	Power	240V, 50 Hz, a.c	
4.	Accessories		
4.1.	Nil		
5.	Quality standards		
5.1.	Manufacturing standards	ISO 9001, ISO 14001	
5.2.	Conformity to standards	CE marked.	
6.	Delivery point		
6.1.	See Schedule	For inspection and testing	

Item Code No.	Department	Section	Item Description
LOT 8-11	Operation Theatre	Theatre Recovery and (Common Use)	Non frost Refrigerator, Food
6.2.	Nil		
7.	Warranty		
7.1.	Equipment	Minimum of one year after commissioning on all parts.	
7.2.	Equipment System	Nil	
8.	Accessories		
8.1.	Automatic Voltage Regulator (AVR)		
8.1.1.	Capacity	Over VA of the main Unit	
8.1.2.	Input	Ac 240V, 50Hz, Single phase ± 15%	
8.1.3.	Output	Ac 240V, 50Hz, Single Phase ± 2.5 %	

LOT 8-12: Instrument Trolleys

Item Code No.	Department	Section	Item Description
LOT 8-12	Main Theatre	Operating theatres	**Instrument Trolley**

1. General Description

Standard Instrument trolley individually packaged and cleared marked in English with the name and characteristics of the article and number of units per carton and with Manufacturer's Name and Origin, Batch No, Date of Manufacture.

- **Submission of sample:**

Submit a brochure for evaluation

2. Composition

	2 Main Kit				

3.	Description of instrument		Quantity
	3.1. General Description For transporting instruments in the hospital. All stainless steel, tubular frame, robust constructed, with two stainless steel shelves and guard rail on three sides of the top shelve, with four castors, 2 lockable.		
	3.2. Composition		
	3.3. 2.1 Main unit		
	3. Performance Specifications		
	3.4. 3.1 Main Unit		
	3.1.1 Material	All stainless steel	
	3.1.2 Top	Stainless steel with guard rails	
	Shelve	1 No. Stainless steel	
	Antistatic Castors	Approx. 100mm, 2 with lockable brakes	
	3.1.3 Dimensions	Approximately L 700 x W 460 x H 860 mm.	
	4. Accessories		
	4.1. 4.1 Nil		
	5. Quality standards		
	5.1. 5.1 Manufacturing standards	ISO 9001, ISO 13485	
	5.2. 5.2 Conformity to standards	CE and FDA marked	
	6. Delivery point	See Schedule	

7.	Quality standards	
	7.1 Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485
	7.2 Conformity to standards	CE and FDA marked
8.	Delivery point	See schedule

LOT 8-13: Resuscitaire

Item Code No.	Department	Section	Item Description
LOT 8-13	Operation Theatre	Theatre Recovery and (Common Use)	Resuscitaire

1. General Description

Standard Resuscitaire individually packaged and cleared marked in English with the name and characteristics of the article and number of units per carton and with Manufacturer's Name and Origin, Batch No, Date of Manufacture.

- **Submission of sample:**

Submit a brochure for evaluation

2. Composition

2.1. General Description

Standard Resuscitaire individually packaged and cleared marked in English with the name and characteristics of the article and number of units per carton and with Manufacturer's Name and Origin, Batch No, Date of Manufacture.

- Submission of sample:

Submit a brochure for evaluation

3. Composition

3.1.	Main Kit		
4.	Description of instrument Description of instrument: A mobile infant warming resuscitation unit with integral bassinet having the following features:- • Readily Mobile, Height adjustable Stand with Caster Breaks • Multi-position, Overhead Radiant Heater and Examination Light • Unit equipped with both overhead and base heaters under gel mattress • Clear Heater Control Indicator. Temperature control Range 35°C to 37°C with Clear Skin Temperature Indicator. • Audible and Visual Alarms for Sensor disconnect and Power failure • Equipped with weighing scale • Apgar Timer • O_2 and Air pipeline connections. • O_2 and Air Cylinder yokes • O_2 / Air Blender • Inbuilt auto breath system • O_2 Flow meter 0 to 15 LPM • Pipeline and Venturi Neonatal Suction • Airway Pressure limiting system 0 to 50 cm H2O • Resuscitation Storage compartment and drawers. • Wide mattress/patient area with dropdown or removable sides and good access on three sides. • Rails or handles to facilitate easy movement.		

Item Code No.	Department	Section	Item Description
LOT 8-13	Operation Theatre	Theatre Recovery and (Common Use)	Resuscitaire
	• Free Clinical Staff training as required. • Free second-line technical training for the biomedical team. • User and technical maintenance manuals and technical support. List of frequently used/ replaceable consumables, their availability and cost.		
5.	Quality standards		
5.1.	Manufacturing standards	IEC 60601-1, ISO 9001, ISO 13485	
5.2.	Conformity to standards	CE and FDA marked	
6.	Delivery point	See schedule	

LOT 8-14: Digital C-Arm

Item Code No.	Department	Section	Item Description
LOT 8-14	Imaging	C-Arm	C- Arm X-Ray Imaging

1. General Description

Mobile C-arm Digital Imaging System on anti-static castors; easy to maneuver and capable of undertaking orthopedic and angiographic procedures

1.1. The system must be of state of the art design and enable mobile Fluoroscopy and radiography of the complete skeletal system Chest and abdominal organs.

1.2. The system must have sufficient capability to provide high quality imaging on large and small patients, with no, or minimal deterioration in image quality.

1.3. The system must have a minimum of 30" free space between the x-ray tube and the image receptor.

1.4. The C-arm depth must be a minimum 24" in depth to provide C-arm clearance around the patient and table.

1.5. The C-arm must provide a minimum of 115˚ C-arm orbital rotation, 90˚ under-scan and 25˚ over-scan capabilities.

1.6. The system must allow user to reverse the x-ray tube and Image Intensifier positions and maintain C-arm under-scan and over-scan capabilities.

1.7. The C-arm must be able to rotate 180˚ to facilitate angled projections.

1.8. The system shall have a minimum of 18" of vertical C-arm travel for height adjustment.

1.9. The C-arm must provide side-to-side movement and horizontal travel to allow for "panning" during imaging.

1.10. Shall be counter-balanced in all positions.

1.11. Shall include a laser positioning system.

1.12. Generator Requirements

1.13. The generator must be a 60 KHz or higher high frequency inverter type, microprocessor controlled.

1.14. The output power rating of the generator must be 15 kW or greater.

1.15. The system shall be capable of performing examinations on large patients.

1.16. The generator shall be capable of providing a high dose fluoroscopic exposure at a minimum of 15mA.

1.17. The generator must be capable of providing pulse fluoroscopy.

1.18. The generator must be capable of providing cine pulse mode for cardiac & vascular imaging to reduce imaging lag caused by patient motion or C-arm movement with DSA digital subtraction angiography.

1.19. The mAs range in radiography mode must be approximately 1 to 300 mAs

1.20. The generator must meet the following minimum power requirements:

- Radiographic kVp range: 40 – 120 kVp

Item Code No.	Department	Section	Item Description
LOT 8-14	Imaging	C-Arm	C- Arm X-Ray Imaging

- Radiographic mA range: 50 mA or higher
- Fluoroscopic mA range: 20mA or better
- Fluoroscopic kVp range: 40 – 120 kVp
- The Vendor must complete the following:
- Trade name of quoted generator ____
- kW ____
- KHz high frequency ____
- KVp range ____
- Fluoroscopy mA range ____
- Pulsed fluoroscopy in pulses per second ____
- Digital spot maximum mA ____
- Pulsed fluoroscopy maximum mA at what PPS ____

1.21. X-Ray Tube

1.22. The X-Ray tube must be

1.23. The focal spot size shall be 0.6 mm to 0.8 mm dual focal spots for fluoroscopy and 1.2mm to 1.5mm for radiography.

- The Vendor must complete the following:
- Anode heat capacity ____
- Anode cooling capacity ____
- Cooling rate ____
- Housing heat capacity ____

1.24. The system should have a warning for the reaches its maximum heat storage capacity

1.25. The anode temperature should automatically monitored for its protection?

1.26. State the system dose management capabilities.

1.27. Imaging System

1.28. The system shall have a 12” tri-mode image intensifier.

1.29. State type of video capture device.

1.30. Monitors must be at least 16” dual monitors with 1 K2 resolution. Flat panel LCD type antiglare

1.31. The system must provide an ambient room light sensor to automatically adjust the monitor brightness for optimum image display (Automatic Brightness Control).

1.32. Digital Image Processing

1.33. Shall have automatic brightness control.

1.34. Shall have noise filter.

1.35. Shall have motion artifact ad noise reduction.

1.36. Shall have edge enhancements.

Item Code No.	Department	Section	Item Description
LOT 8-14	Imaging	C-Arm	C- Arm X-Ray Imaging

1.37. Shall

1.38. Shall

1.39. Shall

1.40. Shall

1.41. System Functions and Image Management

1.42. The system must provide a simple method to input patient information.

1.43. The system shall be equipped with a backlit X-ray control panel that allows for operation of the system in dim light situations.

1.44. The system shall allow for the change of image orientation on the display screen during exposure or using the last image hold. Functions should include: image rotation, left to right and top to bottom image reversals.

1.45. The system shall provide integration to a laser camera and shall include any & all required software/hardware. Please provide additional options for hard copy printing.

1.46. The system must provide a DICOM 3.0 interface capability that can be connected to the hospital's network to facilitate the transfer of images for archiving and print purposes.

1.47. Networking

1.48. The system must be PACS / DICOM 3.0 & HL-7 compatible / compliant.

1.49. The system must support the following DICOM 3.0 interfaces:

- DICOM print/store
- DICOM Modality Work list Management for HIS/RIS
- DICOM send/receive
- DICOM query/retrieve

2.	Technical documentations				
2.1.	User manuals	2 Sets			
2.2.	Service Manual	1 Set			
2.3.	Drawings	Nil			
3.	Commissioning				
3.1.	Testing and commissioning of the machine including radiation and calibration testing to the satisfaction of the user.				
4.	Warranty				
4.1.	Equipment	Minimum of one year after commissioning on all parts.			

Item Code No.	Department	Section	Item Description
LOT 8-14	Imaging	C-Arm	C- Arm X-Ray Imaging
4.2.	Equipment System	Nil	
5.	Maintenance contract		
5.1.	Capacity to provide maintenance and repair service		Vendor/manufacturer shall have adequate facilities, spare parts, qualified and skilled technical staff to offer comprehensive maintenance contract for at least 10 years
5.2.	Comprehensive preventive and repair service		Provision for a comprehensive preventive and repair maintenance service contract including parts and material for a period of 10 years from commissioning date (see attached annex for details)

LOT 8-15: Syringe Pumps

Item No.	Department	Section	Item Description
LOT 8-15	**Operation Theatre**	**Theatre Recovery and (Common Use)**	Syringe Pump

1. General Description

Syringe pump

2. Composition

2.1.	Main unit				

3. Performance Specifications

3.1. Main Unit

3.1.1. Should be easy to use and nurse friendly.
3.1.2. Should have automatic syringe size and model detection
3.1.3. System should be front loading
3.1.4. Should have large format LCD/TFT display.
3.1.5. Should have a minimum flow rate range from 0.1 – 1200 ml/hr. for 50ml syringe, 0.1 – 100 ml/hr. for 20ml syringe and 0.1 – 60 ml/hr. for 10ml syringe.
3.1.6. Syringe range from 20-50/60 ml.
3.1.7. Should have a flow rate accuracy of ±2%
3.1.8. Should have a bolus rate up to 1000ml/hr. for 50 ml syringe.
3.1.9. Should have automatic and manual bolus.
3.1.10. Should have at least 3 levels of programmable occlusion pressure.
3.1.11. Should have automatic bolus reduction system to avoid accidental bolus delivery after occlusion incident.
3.1.12. Should have a rechargeable battery with back up time of minimum 3 hours.
3.1.13. System should have a docking station
3.1.14. Pump must trigger following alarms with visual indication:-
i. Occlusion Pressure Alarm
ii. KVO or 3 min pre- alarm
iii. Syringe empty and volume infused alarm
iv. Internal malfunction and Battery Charge Low Alarm
v. Syringe disengaged and incorrectly placed alarm
vi. Alarm loudness control.
vii. No mains
viii. Line disconnected (rapid pressure drop).
3.1.15. Should work with input 200 to 240Vac 50 Hz supply.
3.1.16. Should be CE and FDA marked.

Item No.	Department	Section	Item Description
LOT 8-15	**Operation Theatre**	**Theatre Recovery and (Common Use)**	Syringe Pump
3.1.17. Copy of the certificate / test report shall be produced along with the technical bid			

LOT 8-16: Infusion Pumps

Item Code No.	Department	Section	Item Description
LOT 8-16	Operation Theatre	Theatre Recovery and (Common Use)	Infusion Pump

1. General Description

1.1. Infusion pump

2. Composition

2.1.	Main unit				

3. Performance Specifications

3.1. Main Unit

3.1.1. Should be operated on drip rate Peristaltic finger pump method.
3.1.2. Should be compatible with most of the IV set (macro/micro drip sets).
3.1.3. Should have the following flow rates.
3.1.4. IV Set ml/hr. drops/min
- 15 drops/ml 3~450ml/hr. 1~100drops/min
- 20 drops/ml 3~450ml/hr. 1~100drops/min
- 60 drops/ml 1~100ml/hr. 1~100drops/min

3.1.5. Should have a flow rate accuracy of ±10% and drip rate accuracy of ±2%.
3.1.6. Should have a volume infused display from 0 to 999.9ml.
3.1.7. Should have a purge and KVO facility.
3.1.8. Should have an audible and visual alarm for occlusion pressure, air alarm, door open, empty, low battery.
3.1.9. Should have a LCD display with backlight and graphical display of infusion.
3.1.10. Should have a minimum 2hr battery back up at highest delivery rate.
3.1.11. Should work with input 240Vac 50 Hz supply.
3.1.12. Should be CE and FDA marked
3.1.13. Copy of the certificate / test report shall be produced along with the technical

LOT 8-17: Operation Microscope (Transplant Procedures)

Item Code No.	Department	Section	Item Description
LOT 8-17	Operation Theatre	General Surgery	Operation Microscope

1. General Description

1.1. SPECIFICATIONS FOR OPERATING MICROSCOPE

2. Composition

2.1.	Main unit				

3. Detailed Specifications

3.1. CLASSIFICATION : CLASS 1
3.2. MAGNIFICATION : 6:1 motorized zoom activated through hand control ,foot switch control panel
3.3. WORKING DISTANCE :motorized focus +manual over ride
3.4. FOCUSING: min 224 or less – max 470 mm or more.
3.5. EYE PIECE : wide field eye piece for eyeglass wearers dioptre setting -5 d or less to + 5 d or more with adjustable eyecup interpupillar distance 55-75 mm
3.6. OBJECTIVE : multifocal length min 224 or less max 470 mm or more motorized focus with manual over ride
3.7. MAIN ILLUMINATION :should be 300 w xenon arc – indirect type illumination with stand by xenon with changeover facility
3.8. FIELD DIAMETER :17-143 mm /10 x eyepiece
3.9. MAGNIFICATION RANGE: 1.5-1.2 x or more /10 x eyepiece.
3.10. CONTROL UNIT: graphic LED/LCD display having facility for adjusting speed of zoom and focus.
3.11. TYPE /STAND SYSTEM : floor stand with electromagnetic brakes modular/ integrated (compact design) configuration for each application
3.12. HAND GRIPS: controls for zoom focusing, recording, light intensity, adjustment, joy stick control preferable for finer adjustments of the microscope.
3.13. A sepsis for all controls: sterilize/disposable protective glass encasement for objective sterilization components for all drive knobs /drapes.
3.14. OBSERVER: coordinated stereo co observation .stereo –co observation system for cranial procedures with additional observer unit at 180* for final procedures
3.15. CONFORMITY: should comply with CE/FDA standard to assure quality and safety of the system.
3.16. ACCESSORIES : should have camera with integrated HD recording system –DVD digital recording system ,DVD burning ,USB storage device ,video format dvi, DICOM COMPATIBILITY, FIRE WIRE INPUT/OUTPUT, video compression MPEG 4 still image JPEG/ TIFF/ BMPO/ GIFF
3.17. POWER SUPPLY : 220-240 vac +/- 10% 50 Hz
3.18. FEATURES : automated illumination brightness ,auto zoom synchronized illumination
3.19. VASCULAR FLUORESCENCE: should have vascular fluorescence (ICG). Rate to be quoted separately and the rate offered will be taken for evaluation
3.20. should be upgradable to :

Item Code No.	Department	Section	Item Description
LOT 8-17	Operation Theatre	General Surgery	Operation Microscope

3.20.1. Neuro-navigation compatibility. The details of additional hardware required for up gradation shall be provided with technical bid. Rate to be quoted separately. The rate offered will not be taken for evaluation

3.20.2. Image injection facility and tumour fluorescence if available shall be quoted separately. This rate will not be taken for evaluation

3.21. Shall supply 32” or above LCD/LED monitor.

LOT 8-18: Endoscopy Tower

Item Code No.	Department	Section	Item Description
LOT 8-18	Operation Theatre	General Surgery	Endoscopy Tower

1. General Description

1.1. UPPER GI ENDOSCOPE, COLONOSCOPE, DUODENOSCOPY

2. Composition

3.	Main unit				

3.1. Product Quality Standards:

3.1.1. Should be USFDA and CE (Notified) approved model.
3.1.2. Manufacturer should be ISO 13485 certified for quality standards.
3.1.3. Shall comply with EN/IEC 60601, Particular requirements for electrical safety of the device.

4. Technical Specification:

4.1. Video Processor, Light source & Monitor:

4.1.1. Should be fully digital system.
4.1.2. Should have high illumination xenon (100W to 300W) light source or equivalent LED technology.
4.1.3. Brightness control: Auto/Manual
4.1.4. Should have colour correction facility.
4.1.5. Should have colour enhancement facility.
4.1.6. Convenient digital to digital recording of both still and moving images.
4.1.7. Picture and picture display for any combination of endoscopic images.
4.1.8. Convenient index display for documentation.
4.1.9. Scope ID function for endoscopy suite management.
4.1.10. Analog output: RGB, Y/C & Composite.
4.1.11. Digital Output: HD-SDI, DVI
4.1.12. Should be provided with high resolution medical grade monitor of 21-inch size diagonally.
4.1.13. Should have video storing facility in inbuilt or external memory.

4.2. Video Gastroscope for both Diagnostic & therapeutic purpose:

4.2.1. Should be capable of high resolution imaging.
4.2.2. Should be provided with water irrigation system with complete accessories.

- Field of view: 140 degrees or
- Depth of field: 2-100mm
- Forward viewing facility
- Total length:1340 to 1365mm
- Working length more than 1000mm
- Insertion tube outer diameter 9.8mm
- Distal end diameter 9.8 to 10.3mm
- Bending section tip deflection Up – 210 degrees,
  Down – 90 to 120 degrees
  Left - 100 to 120 degrees
  Right – 100 to 120degrees
- Instrument channel - Diameter – 2.8 to 3mm

Item Code No.	Department	Section	Item Description
LOT 8-18	Operation Theatre	General Surgery	Endoscopy Tower

4.3. Video Colonoscope:

4.3.1. Should be capable of high resolution imaging.

4.3.2. Should be provided with water irrigation system with complete accessories.

- Field of view- 140 degrees or more
- Depth of field: 2-100mm
- Forward viewing facility
- Total length - 1600 to 2000mm
- Working length more than 1300 to 1700mm
- Insertion tube outer diameter 12 mm or more
- Bending section tip deflection
  Up – 180 degrees,
  Down – 180 degrees
  Left - 160 degrees
  Right – 160 degree
- Instrument channel - Diameter – 3.8mm or more

4.4. Video Duodenoscope:

4.4.1. Should be capable of high-resolution imaging.

4.4.2. Should be provided with water & suction irrigation system with complete accessories.

- Field of view- 100 degrees or more
- Depth of field: 5-60mm
- Direction of view: Side Viewing (Retro 5 to 10 degrees)
- Total length - 1500 to 1600mm
- Working length more than 1230 mm
- Insertion tube outer diameter 11.5 to12.5
- Bending section tip deflection
  Up – 120 degrees,
  Down – 90 degrees
  Left - 90 degrees
  Right – 100 to 110 degrees
- Instrument channel - Diameter – 4 mm or more

4.5. Endoscope Washing/Reprocessing Station:

4.5.1. The Endoscopic Washing/reprocessing station should be able to reprocess two scopes simultaneously.

4.5.2. The Endoscopic washing Machine should be able to perform ultrasound cleaning and high pressure cleaning to remove debris from the endoscope.

4.5.3. The Endoscopic Washing Machine should have different sensors that include :
Pressure Sensor
Disinfectant Level Sensor
Leak Detect Sensor

4.5.4. It should be compatible with all kinds of flexible endoscopes.

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LOT 8-18	Operation Theatre	General Surgery	Endoscopy Tower

4.5.5. It should have different time settings for various steps during disinfection such as cleaning, disinfection, drying etc.

4.5.6. It should be compatible with most types of disinfectants available commercially e.g. Gluteraldehyde, Paracetic acid etc

4.6. Accessories to supply:

NOTE: Each accessory should be from reputed make having USFDA & CE certification

4.6.1. Compatible biopsy forcep-5nos.
4.6.2. Endoscopic CVT basket-5nos.
4.6.3. Endoscopic Lithotripter-5nos.
4.6.4. Endoscopic Sphincterotomes-5nos.
4.6.5. CBD Ballon-5nos.
4.6.6. Guide wire -5nos.
4.6.7. Stent Pusher-5nos.
4.6.8. Cleaning brush: 1no.
4.6.9. Rubber inlet seal: 1no.
4.6.10. Silicone oil-1 jar
4.6.11. Soaking cap-1no.
4.6.12. Cleaning adapter-1no.
4.6.13. Leakage tester-1no.
4.6.14. Computer system, at least (Core i7, 16GB RAM, 1TB HDD) with 17 inch monitor & laser colour printer and compatible image transfer and reporting software.
4.6.15. Endoscope trolley (S.S 304 grade) to carry all the required equipment with castor wheel having front locking facility.

4.7. Power supply:

4.7.1. Power input to be 220 – 240V AC, 50Hz fitted with B.S. plug of appropriate rating.

4.8. Warranty:

4.8.1. Should have at least 2yrs. of manufacturer warranty including all the flexible scopes mentioned above.

4.9. Environmental Factors:

4.9.1. Operating condition: The unit shall be capable of operating in ambient temperature of 10-40 deg C and relative humidity of 15-90%
4.9.2. Storage: The unit shall be capable of being stored continuously in ambient temperature of 0-50deg C and relative humidity of 15-90%

4.10. Training:

4.10.1. Operational as well as general troubleshooting/ User level maintenance training should be given to the user during supply & as when required by the user.

LOT 8-19: Complete Laparoscopic towers with 4K image quality (Either on pendant or trolley)

Item Code No.	Department	Section	Item Description
LOT 8-19	Operation Theatre	General Surgery	Laparoscopic towers

1. General Description

	a) Main unit				

1.1 Arthroscopy Tower

A complete arthroscopic tower with the following items:

i. Camera box endoscopic camera system -1
ii. Camera head -1
iii. Light source, LED -1
iv. Light guide calbe - 1
v. Surgical monitor, UHD 4K, 32 inches - 1
vi. 30° arthroscope, 4mm - 2
vii. 30° arthroscope 2.7mm - 1
viii. 70° arthroscope 4mm - 1
ix. 70° arthroscope 0.27mm - 1
x. Sheath/cannula for 4mm scope with inflow/out flow - 2
xi. Sheath/cannula for 2.7mm scope with inflow/out flow -2
xii. Conical obturator/trocar compatible with Inflow/outflow sheaths -1 for 4mm and 1 for 2.7mm
xiii. Shaver/resection system/consol -1
xiv. Shaver hand pieces - 2
xv. Arthroscopy pump -1
xvi. Arthroscopic RF system -1
xvii. A video cart to accommodate the camera box, light source shaver system, RF system and arthroscopy pump- 1
viii. All Items must be compatible with one another
xix. Backup Power UPS:
- Input -220-240V (ac) 50/60Hz
- Output- 220-240V (ac) 2500VA

xx. Manuals
a. User manuals (both hard and soft copy)
b. Technical manual (both hard and soft copy)

xxi. Installation
a. Supplier to Supply, Install, test and Commission, Provide user and technical training of the equipment

xxii. Warranty – at least two (2) years. After the warranty period is over, five (5) years {annual comprehensive maintenance contract (CMC) will have to be entered. The bidder to provide the price for CMC for the 5 years as a guide in analysis but will not be factored in the current price. The successful bidder has to ensure that all the required spares and services are available during the period of CMC and three (10) years after that period.

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LOT 8-19	Operation Theatre	General Surgery	Laparoscopic towers

xiii. User & Technical Training:
- a. supplier to train users on site
- b. Factory training 2 officers

xxiv. The supplier to provide evidence of local capacity to service equipment

1.2 GENERAL SURGERY LAPAROSCOPIC EQUIPMENT

1.2.1 General System

1.2.1.1 The system must be a high-definition universal endoscopy camera system capable of accepting a wide range of camera heads and video- scopes

1.2.1.2 The system should display full HD images in both 1080/50P and 1080/50i formats to an LCD display to produce an HD image

1.2.1.3 Camera Control Unit (Processor) and Camera Heads :
- a. Processor - 1
- b. Camera Head - 1

1.2.1.4 The camera system must be suitable for a wide range of endoscopic disciplines, and be capable of connecting to a range of high definition and standard definition surgical camera heads and video-laparoscopes

1.2.1.5 The camera Control Unit/ Processor must be capable of processing an advanced imaging system that applies optic digital methods to enhance endoscopic images and improves visualization of the mucosal surface architecture and microvascular pattern.
A 3CCD HD Autoclavable camera head should be available

1.2.1.6 Control of the image capture and video recording devices must be possible from buttons on the camera head or videoscopes and these buttons must also be programmable to control other commonly required functions of the camera system, e.g. Automatic white balance adjustment white.

1.2.1.7 Camera head must have power focus buttons as well as power zoom buttons, independent of the 3 programmable buttons. Camera head must be less than 400g by weight.

1.2.1.8 Three-Chip FULL HD Camera Head, max. resolution 1920x 1080 pixels, progressive scan, soakable, gas- and plasma-sterilizable, with integrated Parfocal Zoom Lens, focal length f = 15 - 31 mm (2x), 2 freely programmable camera head buttons.

1.2.1.9 Camera control unit, for use with three chip Full HD Camera Heads, resolution 1920 x 1080 pixels.

1.2.1.10 Power supply 200 - 240 VAC, 50/60 Hz.

1.2.2 Light Source : Qty 1

1.2.2.1 In order to allow the enhancement of tissue structures the light source must be capable of providing an optically filtered light output as well as white light for routine diagnostic imaging.

1.2.2.2 The Light Source must be capable of providing the natural optical light enhancement technology.

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LOT 8-19	Operation Theatre	General Surgery	Laparoscopic towers

1.2.2.3 The light source and camera processor should be linked to enable the camera control unit to automatically control the output of the light source to achieve optimal light distribution.

1.2.2.4 The light source must operate on a Xenon Lamp 300W or equivalent LED lighting

1.2.2.5 Cold Light Fountain Power Light source, high-performance, power supply 240 VAC, 50/60 Hz

1.2.3 Video Recording: Qty 1

1.2.3.1 The system must come with a video recorder- either DVD or USB or both

1.2.4 Insufflator : Qty 1

1.2.4.1 The laparoscopic insufflator should be high-flow (45 litres/minute), with adjustable automatic smoke/ mist evacuation that removes the smoke/mist whilst maintaining the pneumoperitoneum.

1.2.4.2 The insufflator should have a large digital display with a choice of display mode settings, which show the preset levels and actual readings of intra-abdominal pressure and flow rates, and also displays the total gas volume delivered. It should have audible and visible alarms that differentiate between excessive pressure and tube obstruction, and have two types of protection against gas embolism: automatic suction and automatic overpressure relief.

1.2.4.3 The insufflator should have normal and small cavity modes to allow for the use in paediatrics.

1.2.5 Monitor : Qty 2

1.2.5.1 At least 26 Inch full HD LCD Monitor

1.2.5.2 Aspect Ration 16:10

1.2.5.3 Should have Advanced Image Multiple Enhancer for accurate image rendition

1.2.5.4 Should have Various inputs and outputs, including 3G/HD/SD SDI, DVI, HD15 Y/C and VIDEO

1.2.6 Workstation/ Trolley: Qty 2

1.2.6.1 The workstation should be supplied with an isolation transformer which complies with BS-EN 60601-1 and have anti-static castors.

1.2.6.2 The workstation should have an articulating arm with both horizontal and vertical movement to allow the monitor to be positioned at the optimal height and position.

1.2.6.3 Should be complete with brackets for holding gas cylinders.

1.2.7 Surgical Tissue Management System: Qty 1

1.2.7.1 Must have a full range of bipolar and monopolar modes

1.2.7.2 Must be able to perform Resection in saline*

1.2.7.3 Must have a tissue adaptive response, and apply optional required energy for fast effective precise cutting

Item Code No.	Department	Section	Item Description
LOT 8-19	Operation Theatre	General Surgery	Laparoscopic towers

1.2.7.4 input power should be not less than 1500 VA
1.2.7.5 High frequency functions include Monopolar / Bipolar functions
1.2.7.6 High frequency should be 430 kHz ± 20%
1.2.7.7 Maximum high frequency power should not be greater than 320 W
1.2.7.8 Protection class according to IEC60601-1CF, Class I
1.2.7.9 Classification according toMDD93/42/EEC IIb
1.2.7.10 Sockets present should include

MONOPOLAR

- x 3-pin (Ø 4 mm), International standard
- 1 x 1-pin (Ø 8 mm)
- 1 x coaxial (Ø inner 5 mm / Ø outer 9 mm)

BIPOLAR

- 1 x 2-pin (Ø 4 mm, pin spacing 28.8 mm), International standard
- 1 x coaxial (Ø inner 4 mm / Ø outer 8 mm)

UNIVERSAL

- 1 x 7-pin
- Neutral electrode
- 2-pin standard, single or split

1.2.7.11 Unit must have communication capability with insufflator for automatic smoke evacuation
1.2.7.12 Unit must be supplied with a footswitch.
1.2.7.13 System should be supplied with compatible Ultrasonic Generator to perform single Bipolar/ Ultrasonic sealing and cutting functions with a single hand piece
1.2.7.14 Ultrasonic generator unit must be compatible with diathermy unit and Insufflator for Automatic Smoke evacuation
1.2.7.15 Generator must be able to deliver both ultrasonic and bipolar energy for reliable vessel sealing and fast tissue cutting from a single hand piece.
1.2.7.16 Must have a graphical user interface, for ease of use
1.2.7.17 Must recognize instruments automatically, and automatic application of default settings, on plug in of instrument
1.2.7.18 Must come with a suitable trolley for mounting the system
1.2.7.19 Must be complete with transducer

1.2.8 LAPAROSCOPY INSTRUMENTS (RE - USEABLE)

1.2.8.1 Reusable Trocar and Cannula 11mm with Gas Tap - Qty – 2
1.2.8.2 Reusable Threaded Trocar and Cannula 5.5mm with Gas Tap - Qty – 2
1.2.8.3 Reusable Trocar and Cannula 5.5mm without Gas Tap - Qty – 2
1.2.8.4 11mm Trocar Caps - Qty – 20
1.2.8.5 11mm Cannula Flaps - Qty-20
1.2.8.6 5.5mm Trocar Caps - Qty-20
1.2.8.7 5.5mm Cannula Valves - Qty- 20

Item Code No.	Department	Section	Item Description
LOT 8-19	Operation Theatre	General Surgery	Laparoscopic towers

1.2.8.8 Insulated Reduction Tube 10mm to 5mm - Qty-1
1.2.8.9 Reduction Tubes 13/11mm to 5.5mm - Qty -2
1.2.8.10 Veress Needle 120mm - Qty-2
1.2.8.11 Fascial Closure Needle, 250mm Lgth - Qty -1
1.2.8.12 Straight Needle Holder - Qty -1
1.2.8.13 Self-alignment Needle Holder - Qty-2
1.2.8.14 Knot Pusher - Qty-1
1.2.8.15 Monopolar Needle - Qty-2
1.2.8.16 Monopolar Hook - Qty-2
1.2.8.17 Monopolar HF Cord - Qty-2
1.2.8.18 Metzenbaum 5mm Laparoscopic Scissors, Length 330mm(33cm) - Qty-2
1.2.8.19 5mm Hooked Scissors, single action jaws, Length 330mm (33cm) - Qty-1
1.2.8.20 5mm Straight Scissors, Length 330mm (33cm) - Qty-1
1.2.8.21 Maryland 5mm Dissector with Monopolar Connection - Qty-1
1.2.8.22 Traumatic 5mm Grasping Forceps - Qty-1
1.2.8.23 Grasping Forceps, rotating, dismantlable, insulated with Monopolar connection, Atraumatic, Fenestrated - Qty-1
1.2.8.24 Fine Maryland Cross Tooth Dissector, 5mm Length 330mm - Qty-1
1.2.8.25 Bipolar 5mm Johann Grasping Forceps Length 330mm - Qty-1
1.2.8.26 Bipolar 5mm Maryland Dissecting Forceps Length 330mm - Qty-1
1.2.8.27 Bipolar HF Cable - Qty-2
1.2.8.28 Lymph Node Grasping Forceps, Atraumatic 5mm, 330mm Length - Qty-1
1.2.8.29 Babcock Forceps, 5mm, Length 330mm - Qty-1
1.2.8.30 Claw Forceps, 2*3 Teeth Short 5mm, Length 330mm - Qty-1
1.2.8.31 5mm Johann Grasping Forceps, non-single action, Length 330mm - Qty-1
1.2.8.32 Suction and Irrigation Handle with pistol grip and clamping Valve - ty-1
1.2.8.33 Suction Irrigation Cannula 5mm, with lateral holes - QTY-1

1.2.9 Backup Power UPS:

1.2.9.1 Input -220-240V (ac) 50/60Hz
1.2.9.2 Output- 220-240V (ac) 2500VA

1.2.10 MANDATORY REQUIREMENTS

1.2.10.1 Manuals
- User manuals (Both hard copy and soft copy)
- Technical Manuals (Both hard and soft copy)

1.3 GYNAECOLOCOGY LAPARASCOPY TOWER

1.3.1 GENERAL SYSTEM

This is highly specialized equipment for use in gynecological surgeries. The system must be a high-definition universal endoscopy camera system capable of accepting a wide range of camera heads and video-scopes.

The components to include:

1.3.2 IMAGING AND CART –(Quantity - 1)

1.3.2.1 Equipment Cart, wide, high, rides on 4 antistatic dual wheels equipped with locking brakes, mains switch on cover, central beam with integrated

Item Code No.	Department	Section	Item Description
LOT 8-19	Operation Theatre	General Surgery	Laparoscopic towers

electrical sub distributors with
mm (w x h x d): Equipment cart: 830 x 1474 x 730, Shelf: 630 x 25 x 510, Caster diameter: 150 mm consisting of: Base Module, equipment cart wide Cover, equipment cart wide Beam Package, equipment cart high 3x Shelf, wide Drawer Unit with Lock, wide 2x Equipment Rail long, Camera Holder

1.3.2.2 Monitor Holder, height adjustable, swiveling and tilting, swivel range approx. 360°, and loading capacity max. 18 kg, with monitor mount VESA 75/100 -(Quantity-1)

1.3.2.3 27" FULL HD Monitor, with VESA 100 adaption, color systems PAL/NTSC, max. screen resolution 1920 x 1080, image format 16:9, Video inputs: DVI, 3G-SDI, VGA, S-Video, Composite, Video outputs: DVI, 3G-SDI, Composite, power supply 100 - 240VAC, 50/60 Hz, 5 V DC output (1 A) including: External 24 VDC Power Supply Mains Cord and a slave monitor of the same specification mounted on cart with same specifications-(Quantity-1)

1.3.2.4 IMAGE 1 H3-Z SPIES Three-Chip FULL HD Camera Head, SPIES compatible, progressive scan, soakable in gluteraldehyde, gas- and plasma-sterilizable, with integrated Parfocal Zoom Lens, focal length f = 15 - 31 mm (2x), 3 freely programmable camera head buttons for use with IMAGE 1 SPIES and IMAGE 1 HUB HD/HD. The system must come with video recording DVD/USB/both. Camera head must be less than 400g-(Quantity-1)

1.3.2.5 Full HD CONNECT module (Processor), for use with up to 3 link modules, resolution 1920 x 1080 pixels or better, with integrated Communication and digital Image Processing Module, power supply 100-240 VAC, 50/60 Hz consisting of: Mains Cord, length 300 cm, DVI Signal Cable, length 300 cm, Digital Communication Connecting Cable, length 100 cm and USB Flash Drive, at least 128 GB-(Quantity-1)

1.3.2.6 Camera link module, for use with FULL HD three-chip camera heads, power supply 100 - 240 VAC, 50/60 Hz including: Mains Cord, length 300 cm, Link Cable, length 20 cm-(Quantity-1)

1.3.3 LIGHT SOURCE:

1.3.3.1 Cold Light Fountain Power LED 175Watt with integrated Communication module, high-performance LED and one light outlet, power supply 110 - 240 VAC, 50/60 Hz consisting of: Cold Light Fountain Power LED 175Watt, Mains power Cord and Communication Connecting Cable. To come with 2 spare lumps. -(Quantity-1)

1.3.3.2 Insufflator -40-45Litres

1.3.3.3 INSUFFLATOR Set, with integrated communication module (touch screen indicating intra-abdominal pressure, flow rate, gas consumption, status of cylinder and in-built alarm), power supply 100 - 240 VAC, 50/60 Hz consisting of: 40Litres Insufflator, Communication Connecting Cable length 100 cm, Universal Wrench, Insufflation Tubing Set with gas filter, sterile, single use package of 10, smoke evacuator-(Quantity-1)

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1.3.3.4 Insufflation Tube, sterilizable, inner diameter 9 cm, length 250 mm, for use with Insufflator 40 Litre Set-(Quantity-1) High Pressure CO2 Hose, American/Pin-Index-(Quantity-1)

1.3.4 ELECTROSURGICAL GENERATOR

1.3.4.1 Electrosurgical Generator 400Watt, High-End, power supply 220 - 240 VAC, 50/60 Hz, including mains cord, HF connecting sockets

1.3.4.2 unipolar: 2x 3-pin US type 5 mm connector, 2x 4 mm connector (via footswitch) (via footswitch) bipolar: 2x 2-pin US type (28.58) 3x, Neutral electrode 2-pol. System must have bipolar hysteroscopy resection functionality and TURP-(Quantity-1)

1.3.4.3 One-Pedal Footswitch, with button for swtichover function, for use with generators-(Quantity-1) Neutral Electrode-(Quantity-1)

1.3.4.4 Connecting Cable , for Neutral Electrodes, Length 300 cm-(Quantity-1)

1.3.5 IRRIGATION AND SUCTION UNIT

1.3.5.1 Endoscopic Automatic System for Irrigation and Suction, with integrated Communication module, suction and irrigation pump for gynecology with pre-programmed procedures, incl. power cord, power supply 100 - 240 VAC, 50/60 Hz, -(Quantity-1)

1.3.5.2 Single-use SUCTION tubing set. Sterile, 10 per pack-(Quantity-5)

1.3.5.3 Single-use IRRIGATION tubing set with two puncture needles, Sterile, 10 per pack-(Quantity-5)

1.3.6 INTRAUTERINE SHAVER SYSTEM

1.3.6.1 Wide-Angle Straight Forward Rod Lens Telescope 6°, with parallel eyepiece, length 20 cm, autoclavable, fiber optic light transmission incorporated with working channel, with LUER-Lock connection for inflow, Colour Coded.-(Quantity-1)

1.3.6.2 Operating Sheath, 24 Fr., rotating, for continuous irrigation and passive outflow, with LUER-Lock stopcock, Colour coded-(Quantity-1)

1.3.6.3 Hollow obturator for Operating Sheath-(Quantity-1) DrillCut XII shaver handpiece-(Quantity-1)

1.3.6.4 Handle, adjustable, for use with shaver handpiece-(Quantity-1) Shaver Blade-(Quantity-5)

1.3.7 GYNAECOLOGY MOTOR SYSTEM

1.3.7.1 Gynecology motor system set, with Integrated Communication Module, power supply 100 -120/230 - 240 VAC, 50/60 Hz consisting of: GYN Motor unit, Power Mains Cord, One-Pedal Footswitch, two-stage, with proportional function and pump switch function, Communication Connecting Cable length 100 cm-(Quantity-1)

1.3.7.2 Control Cable, length 100 cm, for transmission of foot switch control signal between Gynecology Motor System and Endoscopic Automatic Suction and Irrigation System-(Quantity-1)

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1.3.8 HAND INSTRUMENTS SCHEDULE ITEM DESCRIPTION &NO.

1.3.8.1 Fiber Optic Light Cable, with straight connector, extremely heat-resistant, safety lock, diameter 4.8 mm, length 250 cm : 2

1.3.8.2 Forward-Oblique Rod Lens Telescope 30°, enlarged view, diameter 10 mm, length 31 cm, autoclavable, fiber optic light transmission : 2

1.3.8.3 Pneumoperitoneum Needle with spring loaded blunt stylet, LUER-lock, length 13 cm and 20cm:1

1.3.8.4 Trocar, size 11 mm, color coded consisting of: Trocar only, with pyramidal tip, Cannula without valve, with insufflation stop- cock, length 10.5 cm and Multifunctional Valve:5

1.3.8.5 Trocar, size 6 mm, consisting of: Trocar only, with pyramidal tip, Cannula without valve, with insufflation stop- cock, length 10.5 cm and Multifunctional Valve:5

1.3.8.6 6mm trocar seals 100

1.3.8.7 11mm trocar seals

1.3.8.8 Sleeve Reducer 11/5mm: 1

1.3.8.9 Flip-on Reducer 11/5 mm 2

1.3.8.10 3 piece modular Bowel Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, atraumatic, fenestrated, single action jaws, consisting of: Plastic Handle, with ratchet, with larger contact area, Outer Tube, insulated and Forceps Insert:3

1.3.8.11 3 piece modular Grasping Forceps, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, "Tiger-jaw", 2 x 4 teeth, single action jaws, consisting of: Plastic Handle, with ratchet, with larger contact area, Outer Tube, insulated, and Forceps Insert:3

1.3.8.12 3 piece modular Dissecting and Grasping Forcep rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, long, double action jaws, consisting of: Plastic Handle, without ratchet with larger contact area, Outer Tube, insulated and Forceps Insert:3

1.3.8.13 3 piece modular Scissors, rotating, with connector pin for unipolar coagulation, size 5 mm, length 36 cm, curved, serrated, spoon blades, length of blades 17 mm, double action jaws:3

1.3.8.14 Rotating Bipolar Grasping Forceps, rotating, dismantling, with connector pin for bipolar coagulation, double action jaws, fenestrated, with especially fine atraumatic serration, size 5 mm, length 36 cm :3

1.3.8.15 Claw Forceps (Crocodile), rotating, size 10 mm, length 36 cm, 2x3 teeth, single action jaws:1

1.3.8.16 Coagulating and Dissecting Electrode, L-shaped, with connector pin for unipolar coagulation, size 5 mm, working length 36 cm:1

1.3.8.17 Suction and Irrigation Tube, anti-reflex surface with two-way stopcock, for single hand control, size 5 mm, length 36 cm:5

1.3.8.18 Needle Holder, ergonomic axial handle with disengage-able ratchet, ratchet release on the right side, straight jaws, with tungsten carbide insert ø 5 mm, length 33 cm:2

1.3.8.19 Needle Holder, ergonomic axial handle with disengage-able ratchet, ratchet release on the right side, Left Curved jaws, with tungsten carbide insert ø 5 mm, length 33 cm:2

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1.3.8.20 Knot Tier for extracorporeal knotting, with L-shaped windowing at the distal end, for security adaption of the basic knot, size 5mm, length 36 cm :1

1.3.8.21 Injection Needle, LUER-lock, diameter 1.2 mm, size 5 mm, length 36 cm.:1

1.3.8.22 3 piece modular grasping forceps :2

1.3.8.23 High Frequency Needle, for splitting and coagulation, insulated with connector pin for unipolar coagulation, size 5 mm, length 31 cm:1

1.3.8.24 Uterine Cannula, with 1 large and 1 small cone, spring-loaded fixation for use with Uterine tenaculum forceps, with LUER-lock adaptor for cleaning:1

1.3.8.25 Unipolar High Frequency Cord, with 5 mm plug for HF unit, length 300 cm:1

1.3.8.26 Bipolar High Frequency Cord, length 300 cm:1

1.3.8.27 3 piece modular Ovarian Grasping Forceps:1

1.3.8.28 Uterine Manipulator , consisting of; Handle, with fixation screw, Manipulator Rod, Sealing Cylinder, Silicone Seal, package of 3 (3 sizes), Sheath, Working Insert, conical, with thread, medium, Working Insert, atraumatic, diameter 7 mm, length 50 mm, Working Insert, with connector for chromopertubation, atraumatic, diameter 4 mm, length 40 mm, Anatomical Blade, short, diameter 36 mm, length 48 mm, Cleaning Adaptor:1

1.3.8.29 Plastic Container for sterilization and storage. With separated rack for storage of up to 12 instruments with diameter 2,5 to 10mm and separated insert tray for up to 6 trocars. Perforated, with transparent lid. external dimensions (w x d x h): 532 x 254 x 165 mm:2

1.3.8.30 30 degree 10mm telescope and 30degree 5mm telescope:2

1.3.9 HYSTEROSCOPY SETS SCHEDULE ITEM DESCRIPTION & NO.

1.3.9.1 2.9mm 30degree hysteroscope,5.5mm diagnostic/operative sheath with 5fr channel, 5fr hysteroscopy scissors(4), 5fr hysteroscopy forceps(4) must be compatible with sheath, light cable 3m:2

1.3.9.2 Bipolar resectoscope for hysteroresection kit(1); Bipolar working element, outer sheath, Inner sheath to work with outer sheath, bipolar HF cable compatible with generator, bipolar cutting loops, bipolar roller ball and collins knife, 12 degree hysteroscope compatible with resectoscope:2

1.3.9.3 5mm myoma spiral:1

1.3.9.4 A brochure should be provided for technical evaluation

1.3.10 Manuals

1.3.10.1 User manuals (both hard copy and soft copy)

1.3.10.2 Technical Manual (both hard copy and soft copy)

1.3.11 Installation

1.3.11.1 Supplier to Supply, install, test, commission and offer training for the equipment

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1.3.12 Warranty- at least 2-Years.

After the warranty period is over, five years annual Comprehensive Maintenance Contract (CMC) will have to be entered into with the terms and conditions mentioned in the tender specification. The Bidder will prude the CMC cost that will be applicable after expiry of the warranty. The price will be for reference purposes but will not be part of the bid. The successful bidder has to ensure that all the required spares and services are available during the period of CMC and has to be guaranteed for at least 10 years after from the time of equipment installation.

1.3.13 User training

1.3.13.1 Supplier to train users on site

1.3.13.2 Technical Training for at least two officers

Supplier to train at least one(1) biomedical Engineer and one(1) nurse at the factory

1.3.13.3 The supplier should provide references of previous Supplier of similar equipment in Kenya

1.3.13.4 The supplier to provide evidence of local capacity to service equipment.

1.3.13.5 The supplier must provide Manufacturers authorization

1.3.14 GYNAECOLOGY TELESCOPES

1.3.14.1 Laparoscopy Forward-Oblique Rod Lens Telescope 30°, enlarged view, diameter 10 mm, length 31 cm, autoclavable, fiber optic light transmission incorporated, color coded -(Quantity 1)

1.3.14.2 Hysteroscopy Shaver Wide-Angle Rod lens Straight Forward Telescope 6°, with parallel eyepiece, length 20 cm, autoclavable, fiber optic light transmission incorporated with working channel, with LUER-Lock connection for inflow, color coded-(Quantity 1)

1.3.14.3 Hysteroscopy Forward-Oblique Rod Lens Telescope 30°, ø 2.9 mm, length 30 cm, autoclavable, fiber optic light transmission incorporated, color coded-(Quantity 1)

1.3.14.4 Hysteroscopy Resection Forward-Oblique Rod lens Telescope 12°, enlarged view, diameter 4 mm, length 30 cm, autoclavable, fiber optic light transmission incorporated, color coded. -(Quantity 1)

1.4 LAPAROSCOPIC EQUIPMENT FOR UROLOGY

1.4.1 General System

1.4.1.1 The system must be a high definition universal endoscopy camera system capable of accepting a wide range of camera heads and video-scopes

1.4.1.2 The system should display full HD images in both 1080/50P and 1080/50i formats to an LCD display to produce an HD image

1.4.2 Camera Control Unit (Processor) and Camera Heads : Qty 1 Processor, 1

a. Camera Head

i. The camera system must be suitable for a wide range of endoscopic disciplines, and be capable of connecting to a range of high definition and standard definition surgical camera heads and video-laparoscopes

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ii. The camera Control Unit/ Processor must be capable of processing an advanced imaging system that applies optic digital methods to enhance endoscopic images and improves visualization of the mucosal surface architecture and microvascular pattern
iii. A 3CCD HD Autoclavable camera head should be available
iv. Control of the image capture and video recording devices must be possible from buttons on the camera head or videoscopes and these buttons must also be programmable to control other commonly required functions of the camera system, e.g. white balance.
v. Camera head must have power focus buttons as well as power zoom buttons, independent of the 3 programmable buttons.
vi. Camera head must be less than 400g by weight for ease of management.
vii. Three-Chip FULL HD Camera Head, max. resolution 1920x 1080 pixels or better, progressive scan, soakable, gas- and plasma-sterilizable, with integrated Parfocal Zoom Lens, focal length f = 15 - 31 mm (2x), 2 freely programmable camera head buttons.
viii. Camera control unit, for use with three chip Full HD Camera Heads, resolution 1920 x 1080 pixels or better.
ix. Power supply 100 - 240 VAC, 50/60 Hz.

1.4.3 Light Source : Qty 1

1.4.3.1 In order to allow the enhancement of tissue structures the light source must be capable of providing an optically filtered narrow- band light output as well as white light for routine diagnostic imaging.
1.4.3.2 The Light Source must be capable of processing an advanced imaging system that applies optic digital methods to enhance endoscopic images and improves visualization of the mucosal surface architecture and microvascular pattern
1.4.3.3 The light source and camera processor should be linked to enable the camera control unit to automatically control the output of the light source to achieve optimal light distribution.
1.4.3.4 The light source must operate on a Xenon Lamp 300W or equivalent LED technology source.
1.4.3.5 Cold Light Fountain Power Light source, high-performance, power supply 240 VAC, 50/60 Hz

1.4.4 Video Recording: Qty 1

1.4.4.1 The system must come with a video recorder- either DVD or USB or both

1.4.5 Insufflator : Qty 1

1.4.5.1 The laparoscopic insufflator should be high-flow (45 litres/minute), with adjustable automatic smoke/ mist evacuation that removes the smoke/mist whilst maintaining the pneumoperitoneum.

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1.4.5.2 The insufflator should have a large digital display with a choice of display mode settings, which show the preset levels and actual readings of intra-abdominal pressure and flow rates, and also displays the total gas volume delivered. It should have audible and visible alarms that differentiate between excessive pressure and tube obstruction, and have two types of protection against gas embolism: automatic suction and automatic overpressure relief.

1.4.5.3 The insufflator should have normal and small cavity modes to allow for the use in paediatrics.

1.4.6 Monitor : Qty 2 – at least 26 Inch full HD LCD Monitor

1.4.6.1 Aspect Ration 16:10

1.4.6.2 Should have Advanced Image Multiple Enhancer for accurate image rendition

1.4.6.3 Should have Various inputs and outputs, including 3G/HDMI/SD SDI, DVI, HD15 Y/C and VIDEO

1.4.7 Workstation/ Trolley : Qty 2

1.4.7.1 The workstation should be supplied with an isolation transformer which complies with BS-EN 60601-1 and have antistatic castors'

1.4.7.2 The workstation should have an articulating arm with both horizontal and vertical movement to allow the monitor to be positioned at the optimal height and position.

1.4.7.3 Should be complete with brackets for holding gas cylinders.

1.4.8 Surgical Tissue Management System: Qty 1

1.4.8.1 Must have a full range of bipolar and monopolar modes

1.4.8.2 Must be able to perform Resection in saline

1.4.8.3 Must have a tissue adaptive response, and apply optional required energy for fast effective precise cutting

1.4.8.4 Power supply Voltage range should be 220- 240 V~ with a Frequency 50 / 60 Hz and maximum input power should be not less than 1500 VA

1.4.8.5 High frequency functions include Monopolar / Bipolar functions

1.4.8.6 High frequency should be 430 kHz ± 20%

1.4.8.7 Maximum high frequency power should not be greater than 320 W

1.4.8.8 Protection class according to IEC60601-1CF, Class I

1.4.8.9 Classification according to MDD93/42/EEC IIb

1.4.8.10 Sockets present should include

- **MONOPOLAR**

i. 2 x 3-pin (Ø 4 mm), International standard

ii. 1 x 1-pin (Ø 8 mm)

iii. 1 x coaxial (Ø inner 5 mm / Ø outer 9 mm)

- **BIPOLAR**

i. 1 x 2-pin (Ø 4 mm, pin spacing 28.8 mm), International standard

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ii. 1 x coaxial (Ø inner 4 mm / Ø outer 8 mm)

- **UNIVERSAL**

i. 1 x 7-pin
ii. Neutral electrode
iii. 2-pin standard, single or split

1.4.8.11 Unit must have communication capability with insufflator for automatic smoke evacuation
1.4.8.12 Unit must be supplied with a footswitch.
1.4.8.13 System should be supplied with compatible Ultrasonic Generator to perform single Bipolar/ Ultrasonic sealing and cutting functions with a single hand piece
1.4.8.14 Ultrasonic generator unit must be compatible with diathermy unit and Insufflator for Automatic Smoke evacuation
1.4.8.15 Generator must be able to deliver both ultrasonic and bipolar energy for reliable vessel sealing and fast tissue cutting from a single hand piece.
1.4.8.16 Must have a graphical user interface, for ease of use
1.4.8.17 Must recognize instruments automatically, and automatic application of default settings, on plug in of instrument
1.4.8.18 Must come with a suitable trolley for mounting the system
1.4.8.19 Must be complete with transducer

1.4.9 Bipolar Resectoscope Set: Qty 1

1.4.9.1 System must be Bipolar, with Plasma Vaporization functionality
1.4.9.2 System should be continuous flow and rotatable
1.4.9.3 Must be compatible to variety of loops including Bipolar 12 Deg Loops, Plasma Vaporization Button Electrodes, Bipolar Roller Balls etc.
1.4.9.4 System should comprise of:

- 1 X 12 Deg 4mm Telescope
- 1 X Light Guide Cable compatible with 4mm Telescope
- 1 X 26Fr Rotatable Outer Sheath with 2 stopcocks
- 1 X Inner Sheath for 26Fr Outer Sheath
- 1 X Active Working Element for Bipolar Resection
- 1 X Cable for Bipolar resection, compatible with Diathermy Machine above
- 1 X Ellik Evacuator with glass bulb, rubber bulb and adaptor
- X Visual Obturator

1.4.10 Backup Power UPS:

1.4.10.1 Input -220-240V (ac) 50/60Hz
1.4.10.2 Output- 220-240V (ac) 2500VA

1.4.11 UROLOGY REQUIREMENT FOR LAPARASCOPIC TOWERS

1.4.11.1 **Lower Tract Set**

a. Telescopes

i. Telescope 4mm 0 Degrees-1
ii. Telescope 4mm 12 Degrees-2

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iii. Telescope 4mm 30 Degrees – 2
iv. Telescope 4mm 70 Degrees -1
v. Telescope 4mm 110 Degrees -1

b. Cystoscope Sheaths & Attachments

i. Cystoscopy Sheath 19.8Fr with Obturator - 1

vii. Cystoscopy Bridge One way - 2
viii. Cystoscopy Bridge Two Way - 2
vi. Albaraan with Bridge

c. Monopolar 26Fr Rotatable Continuous Flow System consisting of

i. Active Monopolar Working Element- Qty 1
ii. Inner Sheath Qty-1
iii. Outer Sheath Qty-1
iv. Monopolar Cable- Qty - 2
v. Monopolar Loop Electrode – Qty - 12
vi. Monopolar Roller Ball- Qty - 12
vii. Ellik Evaluator Plastic - Qty - 1

d. TURIS Bipolar 26Fr Rotatable Continuous Flow System consisting of:

vii. Bipolar Roller Ball - Qty 12
viii. Plastic Ellik Evacuator- Qty 1

e. DVU Kit Consisting of:

i. 22Fr Sheath- Qty
ii. 26Fr Outer Sheath - Qty 1
iii. Insertion Sleeve For Balloon Catheter- Qty 1
iv. Working Element - Qty 1

vii. Knife Semi Circular- Qty 5

f. Bladder Stone crushing forceps Qty 1

Item Code No.	Department	Section	Item Description
LOT 8-19	Operation Theatre	General Surgery	Laparoscopic towers

1.4.12 Upper Tract Set

i. Semi-rigid Ureterescope QTY 2

- Angled Ocular
- Single Channel,
- 7° Direction Of View,
- 6.4/7.8FRx430mm
- 4.2Fr Channel

ii. Video Ureteroscope - QTY 1

- 8.2Fr Slim Videoscope compatible with Video processor & Light Source
- Forward Viewing
- Working Length 670mm
- Channel 3.6FR
- Up Angulation 275°
- Down Angulation 275°
- Fibreoptic Flexible Ureteroscope

iii. Field of view 90°, QTY 1

- Forward Viewing,
- Evolution Tip 4.5Fr,
- Working Length 670mm

iv. Nephroscope- Qty 1

- 4mm 30Deg OP Nephrosocpe
- Outer Sheath 25Fr (Rotatable) Sheath
- Sheath Acc For Amplatz

v. Stopcock Rotatable - Qty 2

- 11Fr 7Deg OP Nephroscope
- Outer Sheath Fixed, 15.9Fr
- Guiding Tube
- Guiding Tube for Second Guide wire

vi. Bougie Dilator Tubes 9-

vii. Nephroscope Graspers-1

- 1.Toothed Grasper 3.25x400mm
- 1Grasper With Lumen 3.25x400mm
- Fine Toothed Grasper 3.25x400mm
- Grasping Forceps 5Fr X 340mm

viii. Bugbee Electrode with Monopolar HF Cable - Qty – 2

1.4.13 ANCILLARY EQUIPMENT

a. Ultrasonic Lithotripsy QTY-1

- Advanced Dual Action Lithotripsy
- Plug and Play

Item Code No.	Department	Section	Item Description
LOT 8-19	Operation Theatre	General Surgery	Laparoscopic towers

- Hand Activated
- Large Single Lumen Probes for Quick Drilling And Continuous Fragment Removal
- Complete with suitable probes for immediate use

b. 30 Watt Holmium Laser- 1 Quantity

Descriptions:

i. A 30-watt holmium laser for lithotripsy on stones of all types and sizes with high energy per pulse of 5J and reputation rate of 25Hz.

ii. The multipurpose, multi-specialty holmium wavelength ideal for fragmenting stones and for precision surgery, including the ablation and vaporization of soft tissue with minimal bleeding.

a. FEATURES:

i. High-resolution screen multi-touch interface screen.
ii. Should be able to recognize fiber size.
iii. Green aiming beam
iv. Save the laser setting for at least last ten treatments used.
v. Should be on castors/ on a trolley.

b. System Includes:

- 1 Single Foot Pedal
- 1 20A Inlet 3 wire cable
- 1 UK Power cable,
- 1 Operator Manual CD
- 1 Debris Shields
- 1 English Laser Warning Sign

c. Accessories.

- 200µm reusable laser fiber
- 365µm reusable laser fiber
- 550µm reusable laser fiber
- 2 Laser Safety Goggles
- 1 ceramic scissor
- 1 Fiber Inspection Scope
- 3 Steam Sterilization Tray

d. SYSTEM SPECIFICATIONS:

- Average Power: 30 Watts
- Laser Source: Holmium: YAG
- Wavelengths: 2.1 µm

e. Energy per:

- Pulse: 0.2-5 Joules

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- Repetition Rate: 3-25 Hertz
- Pulse Duration: 650 µsec ± 20% (full width)
- Aiming Beam: Green, with 5 intensity settings
- Display: at least 7" Touch screen color display
- Delivery Systems: Compatible with reusable and disposable fibers.
- Cooling: Internal water-to-air heat exchanger
- Utilities: 50/60 Hz, 220-240 V

1.4.14 A brochure should be provided for reference

1.4.15 Manuals

i. User manuals (both hard copy and soft copy)

1.4.16 Technical Manual (both hard copy and soft copy)

1.4.17 Installation

1.4.17.1 Supplier to Supply, install, test, commission and offer training for the equipment

1.4.18 Warranty-2-Years.

1.4.18.1 After the warranty period is over, five years annual Comprehensive Maintenance Contract (CMC) will have to be entered into with the terms and conditions mentioned in the tender specification. The Bidder will provide the CMC cost that will be applicable after expiry of the warranty. The price will be for reference purposes but will not be part of the bid. The successful bidder has to ensure that all the required spares and services are available during the period of CMC and has to be guaranteed for at least 10 years after from the time of equipment installation.

1.4.19 User training

1.4.19.1 Supplier to train users on site

1.4.19.2 Technical Training

1.4.19.3 Supplier to train at least one biomedical technician and one nurse at the onsite

1.4.20 The supplier should provide references of previous Supplier of similar equipment in Kenya

1.4.21 The supplier to provide evidence of local capacity to service equipment.

1.4.22 The supplier must provide Manufacturers authorization

LOT 11: CENTRAL STERILIZATION SUPPLIES DEPARTMEMT (CSSD)

LOT 11-1: Autoclave

Item Code No.	Department	Section	Item Description
LOT 11-1	CSSD	CSSD	Autoclave

1. General Description

High Speed Horizontal Autoclave 450L with double door

2. Composition

2.1.	Main unit				

3. Technical Specification

3.1. Should be a fully automatic microprocessor based High pressure, high vacuum autoclave for sterilizing material including agars, sterilization of solution in open & closed bottles, disinfection of materials and waste decontamination.

3.2. Should be front loading and rear offloading, have Rectangular, horizontal chamber with well insulated jacket, Chamber Volume minimum 450 liters or more.

3.3. Should have single vertical sliding door on either side to have a pass-through system. Doors should be electrically controlled having fully automatic function with multiple safety arrangements. Sealing system should be based on silicone seal.

3.4. Should have at least 50mm thick insulation materials on jacket and in doors to ensure low thermal losses. Working temp. of the door should be less than 45deg. C.

3.5. Should be high grade Stainless steel.

3.6. Should have a built in Color touch screen.

3.7. Should have audio visual alarms in case of undesired situations.

3.8. Should have programmable Operator's access level.

3.9. Should have at least 8 pre-programmed standard cycles plus 5 or more user programmable cycles and provision of chip card port for loading of new programs through chip cards or any other latest technology.

3.10. Should have temperature adjustable from 121Deg. to 135 Deg. C.

3.11. Safe Working pressure range should be from 15 to 32 PHI (1.1 bar – 2-2 bar)

3.12. Should have complete monitoring of cycle operation and provided with at least two pressure sensors and two Temp. Sensors (PT -100) in addition to analog for chamber pressure, jacket pressure and steam generator pressure indication.

3.13. The unit should be equipped with multiple safety mechanisms for Emergency Stop over pressure safety valves for chamber and jacket, over temp safety, steam traps and electrical safety.

3.14. The unit should include Non fade built in thermo-recorder for step progress values during the cycle with time and date and alarm condition if any.

3.15. Should have built in feature of Water Saving System for water conservation.

3.16. Should be supplied complete with high quality stainless steel trolleys and sterilization baskets:

a. External trolley = 02 nos.
b. Internal trolley with steel roller
c. Shelves = 02 nos. and
d. 2 sets of Sterilization baskets.

Item Code No.	Department	Section	Item Description
LOT 11-1	CSSD	CSSD	Autoclave

3.17. All accessories & electric fitting to be included

3.18. The unit should be equipped with both internal steam generator and external steam source connection from external boiler.

3.19. The steam Generator should also be made of AISI 316 Ti steel & the steam generator should be equipped with automatic cleaning facility.

3.20. Integrated wastewater cooling, integrated water saving device. Touch screen display, chipcard reader and RS 232 /USB interface.

3.21. Should be US FDA/European CE certified and should comply with EN 285 standard. The system should have pressure directives 97/23/EC.

LOT 11-2: Washer Disinfection

Item Code No.	Department	Section	Item Description
LOT 11-2	CSSD	CSSD	**Washer Disinfection**

1. General Description

Washer cum Disinfector Unit

2. Composition

2.1.	Main unit				

3. Detailed Specifications

3.1. The Washer Disinfection will be equipped with all accessories suitable for washing, disinfecting and drying of all kinds of surgical instruments, respiratory tubing, suction devices, bottles and other glassware

- 3.1.1. Double door Unit.
- 3.1.2. Chamber made of stainless-steel S.S.304
- 3.1.3. Microprocessor control for all services, programming and statistic functions-at least three pre-set programs.
- 3.1.4. Equipped with powerful water circulation pump (capacity).
- 3.1.5. Equipped with four spray arms for good penetration.
- 3.1.6. Dosage of detergent can be pre-set with dosing pump.
- 3.1.7. Sensor to detect level in soap tank and easy refilling system
- 3.1.8. Sensor for water in chamber to avoid dry run.
- 3.1.9. Double wall with insulation to run with minimum sound and heat emission.
- 3.1.10. Air particle filter to ensure the drying air is free from particles.
- 3.1.11. Size of chamber: Approx. 600mmx700mmx700mm.(Approx.)
- 3.1.12. Chamber volume: 250 - 275liters.
- 3.1.13. Overall dimension: Approx. 815mmW x730mmLx1890mmH.
- 3.1.14. Electrical Connected Load: 20Kw on 3phases, 400V, AC supply.
- 3.1.15. Frontloading and rear offloading
- 3.1.16. The warranty of equipment will be at least 2 years

LOT 11-3: Ultrasonic Washer

Item Code No.	Department	Section	Item Description
LOT 11-3	CSSD	CSSD	**Ultrasonic Washer**

1. General Description

2. Composition

2.1.	Main unit				

3. Detailed Specifications

3.1. The body made of stainless steel
3.2. All exterior panels should be of type 304 stainless steel with a polished finish
3.3. The sonic cleaning chamber should be constructed of type 316L mirror finish stainless steel for increased corrosion resistance.
3.4. Overall size of the cleaning chamber at least 29" L x 12" W x 8" (73cm X 36cm X 23cm)
3.5. Liquid volume of the ultrasonic tank: at least 45 litres.
3.6. Effective liquid depth of ultrasonic tank: at least 6.5" (16.5cm)
3.7. The ultrasonic tank should be covered by a well-fitting stainless-steel lid
3.8. Should be provided with a well-fitting tray with holes for immersing instruments in the above mentioned tank.
3.9. The inner tray should be of such dimension that it can accommodate and completely immerse the instruments.
3.10. Must have a cycle timer with automatic stop after washing cycle of the particular time is over.
3.11. Suitable stand to be provided if it is table top unit.
3.12. Electronic display that indicates set time, start of cycle and end of cycle
3.13. Ultrasonic generator output 1000Watts Average.
3.14. User selectable dual ultrasonic frequency (38±3) or greater
3.15. Should be provided with fill port and drain port
3.16. Power cord of at least 3 m with plug compatible with UK socket
3.17. Should be provided with essential spares and fuses
3.18. Should be FDA /CE certified

4. Standards and Safety

4.1. Manufacturer and supplier must have ISO certificate to Quality Standard
4.2. Must be compliant with IEC 61010-1(or any international equivalent e.g. EN/UL61010) covering safety requirements for electrical equipment for measurement control and laboratory use.
4.3. Comprehensive training of the users and support team will be provided till they are fully familiar with the system.

5. Warranty and Annual Maintenance Contracts.

5.1. Comprehensive warranty for at least 2 years. Guarantee of Comprehensive maintenance contract (CMC) to be provided with a quotation for CMC post warranty being provided with the tender,. The rates will only be used for evaluation purposes but not to be part of the quote.
5.2. Back-to-back warranty should be taken buy the suppliers from the Principals if principals are not the suppliers and there must be a guarantee for supply of spare parts for at least 10 years from the date of installation.

6. Documentation

6.1. User/Technical manuals to be supplied in English n both hard and soft copies.
6.2. Certificate of calibration and inspection to be provided
6.3. List of equipment available with the service centre for providing calibration and routine maintenance support as per manufacturers' documentation in service/technical manual must be provided.
6.4. List of important spare parts and accessories with their part numbers and costing must be provided with the bid

Item Code No.	Department	Section	Item Description
LOT 11-3	CSSD	CSSD	**Ultrasonic Washer**
6.5. Logbook with instructions for daily, weekly, monthly and quarterly maintenance checklist must be provided, the job description of the hospital technical team and company service engineer should be clearly spelt out.			

LOT 11-4: Dissembling and sorting Table

Item Code No.	Department	Section	Item Description
LOT 11-4	CSSD	CSSD	Dissembling and sorting Table
1. General Description			
2. Composition			

2.1.	Main unit				

3. Detailed Specifications
3.1. Complete stainless steel CSSD sterile packing table form machine pressed made of acid-proof stainless steel; grade - S.S.304 grade, 1.5mm thickness laser cut 3.2. Sturdy tubular framework 3.3. Lightened tabletop 3.4. Adjustable stumps. 3.5. Size: Approx. 1400mm x w 900mm x h 850mm

LOT 11-5: Water Jet System

Item Code No.	Department	Section	Item Description
LOT 11-5	CSSD	CSSD	Water Jet System

1. General Description

1.1. Water jet Sluicing table

2. Composition

2.1.	Main unit				

3. Detailed specifications

3.1. Complete stainless steel CSSD instrument sluicing table with hand water jet table form machine pressed made of acid-proof stainless steel.S.S.304; 1.5mm thickness laser cut with hot and cold water faucets.
3.2. Should have sturdy tubular framework
3.3. Should have twin bay sink with drain out water connection.
3.4. Adjustable stumps.
3.5. Size should be 1200mm x w 600mm x h 850mm

LOT 11-6: Hydrogen Peroxide Low Temperature Plasma Sterilizer

Item Code No.	Department	Section	Item Description
LOT 11-6	CSSD	Sterilization Area	Gas Plasma Sterilizer

1. General Description					
Low Temperature based H2O2 Gas plasma sterilizer,					
2. Composition					
2.1.	Main unit				
3. Description of the medical supply unit design type					

3.1.	Should provide simple & fast sterilization of surgical instruments at low temperature using H2O2 Gas Plasma technology for effective removal of H2O2 from sterilized items and to compliment the process.
3.2.	Should be suitable for sterilization of medical items like rigid endoscopes, lumen & non lumen , metal , non-metal, heat & moisture sensitive instruments
3.3.	Chamber should have usable volume of around 50 liters
3.4.	The sterilization temperature inside the chamber should be less than 55°C
3.5.	Cycle time should be 35 to 60 mins
3.6.	The sterilant should be in a cassette/ bottle with H2O2 concentration more than 55%
3.7.	Should be endorsed by leading instruments and scopes makers like Karl Storz, Olympus, Stryker, Medtronic and Johnson & Johnson
3.8.	The system should use minimum quantity of sterilant which should be less than 6-8 ml per injection to deliver dry terminal sterilization to ensure safety of Instruments against corrosion.
3.9.	The unit should be equipped with all the safety features
3.10.	Sterilizer should have storage of cycle records data.
3.11.	Should be environment friendly and have no toxic products or harmful residues in the sterilized items in the chamber.
3.12.	Sterilizer should be approved by USFDA and CE
3.13.	Please specify list and cost of consumables/ consumable spares (i.e spares need to be replaced at regular intervals, may be quarterly/half yearly/ yearly such as annual maintenance kit etc.) if any.
3.14.	Please specify pre installation requirements (electrical, HVAC etc.)
3.15.	Please specify footprint size & its weight.
3.16.	Demo of the quoted model will be mandatory at the cost of bidder if so desired by the user, after the opening of the technical bid and prior to opening of financial bid. This is for technical evaluation.

LOT 11-7: Stainless steel working table

Item Code No.	Department	Section	Item Description
LOT 11-7	CSSD	CSSD	Working Table
1. General Description			
2. Composition			
2.1. Main unit			
Complete stainless steel CSSD sterile packing table form machine pressed made of acid-proof stainless steel; grade - S.S.304 grade, 1.5mm thickness laser cut Sturdy tubular framework Lightened tabletop Adjustable stumps. Size: Approx. 1400mm x w 900mm x h 850mm			

LOT 11-8: Packing and sorting Table

Item Code No.	Department	Section	Item Description
LOT 11-8	CSSD	CSSD	Parking and sorting Table
1. General Description			
2. Composition			
2.1. Main unit			
Complete stainless steel CSSD sterile packing table form machine pressed made of acid-proof stainless steel; grade - S.S.304 grade, 1.5mm thickness laser cut Sturdy tubular framework Lightened tabletop Adjustable stumps. Size: Approx. 1400mm x w 900mm x h 850mm			

LOT 11-9: Cart Cabinet for storage and execrating sets

Item Code No.	Department	Section	Item Description
LOT 11-9	CSSD	CSSD	Cart Cabinet for storage and execrating sets

1. General Description					
2. Composition					
2.1.	Main unit				
3. Detailed Specs					
3.1. Complete S.S Sterile Storage Mesh Units With Tubular Frame 3.2. Should Have Mono Steered, Antistatic 5” Castors 3.3. Should Have 5 Shelves App. 2~3” Depth 3.4. Size Of The Mesh Basket App. 2’X 3’ Overall Size: App 6’					

LOT 11-10: Package sealing Machine

Item Code No.	Department	Section	Item Description
LOT 11-10	CSSD	CSSD	Package sealing Machine

1. General Description

CSSD Package Heat Sealing Machine

2. Composition

2.1.	Main unit				

3. Detailed Specifications

3.1. The continuous band heat-sealing machine with conveyer is suitable for hospital sterile packing.
3.2. It adapts electronic constant temp control system (temp control).
3.3. It has speed adjusting transmission mechanism. (Speed control)
3.4. It can emboss upto 15 interchangeable characters for batch recording, date etc. (embossing mechanism)
3.5. It can seal plastic film of various materials such as PE, PP, Aluminium foil etc.
3.6. It has height adjustments as well as sealing width adjustments.

Specifications

- Temperature Range: 0-250deg.
- Current Supply: 220-240 „Volts, 50 Hz, Single Phase
- Current Consumption: 500 watts
- Sealing speed: 1-12m/min
- Cutting size: 200 mm (8”)
- Sealing width: 6 – 15 mm
- Sealing film thickness: 0.02 –0.80mm
- Conveyor loading: up to 5 kgs
- System should be FDA/CE certified

LOT 11-11: Pressure Steam Gun/ Water for cart washing

Item Code No.	Department	Section	Item Description
LOT 11-11	CSSD	CSSD	Pressure Steam Gun/ Water for cart washing

1. General Description					
2. Composition					
2.1.	Main unit				
3. Detailed Specifications					
3.1. Complete stainless steel CSSD instrument sluicing table with hand water jet table form machine pressed made of acid-proof stainless steel.S.S.304; 1.5mm thickness laser cut with hot and cold water faucets. 3.2. Should have sturdy tubular framework 3.3. Should have twin bay sink with drain out water connection. 3.4. Adjustable stumps. 3.5. Size should be 1200mm x w 600mm x h 850mm					

LOT 11-12: Carrying Carts and Shelves (Stainless Steel)

Item Code No.	Department	Section	Item Description
LOT 11-12	CSSD	CSSD	Carrying Carts and Shelve

1. General Description					
2. Composition					
2.1.	Main unit				
3. Detailed Specifications					
3.1. Complete S.S Sterile Storage Mesh Units With Tubular Frame 3.2. Should Have Mono Steered, Antistatic 5” Castors 3.3. Should Have 5 Shelves App. 2~3” Depth 3.4. Size Of The Mesh Basket App. 2’X 3’ Overall Size: App 6’					

LOT 11-13: Table flash Autoclave

Item Code No.	Department	Section	Item Description
LOT 11-13	Operation Theatre	General Surgery	Flash Autoclave

1. General Description

RAPID STERILIZER (FLASH AUTOCLAVE)TABLE TOP STERILIZER WITH ACCESSORIES

2. Composition

2.1.	Main unit				

3. Specification Details

3.1. Table-Top, Rapid, Front Loading Autoclave

- Fully automatic microprocessor controls
- The control system should have Digital input/output controls, analog measuring inputs & COM ports for printer & PC connectivity, also with Alpha numeric Wide Graphic Display to indicate process status & to set the protocol with soft keypad. It should have Visual indicator provided by the same Wide Graphic Display to indicate process status.
- Accurate pressure control switch (1.2Kg/121 0C & 2Kg/1340C)
- Digital timer for Wet & Dry heat
- Alarm for completion of total command
- Auto drain out of water and condensation of steam; with external Wastewater tank
- Sterilization chamber made of strong deep drawn stainless steel S.S-304
- Sheet to stand high Pressure

3.2. Should meet European Medical Device Directive 93/42EEC and Pressure Equipment directive 97/23EEC

3.3. Should be CE/FDA Approved

LOT 11-14: Gas Plasma sterilizer

Item Code No.	Department	Section	Item Description
LOT 11-14	Operations Theatre	Sterilization Area	Gas Plasma Sterilizer

4. General Description

Low Temperature based H2O2 Gas plasma sterilizer,

5. Composition

5.1.	Main unit				

6. Description of the medical supply unit design type

6.1.	Should provide simple & fast sterilization of surgical instruments at low temperature using H2O2 Gas Plasma technology for effective removal of H2O2 from sterilized items and to compliment the process.
6.2.	Should be suitable for sterilization of medical items like rigid endoscopes, lumen & non lumen , metal , non-metal, heat & moisture sensitive instruments
6.3.	Chamber should have usable volume of around 50 liters
6.4.	The sterilization temperature inside the chamber should be less than 55°C
6.5.	Cycle time should be 35 to 60 mins
6.6.	The sterilant should be in a cassette/ bottle with H2O2 concentration more than 55%
6.7.	Should be endorsed by leading instruments and scopes makers like Karl Storz, Olympus, Stryker, Medtronic and Johnson & Johnson
6.8.	The system should use minimum quantity of sterilant which should be less than 6-8 ml per injection to deliver dry terminal sterilization to ensure safety of Instruments against corrosion.
6.9.	The unit should be equipped with all the safety features
6.10.	Sterilizer should have storage of cycle records data.
6.11.	Should be environment friendly and have no toxic products or harmful residues in the sterilized items in the chamber.
6.12.	Sterilizer should be approved by USFDA and CE
6.13.	Please specify list and cost of consumables/ consumable spares (i.e spares need to be replaced at regular intervals, may be quarterly/half yearly/ yearly such as annual maintenance kit etc.) if any.
6.14.	Please specify pre installation requirements (electrical, HVAC etc.)
6.15.	Please specify footprint size & its weight.
6.16.	Demo of the quoted model will be mandatory at the cost of bidder if so desired by the user, after the opening of the technical bid and prior to opening of financial bid. This is for technical evaluation.

PART VIII – BILLS OF QUANTITIES

PREAMBLE TO BILLS OF QUANTITIES

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and SpecialConditions of Contract, Technical Specifications, and Drawings.

2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to providea common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.

3. The rates and prices bid in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, together with all general risks, liabilities, and obligations set out or implied in the Contract.

4. The rates and prices in the priced Bill of Quantities shall, be exempt of applicable local duties and taxes as the project is tax exempt.

5. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shallbe deemed to be covered by other rates and prices entered in the Bill of Quantities.

6. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.

7. General directions and descriptions of work and materials are not necessarily repeated nor summarizedin the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.

8. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with the General Conditions of Contract.

9. The method of measurement of completed work for payment shall be in accordance with ***the Standard Specifications and Special Specifications***.

10. Any arithmetic errors in computation or summation will be corrected by the Employer as follows:

    (a) where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and

(b) where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted

will govern, unless in the opinion of the Employer, there is an obviously gross misplacement of the decimal point in the unit price, in which event the total amount as quoted will govern and the unit rate will be corrected.

11. Bidders shall price the Bill of Quantities in United States Dollars.

LOT 1: OUTPATIENT EQUIPMENT

	CONSULTING ROOMS			
S/NO.	**EXPECTED EQUIPMENT**	**QTY**	**UNIT PRICE (USD)**	**TOTAL (USD)**
1	Examination couch	4		
2	Emergency Trolley	2		
3	Diagnostic set (Wall mounted)	4		
4	Blood pressure Machine (Wall Mounted)	4		
5	Electrical suction machines	3		
6	Wall mounted Examination lights	4		
7	Oxygen flow meters	2		
8	Stethescopes	8		
9	Wall suction units	2		
10	X-ray viewer	4		
	DRESSING AND TREATMENT ROOM			
11	Procedure trolley	2		
12	Portable electrical suction units	2		
13	Examination couch	2		
	TRIAGE (2No.)			
14	Weighing Scale	2		
15	Blood pressure Machine	2		
16	Thermometer	5		
			SUB-TOTAL	

LOT 2: ONCOLOGY (RADIOTHERAPY) EQUIPMENT

S/NO.	EXPECTED EQUIPMENT	QTY	UNIT PRICE (USD)	TOTAL (USD)
	CT-SIMULATOR			
1	CT-Simulator	1		
	CANCER TREATMENT			
2	Digital Linear Accelerator	1		
3	Brachytherapy Unit	1		
4	Anaesthetic machines	1		
5	Brachytherapy Table	1		
6	General Purpose Suction Unit	1		
7	Operation Light (LED)	1		
8	Patient Trolley	2		
9	Emergency Trolley	1		
10	Patient Monitor	1		
11	Infusion Pump	2		
12	Oxygen Flow meters	1		
			SUB-TOTAL	

LOT 6: DIAGNOSTIC LABORATORIES EQUIPMENT

S/NO.	EQUIPMENT	QTY	UNIT PRICE (USD)	TOTAL (USD)
1.	Microtomes	2		
2.	Tissue Embedding Station	1		
3.	Cytocentrifuge	1		
4.	Paraffin Wax Dispenser	1		
5.	Tissue Processor	1		
6.	Cassette Printer	1		
7.	Cryostat	1		
8.	Automated Slide Stainer	1		
9.	Slide Scanner	1		
10.	Microscope With Digital Camera	1		
11.	Grossing Station	1		
12.	Cover Slipper	5		
13.	Scanning Electron Microscope	1		
14.	Auto Stainer	1		
15.	Liquid Based Cytology	1		
16.	Fully Automated 5 Part Diff Haematology Analyzer	1		
17.	Binocular Microscope	6		
18.	Refrigerator (2 To 8 Deg)	5		
19.	Flow Cytometer	1		
20.	Biochemistry Immunoassay Electrolyte Integrated Analyzer	1		
21.	Coagulometer	1		
22.	Blood Gas Analyzer	1		
23.	Centrifuge	3		
24.	Thermometer -20 /100	4		
25.	Thermometer -30 /100	4		
26.	Freezer	2		
27.	Micropipetts-Single Channel Set Of 5	5		
28.	Lab Distiller	5		

S/NO.	EQUIPMENT	QTY	UNIT PRICE (USD)	TOTAL (USD)
29.	Automated DNA/RNA Sample Prep	1		
30.	Real-Time PCR	1		
31.	Thermocycler With GEL DOC	1		
32.	Digital PCR System, Desktop	1		
33.	Lab Deionizer	1		
34.	Micropipette-Multi Channel Set Of 5	5		
35.	Biological Safety Cabinet Class II	2		
36.	PCR Cabinet	2		
37.	Microcentrifuge	2		
38.	Refrigerated Centrifuge	3		
39.	Sequencer	1		
40.	Fragment Analyser	1		
41.	Ice Flaking Machine	1		
42.	Multiplex Protein Array System Based On Xmap Technology	1		
43.	Microbiological Incubator	1		
44.	Electronic Balance	2		
45.	Vertical Floor Standing Autoclave	1		
46.	Water Bath	2		
47.	Block Heaters	2		
48.	Ph Meter	2		
49.	Timer, Digital	2		
50.	Vortex Mixer	4		
51.	Id/Ast Microbiology System	1		
52.	Bacterial Blood Culture System	1		
53.	Cross Matching	1		
54.	Plasma Thawer	1		
55.	Blood Donor Couch	10		
			SUB-TOTAL	

LOT 8: OPERATION THEATRES EQUIPMENT

S/NO.	EXPECTED EQUIPMENT	QTY	UNIT PRICE (USD)	TOTAL (USD)
	2 GENERAL SURGERY			
1	Anaesthetic machines	4		
2	Operation tables (with kidney Bridge)	3		
3	Operation theatre LED lights with inbuilt IP Camera & voice capability	2		
4	Electrosurgical units (with bipolar resection capability)	4		
5	Digital X-ray viewer	4		
6	Electrocautery LEEP Machine	1		
7	Thermo-Ablation Device	1		
8	Cryotherapy Unit	1		
	THEATRE RECOVERY			
9	Fluid warmer	2		
10	Patient Trolleys	8		
11	Refrigerators	2		
12	Instrument Trolleys	4		
13	Resuscitaire	2		
14	C-Arm	1		
15	Syringe pumps	5		
16	Infusion pumps	5		
17	Operation Microscope (Transplant Procedures)	1		
18	Endoscopy tower	1		
19	Complete Laparoscopic towers with 4K image quality (Either on pendant or trolley)	1		
			SUB-TOTAL	

LOT 11: CENTRAL STERILIZATION SUPPLIES DEPARTMEMT (CSSD)

S/NO.	EXPECTED EQUIPMENT	QTY	UNIT PRICE (USD)	TOTAL (USD)
	STERILIZATION UNIT			
1	Autoclave	2		
2	Washer Disinfection	1		
3	Ultrasonic washer unit	1		
4	Dissembling and sorting Table	1		
5	Water Jet System	1		
6	Hydrogen Peroxide Low Temperature Plasma Sterilizer	1		
7	Working table (stainless steel)	1		
8	Packaging and sorting Table	2		
9	Cart/ Cabinet for storage and execrating sets	1		
10	Package sealing machine	2		
11	Pressure steam gun/ Water for cart washing	1		
12	Carrying Carts and shelves (stainless steel) for storage.	4		
13	Table flash Autoclave	1		
14	Gas Plasma sterilizer	1		
			SUB-TOTAL	

HOSPITAL EQUIPMENT – COST SUMMARY

Tender	Tender Number	Tender Document	Tender Description	Amount (US$)
6.	MOH/NCCP/ICB/015/2023-2024	Lot 1	Outpatient Equipment	
7.	MOH/NCCP/ICB/016/2023-2024	Lot 2	Oncology (Radiotherapy) Equipment	
8.	MOH/NCCP/ICB/017/2023-2024	Lot 6	Diagnostic Laboratory Equipment	
9.	MOH/NCCP/ICB/018/2023-2024	Lot 8	Operation Theatres Equipment	
10.	MOH/NCCP/ICB/019/2023-2024	Lot 11	Central Sterilization Supplies Department (CSSD)	
GRAND TOTAL CARRIED TO FORM OF TENDER (US$)				