Government of Pakistan

SHAHEED ZULFIQAR ALI BHUTTO MEDICAL UNIVERSITY, G-8/3, Islamabad

INVITATION TO E-BIDS

SZABMU/2026/TENDER NO. 43

1. Shaheed Zulfiqar Ali Bhutto Medical University (SZABMU), Islamabad invites Single Stage Two Envelope bids **through e-Pak Acquisition & Disposal System (E-PADS) under the PSDP Project titled "Construction of Academic Block SZABMU, Islamabad"** in accordance with PPRA Rules 2004 (Amended 2021) from eligible and well-reputed firms registered with the Income Tax, Sales Tax Departments and listed on the Active Taxpayer List (ATL) of the Federal Board of Revenue for supply, installation, testing, and commissioning of **SIMULATION LAB & MOLECULAR BIOLOGY LAB Equipment for the Academic Block Project** as per following:

LOT	DESCRIPTION	LOT	DESCRIPTION
1	ANATOMY LAB	10	CENTRIFUGES
2	BLS SKILL LAB	11	NEXT GENERATION SEQUENCERS
3	ACLS SKILL LAB	12	GENETIC ANALYZER
4	PALS SKILL LAB	13	PCR & ALLIED
5	PATIENT AND NURSING CARE	14	CYTOGENETIC IMAGING & ANALYSIS SYSTEM
6	GYNAE & OBS	15	NGS LIBRARY PREPARATION & QUALITY CONTROL SYSTEM
7	SKILL TRAINERS	16	OPTHALMOLOGY
8	PATIENT SIMULATORS FOR POST GRAGUDATE	17	VERTICAL STEAM JACKETED AUTOCLAVE
9	ADVANCED SKILL TRAINERS (HIGH FIDELITY SIMULATORS) FOR POST GRADUATE TRAINING		

2. A bidder can quote any or all the LOTs, but items contained in a LOT should be bid in total.
3. Firms should provide Name of Business, Registered Office, NTN, GST number, and relevant experience as per bidding documents. Prices must be quoted in foreign currency **(CNF/CPT Islamabad).** Rates must be inclusive of all applicable taxes. If there is no mention of taxes, the offered/ quoted price shall be considered as inclusive of all prevailing taxes/duties.
4. Bid Security shall be **Pak rupees three million** in the shape of Pay Order/CDR in favor of Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad, shall be submitted with the Financial Bid.
5. Bidding documents containing detailed terms and conditions can be downloaded free of cost from **https://eprocure.gov.pk.** SZABMU may increase or decrease the quantity as per requirements.
6. The bid(s) prepared in accordance with the instructions mentioned in the Bidding Document must be submitted through E-PADS at **https://eprocure.gov.pk** by or before **February 16, 2026 at 11:00 AM.** The bid in hard copy, along with the original bid security instrument, must be submitted in a sealed envelope clearly mentioning the name and reference number of the procurement activity. The envelope(s) should be delivered to the Office of the Project Coordinator, Academic Block, SZABMU, Room#524, 5th Floor, School of Dentistry Building, G-8/3, Islamabad, on or before the due date and time.
7. The technical bids will be opened on **February 16, 2026 at 11:30 AM** through E-PADS. The opening session will be held at Syndicate Hall, 5th Floor, School of Dentistry Building, SZABMU, G-8/3, Islamabad.
8. A **pre-bid meeting** will be held on **February 04, 2026 at 11:00 AM** at Syndicate Hall, 5th Floor, School of Dentistry Building, SZABMU, G-8/3, Islamabad.
9. SZABMU reserves the right to accept or reject any or all tenders as a whole or in part as per PPRA Rule 33(1). The decision in this regard will be firm, final, and binding on all bidders. This notice is also available at **www.ppra.org.pk** and **www.szabmu.edu.pk.**

PROJECT COORDINATOR

Room No. 524, 5th Floor, School of Dentistry Building, Shaheed Zulfiqar Ali Bhutto Medical University, G-8/3, Islamabad

Contact: 0345-5318543, Email: projectcoordacb@szabmu.edu.pk

PROCUREMENT OF MEDICAL MACHINERY & EQUIPMENT OF SIMULATION LAB & MOLECULAR BIOLOGY LAB (LOT-WISE, Currency: CNF) (YEAR 2026)

BIDDING DOCUMENTS

Academic Block, Shaheed Zulfiqar Ali Bhutto Medical University, G-8/3, Islamabad
Contact: 0345-5318543
Email: projectcoordacb@szabmu.edu.pk

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Award of contract

A. Instructions to Bidders (ITB)

General Instructions:

1. Content of Bidding Document

1.1 The goods required, bidding procedures, and Contract terms are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents include:

a) Instructions to Bidders (ITB);
b) General Conditions of Contract (GCC);
c) Special Conditions of Contract (SCC);
d) Schedule of Requirements;
e) Technical Specifications;
f) Contract Form;
g) Manufacturer's Authorization Form;
h) Performance Guaranty Form;
i) Bid Form; and
j) Price Schedule

1.2 The "Invitation for Bids" does not form part of the Bidding Documents and is included as a reference only. In case of discrepancies between the Invitation for Bid and the Bidding Documents listed in 1.1 said Bidding Documents shall take precedence.

1.3 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect shall be at the Bidder's risk and may result in the rejection of its bid.

2. Source of Funds

2.1 PSDP funded project. Higher Education Commission is the sponsor agency.

3. Eligible Bidders

3.1 This Invitation for Bids is open to all original Manufacturers/authorized Agents of Foreign Manufacturers in Pakistan for supply of goods.

3.2 The bidder must possess valid legal enforceable authorization from the Foreign Manufacturer; they should have a documentary proof to the effect that they are the original Manufacturer of the required goods.

3.3 Bidders should not be under a declaration of ineligibility for corrupt and fraudulent practices issued by any Government (Federal, Provincial), a local body or a public sector organization.

4. Eligible Goods and Services

4.1 Country of Origin should be of USA, Europe, Japan, Russia and or specified therein; however, country of manufacturing can be from any geographical region in the world as per the laws of Pakistan, if not mentioned in specifications.

4.2 For the purpose of this clause, (a) the term "Goods" includes any Goods that are the subject of this Invitation for Bids and (b) the term "Services" includes related services such as transportation, insurance, after sale service, spare parts availability, etc. For

purposes of this clause, "origin" means the place where the goods are mined, grown, or produced, or the place from which the related services are supplied. In case of the "manufacturer" the "origin" means the firm is based and registered in that country and registered with their stock exchange. Goods are produced when, through manufacturing or processing, or substantial and major assembly of components, a commercially recognized product is produced that is substantially different in basic characteristics or in purpose or utility from its components.

5. Cost of Bidding

5.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Procuring Agency shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

6. Clarification of Bidding Documents

6.1 A prospective Bidder requiring any clarification of the bidding documents may notify the Procuring Agency in writing through EPADS. The Procuring Agency shall respond in writing to any request for clarification of the bidding documents, which it receives not later than ten (10) days prior to the deadline for the submission of bids prescribed in the Invitation for Bids. Written copies of the Procuring Agency's response (including an explanation of the query but without identifying the source of inquiry) shall be sent to all prospective Bidders that have received the bidding documents.

7. Amendment of Bidding Documents

7.1 At any time prior to the deadline for submission of bids, the Procuring Agency, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, may modify the bidding documents by amendment.

7.2 All prospective Bidders that have received the bidding documents shall be notified of the amendment in writing or by cable or by phone, and shall be binding on them.

7.3. In order to allow prospective Bidders reasonable time in which to take the amendment into account in preparing their bids, the Procuring Agency, at its discretion, may extend the deadline for the submission of bids. Amendment notice to that effect shall be communicated in the same manner as the original invitation to bid.

8. Qualification and Disqualification of Bidders

8.1 In the absence of prequalification, the Procuring Agency shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the Contract satisfactorily, in accordance with the criteria listed in ITB Clause 29.2.

8.2 The determination shall take into account the Bidder's financial, technical or production capabilities (in case of manufacturer), infrastructure of the firm, past performance in similar contracts, engineering staff and their capabilities, inventory of spare parts, repair and calibration tools, workshop facilities to provide the after sales services. It shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 29.2, as well as such other information/ premises visit as the Procuring Agency deems necessary and appropriate.

8.3 An affirmative determination shall be a pre-requisite for Award of the Contract to the Bidder. A negative determination shall result in rejection of the Bidder's bid, in which event the Procuring Agency shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's capabilities to perform satisfactorily.

8.4 The Procuring Agency, at any stage of the procurement proceedings, having credible reasons for or prima facie evidence of any defect in Supplier's capacities may require the Suppliers to provide information concerning their professional, technical, financial, legal or managerial competence.

8.5 The Procuring Agency shall disqualify a Bidder if it finds, at any time, that the information submitted by him concerning his qualification as Supplier was false and materially inaccurate or incomplete.

8.6 Bidders that are found to consistently fail to provide satisfactory performances or are found to be indulging in corrupt or fraudulent practices shall be black listed.

9. Corrupt or Fraudulent Practices

9.1 The Procuring Agency requires that all Bidders/ Suppliers/ Contractors observe the highest standard of ethics during the procurement and execution of such Contracts. In pursuance of this policy, the Procuring Agency:

a. defines, for the purposes of this provision, the terms set forth below as follows:

I. "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in Contract execution; and

II. "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a Contract to the detriment of the Procuring Agency, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Procuring Agency of the benefits of free and open competition;

b. shall reject a proposal for Award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the Contract in question; shall declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a Contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a Contract.

Preparation of Bids

10. Language of Bid

10.1 The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Procuring Agency shall be written in English. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of

the relevant passages in English, in which case, for purposes of interpretation of the Bid, the translation shall govern.

11. Documents Comprising the Bid

11.1 The bid prepared by the Bidder shall comprise the following components:

(a) A Bid Form and Price Schedule completed in accordance with ITB Clauses 12 and 13 (to be submitted along with financial proposal (two copies));

(b) Documentary evidence established in accordance with ITB Clause 15 that the Bidder is eligible to bid and is qualified to perform the Contract if its bid is accepted;

(c) Documentary evidence established in accordance with ITB Clause 15 that the goods to be supplied by the Bidder are eligible goods and conform to the bidding documents.

12. Bid Form and Price Schedule

12.1 The Bidder shall complete the Bid Form and an appropriate Price Schedule furnished in the bidding documents (Annexure A Form), indicating the goods to be supplied, a brief description of the goods, specifications, taxes, quantity, prices, make, model, country of origin, country of manufacturer and port shipment.

13. Bid Prices

13.1 The Bidder shall indicate on the Price Schedule the unit prices and total LOT Price of the goods, it proposes to supply under the Contract.

13.2 Form for Price Schedule is to be filled in very carefully, and should be typed. Any alteration/ correction must be initialed. Every page is to be signed and stamped at the bottom. Serial number/ bid number of the quoted item may be marked or highlighted with red/yellow marker.

13.3 The Bidder should quote the prices of goods according to the technical specifications for complete LOT. The bidder can quote single or all the LOTs. The specifications of goods, different from the demand of enquiry and packaged items, shall straightway be rejected.

13.4 The Bidder is required to offer competitive price. All prices must include relevant taxes and duties, where applicable. If there is no mention of taxes, the offered/ quoted price shall be considered as inclusive of all prevailing taxes/duties. The benefit of exemption from or reduction in the GST or other taxes shall be passed on to the Procuring Agency.

13.5 Prices offered should include complete accessories, life time licensed software's and 1st test-run materials for inspection after delivery at site.

13.6 While tendering your bid, the present trend/ inflation in the rate of goods and services in the market should be kept in mind. No request for increase in price due to market fluctuation in the cost of goods and services shall be entertained after the bid has been submitted.

14. Bid Currencies

14.1 The Prices shall be quoted in USD, EUR, YEN, GBP.

14.2 State Bank of Pakistan's foreign currency selling rate will be considered from the date of opening of financial bid for comparison purposes.

14.3 The price for complete LOT, standard accessories; detail of which is already mentioned in the technical specifications will be considered for determining the lowest bidder. Optional items will not be considered while determining the lowest bidder.

14.4 The bidder must quote CNF/CPT prices.

15. Documents Establishing Bidder's Eligibility and Qualification

15.1 The Bidder shall furnish, as part of its technical bid, documents establishing the Bidder's eligibility to bid and its qualifications to perform the Contract if its bid is accepted.

15.2 The documentary evidence of the Bidder's eligibility to bid shall establish to the Procuring Agency's satisfaction that the Bidder, at the time of submission of its bid, is an eligible as defined under ITB Clause 3.

15.3 The documentary evidence to be submitted in the Technical Proposal for the purposes of qualification and technical evaluation shall include:

(a) The Supplier/ agent shall have to produce letter of authorization from Manufacturer and in case of Manufacturer, documentary proof to the effect that they are the original Manufacturer of the required goods shall be provided. Joint Venture is not allowed.

(b) National Tax Number (NTN) and General Sales Tax Number with documentary proof shall have to be provided by the bidder(s).

(c) The Bidder shall submit an affidavit on legal stamp paper of Rs100/- that their firm has not been blacklisted in the past on any ground by any Government (Federal, Provincial), a local body or a public sector organization. On account of submission of false statement the Bidder shall be disqualified forthwith and subsequently black listed.

(d) The Bidder should have strong engineering background and necessary tools/ test equipment, trained staff for the goods required after sales services.

(e) The Bidder is required to provide with the technical proposal the name of item(s), tender number and serial number in the exact manner as quoted in the financial proposals.

(f) The Bidder must indicate the country of origin of the goods, capacity of production of the firm (in case of manufacturer), its financial status, necessary assurance of quality production, Certificate(s) for conformity with International standards of Quality and list of qualified technical persons along with qualification and trainings, list of main service, testing and

calibration tools and in case of manufacturer; the supervisory staff working in the production and quality control departments in the manufacturing plant.

16. Documents Establishing Goods' Eligibility and Conformity to Bidding Documents

16.1 Pursuant to ITB Clause 11, the Bidder shall furnish along with technical proposal, as part of its bid, documents establishing the eligibility and conformity to the bidding documents of all goods, which the Bidder proposes to supply under the Contract.

16.2 The documentary evidence of the eligibility of the goods shall consist of a statement in the Price Schedule of the country of origin of the goods offered.

16.3 Submission of sample if so required by the Technical Committee; the bidder shall provide the sample or give demonstration as per requirement for evaluation/ satisfaction of the Committee.

16.4 Alternative bid is not allowed also a bidder cannot submit two bids. If the bidder quotes an alternative bid or submit two bids, then the bidder will be considered as non-responsive.

17. Bid Security

17.1 Bid Security shall be Pak rupees three million (with standard accessories) in the shape of irrevocable Bank Guarantee or CDR. The same should be uploaded on EPAD with the financial bid.

18. Bid Validity

18.1 Bids shall remain valid for a period of 120 days after opening of Technical Bid prescribed by the Procuring Agency. A bid valid for a shorter period shall be rejected by the Procuring Agency as non-responsive.

18.2 The Procuring Agency shall ordinarily be under an obligation to process and evaluate the bid within the stipulated bid validity period. However, under exceptional circumstances and for reasons to be recorded in writing, if an extension is considered necessary, all those who have submitted their bids shall be asked to extend their respective bid validity period. Such extension shall not be for more than the period equal to the period of the original bid validity.

18.3 Bidders who,

(a) Agree to the Procuring Agency's request for extension of bid validity period shall not be permitted to change the substance of their bids; and

(b) Do not agree to an extension of the bid validity period shall be allowed to withdraw their bids, if any.

Submission of Bids

19. Format and Signing of Bid

19.1 The bid shall be typed and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. The person or persons signing the bid shall initial all pages of the bid.

19.2 Any interlineations, erasures, or overwriting shall be valid only if they are initialed by the person or persons signing the bid.

19.3 All biding documents to be duly attested (signed and stamped) by the authorized person of the Bidder.

20. Sealing and Marking of Bids

20.1 One hard copy of the sealed FINANCIAL PROPOSAL" and sealed "TECHNICAL PROPOSAL". The envelopes then be sealed in an outer envelope. It should contain the package name and its number.

20.2 Hard copy of bids shall be submitted in the Office of the Project Coordinator, Academic Block, SZABMU, Room#524, 5th Floor, School of Dentistry Building, G-8/3, Islamabad, on or before the due date and time.

21. Deadline for Submission of Bids

21.1 Bids must be submitted by the Bidder and received by the Procuring Agency at the address specified under ITB Clause 19.1 not later than the time and date specified in the Invitation for Bids.

21.2 The Procuring Agency may, at its discretion, extend this deadline for the submission of bids by amending the bidding documents in accordance with ITB Clause 7 , in which case all rights and obligations of the Procuring Agency and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

22. Late Bid

22.1 Any bid received by the Procuring Agency after the deadline for submission of bids prescribed by the Procuring Agency pursuant to ITB Clause 21 shall be rejected and returned unopened to the Bidder.

23. Withdrawal of Bids

23.1 The Bidder may withdraw its bid prior to the deadline specified in the invitation to bid.

23.2 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in ITB Clause 18.2 Withdrawal of a bid during this interval will make the bidder eligible to be debarred for further procurements for a period as deem necessary by the Procuring Agency.

The Bidding Procedure

24. Single stage – two envelopes procedure

24.1 Single stage – two envelopes bidding procedure shall be applied:

(i) The bid shall comprise a single package containing two separate envelopes. Each envelope shall contain separately the financial proposal and the technical proposal;

(ii) The hard copy of financial bid shall be marked as "FINANCIAL PROPOSAL" and "TECHNICAL PROPOSAL," in bold and legible letters to avoid confusion;

(iii) Initially, only the "TECHNICAL PROPOSAL" shall be opened through EPADS;

(iv) The "FINANCIAL PROPOSAL" shall be retained in the custody of Procuring Agency without being opened;

(v) The Procuring Agency shall evaluate the technical proposal, without reference to the price and reject any proposal which do not conform to the specified requirements;

(vi) During the technical evaluation no amendments in the technical proposal shall be permitted;

(vii) The financial proposals shall be opened publicly at a time, date and venue to be announced and communicated to the Bidders in advance;

(viii) After the evaluation and approval of the technical proposal the Procuring Agency shall at a time within the bid validity period, publicly open the financial proposals of the technically accepted bids only. The financial proposals of bidders found technically non-responsive shall be returned un-opened to the respective Bidders; and

(ix) The bid found to be the lowest evaluated bid shall be accepted.

Opening and Evaluation of Bids

25. Opening of Bids by the Procuring Agency

25.1 The Procuring Agency shall initially open only "TECHNICAL PROPOSAL through EPADS in the presence of Bidders' representatives who choose to attend, at the time, on the date, and at the place specified in the Invitation for Bids. The Bidders' representatives who are present shall sign the Attendance Sheet as evidence of their attendance. However, the hard copy of "FINANCIAL PROPOSAL" shall remain unopened and shall be retained in safe custody of the Procuring Agency till completion of the evaluation process.

25.2 The Bidders' names, item(s) for which they quoted their rate and such other details as the Procuring Agency, at its discretion, may consider appropriate, shall be announced at the opening of technical proposal. No bid shall be rejected at technical proposal/ bid opening, except for late bids, which shall be returned unopened to the Bidder pursuant to ITB Clause 21. However, at the opening financial proposals (the date, time and venue would be announced later on), the bid prices, discounts (if any), and the presence or absence of requisite bid Security and such other details as the Procuring Agency, at its discretion, may consider appropriate, shall be announced.

25.3 The Procuring Agency shall prepare minutes of both the technical proposal as well as the financial proposal of bid opening.

26. Clarification of Bids

26.1 During evaluation of the bids, the Procuring Agency may, at its discretion, ask the Bidder for a clarification of its bid through EPADS. The request for clarification and the response shall be in writing, and no change in the prices or substance of bid like indication of make/model/brand etc. shall be sought, offered, or permitted.

27. Preliminary Examination

27.1 The Procuring Agency shall examine the bids to determine whether they are complete, whether any computational errors have been made (at the time of opening the financial proposal), whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

27.2 In the financial bids (at the time of opening the financial proposal) the arithmetical errors shall be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If the Bidders/Suppliers do not accept the correction of the errors, its bid shall be rejected. If there is a discrepancy between words and figures, the amount in words shall prevail.

27.3 The Procuring Agency may waive any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation (or changes the substance of the bid), provided such waiver does not prejudice or affect the relative ranking of any Bidder.

27.4 Prior to the detailed evaluation, pursuant to ITB Clause 27 the Procuring Agency shall determine the substantial responsiveness of each bid to the bidding documents. For purposes of these Clauses, a substantially responsive bid is one, which conforms to all the terms and conditions of the bidding documents without material deviations. Deviations from, or objections or reservations to critical provisions shall be deemed to be a material deviation for technical proposals. The Procuring Agency's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

27.5 If a bid is not substantially responsive, it shall be rejected by the Procuring Agency and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

28. Evaluation and Comparison of Bids

28.1 The Procuring Agency shall evaluate and compare the bids on the basis of LOTs, which have been determined to be substantially responsive, pursuant to ITB Clause 25.

28.2 The Procuring Agency's evaluation of technical proposal/ bid shall be on the basis of previous performances, test reports, inspection of plant/ factory/ premises, previous experience of similar contracts, availability of engineering staff and their capabilities, inventory of spare parts, workshop facility to provide the after sales services, financial soundness and such other details as already highlighted. However, the evaluation of financial proposal shall be on the basis of price.

28.3 All bids shall be evaluated in accordance with the evaluation criteria (ITB Clause 29) and other terms and conditions set forth in these bidding documents.

28.4 Since the procurement is on C&F/ CPT/ CIF basis; for the purpose of comparison of bids quoted in different currencies, the price shall be converted into Pak Rupees in pursuant to ITB Clause 13. The rate of exchange shall be the selling rate, prevailing

on the date of opening of Financial Bids specified in the bidding documents, as notified by the State Bank of Pakistan on that day.

28.5 A bid once opened in accordance with the prescribed procedure shall be subject to only those rules, regulations and policies that are in force at the time of issue of notice for invitation of bids.

29. Evaluation Criteria

29.1 For the purposes of determining the lowest evaluated bid, factors other than price such as previous performances, previous experience, engineering/ technical capabilities, repair/ calibration tool, workshop facilities, financial soundness and such other details as the Procuring Agency at its discretion, may consider appropriate shall be taken into consideration and these should be available with the bidder. The following evaluation factors/ criteria will be employed on technical proposals.

29.2 Technical Evaluation Criteria for medical lab equipment, is given below:

TECHNICAL EVALUATION CRITERIA (MACHINERY & EQUIPMENT)

Total Points/Marks = 100 Minimum Qualifying = 70 Points/Marks

S#	PARAMETERS / SUB-PARAMETERS	POINTS	DESCRIPTION
1	**Conformity to the Purchaser's Specifications Mandatory**	40	Fully compliant: 40 marks Minor deviations (non-critical): 30 marks Non-compliant: 0 marks
2	**Manufacturer's Authorization**	10	**Mandatory (disqualified without Authorization)**
2.1	OEM direct representative or Sole Distributor with a branch in Pakistan for 5+ years	10	OEM relationship and presence for at least 3 years.
2.2	OEM direct representative or Sole Distributor with a branch in Pakistan for less than 5 years	7	Newer OEM representatives with less than 3 years of presence.
3	**Product Certification**	06	**Mandatory (disqualified without certification)**
3.1	FDA (USA)	2	Bids with FDA-certified products.
3.2	CE MDD/MDR/IVDR (Europe)	2	Bids with CE-certified products.
3.4	ISO 9001	2	Bids with ISO 9001 certification.
4	**Bidder's Human Resources**	06	
4.1	OEM Certified Resource for quoted equipment/product	2	2 points/staff.
4.2	Graduate Engineer in relevant field	2	2 points/staff.
4.3	Diploma of Associate Engineer (DAE) in relevant field	2	1 point/staff.
5	**Bidder's Contracts / Projects**	16	Documentary evidence required (Purchase Orders, Installation Reports, etc.).
5.1	Public Hospitals/Institutes in Pakistan	12	4 points/contract.
	Private/Remaining Sectors	04	2 points/contract.
6	**Contract Financial Performance**	12	
6.1	Contracts valuing PKR 10 million or above	12	4 points/contract.
6.2	Contracts valuing PKR 08 million or above	09	3 points/contract.
6.3	Contracts valuing PKR 05 million or above	6	2 points/contract.
6.4	Contracts valuing PKR 03 million or above	3	1 points/contract.
7	**Average Annual Turnover (Last 2**	10	Income Tax Returns must be attached.

	Financial Years)		
7.1	Above PKR 40 million	10	
7.2	Above PKR 30 million & below PKR 40 million	8	
7.3	Above PKR 20 million & below PKR 30 million	4	
7.4	Below PKR 20 million	0	No points
	TOTAL POINTS	**100**	

29.3 Financial proposals would be evaluated as follows:

i) After technical evaluation is completed, the Procuring Agency shall notify on EPADS the date, time and location for opening of the financial proposals. Bidders' attendance at the opening of financial proposals is optional.

ii) The electronic Financial proposals on EPADS shall be opened publicly in the presence of the bidders' representatives who choose to attend. The name of the bidders shall be read aloud. The financial proposal of the technically responsive bidders shall then be inspected to confirm that they have remained sealed and unopened (financial proposals of technically non- responsive Bidders shall be returned unopened). These financial proposals shall be then opened, and the total prices read aloud and recorded.

iii) Incomplete bid shall stand rejected. All items described in the technical proposal must be priced in financial proposal. Items described in the technical proposal of a LOT, but not priced, shall be assumed to be included in the price of other items.

iv) Minor oversight, clerical mistakes, other minor inconsistencies that do not alter the substances of the financial bid may be corrected by the Procuring Agency. When correcting computation error in case of discrepancy between a partial amount and the total amount or between the words and figures, the formers will prevail.

v) The bidders will quote the Price Schedules. The total price of the LOT will be calculated by converting the price to single currency (Pak Rs.) on the rate of date of opening of Financial Proposal; in case of import of item.

vi) The lowest responsible bidder will be declared with standard accessories. The price of optional items will not be considered while establishing the lowest bid.

30. Contacting the Procuring Agency

30.1 No Bidder shall contact the Procuring Agency on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded.

30.2 **Any effort by a Bidder to influence the Procuring Agency in its decisions on bid evaluation, bid comparison, or Contract Award will result in the rejection of the Bidder's bid and subsequent black listing. Canvassing by any Bidder at any stage of the Tender evaluation is strictly prohibited.**

31. Rejection of Bids

31.1 The Procuring Agency may reject any or all bids at any time prior to the acceptance of a bid. The Procuring Agency shall upon request communicate to any Bidder who

submitted a bid, the grounds for its rejection shall be recorded and communicated per Rule 33 (Amended 2021).

31.2 The Procuring Agency incurs no liability, solely by virtue of its invoking Clause 30.1 towards Bidders who have submitted bids.

31.3 Notice of the rejection of any or all bids shall be given promptly to the concerned Bidders that submitted bids.

31.4 Items contained in a LOT should be bid in total and technical rejection of any item not complying with the technical specifications may lead to the rejection of complete LOT. However, a bidder can quote any or all the LOTs.

32. Re-Bidding

32.1 If the Procuring Agency rejects all bids in pursuant to ITB Clause 30, it may call for a re- bidding or if deems necessary and appropriate the Procuring Agency may seek any alternative methods of procurement.

32.2 The Procuring Agency before invitation for re-bidding shall assess the reasons for rejection and may revise specifications, evaluation criteria or any other condition for Bidders, as it may deem necessary.

33. Announcement of Evaluation Report

33.1 Bid Evaluation Report shall be published on the PPRA/EPADS portal at least seven (7) days prior to the award of contract, in accordance with Rule 45 of the Public Procurement Rules 2004 (Amended 2021).

Award of Contract

34. Acceptance of Bid and Award criteria

34.1 The technically responsive bidder and with evaluated lowest financial bid, if not in conflict with any other law, rules & regulations, policy of the Government or having less Bid Security shall be awarded the Contract, within the original or extended period of bid. Contract will be awarded LOT-wise.

34.2 The Bidder having lesser Bid Security will be rejected as non-responsive and Acceptance of Bid be awarded to next bidder; being the responsive lowest bidder.

35. Procuring Agency's right to vary quantities at time of Award

35.1 The Procuring Agency reserves the right at the time of Contract award to increase/decrease quantity, or omit any item(s)/LOT of goods originally specified in the Price Schedule and Schedule of Requirements without any change in unit price or other terms and conditions.

36. Limitations on Negotiations

36.1 No negotiation shall be held with any bidder except as specifically provided under Rule 40 of the Public Procurement Rules 2004 (Amended 2021)

37. Notification of Award

37.1 Prior to the expiration of the period of bid validity, the Procuring Agency shall notify the successful Bidder(s) in writing and of Notification of Award shall be issued to the successful bidder and simultaneously uploaded on the PPRA/EPADS portal.

37.2 The notification of Award shall constitute the formation of the Contract.

38. Signing of Contract

38.1 At the same time as the Procuring Agency notifies the successful Bidder that its bid has been accepted, the Procuring Agency shall send the Bidder the Contract Form provided in the bidding documents, incorporating all agreements between the Parties.

38.2 Within due course of time of receipt of the Contract Form, both the successful Bidder and the Procuring Agency shall sign the Contract. The Procuring Agency shall may issue Purchase Order on the same date of signing of Contract after ensuring the submission of Bank Security for execution of the contract by the Contractor. If the successful Bidder, after completion of all codal formalities shows inability to sign the Contract then their Bid Security/ Contract Security to the extent of proportionate percentage shall be forfeited and the firm shall be blacklisted minimum for three years for future participation. In such situation the Procuring Agency may make the Award to the next lowest evaluated Bidder or call for re-bidding.

39. Performance Guarantee

39.1 On the date of signing of the Contract, the successful Bidder shall furnish the Performance Guarantee/Security in accordance with the Special Conditions of Contract, in the Performance Guarantee/Security Form. The Performance Guarantee will be **10% (Ten Percent)** of the total contract amount. The performance security shall be deposited in the shape of CDR/ irrevocable Bank Guarantee.

39.2 Failure of the successful Bidder to comply with the requirement of ITB Clause 37 or ITB Clause 38.1 shall constitute sufficient grounds for the annulment of the Award, in which event the Procuring Agency may make the Award to the next lowest evaluated Bidder or call for re- bidding.

40. Schedule of Requirement

40.1 The supplies shall be delivered/ shipped within 75 days w.e.f the next date after the date of issue of Purchase Order (without penalty)/ opening of LC, and with prescribed penalty, as per following schedule of requirement:

Mode of penalty	Shipping/Delivery Period	Grace Period	Total Period
Without Penalty	75 Days	15 days	90 Days

40.2 However, in special cases, delivery period can be fixed shorter than the above mentioned schedule of requirement as deem appropriate by the Procuring Agency.

40.3 In case of late delivery of goods beyond the periods specified in the Schedule of Requirements, penalty @ 0.1% per day of the cost not exceeding 10% of the purchase order/contract value for late delivered supply shall be imposed upon the Supplier.

41. Redressal of Grievance by the Procuring Agency

41. Redressal of Grievance by the Procuring Agency

41.1 Redressal of Grievances – Complaints shall be addressed to the Grievance Redressal Committee (GRC) constituted under Rule 48 of the Public Procurement Rules 2004 (Amended 2021).

41.2 Any bidder feeling aggrieved by any act of the procuring agency after the submission of his bid may lodge a written complaint concerning his grievances within seven days of announcement of the technical evaluation report and five days after issuance of final evaluation report.

41.3 In case, the complaint is filed against the technical evaluation report, the GRC shall suspend the procurement proceedings

41.4 In case, the complaint is filed after the issuance of the final evaluation report, the complainant cannot raise any objection on technical evaluation of the report:
Provided that the complainant may raise the objection on any part of the final evaluation report in case where single stage single envelope bidding procedure is adopted.

41.5 The GRC shall investigate and decide upon the complaint within ten days of its receipt.

41.6 Any bidder or party not satisfied with the decision of the GRC, may file an appeal before the Authority within thirty days of communication of the decision subject to depositing the prescribed fee and in accordance with the procedure issued by the Authority. The decision of the Authority shall be considered as final.

B. General Conditions of Contract (GCC)

1. Definitions

1.1 In this Contract, the following terms shall be interpreted as indicated:

a. "The Contract" means the agreement entered into between the Procuring Agency and the Supplier, as recorded in the Contract Form signed by the Parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

b. "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.

c. "The Goods" means electro medical equipment and other items which the Supplier is required to supply to the Procuring Agency under the Contract.

d. "The Services" means those services ancillary to the supply of above goods, such as printing of special instructions on the label and packing, design and logo of the Institute, Insurance, transportation of goods up to the desired destinations, commissioning, training and other such obligations of the supplier covered under the Contract.

e. "GCC" mean the General Conditions of Contract contained in this section.

f. "SCC" means the Special Conditions of Contract.

g. "The Procuring Agency" means the Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad.

h. "The Procuring Agency's Country" is the country named in SCC

i. "The Supplier" means the individual or firms or joint venture supplying the goods under this Contract.

j. "Day" means calendar day.

2. Application

2.1 These General Conditions shall apply to the extent that they are not superseded by provisions of other parts of the Contract.

3. Country of Origin

3.1 All goods and related services to be supplied under the contract shall have their Origin in USA, Europe, Japan and Russia only, or specified individually in the items' specifications; however, country of manufacturing can be from any geographical region in the world as per the laws of Pakistan, if not mentioned in specifications.

4. Standards

4.1 The imported Machinery & Equipment supplied under this Contract shall conform to FDA(USA)/CE/MDD or Equivalent, while non-medical will follow the respective international quality standards.

5. Use of Contract Documents and Information

5.1 The Supplier shall not, without the Procuring Agency's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Procuring Agency in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2 The Supplier shall not, without the Procuring Agency's prior written consent, make use of any document or information enumerated in GCC Clause 5.1 except for purposes of performing the Contract.

5.3 Any document, other than the Contract itself, enumerated in GCC Clause 5.1 shall remain the property of the Procuring Agency and shall be returned (all copies) to the Procuring Agency on completion of the Supplier's performance under the Contract if so required by the Procuring Agency.

6. Patent Rights

6.1 The Supplier shall indemnify the Procuring Agency against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in the country.

7. Submission of Samples

7.1 The samples shall be submitted as per detail in ITB 16.3 or as indicated in the technical specifications.

8. Ensuring Storage/ Installation Arrangements

8.1 To ensure storage and installation arrangements for the intended supplies, the Supplier shall inform end user for pre-requisites well in time for proper installation. In case the Supplier abides by the given time frame it shall not be penalized for delay.

8.2 In case of late delivery of goods beyond the periods specified in the Schedule of Requirements, penalty @ 0.1% per day of the cost not exceeding 10% of the purchase order/contract value for late delivered supply shall be imposed upon the Supplier.

9. Inspections and Tests

9.1 The Procuring Agency or its representative(s) shall have the right to inspect and/or to test the goods to confirm their conformity to the Contract specifications at no extra cost to the Procuring Agency.

9.2. For the purpose of inspections and tests of equipment. The Supplier shall furnish all reasonable facilities and assistance, to the inspectors at no charge to the Procuring

Agency. In the event that inspection & testing is required prior to dispatch and categorically mentioned in the LC clauses, the goods shall not be supplied unless a satisfactory inspection report has been issued in respect of those Goods by the Procuring Agency. However, if the Supplier proves an undue delay in conduct of inspection on the part of Procuring Agency, the Supplier shall not be liable for penalty on account of that delay. The cost of such lab tests shall be borne by the Manufacturer/ Supplier.

9.3 The Procuring Agency's right to inspect, test and, where necessary, reject the goods after the goods have been installed at Procuring Agency's destinations.

9.4 The Procuring Agency's right to inspect the premises of bidders / firms of alliance to inspect their premises/ setups ensuring proper after sales services.

9.5 Nothing in GCC Clause 9 shall in any way release the Supplier from any warranty or other obligations under this Contract.

10. Physical Examination/ Inspection of Goods

10.1 The goods shall be acceptable subject to physical inspection, tests and/ or in accordance with the approved sample as decided by the Procuring Agency.

10.2 The Inspection Team will be designated by the Procuring Agency which will inspect each of the equipment/ goods as per contracted specifications and installation protocols recommended by the manufacturers.

10.3 The bidder shall provide materials for initial test-run where required for inspection of all modules of an equipment. Where necessary, equipment expert/professional will also be arranged by the bidder for complete demonstration of the equipment at its own cost. Acceptance of Procuring agency is mandatory.

11. Delivery and Documents

11.1 The Supplier in accordance with the terms specified in the Schedule of Requirements shall make delivery of the goods which is maximum 90-days from the date of signing of this contract or opening of LC. The details of original documents to be furnished by the Supplier are as follows;

a. Operational Manuals of the machinery & equipment

b. Service Manuals indicating step by step service/ maintenance protocols of each of the equipment.

c. Periodic Preventive Maintenance schedules with recommended list of parts/ kits to be replaced during PPM.

d. A copy of Test/ Inspection Procedure Manual of all equipment as duly recommended by the manufacturer. All related test equipment will be made available at the time of installation, testing and commissioning by the firm.

12. Insurance

12.1 The goods supplied under the Contract shall be delivered duty paid (DDP) or C&F as mentioned under which risk is transferred to the buyer after having been delivered; hence, marine and inland insurance coverage is Supplier's responsibility.

The Supplier shall ensure insurance in advance in full on prevailing premium rates at the time of shipment of the Goods on the behalf of the Purchaser for which the cost is inclusive in the Contract Price. The value for the purpose of insurance shall be 10% more than the value of goods in the contract.

13. Transportation

13.1 The Supplier shall arrange such transportation of the goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Schedule of Requirement.

13.2 Transportation including loading/ unloading of goods shall be arranged and paid for by the Supplier, and related cost shall be inclusive in the Contract price. The addresses of destinations/ offices shall be provided at the time signing of Contract.

14. Incidental Services

14.1 The Supplier shall be required to provide all the incidental service charges and the cost of such incidental services include in total Contract price.

14.2 The Procuring Agency will not pay any extra amount against any expenditure incurred on it, as the Contract shall be construed as fixed amount Contract and includes all costs.

14.3 The Procuring Agency will provide all the necessary documentations for facilitation but no amount to be given in any case except the Contracted amount.

14.4 All Custom Duties, if any, Octroi, Clearing Charges, transportation etc. will be borne by the Contracting firm. However, Procuring Agency will provide all necessary documents for facilitation but no amount to be given in any case except the Contracted amount.

15. Warranty

15.1 A comprehensive manufacturer's warranty of three-year (or for any other period mentioned in the specifications) system will be provided free of cost including life time licensed software, parts, labor, and free replacement of spare parts during warranty period.

16. Payment

16.1 The method and conditions of payment to be made to the Supplier under this Contract shall be specified in SCC.

16.2 Since FEC; the payment will be made 100% via establishing the LC at sight and receiving of mentioned documents.

17. Prices

17.1 Prices charged by the Supplier for goods delivered under the Contract shall not vary from the prices quoted by the Supplier in its bid and shall remain the same till expiry of the original bid validity period provided the Procuring Agency's request for bid validity extension.

18. Contract Amendments

18.1 No variation in or modification of the terms of the Contract shall be made.

18.2 No variation in finalized brands/ makes/models shall be allowed except in special conditions where the manufacturer has stopped producing or suspended that model or non-availability due to international mergers of the manufacturers or similar unavoidable constraints.

19. Assignment

19.1 The Supplier shall not assign, in whole or in part, its obligations to perform under this Contract, except with the Procuring Agency's prior written consent.

20. Subcontracts

20.1 The Supplier shall not be allowed to sublet the job and award subcontracts under this Contract.

21. Delays in the Supplier's Performance

21.1 Delivery of the goods shall be made by the Supplier in accordance with the time schedule prescribed by the Procuring Agency in the Schedule of Requirements.

21.2 If at any time during performance of the Contract, the Supplier should encounter conditions impeding timely delivery of the goods, the Supplier shall promptly notify the Procuring Agency in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Procuring Agency shall evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the Parties by amendment of Contract.

21.3 Except as provided under GCC Clause 8.2, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of liquidated damages.

22. Penalties/Liquidated Damages

22.1 In case of late delivery beyond the presented period, penalty as specified in SCC shall be imposed upon the Supplier/ Manufacturer. The above Late Delivery (LD) is subject to GCC Clause including late delivery for reasons beyond control. Once the maximum is reached, the Procuring Agency may consider termination of the Contract pursuant to GCC Clause 23.

22.2 If the firm provide substandard item and fail to provide the item the payment of risk purchase (which will be purchased by the indenter) the price difference shall be paid by the Firm.

23. Termination for Default

23.1 The Procuring Agency, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate this Contract in whole or in part:

a. if the Supplier fails to deliver any or all installments of the goods within the period(s) specified in the Contract, or within any extension thereof granted by the Procuring Agency pursuant to GCC Clause 8.2; or

b. if the Supplier fails to perform any other obligation(s) under the Contract.

c. if the Supplier, in the judgment of the Procuring Agency has engaged in corrupt or fraudulent practices in competing for or in executing the Contract. For the purpose of this clause: "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in Contract execution.

"fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a Contract to the detriment of the Procuring Agency, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Procuring Agency of the benefits of free and open competition.

24. Force Majeure

24.1 Notwithstanding the provisions of GCC Clauses 21, 22, and 23, the Supplier shall not be liable for forfeiture of its Performance Guaranty/ bid Security, or termination/ blacklisting for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure. For the purposes of this clause Force Majeure means an act of God or an event beyond the control of the Supplier and not involving the Supplier's fault or negligence directly or indirectly purporting to mis-planning, mismanagement and/or lack of foresight to handle the situation. Such events may include but are not restricted to acts of the Procuring Agency in its sovereign capacity, wars or revolutions, fires, floods, earthquakes, strikes, epidemics, quarantine restrictions and freight embargoes. If a Force Majeure situation arises, the Supplier shall promptly notify the Procuring Agency in writing with sufficient and valid evidence of such condition and the cause thereof. The Committee of Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad, constituted for Grievance Redressal Committee (GRC), shall examine the pros and cons of the case and all reasonable alternative means for completion of purchase order under the Contract and shall submit its recommendations to the competent authority. However, unless otherwise directed by the Procuring Agency in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical and shall seek reasonable alternative means for performance not prevented by the Force Majeure event.

25. Termination for Insolvency

25.1 The Procuring Agency may at any time terminate the Contract by giving written notice of one month time to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination shall be without compensation to the Supplier, provided that such termination shall not prejudice or affect any right of action or remedy which has accrued or shall accrue thereafter to the Parties.

26. Arbitration and Resolution of Disputes

26.1 After coming into force of the procurement contracts, disputes between the parties to the contract shall be settled by arbitration. (2) The procuring agencies shall provide for a method of arbitration in the procurement contract, not inconsistent with the laws of Pakistan.

27. Governing Language

27.1 The Contract shall be written in English language. Subject to GCC Clause 28, the version of the Contract written in the specified language shall govern its interpretation. All correspondence and other documents pertaining to the Contract, which are exchanged by the Parties, shall be written in English.

28. Applicable Law

28.1 This Contract shall be governed by the laws of Pakistan and the courts of Pakistan shall have exclusive jurisdiction.

29. Notices

29.1 Any Notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing and confirmed to other party's address specified in SCC.

29.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

Special Conditions of Contract (SCC)

Special Conditions of Contract shall be concluded between the Procuring Agency and the successful bidder(s) as per specific requirement of the specific Product. In case where there is a conflict between the general conditions of the contract and the special conditions of contract, the special condition of contract shall prevail. If there is conflict between SCC and Special Terms & Conditions of Technical Specifications then the Special Terms & Conditions of Technical Specifications shall prevail.

1. General:

1.1 The imported goods shall be of USA, Europe, Japan, Russia origin firms, or otherwise specified individually; however, their delivery/ provision may vary according to geographical location of their factories.

1.2 The fee of all necessary licenses required to install and operate the equipment shall be borne by the Supplier and Procuring agency will facilitate through documents only.

1.3 The Bank Guarantee will be discharged after successful installation, commissioning, servicing and completion of 03-years (or for any other period mentioned in the specifications) comprehensive warranty Period. A clearance letter/NOC will be issued by the head of concerned institution.

1.4 The Supplier shall be deemed to have obtained all the information regarding facilities and charges, in respect of port clearance, loading and unloading, storage, transportation, congestion, Octri, licensing fee and confirmed the requirements thereof at his own responsibility and all such costs and charges are deemed to be included in the rates and prices mentioned in the Priced BOQ and the Procuring Agency will not pay any amount over this contracted amount whether in case of CIF or free delivery consignments.

1.5 Certificate from the manufacturer that they will provide after sales services through its agent and in case of change of its agent, it will provide the services itself or newly appointed agent/ distributor.

1.6 The Supplier shall arrange the necessary arrangements for onsite training of University staff including doctors, faculty, technician, paramedical staff and biomedical engineers.

1.7 For smooth functioning and management of medical and other equipment, it is mandatory for the bidders to provide sufficient technical/service training for high-tech equipment for the biomedical engineers and nominated allied staff at factory or workshops arranged by the manufacturer, without any additional cost to the Procuring agency.

2. Insurance of Local Goods

2.1 Insurance of Local Goods and other materials from factory to Site shall include all insurance costs covering the responsibility of all losses or damages, while loading, unloading, storing, trimming on the carrier and transporting to Site up to the installation, testing & commissioning of the medical equipment.

2.2 Checking and verifying of consignments, issuance of receiving reports and damage reports (when applicable) shall be the Contractor's responsibility.

2.3 The cost of insurance shall be quoted on the basis of insurance through National Insurance Company (NIC) of Pakistan or any other insurance company operating in Pakistan acceptable to the Procuring Agency.

3. Payment

3.1 The payment will be made 100% via establishing the LC at sight and receiving of mentioned documents.

3.2 The amount of Letter of Credit shall be paid to beneficiary on production of the following non-negotiable documents.

i. Draft.

ii. Three original and two copies of the Supplier's Invoice showing purchaser as Project Coordinator, Academic Block, SZABMU, Islamabad, Pakistan, the Contract No., Goods description, quantity, unit price and total amount. Invoice must be signed in original stamped or sealed with company stamp or seal.

iii. Four Copies of packing list identifying content of each package.

iv. One original and two copies of the negotiable, clean, on board through bill of lading marked "freight prepaid" and showing purchaser as Project Coordinator, Academic Block, SZABMU, Islamabad, Pakistan

v. Copy of insurance certificate showing purchaser as the beneficiary;

vi. The original manufacturer's warranty certificate covering all items supplied;

vii. One original copy of the Supplier's Certificate of origin covering all items supplied.

viii. Original copy of the certificate of Pre-Shipment inspection furnished to Supplier by the purchaser representative (if specifically required by the purchaser).

ix. Test/ Inspection Certificate of manufacturers.

x. Compliance Report of Internal Quality Standards.

xi. Product model, serial numbers.

xii. Manufacturer's Guarantee Certificate to the effect that:

a) the goods supplied by them are strictly in conformity with the specifications stipulated in the contract.
b) the goods have been packed and marked suitable for transport by Sea, Rail, Road and Air in terms of the contract.
c) the stores supplied by them are brand new and absolutely free from any material or manufacturing defects.
d) Manufacturer's test certificate in respect of each consignment.

4. Execution of Warranty

4.1 A Log Book for each of the equipment shall be maintained by the Biomedical Engineer/ Technical Coordinator of the Supplier and Biomedical Engineer of the University jointly. This will include the name of the equipment, down time, preventive maintenance schedule, replacement of parts, down time etc.

4.2 The Warranty will start from the date of acceptance of equipment (properly installed, as per contracted specifications and handing over of related documents mentioned in GCC and will last for five years at 95% uptime.

4.3 The maintenance will be the responsibility of the manufacturer / their agent. An annual optimal uptime of 95% is considered as acceptable level of performance.

4.4 Software and hardware up gradation of the computing system should be carried out as available during warranty period as recommended by the manufacturer

4.5 Manufacturer / Supplier shall be responsible for rectifying with all possible speed at their own expense any defect or fault in the system which may develop at any time during installation, commissioning period.

4.6 Manufacturer will guarantee the availability of spare parts and accessories for the system for ten years.

4.7 Uptime shall be defined as the time available to the user for doing procedures/ data acquisition and processing during working hours throughout the year.

4.8 Manufacturer /Supplier shall check system performance during and after every 4- months. An "Optimal Percentage" will be calculated by dividing "System in Service" hours by hours available, both measured on the basis of working hours as detailed above.

4.9 If the uptime percentage for the measurement period (04-months) shall fall short of 95% the following formula will be applied to determine additional days in the warranty / service contract period.

a. 100% - 95% No Penalty

b. 95% - 90% The warranty period will be extended by 2.0 times the number of days as extra down time.

c. 90% - 80% The warranty period will be extended by 3.0 times the number of days as extra down time

d. Below 80% The warranty period will be extended by 4.0 times the number of days as extra down time

4.10 Down time is defined as the failure in the equipment operation to acquire or process the data or procedure, resulting in inability to carry out the required procedure properly.

4.11 The firm will be bound to make arrangements for availability of qualified technical staff in the Institution/ site for prompt execution/coordination of after sale services.

4.12 Down time will start when the end user/ Staff In-charge notifies the designated service facility verbally or in writing to qualified technical staff of the firm stationed in the Institution.

4.13 Down time will end once the repairs have been affected and the system is again available for clinical use.

4.14 The firm will provide the recommended preventive maintenance schedule of each of the equipment at the time of delivery.

4.15 The firm will bound to execute the installation/ maintenance according to the installation/ service protocol and will replace the components/ kits recommended by the manufacturers for installation and Periodic Preventive maintenance.

4.16 The scheduled preventive maintenance shall be in accordance with Service Protocol recommended/ advised by the manufacturer.

4.17 Remote service via modem shall be preferred if provided by the manufacturer to pick-up early faults at no cost to the Institution for the high-tech equipment.

4.18 The manufacturer / supplier will be responsible for preventive maintenance of equipment as per manufacturers' Service Manuals and shall keep a check for electrical / magnetic/ temperature and humidity conditions. Such a check should be made monthly and record should be maintained in the log book of the Institution.

5. Packing & Marking

5.1 Packing: Usual export packing to ensure safe journey up to the site of consignee.

Marking: Each packing should be clearly marked in suitable size in bold letters as per requirement.

6. Trans-shipment

6.1 Trans-shipment is not allowed.

7. Place of delivery

7.1 All required machinery & equipment will be delivered at Academic Block, SZABMU, Adjacent to NORI Hospital, Hanna Road, G-8/3, Islamabad.

8. Correspondence addresses

Procuring Agency
Project Coordinator,
Academic Block, SZABMU, Adjacent to NORI Hospital, Hanna Road, G-8/3, Islamabad.
Contact: 0345-5318543

Contracting Firm

M/s _____
_____
_____
_____
_____

Performance Guarantee Form

To: *[Name & Address of the* Procuring Agency*]*

Whereas *[Name of Supplier]* (hereinafter called "the Supplier") has undertaken, in pursuance of Contract No. *[number]* dated *[date]* to supply *[description of goods]* (hereinafter called "the Contract").

And whereas it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a scheduled bank for the sum of **10% (Ten Percent)** of the total Contract amount as a Security for compliance with the Supplier's performance obligations in accordance with the Contract.

And whereas we have agreed to give the Supplier a Guarantee:
Therefore we hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of *[Amount of the Guarantee in Words and Figures]* and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limits of *[Amount of Guarantee]* as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the_____ day of_____, 20__

Signature and Seal of the Guarantors/Bank

Address

Date

Note: 1. It should be valid for a period equal to the warranty period.
2. The contract will be signed/ issued after submission of this Performance Security.
3. The firm may submit the Performance Security for the Complete Package by the Lead Contractor or individually for the respective portions of the firms in case of alliance.

Manufacturer's Authorization Form

[See Clause 3.1 (a) of the Instruction to Bidders] To: *[name of Procuring Agency]*

WHEREAS *[name of the Manufacturer]* who are established and reputable Manufacturers of *[name and/or description of the goods]* having factories at *[address of factory]* do hereby authorize *[name and address of Supplier/ Agent]* to submit a bid, and subsequently negotiate and sign the Contract with you against IFB No. *[reference of the Invitation to Bid]* for the goods manufactured by us.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Bids.

In case of change of instant authorized agent; we will provide after sales services ourselves or through newly appointed agent.

[Signature for and on behalf of Manufacturer]

Note: 1. This letter of authority should be on the letter head of the Manufacturer and should be signed by a person competent and having the power of attorney to bind the manufacturer.

2. It should be included by the Bidder in its bid.

3. The standard authorization letter/ sole agency agreement already signed by the manufacturer may also be acceptable, depicting the above mentioned requirements.

Contract Form

THIS CONTRACT is made at on day of 20 . between Project Coordinator, Academic Block, Shaheed Zulfiqar Ali Bhutto Medical University SZAMBU, Islamabad (hereinafter referred to as the "Procuring Agency") of the First Part; and M/s *(firm name)* a firm having its registered office at *(address of the firm)* (hereinafter called the "Supplier") of the Second Part (hereinafter referred to individually as "Party" and collectively as the "Parties").

WHEREAS the Procuring Agency invited bids for procurement of goods, in pursuance where of M/s *(firm name)* being the Manufacturer/ authorized Supplier/ authorized Agent of (item name) in Pakistan and ancillary services offered to supply the required item (s); and Whereas the Procuring Agency has accepted the bid by the Supplier for the supply of *(item name)* and services in the sum of Rs *(amount in figures and words)* cost per unit, the total amount of *(quantity of goods)* shall be Rs *(amount in figures and words) for free delivery items and unit price €/£/$/¥ for the total price* _____ *€/£/$/¥ of the items of CIF portion for establishing the LC.*

NOW THIS CONTRACT WITNESSETH AS FOLLOWS:

1. In this Contract words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of this Contract hereinafter referred to as "Contract":

2. The following documents shall be deemed to form and be read and construed as integral part of this Contract, viz:-

   a. the Price Schedule submitted by the Bidder,
   b. the Schedule of Requirements;
   c. the Technical Specifications;
   d. the General Conditions of Contract;
   e. the Special Conditions of Contract;
   f. the Procuring Agency's Notification of Award;
   g. the scope of work;
   h. the Contract; and
   i. the Bid & its clarifications.
   j. the contracted specifications (attached as annexure)
   k. any undertaking provided by the firm

3. In consideration of the payments to be made by the Procuring Agency to the Supplier/ Manufacturer as hereinafter mentioned, the Supplier/ Manufacturer hereby covenants with the Procuring Agency to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of this Contract.

4. The Procuring Agency hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of this Contract at the time and in the manner prescribed by this Contract.

5. *[The Supplier]* hereby declares that it has not obtained or induced the procurement of any Contract, right, interest, privilege or other obligation or benefit form Federal Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (Federal Government of Pakistan) through any corrupt business practice.

6. Without limiting the generality of the foregoing, [the Seller/ Supplier] represents and warrants that it has fully declared the brokerage, commission, fees etc., paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, Administrator, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or including the procurement of a Contract, right interest, privilege or other obligation or benefit in whatsoever form from Federal Government of Pakistan, except that which has been expressly declared pursuant hereto.

7. *[The Supplier]* certifies that has made and shall make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction Federal Government of Pakistan and has not taken any action or shall not take any action to circumvent the above declaration, representation or warranty.

8. *[The Supplier]* accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any Contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to Federal Government of Pakistan under any law, Contract or other instrument, be void able at the option of Federal Government of Pakistan.

9. Notwithstanding any rights and remedies exercised by Federal Government of Pakistan in this regard, *[The Supplier]* agrees to indemnify Federal Government of Pakistan for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to Federal Government of Pakistan in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by *[The Seller/ Supplier]* as aforesaid for the purpose of obtaining or inducing the procurement of any Contract, right, interest, privilege or other obligation or benefit in whatsoever form from Federal Government of Pakistan.

10. In case of any dispute concerning the interpretation and/or application of this Contract shall be settled through arbitration. Vice Chancellor, SZABMU shall act as arbitrator. The decisions taken and/or award made by the arbitrator shall be final and binding on the Parties.

11. This Contract shall be governed by the laws of Pakistan and the courts of Pakistan shall have exclusive jurisdiction.

IN WITNESS Whereof the Parties hereto have caused this Contract to be executed at _____ (the place) and shall enter into force on the day, month and year first above mentioned.

Signed/ Sealed by the Manufacturer/ authorized Supplier/ authorized Agent	Signed/ Sealed by Procuring Agency
_____	_____
1. _____	1. _____
2. _____	2. _____

Note: 1. In case of alliance; all the firms have to sign this document jointly along with Procuring Agency, as all firms will bear equal responsibility in execution of the contract.

Bid Form

Date: Tender No.:

To: [Name and address of Procuring Agency]

Respected Sir

Having examined the Bidding Documents, the receipt of which is hereby duly acknowledged, we, the undersigned, offer the supply and deliver the goods specified in and in conformity with the said Bidding Documents for the sum of *[Total Bid Amount]*, *[Bid Amount in words]* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this bid.

We undertake, if our bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.
If our bid is accepted, we shall obtain an unconditional guarantee of a bank in the sum of _____ percent of the Contract Price for the due performance of the Contract, in the form prescribed by the Procuring Agency.

We agree to abide by this bid for a period of *[number]* days from the date fixed for bid opening under ITB Clause 18 of the Instructions to Bidders, and it shall remain binding upon us and may be accepted at any time before the expiration of that period. Until a formal Contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive. Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and address of bidder
(if none, state "none")."

Amount and Currency

Dated this day of , 20__

Signature
(in the capacity of)

Duly authorized to sign bid for and on behalf of

Attachment

Price Schedule

(03-Year warranty or specified individually)
(C&F Type)

Name of Bidder _____

Tender No. and the name of the package ----------

Item. No.	Name of Item (As listed in invitation of bid)	Make	Model	Country of Origin	Country of Manufacturer	Supplier	Name of Port of dispatch	Qty	Unit C&F Price (€/£/$/¥)	Total Price for each item (€/£/$/¥)	Name of beneficiary bank
	Total Price (Foreign currency component)										

Sign and Stamp of Bidder_____

Note: 1. In case of discrepancy between unit price and total, the unit price shall prevail.

2. Foreign currency rate will be considered on the date of opening of Financial Bid as per selling rate announced by the National/ State Bank.

Integrity Pact

(AFFIDAVIT)

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE CONTRACTOR.

Contract Number: Dated:
Contract Value:
Contract Title:

[*Name of Supplier/Contractor/Consultant*] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from the Federal Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it Federal Government of Pakistan through any corrupt business practice.

Without limiting the generality of the foregoing, [*Name of Supplier/Contractor/Consultant*] represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit, in whatsoever form, from Procuring Agency (PA), except that which has been expressly declared pursuant hereto.

[*Name of Supplier/Contractor/Consultant*] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with PA and has not taken any action or will not take any action to circumvent the above declaration, representation, or warranty.

[*Name of Supplier/Contractor/Consultant*] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts, or taking any action likely to defeat the purpose of this declaration, representation, and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to PA under any law, contract, or other instrument, be voidable at the option of PA.

Notwithstanding any rights and remedies exercised by PA in this regard, [*Name of Supplier/Contractor/Consultant*] agrees to indemnify PA for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to PA in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by [*Name of Supplier/Contractor/Consultant*] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit, in whatsoever form, from PA.

For and on behalf of M/s.....

[Signature & Stamp]
[Signatory Name]
[Signatory Designation]

CHECK LIST

The provision of this checklist is essential prerequisite along with submission of tenders.

SR#	DETAIL	YES/NO	PAGE NO.
1	**KNOCK OUT Clauses**		
2	Minimum one year business history from the date of authorization.		
3	Mandatory warranty of the product offered by company.		
4	Acceptance of terms and condition, tender documents duly signed and stamped.		
5	Company profile including engineering and managerial capability.		
6	An affidavit on stamp paper of Rs.100/- subsuming following clauses: i) that only replacement and not repair of equipment parts under warranty shall be done, ii) that the firm is never blacklisted on any grounds whatsoever.		
7	Price should not be mentioned on technical bid.		
8	Bank statement / Balance sheet, National tax number and General Sale Tax number certificate.		
9	List of products supplied to Govt. Hospital/Institutes and private sector.		
10	Literature / brochure of product.		
11	Agency agreement/authorization from manufacturer duly certified by concerned sanctioning authority.		
12	Certificate / documentary proof to the effect that the Principal is the original manufacturer of the required goods.		
13	Bidder must indicate the country of origin.		
14	**GENERAL Clauses**		
15	Certificates regarding quality of production for conformity with International Standards (original attested certificate FDA (USA). CE. JIS.)		
16	Service record and pay roll of the firm for the specific product.		
17	Latest tax paid, balance sheet, audit inspection report, at least one year bank statement.		
18	Supply orders detail over last one year (minimum).		

(TEMPLATE)

BID EVALUATION SHEET

Package No./Tender Number: _____

Name of the Equipment and Qty.: _____

PART- I
KNOCK DOWN CRITERIA - (COMMERCIAL EVALUATION)
(To be evaluated by Project Purchase Committee/End Users)
(All evaluation parameters defined below are mandatory for compliance)

Sr. No.	Evaluation Parameters	M/S ABC
1	Complete Package/Tender	Yes / No
2	Affidavit from Bidder	Yes / No
3	Bid Security	Yes / No
4	Bid Validity	Yes / No
5	Delivery Period	Yes / No
Remarks:		Eligible/ Not Eligible for further evaluations

PART- II
KNOCK DOWN CRITERIA - (VENDOR EVALUATION)

(To be evaluated by Technical Evaluation Committee)
(All evaluation parameters defined below are mandatory for compliance)

Sr. No.	Evaluation Parameters	M/S ABC
1	**Exclusive Authorization / Sole Agent Certificate by the Manufacturer**	Yes / No
2	**Technical & Engineering capability(As defined for the specific tender in specifications)**	Yes / No
3	**Certificate from the Manufacturer about the after sales services through agent or itself (In case specifically demanded in the specifications)**	Yes / No
4	**Vendor Past performance (In case of unsatisfactory performance, details must be mentioned)**	Satisfactory / Unsatisfactory
5	**Availability of relevant Tools and Testing / Calibration Equipment**	Yes / No
6	**Compliance of Warranty as per tender**	Yes / No
Remarks:		(Eligible/ Not Eligible for further evaluations of PART-III)

PART III
KNOCK DOWN CRITERIA - PRODUCT EVALUATION
(All evaluation parameters defined below are mandatory for compliance.)

Item Sr#	SPECIFICATION COMPLIANCE /EVALUATION PARAMETERS

1.	Name of Equipment	Brand	
		Model	
	Country of Manufacturer		
	Country of Origin of Product/Model		
	Compliance with defined Quality		
	Specification Compliance Feature wise		Remarks
	Specifications		Technically Acceptable/Not (Mention the reasons)
	Technical Eligibility of the Product		Eligible/Not Eligible
	Technical Eligibility of the Firm		Eligible/Not Eligible
	Bid Status		Responsive/Substantially Responsive/Non Responsive

TEMPLATE FOR MANDATORY COMPARATIVE SHEET

S. No.	Tender Specification	Offered Specification	Deviation (if any) /Remarks

Note:

1. Noncompliance of any of above evaluation parts will lead to the rejection of bid straight way.
2. Detail of rejection of any bid will be mentioned in detail.
3. The Technical status of offers will be declared as Responsive, Non Responsive and Substantially Responsive.
4. The offer will be considered as responsive if it fully meets the tender requirement and specifications.
5. The offer which will not be as per requirement of tender and specifications is to be declared as non-responsive.
6. The bid with minor deviations without any effect on the quality, efficiency, reliability and durability of products will be declared as substantially responsive. The minor deviations will be determined by the Technical Evaluation Committee.
7. The bids declared either as Responsive or Substantial Responsive will be considered as acceptable bid for further processing.
8. Sample, where required by the procuring agency will be evaluated by the Technical Evaluation Committee by analyzing its Production quality, Design, Reliability, Conformance to the specification

and safe for the usage etc. This report will become the part of above Performa as sample evaluation report.

9. In case of requirement, Procuring Agency / Technical Evaluation committee may inspect the premises of bidder to inspect the Technical and Managerial Capability/ setups for ensuring proper after sales services.

Special Requirements:

1) Bidder should be the authorized distributor of the brand offered directly from Principal in Pakistan and should attach its Distribution certificate with the tender.
2) Bidders are required to quote complete LOT with items specifications conform to the specifications, otherwise, disqualification in one item will result in disqualification of complete LOT.
3) The bidders should not be blacklisted by any Firm or organization (in Government, Semi-Government and Private).
4) The bidder should not be in litigation with any Firm or organization (in Government, Semi-Government and Private).
5) Only technically qualified companies will be entertained.
6) Complete solution will be the responsibility of the vendor, including the supply, installation, testing/commissioning with required MEP works with materials.
7) Bidder must have trained technical resources, attach the list of technical team.
8) Supplier must have established workshops in region (s) fully equipped with required installation/ commissioning and testing/calibration tools (a list should be attached).
9) Warranty of the equipment shall be not less than 03 years (or otherwise specified individually), with complete replacement of parts.
10) After the delivery and installation of the equipment, the vendor shall be responsible for detailed testing and verification of the equipment's performance to ensure the equipment is installed and functioning correctly. This shall include a complete test run of all operational procedures to demonstrate full functionality.
11) All materials, reagents, and consumables required for the first test-run, shall be provided by the vendor at no additional cost to the purchaser.
12) If the complexity of an equipment requires specialized knowledge beyond what the User possesses, the vendor must provide a qualified individual (an "equipment expert") to be on site to demonstrate all operational procedures of that equipment.
13) Onsite Staff Application Training & Service training of Biomedical Engineer / Technical Staff at factory site, without any additional cost to the Procuring agency.
14) Provision of Spare parts for period of 10 years
15) Services: Five-year service contract on request of Client.

SPECIFICATIONS

SIMULATION LAB (Currency: C&F) LOT 1: ANATOMY LAB		
SN	**Product Description**	**Qty**
1	**Human Skeleton** Life-size reproduction of a first-class adult male skeleton. Stable mounting and firm structure ensure durable quality even with heavy use. Life-size skeleton; The teeth are manufactured separately and inserted into the jaw; Limbs can be removed and replaced very quickly and easily using a quick fastener; The shoulder, hip and knee joints have flexible rubber fasteners that allow for real, gliding joint movement. The skeleton's approximate total of 200 bones correspond to real human bones in size and weight; The skeleton is anatomically correct and complete, it shows all important structures and foramina; It comes with a hanging ring; if necessary, it can be hung on a special support or from the ceiling. Detachable components: Skullcap, Skull, Jaw, Legs and Arms. Support with smooth moving and removable casters.	1
2	**Anatomy Set Brain and Ventricle** Life-size model in three parts, the cerebellum and brain stem in longitudinal section, showing the insertions of the cranial nerves and interior anatomy. All structures are identified and listed in the explanatory leaflet. Important anatomical structures are numbered and indicated in different colors for easy understanding. Made with long-lasting synthetic material. Accompanying an interactive 3D anatomical model with augmented reality is a great tool to encourage learning and support. This platform allows students to engage in comparative analysis of anatomical models as they compare and contrast the structure of individual organs. This initiative also provides a platform for continuing education, providing opportunities for all students to increase their knowledge of anatomy, physiology and pathophysiology. • Including Blood supply model Brain (mandatory).	1
3	**Anatomy Set EYE (11 parts)** Model is five times life-size and shows the eyeball with optic nerves and muscles in their natural position in the bony orbit. The eyeball is dissected into two removable halves with internal structures fully exposed. Removable parts: Cornea, Iris, Crystalline and Vitreous body - 4 parts; 3 different rectus bulb muscles; Levator muscle upper eyelid together with the lacrimal gland; Eyeball with extraocular muscles - 2 parts; Base of the bony orbit. Made with long-lasting synthetic material. Mounted on durable polymer base with bracket.	1

4	**Anatomy Set Ear 3X enlarged, 5 parts** Model three times life size that shows the outer, middle and inner ear. The tympanum with malleus, anvil and stirrup are removable. Other removable parts: cochlea and labyrinth with vestibular and cochlear nerves, 2 sections of bone that define the middle and inner ear.	1
5	**Anatomy Set Heart** Life-size model in two parts. The anterior heart wall can be removed to reveal the right and left ventricles and atria, as well as the tricuspid, pulmonary, mitral, and aortic valves.	1

6	**Hip joint** Life-size model with femoral portion: gluteus medius, gluteus minor, iliacus, inferior and superior twin muscles, obturator internus, piriformis and psoas muscles and joint capsule ligaments. Made of high quality durable plastic material, the model is articulated and shows the hip muscles in detail, showing the main muscles and ligaments, ideal for offices, clinics, exam rooms, waiting rooms for patient education. The model comes on a stand base and with a double information card. The model can be removed from the base.	1
7	**Elbow joint** Life-size model showing the elbow joint with ligaments.	1
8	**Shoulder joint** Life-size model showing the shoulder joint with ligaments.	1
9	**Head with neck** A model that shows the muscles of the head, neck and upper thoracic region. Superficial muscles and deep muscles are also represented, as are the paths of the subclavian and carotid arteries. Accompanying an interactive 3D anatomical model with augmented reality is a great tool to encourage learning and support. This platform allows students to engage in comparative analysis of anatomical models as they compare and contrast the structure of individual organs. This initiative also provides a platform for continuing education, providing opportunities for all students to increase their knowledge of anatomy, physiology and pathophysiology. • Including Mid Sagittal Section of Head & Neck (mandatory).	1

10	**Complete Human body silicon synthetic cadaver** A complete human body from head to toe made from silicone including all the anatomical structures mentioned below which can also be detached. This offers enhanced accuracy in muscular origins and insertions, improved fidelity in organ systems, and increased durability in vascular and nervous structures. The skeletal, muscular, fascial, and cartilaginous structures of the skull, jaw, cervical spine, rib cage, chest, abdomen, upper and lower back, shoulders, upper arms, forearms, wrists, digits, thoracic spine, lumbar spine, pelvis, thighs, lower legs, feet, and toes. Every bone, muscle, tendon, semi articulating joint, and functioning respiratory system, along with complete digestive and urinary tracts, visceral organs, reproductive organs, circulatory system, and nervous system, including the following and also the organs can be removed and examined individually: Nervous Components • Lateral Cord • Musculocutaneous Medial Cord • Medial Brachial Cutaneous • Medial Antebrachial Cutaneous • Ulnar Radial • Superficial Branch Sciatic • Common Peroneal • Deep Peroneal • Superficial Peroneal • Tibial Genitofemoral Iliohypogastric Ilioinguinal Lateral Femoral Cutaneous Obturator Femoral • Anterior Cutaneous Branches Venous Vasculature • Jugular veins • Subclavian veins • Superior vena cava • Inferior vena cava • Renal veins • Common iliac veins • Internal iliac veins • External iliac veins • Cephalic veins • Basilic veins • Cephalic veins • Great saphenous veins • Popliteal veins • Femoral veins • Anterior tibial veins • Fibular (peroneal) veins	1

- Posterior tibial veins

Arterial Vasculature

- Aortic arch
- Descending thoracic aorta
- Renal arteries
- Abdominal aorta
- Common carotid arteries
- Subclavian arteries
- Axillary arteries
- Brachial arteries
- Coronary arteries
- Iliac arteries
- Radial arteries
- Ulnar arteries
- Common femoral arteries
- Popliteal arteries
- Anterior tibial arteries
- Fibular (peroneal) arteries
- Posterior tibial arteries
- Saphenous

Torso:
• Sternocleidomastoid • Serratus Posterior Inferior www.SynDaver.com • Coccygeus • Omohyoid • Hyoid • Sternohyoid • Larynx • Pectoralis Major • Deltoid • Splenius Capitis • Rhomboid Minor • Rhomboid Major • Infraspinatus • Teres Arms: • Posterior Deltoid • Infraspinatus • Medial Deltoid • Teres Major • Scapula • Triceps Brachii • Anterior Deltoid • Brachialis • Coracobrachialis • Extensor Carpi Radialis Longus • Anconeus • Brachioradialis • Biceps Brachii • Flexor Carpi Ulnaris • External Oblique • Internal Oblique • Psoas Minor • Psoas Major • Illiacus • Erector Spinae • Trapezius • Latissimus Dorsi • Gluteus Maximus • Gluteus Minimus • Pubococcygeus Legs: • Flexor Digitorum Profundus • Extensor Digitorum • Illiacus • Iliococcygeus • Bulbospongiosus • Deep Transverse Perineal • Ischiocavernousus • Gluteus Medius • Piriformis • Superior Gemellus • Obturatorius Internus • Inferior Gemellus • Quadratus Femoris

Upper Limb:
Posterior Deltoid • Infraspinatus • Medial Deltoid • Teres Major • Scapula • Triceps Brachii • Anterior Deltoid • Brachialis • Coracobrachialis • Extensor Carpi Radialis Longus • Anconeus • Brachioradialis • Biceps Brachii • Flexor Carpi Ulnaris, Flexor Digitorum Profundus, • Extensor Carpi Ulnaris • Extensor Digiti Minimi • Pronator Teres • Abductor Pollicis Longus • Palmaris Longus • Flexor Carpi Radialis (+Longus) • Flexor Digitorum Superfacialis • Extensor Pollicis Longus • Extensor Pollicis Brevis • Extensor Indicis • Extensor Digitorum Profundus • First Digit (Thumb) • Fifth Digit (Pinky), Extensor Digitorum, Flexor Digitorum Profundus, Extensor Carpi Radialis Brevis

	Lower Limb: • Patella • Gracilis • Psoas Major • Adductor Brevis & Longus • Adductor Magnus • Vastus Intermedius • Semitendinosus • Semimembranosus • Quadratus Femoris • Fibularis Tertius • Soleus • Flexor Digitorum Longus • Popliteus • Flexor Hallucis Longus, • Tensor Fascia Latae • Sartorius • Rector Femoris • Vastus Medius & Lateralis • Biceps Femoris (L&S) • Medial Patellar • Gastrocnemius • Tibialis Anterior & Posterior • Fibularis Brevis & Longus • Achilles Tendon • Extensor Digitorum Brevis & Longus • Extensor Hallicus Brevis & Longus • Gluteus Medius & Maximus, Illiacus, • Abductor Hallicus, • Abductor Digiti Minimi	

11	**Virtual Patient and Anatomy Table** **Compulsory features:** • Compatible for PACS Integration • 3D reconstruction of CT and MR images using DICOM files • Virtual cadaver constructed from real human CT slices • Virtual Patient that will answer questions allowing learners to develop medical diagnostic skills using various medical instruments, virtual medical tests and prescribing medicines • At least 1 units of the quoted software installed in Pakistan • **Life time software warranty** **Software modules include:** Country of manufacturing: USA/JAPAN/EUROPE/TAIWAN/RUSSIA • Complete male and female Human atlas which includes: • Cardiovascular system • Respiratory system • Lymphatic system • Musculoskeletal system • Nervous system • Digestive system • Urinary system • Reproductive system • Additional Features in digital human atlas includes: • Bone mapping and surfaces and landmarks • Muscle insertion and origin points • **Virtual dissection** on the human body to explore the underlying structures. • **Radiology**, System for viewing DICOM images with tools for handling radiological studies and clinical cases. It allows viewing images of different	1

modalities such as CT scans, Magnetic Resonances, X-rays.

- **PACS Integration**, anatomy table can be integrated with the hospital PACS system that allows for real patient cases from the university hospital to be taught to the students in safe classroom environment

- **3D reconstruction of the images**, ANATOMY TABLE can transform and reconstruct the CT and MR images into a 3D structure for students to dissect the body and study the different pathology of REAL PATIENT SCAN. This allows the student to understand the internal pathology in more detail and compare normal body scans with pathological conditions

- **Physiology**, visualize the working of the human body and microscopic detail. From the basic beating heart to unique muscle fiber contraction, synaptic transmission and much more. These physiology modules are unique with ANATOMY TABLE only

- **Embryology**, follow embryonic and fetal development, from the visualizing fertilization till the 4th week of gestation to birth, through interactive 3D animations of the Embryonic Developmental Period and Fetal Developmental Period. Also includes structures for twin pregnancy, placenta and more.

- **Microanatomy**, state of the art micro anatomy structures from eyes, ears, skin to all the systems micro anatomy structures such as nephrons, Bone Layers, Small intestine cross section, Touch Receptors, Alveolus

- **Histology and Histopathology**, having more than 200 in the system already built of glands, organs, tissues and systems, and slides with pathologies in that can be zoomed up 400x without any damage to the quality of the image of slide. Student can mark the points on the slides, measure the distance between point A to point B on the slide and make notes. Detail content of each slide is also given in text.

Virtual Patient Module:

- For Enhance clinical reasoning and decision-making skills, boost confidence and promote team-work
- 200+ medical case library
- Physiological algorithm the patient reacts to users' actions
- Includes all the actions from Physical examination, Medical tools, History of Disease, Dialogs, Assessments
- Evaluation at the end to make sure that the desired outcome is reached

Hardware specs:

Country of manufacturing: any geographical region in the world.

- 75 Inches 4K resolution screen with multi touch feature
- Protective coating on the display

	• Integrated speakers on the system • I5 13th Generation PC or better • NVIDIA Graphics card with 16GB VRAM or better • 32 GB system DDR4 RAM or better • 512GB SSD for storage + 2TB Hard Disk • Operating system Windows 11 • Trolley base with caster wheels • Hydraulics systems for vertical and horizontal motion • UPS for power backup for at least 30 minutes • Display can be extended up to three more screens • Hardware should have complete end to end integration with the software. Software should be locked with the software 'Key' or 'pin' in order to prevent copying the software and identifying hardware problem with the software provider company. **Accessory:** UV/UPVC wall-mounted/floor-standing cabinet for Anatomy Lab items to be provided by the successful vendor	

LOT 2: BLS SKILL LAB		
1	**Adult CPR Manikin** The same high quality, realistic adult Male Manikin is now available with Advanced Feedback including Rate, Depth, Recoil, Ventilation, Hands-Off Time, and Chest Compression Fraction via a Bluetooth® enabled **CPR Feedback App** available on both Apple and Android devices. Advanced CPR feedback (includes rate, depth, recoil, ventilation, hands-off time, and chest compression fraction) is monitored, easily displayed and available for reporting allowing students to self-monitor performance and gain confidence during CPR training. The app allows instructors to provide comprehensive CPR training while monitoring CPR performance for up to six (6) students at a time and is equipped with a reporting feature that allows for CPR training results to be downloaded directly from the app	6
2	**Child CPR Manikin** The same high quality, realistic adult child Manikin is now available with Advanced Feedback including Rate, Depth, Recoil, Ventilation, Hands-Off Time, and Chest Compression Fraction via a Bluetooth® enabled **CPR Feedback App** available on both Apple and Android devices. Advanced CPR feedback (includes rate, depth, recoil, ventilation, hands-off time, and chest compression fraction) is monitored, easily displayed and available for reporting allowing students to self-monitor performance and gain confidence during CPR training. The app allows instructors to provide comprehensive CPR training while monitoring CPR performance for up to six (6) students at a time and is equipped with a reporting feature that allows for CPR training results to be downloaded directly from the app	6

3	**Infant CPR Manikin** The same high quality, realistic infant Manikin is now available with Advanced Feedback including Rate, Depth, Recoil, Ventilation, Hands-Off Time, and Chest Compression Fraction via a Bluetooth® enabled **CPR Feedback App** available on both Apple and Android devices. Advanced CPR feedback (includes rate, depth, recoil, ventilation, hands-off time, and chest compression fraction) is monitored, easily displayed and available for reporting allowing students to self-monitor performance and gain confidence during CPR training. The app allows instructors to provide comprehensive CPR training while monitoring CPR performance for up to six (6) students at a time and is equipped with a reporting feature that allows for CPR training results to be downloaded directly from the app	6
4	**AED Trainer** Compact and lightweight with full customization options to accommodate any classroom training situation. This AED trainer resembles a live training experience. Designed for use with the Pad Sensing System. Includes adult and child pads <u>Accessories for BLS Skill Lab:</u> - CPR Mask Adult/Infant with One Way Valve (qty: 24) - Algorithm charts according to latest 2025 guidelines (qty: 1) - Bag masks devices for adult , infant, child (8 each, qty: 24)	6

LOT 3: ACLS SKILL LAB		
1	**Adult Full Body ACLS with Multipurpose Advance Features** EASY-TO-USE, DURABLE, & PORTABLE HANDS-ON BLS TRAINING Adult Full Body ACLS Manikin for Practice assessing breathing, performing quality CPR, delivering a shock, and recognizing return of spontaneous circulation. Illustrate shockable and non-shockable ECG with 20+ rhythms Perform nasal and oral intubation with standard, real adjuncts Visualize realistic chest rise with BVM ventilation Identify proper chest rise and pulses without any additional items Monitor and cardiovert rhythms using a real AED/defibrillator Defibrillate directly on patches or pad-free posts numerous times Receive immediate feedback on your actions and select the responses Check for return of spontaneous circulation Automatically detect and record events for easy debriefing **Airway and breathing** • Spontaneous breathing (Automatic) • Practice nasal and oral intubation with realistic tongue, vocal cords, epiglottis, and trachea • Supports ETT, supraglottic airway device, i-gel®, King LT™, and more • Illustrate head tilt/chin lift and jaw thrust • Gastric distension with esophageal intubation and/or excessive ventilation • Right mainstem intubation presents unilateral chest rise • Visible chest rise with bag valve-mask ventilation • Ventilation detection sensors **Circulation** • Anatomically correct landmarks for proper CPR hand placement • Realistic chest cavity; resistance and recoil • Chest compression depth sensor • Real-time CPR feedback • Effective chest compressions generate palpable carotid pulses • Monitor and cardiovert rhythms using a real AED/defibrillator • Illustrate 20+ shockable and non-shockable **ECG rhythms** • Deliver up to 360 Joules of real energy to skin patches or snap connectors • Palpable carotid pulses with variable rate synchronized with ECG	2

	• Available with 4-lead ECG site option to support real-time ECG monitoring using real equipment **Neurological** • Normal, miosis (constricted), and mydriasis (blown) pupil states • Independent left/right pupil states simulate consensual and nonconsensual response Performance monitoring **Real-time CPR quality feedback** » Compression depth and rate » Ventilation rate » Excessive ventilation » No-flow time » CPR cycles • CPR metronome: audible tones help guide correct compression and ventilation rate and ratio • Compliant with current adult resuscitation guidelines • Built-in resuscitation algorithm checklists for tracking individual and team actions Software features • Built-in wireless connectivity with a range up to 30 ft.1 • Wireless touchscreen tablet • Optimized vital sign controls for on-the-fly operation • Built-in library with 20+ cardiac rhythms and options • Compatibility with Virtual Vital Signs Monitor to display 10+ parameters for delivering post-cardiac arrest care • Alternate virtual shock function capability • Session log records provider actions, vital signs, CPR metrics, and comments **Debriefing tools** • CPR performance report provides averages for each CPR metric and cycle • Save, email, and print CPR performance reports for debriefing and archiving Local Stretcher Trolley to be provided.	

2	**Adult Airway Trainer** Practice of advanced airway management Intubation procedures and skills, including anatomy knowledge and recognition, endotracheal intubation, nasotracheal intubation, use of field emergency airway adjunct tubes like LMAs and Combitube®, securing, suctioning, and maintenance of the installation	1
3	**Patient Simulation System / ECG Rhythm Simulator \ Training Defibrillator** Patient Simulation System with Superior, lifelike monitor/defibrillator skins closely replicate market monitors Universal monitor screens (skins), generic 118+ Waveforms, ECG variations, rate controllable, printable, with 12-lead option available, all ECG 12-lead ready Live/Dynamic ECG - 12 Lead, preview of printed 12-led ECG SpO2 waveforms CO2 waveforms	

	Invasive blood pressure waveforms Critical care waveforms Preserve CO2 Shows respiratory rate AED mode/manual mode Pacer CPR feedback module Scenario creation, browser-based, 5 users included, role & right management for user Assessment device, blood sugar (mg/dl or mmol/l) Assessment device, temperature measurement Assessment device, auscultation of lung, heart and abdomen Radiology images - users can upload own images to Media Library Patient images - users can upload own images, videos, PDFs Laboratory reports, preset standard Lab Reports or create on the fly Pager & CO alarm Evaluation and debriefing; team performance and communication General: Integrated wireless instructor control with Complete control within simulation scenarios Single device control Sync with CLOUD CPR Feedback Device : medical device certified CPR Feedback Sensor, showing frequency, depth and pressure ventilation sensor measuring, volume, frequency and pressure option to connect Hard-Paddles to simulated monitor Wireless transmission of CPR feedback into CPR Dashboard. CPR Dashboard must be visible to instructor and students. Integrated CPR feedback in monitor if supported by original ECG Live view of depth, rate, and CPR fraction Single and team feedback evaluation of participants Included Hard & Software: Simulation Bag, Large ACLS / PALS Preconfigured Scenarios Manual Defibrillator Paddles for Defib Training and CPR Sensors for CPR Feedback Monitor Tablet with hard case for ECG, iPad Pro 12.9 Controller Tablet with protective cover, iPad, 11 Assessment Tablet with protective cover, iPad, 11 Wifi Router Cable sets, adult and pediatric, with SPO2 sensor NIBP Cuff; neonate, child, and adult CO2 sensor 12-lead ECG cable 4-lead ECG cable Training pads for defibrillation, pediatric and adult	

	Curriculum: RN, Medical, Pre-Hospital (EMS/Medic), Hospital, Military **Accessories:** - Algorithm charts according to latest 2025 guidelines (qty: 1) - UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement to be provided by the successful vendor	

LOT 4: PALS SKILL LAB		
1	**Infant PALS Full Body Manikin** The Child Manikin is a dramatic, state-of-the-art manikin designed for teaching individuals or groups life-saving techniques for children. Simulating an 5-year-old child, the Child Manikin provides complete PALS training capabilities it combines all of the skill stations on one manikin, making training more realistic and giving students an appreciation for the smaller scale of the patient. The Child Manikin is anatomically correct in detail. Realistic anatomy and landmarks include a mouth, tongue, oral pharynx, epiglottis, arytenoids, vocal cords, trachea, and esophagus. In addition to the palpable and visual landmarks, the head, neck, and jaw are fully articulated, allowing a realistic jaw thrust feature. This manikin has separate left and right lungs for auscultation has oral, nasal, and digital intubation capabilities and includes an inflatable stomach bladder to indicate esophageal intubation. Also features E.T., E.O.A., P.T.L., L.M.A., E.G.T.A., Combitube®, and King System insertion. Compatible with all standard brands and types of defibrillators, monitors, and patient simulators • Internal load box absorbs full strength shock • Manual, automatic, and semi- automatic defibrillation • Pacing • Rhythms are detected at four ECG sites and two defibrillation sites	1
2	**Infant Airway Trainer** Simulated head of a 5-year-old child featuring realistic size and anatomy • Perfect for practicing airway management skills on pediatric patients • Realistic anatomy includes mouth, tongue, oral pharynx, larynx, epiglottis, vocal cords, trachea, and esophagus • Separate lungs for auscultation • Manual carotid pulse • Inflatable stomach to indicate esophageal insufflation • Practice suctioning as well as oral, nasal, and intubation techniques <u>Accessories:</u> - Algorithm charts according to latest 2025 guidelines (qty: 2)	1

LOT 5: PATIENT AND NURSING CARE		
1	**Nursing Care simulator** Advance MID fidelity simulator features superior range of motion, with weight distributed to accurately represent a real patient for lifting and carrying techniques. A realistic, hands-on learning experience that is ideally suited for classroom, in-situ, or hospital instruction. Also the simulator comes with realistic silicon skin to add realism in training **Trauma Simulation** • Physical assessment • Airway, breathing, circulation • Body trauma scan • Wound care • Asymmetric pupils **Realistic Features** • Pupils • Airway • Smooth skin • Foot wounds **Nursing Care** • Grooming • Daily living assistance • Eye/ear/hair care • Catheter • Injection	1

	• Oxygen • Blood pressure • Pericare • Ostomy care • Urinary catheter care (male/female genitalia) • Oxygen administration **Patient Positioning** Superior range of motion, seating, laying, finger and toe manipulation **Respiratory Support** • Manual ventilation with chest rise • Intubation • Ventilation • Tracheostomy care • Suctioning Software controlled feedback for Basic Life Support (BLS) CPR with quality performance metrics, carotid pulse, intubation and software controlled features Advanced Cardiac Life Support (ACLS) training along with ECG rhythms produced **Advanced Skills** • Gastrostomy • Nasogastric procedures • Airway/trach suctioning • Enema • Pap smear • Pelvic exam • Intravenous injections	
2	**Premature baby for nursing care** Depicts a 28-week premature infant and includes an injection arm as well as an intraosseous leg • Practice intubation as well as performing BVM and CPR Peripheral Cyanosis • Changes color based upon an initial pre-selected condition and measures the effectiveness of airway ventilation and chest compression • Features include realistic airway with tongue, vocal cords, trachea, and esophagus for airway management exercises; heart, lungs, and ribs; perform intubation plus suctioning; bilateral lung expansion with realistic chest rise; practice delicate intraosseous access, injec tion and IV techniques; and placement of umbilical lines • Includes manikin, neonatal monitor, power supply (100-240 V AC), connecting cables, instruction manual, and carry bag	1

3	**5-year-old peads for nursing care training with extra features** Features include articulating head, jaw, arms, and legs eye irrigation oral, nasal, and digital intubation place OP/NP tubes right/left main stem bronchi place nasal and oral gastric tubes suctioning BVM chest compression/rise lavage/gavage G-tube placement stomas for ileostomy, colostomy, and suprapubic exercises intraosseous infusion IV arm with variable, palpable pulses and placement of rectal suppositories	1
4	**One-Year-Old Multipurpose Patient Simulator** Features include articulating head, jaw, arms, and legs eye irrigation oral, nasal, and digital intubation place OP/NP tubes right/left main stem bronchi place nasal and oral gastric tubes suctioning BVM chest compression/rise lavage/gavage G-tube placement stomas for ileostomy, colostomy, and suprapubic exercises intraosseous infusion IV arm with variable, palpable pulses and placement of rectal suppositories **Accessory:** UV/PVC wall-mounted/floor-standing cabinet as per lab requirement	1

LOT 6: GYNAE & OBS		
1	**Maternal and Neonatal Birthing Simulator** Allows multidisciplinary teams to rehearse low-frequency, high-risk vaginal deliveries to improve technical skills, communication, and confidence. Full body automated female birthing simulator Software controlled simulator Control the rate of decent and complication on the fly using the software • Lifelike birth canal and cervix - Evaluate status of labor including cervical dilation, fetal station, presentation, and more • Fetal Heart Rate (FHR) and uterine contraction monitoring - Evaluate and interpret fetal status • Leopold's and external version trainer - Optional abdominal cover provides realistic tactile feedback and resistance • Repeatable fetal presentation and rotation during descent. • Simulate cord prolapse, nuchal cord, placenta previa, and more. • Supports real vacuum devices and forceps. • Resolve nuchal cord, cord prolapse, and true knots. • Simulate frank, complete, footling breech and more. • Shoulder Dystocia Management • Simple and Intuitive - Touch interface and control elements are easy to learn and to use • Freedom to control, monitor, and debrief from anywhere in the room	1
2	**Childbirth Skills** **Trainer Torso** • Allows you to simulate every stage of the birthing process • Simulate audible maternal and fetal heart sounds from 0-200 BPM, as well as audible newborn cries, grunting, and stridor	1

	• Palpation of the fetus is ideal for practicing Leopold maneuvers • Practice vaginal breech deliveries and free the legs using the Pinard maneuver • Also allows for deliveries requiring vacuum augmentation or forceps • Includes torso, birthing baby, and newborn baby • Bladder catheterization with variable urinary flow - use conventional urinary bladder to reduce bladder size • Clamp placement and umbilical cutting • Delivery of placenta - position placenta to simulate placenta previa • Insertion of medication through rectum • Simulate postpartum bleeding • Uterine massage • Vertex or breech deliveries	
3	**Gynecological Skills Trainer** Advanced Pelvic Examination and Gynaecological Simulator is ideal for all aspects of gynaecological education, training, and competency evaluation, including the bimanual exam, speculum exam, and cytology sampling Five detachable ovaries (normal, polycystic, small cyst, large adnexal mass) Seven uterus/cervix pieces (normal/normal with discharge option, retroverted/cervicitis, cancer/cancer, transparent IUD trainer, post-menopause/herpes, fibroids/polyp, early pregnancy)	1
4	**Breast Palpation Skills Trainer** Offers unparalleled realism for teaching both clinical and self-breast examination • Tissue density varies within the simulated breast • Tumors of varying sizes (1-4 cm diameter), shapes (round, oval, irregular/stellate), and densities can be inserted by the instructor for an expanded combination of training scenarios • Tumors represent adenomas, cysts, malignant tumors, and enlarged lymph nodes • Torso is correctly positioned in the supine posi tion and allows access to both axillae • Features palpable ribs, sternum and clavicles, and enlarged lymph nodes in the axillary and subclavicular areas • Inflammation, inverted nipple, skin dimpling, and asymmetry are also depicted on the incredibly realistic skin	1

	• Designed for supine or upright examination • Training may also be done without the overlay skin • Includes a rigid underbody, right and left breast inserts, overlay skin, 3 tumor sets (27 lumps), 9 soft nodules to represent soft breast tissue, 1 hard lump to represent chest wall infiltration, baby powder, instruction manual, and hard carry case	
5	**Reproductive Implant Training Arm** Compact simulator for inserting and removing Levonorgestral (Norplant®) implants Consists of upper left arm on base Soft arm inserts simulate soft arm tissue	1
6	**Uterus Placement Model** Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	1

LOT 7: SKILL TRAINERS		
1	**Advanced IV Training Arm** Revolutionary, realistic training arm provides complete venous access for IV therapy and phlebotomy, plus sites for intramuscular and intradermal injections • Extensive 8-line vascular system allows practice of venipuncture at all primary and secondary locations, including starting IVs and introducing over-the-needle IV catheters • Complete venous access to Basilic V., Cephalic V., Digital V., Dorsal Metacarpal V., Median Basilic V., Accessory Ce phalic V., extensive venipuncture system, flexible fingers and wrist, intradermal injections, intramuscular injections, Median Antebrachial V., Median Cephalic V., Median Cubital V., replaceable skin, veins, and Thumb V. • Intramuscular injections may be performed in the deltoid muscle and intradermal injection sites are located in the upper arm • Intradermal injections using distilled water will create characteristic skin welts at designated sites on the upper arm • Soft, flexible fingers are molded separately with extreme attention paid to every detail — right down to the finger prints! • Flexion of the wrist helps develop manipulation skills • Skin rolls as the veins are palpated and a discernible "pop" is felt when entering the veins • Fine details of the skin to make the arm look and feel alive • Valves in the veins can be seen and palpated on the skin surface • Skin and veins are completely replaceable • Under normal use, hundreds of injections may be performed	2

2	**Blood Pressure Reading Training System** lifelike simulator allows the presetting of values for both systolic and diastolic pressures. Provides an excellent means to practice listening to and distinguishing blood pressure sounds prior to actual clinical experience. It is possible to audibly discern the five Korotkoff phases. **Control Unit Allows Instructor to:** • Select systolic and diastolic settings • Adjust volume • Turn auscultatory gap on or off • Adjust pulse rate • Easily calibrate unit for use with any sphygmomanomete **Students:** • Use normal procedure to place cuff on arm • Check palpable pulse at the radial site • Pump cuff • Pressures are activated at release valve • Read pressures on sphygmomanometer • Auscultate Korotkoff sounds with any stethoscope through a speaker in the arm	2
3	**5-Year Pediatric IV and Arterial Access Training Arm** Exact reproduction of the arm of a Five-year-old child • Practice venipuncture and intramuscular injection techniques and procedures used in young children • Soft foam is used to simulate the deltoid muscle and allows the student to "get the feel" of administering intramuscular injections to children • Simulated bone in the shoulder defines and limits the injection area • Water may be used as an injection fluid in the shoulder area	2
4	**1-Year Pediatric IV and Arterial Access Training Arm** Special, extremely thin, synthetic skin, and tubing with appropriately small lumen and thin walls Cephalic and basilic vein are accessible, as well as the dorsal venous arch on the hand	2

5	**Newborn IV and Arterial Access Training Arm** Special, extremely thin, synthetic skin, and tubing with appropriately small lumen and thin walls • Cephalic and basilic vein are accessible, as well as the dorsal venous arch on the hand	1
6	**Multipurpose Male Care Simulator** Full-size male lower torso with an internal bladder for catheterization • 4 interchangeable prostates (depicting moderately enlarged benign prostate, prostate with 2 discreet nodules, prostate with easily palpable large mass, and prostate with malignant invasive cancer) • Realistic penis and 2 scrotal sacks (one is normal, the other contains tumors in each testicle) • 1 scalpel vasectomy kit containing 2 removable scrotal skins • 2 testicles and 2 long vas assemblies that can be advanced as needed for NSV exercises • Rectum and colon containing benign and malignant masses easily visualized using an appropriate endoscope	1
7	**Casualty Wound Kit** More complex wounds than the Basic Kit • For testing higher levels of skill in bandaging and patient care Moulages: • Assorted stick-on lacerations & open fracture wounds (24) • Bleeding strap-on wounds complete with reservoir bags with pump assembly • Open amputation (1) • Compound fracture of tibia, lower leg (1) • Compound fracture of humerus, upper arm (1) • Sucking wound of chest (1) • Gunshot wound of palm (1)	1
8	**Adult Emergency Wound Kit** Application of these realistic bleeding moulages to a full-body manikin facilitates quick identification, diagnosis, and dressing of wounds by trainees. Kit includes compound fractures, contusions, lacerations, evisceration, sucking chest wound, impalement, crushed foot, jaw wound, and projectile entry and exit of arm. These bleeding wounds strap on and are complete with pump assembly. Simulated blood is included. Non-bleeding strap-on wounds include 2nd and 3rd degree burns of the chest, back, forearm, and face. Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	1

9	**Advanced Patient Care Male and Female Catheterization Simulator** Separate torsos for male and female catheterization A lubricated catheter can be inserted in the urethral orifice, passed through the urethra, and into the bladder • When the catheter enters the bladder, artificial urine (water) will flow from the catheter • Student will feel normal restrictions caused by the mucosal folds, bulbous urethra, and internal urethral sphincter, just prior to entrance into the bladder • Teaches proper positioning and movement of the penis to allow the catheter to pass easily Simulator is the lower torso of a middle-aged woman with thighs abducted for proper position during catheterization • Includes a bladder reservoir, patient urethra, and a valve simulating the inter nal urethral sphincter • Normal feeling of resistance and pressure is experienced as a catheter is passed through the urethra, past the sphincter, and into the bladder • When the catheter enters the bladder, artificial urine (water) will flow from the catheter • External genitalia and perineum are molded in lifelike form • Labia minora can be spread apart naturally to reveal the clitoris, urethral open ing, and vaginal introitus	1
10	**Pediatric Trauma Wound Kit** Application of these realistic bleeding moulages to a full-body manikin facilitates quick identification, diagnosis, and dressing of wounds by trainees. Kit includes compound fractures, contusions, lacerations, evisceration, sucking chest wound, impalement, crushed foot, jaw wound, and projectile entry and exit of arm. These bleeding wounds strap on and are complete with pump assembly. Simulated blood is included. Non-bleeding strap-on wounds include 2nd and 3rd degree burns of the chest, back, forearm, and face.	1
11	**Adult Trauma Wound Kit** **Bleeding strap-on wounds complete with reservoir bags with pump assembly:** Compound fractures of femur, upper leg (2) • Compound fractures of humerus, upper arm (2) • Compound fractures of tibia, lower leg (2) Gunshot wounds of palm (2) • Jaw wound (1) • Laceration of forehead (1) • Leg amputation (1) • Sucking wound of the chest (1) **Non-Bleeding Simulated Wounds:**	1

	Assorted stick-on lacerations & open fracture wounds (36) • Face in shock (1) • 1st, 2nd, 3rd degree burn of back (1) • 1st, 2nd, 3rd degree burn of chest (1) 1st, 2nd, 3rd degree burn of face (1) • 1st, 2nd, 3rd degree burn of forearm (1) • 1st, 2nd, 3rd degree burn of hand (1) • Phosphorous burn of hand (1)	
12	**Advanced Patient Care Male Prostate Skills Trainer** Teach techniques of prostate examination with no harm or embar rassment to real patients • Learn to detect beginning stages of prostate cancer and increase chances of patient survival • 4 separate prostate glands are supplied with the torso, represent ing 1 benign gland and 3 stages of prostatic carcinoma in varying degrees of development o STAGE A GLAND — benign, slightly enlarged, but otherwise normal prostate gland o STAGE B GLAND — discreet, hard nodule is palpable in the upper right quadrant; simulates a beginning stage of carci noma o STAGE C GLAND — spread of carcinoma is demonstrated; small nodule has increased in size and has become an exter nal hard mass on the surface of the gland o STAGE D GLAND — gland is totally replaced with carcinoma; entire gland will feel hard and irregular Each gland can be inserted into the prostate torso to allow realistic practice in diagnosis by rectal palpation Includes 4 glands, lubricant, instruction manual, and hard carry case	1
13	**Advanced Patient Care Female Ostomy Skills Trainer** Ideal for demonstration and practice for several procedures • Anatomy of both a colostomy and ileostomy are carefully reproduced to provide lifelike functions and appearance • Dilation of the stomas can be demonstrated and practiced, along with application of post-operative and permanent ostomy bags • Colostomy can be irrigated • Syringes are included to pump materials through the unit to provide drainage and excretion at the ileostomy and colostomy Syringes are inserted through ports in the back of the simulator; 1 pumps the ileostomy with clear water or water tinted for exact realism, and the other syringe pumps synthetic stool to the colostomy • Consistency of the stool can be varied by using water to thin the material, and most of the stool can be salvaged and reused • Soft, pliable material is used for the stomas in order to achieve a most realistic tactile sensation • Includes a supply of simulated stool, instruction manual, and hard carry case	1

14	**Advanced Multipurpose Venous Training Arm** • IV, IM, and sub-Q training • Arm rotates 180° at deltoid region • Subtle venous network in arm and hand • Cephalic, basilic, antecubital, radial, and ulnar veins • Realistic "pop" as needle enters vein • Intramuscular injection site in deltoid area • Subcutaneous injection areas on the volar side of the forearm and the lateral side of the upper arm • Squeeze bulb to increase or decrease venous pressure • Veins stand out or collapse • Easily replaceable skin and veins • Administration of medication by intravenous bolus • Simulation of infusion technique • Blood collection exercises with simulated blood	
15	**Pediatric Incident Wound Kit** Child stoma (1) • Ankle edemas (2) • Bed sore, 4th stage, 70 mm (1) • Burn, 2nd degree (1) • Child colostomy (1) • Diabetic ulcer, 20 mm (1) • Large road rash (1) • Skin graft, 6" (1) • Surgical site infections, 3 levels (3) • Ulcer, stage 1 (1)	1
16	**1-Year-Old Patient Intraosseous Infusion and Injection Leg Skills Trainer** Intraosseous Infusion Simulator® • Demonstrate and simulate the intraosseous infusion procedure • PALS programs will find this teaching aid convenient • Bones used in the model have been designed with 4 sides, each side having the ability to be punctured several times • Palpable landmarks, including patella, tibia, and tibial tuberosity, are located in both legs • Both legs have also been designed so that aspiration is possible	1

17	**Newborn Intraosseous Infusion and Injection Leg Skills Trainer** Intraosseous Infusion Simulator* • Demonstrate and simulate the intraosseous infusion procedure • PALS programs will find this teaching aid convenient • Bones used in the model have been designed with 4 sides, each side having the ability to be punctured several times • Palpable landmarks, including patella, tibia, and tibial tuberosity, are located in both legs • Both legs have also been designed so that aspiration is possible	1
18	**Auscultation Trainer Adult** Auscultation Trainer offering highly realistic simulation of heart, lung, and bowel sounds to improve diagnostic accuracy. lung sounds can be detected at eleven anterior, ten posterior, and two midaxillary locations. Learners can practice auscultation at five anterior heart sites and five bowel sites. **IMPORTANT**: A diagnosis of the condition chosen by the instructor using tablet can be determined by comparing the variations in sounds at different sites, mimicking the experience with a real patient. **Lung Conditions:** • Bronchovesicular • Bronchial • Cavernous • Coarse Crackle • Egophony • Fine Crackle • Friction Rub • Mono Wheeze • Normal Lung • Pectoriloquy • Pulmonary Edema • Rhonch • Stridor • Vesicular • Wheeze **Heart Conditions:**	1

	• Aortic Regurgitation • Atrial Septal Defect • Holosystolic • Midsystolic • Mitral Stenosis • Normal • PDA • Pulmonary • Stenosis • S3 Gallop • S4 Gallop • Systolic Click • VSD **Bowel Conditions:** • Normal • Hypoactive • Hyperactive	

19	**Newborn Skin/Rash Wound Kit** Child stoma (1) • Ankle edemas (2) • Bed sore, 4th stage, 70 mm (1) • Burn, 2nd degree (1) • Child colostomy (1) • Diabetic ulcer, 20 mm (1) • Large road rash (1) • Skin graft, 6" (1) • Surgical site infections, 3 levels (3) • Ulcer, stage 1 (1) • **Accessory:** UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally)	1

LOT 8: PATIENT SIMULATORS FOR POST GRADUATE

1	**High fidelity Adult Multipurpose Patient Simulator** • Adult • Pre-installed themes, scenarios, programs • Realistic bone structure, palpable ribs, kneecaps and many more • Speech (preloaded phrases or instructor's microphone) • Teeth, soft cheeks and gums • Realistic, Robust, Reliable • Tetherless connection (over 6 hours of battery life) • Normal, miosis (constricted), and mydriasis (blown) pupil states controlled via software • Independent left/right pupil states simulate consensual and nonconsensual response controlled via software • Select pupillary response to light • Realistic joint articulation • Supports supine, prone, recumbent, and sitting positions • perform Foley catheterization **Airway** • Realistic airway • **Supports mechanical ventilation using real devices and adjuncts** • Supraglottic airway device support • Combitube, LMA • Retrograde intubation • Fiberoptic intubation • Head and jaw mobility • Orotracheal and nasotracheal intubation • Laryngeal mask airway insertion • Pulmonary aspiration • Cricoid pressure • Surgical cricothyrotomy • Needle cricothyrotomy • Pneumothorax and hydrothorax • Positive pressure ventilation • Dynamic airway resistance • Airways obstruction • Esophageal Intubation • Feeding tube insertion • Bag valve mask (BVM) • Cyanosis and acrocyanosis • Chest rise and fall • Bilateral bronchi resistance • Tracheotomy • Intubation tube real-time tracking • Lockjaw • Tongue swelling • Laryngospasm • Pharyngeal obstruction • Cannot intubate / Can ventilate • Cannot intubate / Cannot ventilate • Change airway and lung settings on the fly. • Sensors detect depth of intubation • Sellick maneuver **Breathing** • Spontaneous breathing • Programmable respiratory patterns • Real mechanical ventilator support • Variable compliance	1

	• Pneumothorax decompression • Audible needle decompression with realistic feedback • Central cyanosis **Auscultation** • High-fidelity heart, lung, and bowel sounds • Select independent lung sounds: upper right, front and back; upper left, front and back; lower right, front and back; lower left, front and back • Independent normal / abnormal heart sounds at Mitral, Aortic, Pulmonary, • Tricuspid valve and Erb's point • 4 sites for abdominal • Programmable bilateral chest rise and fall • Heart sounds may be auscultated and are synchronized with ECG **Circulation** • Rich library of ECG rhythms • HR 0 – 200 • 12 Lead ECG reading • Real ECG electrodes • Accurate landmarks for chest compression performance point finding • Chest compressions • Defibrillation, cardioversion and cardiac pacing using real devices • Correct paddle placement • Defibrillation in manual and automatic modes • High quality CPR affects the HR and ECG • Training defibrillation, cardioversion and cardiac pacing support • Cyanosis • Variable pulse strength with activity log • Intraosseous access at tibia • ECG rhythms are generated in real-timex • Bilateral carotid, radial, brachial, femoral, popliteal, and pedal pulses synchronized with ECG **Drug Administration:** • IO access bilateral legs with output • IO access bilateral arms with output • IV access with drug administration and blood drawing • Software logging of drugs administered **CPR** Realistic chest compressions • Automatic activity log, displaying all user actions • Depth, frequency, hands placement assessment and log • Ventilation volume • Manual configuration of CPR protocols • Printable detailed CPR assessment	

Software

• Intuitive software is so easy to use, you can run simulator on the fly and capture learning opportunities in the moment - all in risk-free environment
• Alternatively, you can create your own scenarios to cover specific teaching points
• Laptops for control software, teaching and **Patient monitor software included**

Debriefing system

Two-way communication system from the control room to the simulation action room as well as the feedback of every step being carried out. Audio Video recording with time stamp along with the integration of patient vitals and entire activity log supported by sensors to tell major steps performed and log the activity

Includes the following:

- Interactive display (65 inches, 4k resolution)
- High-quality speakers with clear speech reproduction.
- Wireless presenter microphone (for large groups).
- Camera (1080p resolution) at least 2 each simulation room.
- Laptops (I5 13th Gen 16Gb RAM, 512GB SSD installed with debriefing software and feedback camera feed).
- Wifi routers for complete connectivity of each simulation action room.
- The vendor responsible for supplying would perform the complete installation of the debriefing system.

Debriefing software should include:

Software covers every phase of your simulation – from administration and user management to recording, live control, and debriefing.

Use live voice, patient audio, or image/video files to directly influence the course of the scenario.

- Database record of students that have performed the simulation.
- Scheduling of simulation activity.
- Pause and play
- Annotation of the video during session
- Checklist on the debriefing system to make sure that important actions are performed by the trainees.
- Debriefing playback system integrated with the simulation control room.
- Software synchronized with patient simulators and patient monitor to display activity log at the end and the activity is timestamped

2	**High fidelity Pediatric 5-year Patient Simulator** **Compulsory feature:** Feedback on Mechanical ventilation (A/C, SIMV, CPAP, PCV, PSV, NIPPV) • PEEP (up to 20cm H2O) OR anesthesia machine **Airway** • Realistic airway • Supraglottic airway device support • Head and jaw mobility • Orotracheal and nasotracheal intubation • Laryngeal mask airway insertion • Intubation sensor • Pulmonary aspiration • Cricoid pressure • Positive pressure ventilation • Dynamic airway resistance • Neck hyperextension • Airways obstruction • Esophageal Intubation • Feeding tube insertion • Bag valve mask (BVM) • Cyanosis and acrocyanosis • Chest rise and fall • Bilateral lung resistance • Tracheotomy **Breathing** • Spontaneous breathing • Respiratory rate is synchronized with vital parameters on the bedside monitor • Programmable respiratory patterns • Mechanical ventilation (A/C, SIMV, CPAP, PCV, PSV, NIPPV) • PEEP (up to 20cm H2O) • Airways synced to the respiratory rate • Variable compliance • Variable bronchi resistance • Needle decompression with realistic feedback • Real sensors for EtCO2 Realistic unilateral and bilateral chest rise and fall **Auscultation** • High-fidelity heart, lung, and bowel sounds • Korotkoff sounds • Programmable bilateral chest rise and fall, synced with breathing **Neurology** • Convulsions • Programmable blinking • Programmable pupils • Blinking: open, half-open or closed **Circulation** • Rich library of ECG rhythms • HR0-320 • Real ECG electrodes • Accurate landmarks for chest compression performance point finding • Chest compression • Defibrillation, cardioversion and cardiac pacing using real devices • Correct paddle placement • Defibrillation in manual and automatic modes • Successful compressions are registered and affect the HR and ECG • Defibrillation, cardioversion and cardiac pacing using real devices • Cyanosis • Variable pulse strength with activity log auscultation while monitoring blood pressure **CPR** • Realistic chest compressions • Automatic activity log, displaying all user actions • Depth, frequency, hands placement assessment and log • Ventilation volume • Manual configuration of CPR protocols • Printable detailed CPR assessment **Vascular access** • Intravenous injections with **automatic drugs recognition (pre-installed catheter)** • Intraosseous access (tibia, bilateral)	1

Other features

- Vocal sounds
- Speech (preloaded phrases or instructor's microphone)
- Pre-installed themes, scenarios, programs
- Realistic bone structure, palpable ribs
- SpO2 monitoring

Includes: Patient monitor and controller tablet

Debriefing system

Two-way communication system from the control room to the simulation action room as well as the feedback of every step being carried out. Audio Video recording with time stamp along with the integration of patient vitals and entire activity log supported by sensors to tell major steps performed and log the activity

Includes the following:

- Interactive display (65 inches, 4k resolution)
- High-quality speakers with clear speech reproduction.
- Wireless presenter microphone (for large groups).
- Camera (1080p resolution) at least 2 each simulation room.
- Laptops (IS 13th Gen 16Gb RAM, 512GB SSD installed with debriefing software and feedback camera feed).
- Wifi routers for complete connectivity of each simulation action room.
- The vendor responsible for supplying would perform the complete installation of the debriefing system.

Debriefing software should include:

Software covers every phase of your simulation – from administration and user management to recording, live control, and debriefing.

Use live voice, patient audio, or image/video files to directly influence the course of the scenario.

- Database record of students that have performed the simulation.
- Scheduling of simulation activity.
- Pause and play
- Annotation of the video during session
- Checklist on the debriefing system to make sure that important actions are performed by the trainees.
- Debriefing playback system integrated with the simulation control room.
- Software synchronized with patient simulators and patient monitor to display activity log at the end and all actions are timestamped

3	**High fidelity Newborn Patient Simulator** state-of-the-art newborn simulator designed to meet the challenges of specialist training in neonatal care. • extensive battery life (5-6 hours) •Head and Neck –head shape, fontanelles and clavicles **Airway** • Realistic airway • Supraglottic airway device support • Head and jaw mobility • Orotracheal and nasotracheal intubation • Laryngeal mask airway insertion • Pulmonary aspiration • Positive pressure ventilation • Dynamic airway resistance • Neck hyperextension • Airways obstruction • Esophageal Intubation • NG/OG tube placement • Bag valve mask (BVM) • Cyanosis and acrocyanosis • Chest rise and fall • Bilateral bronchi resistance **Breathing** • Spontaneous breathing • Respiratory rate is synchronized with vital parameters on the bedside monitor • Programmable respiratory patterns • Programmable diaphragmatic excursions • Mechanical ventilation (A/C, SIMV, CPAP, PCV, PSV, NIPPV) • PEEP (up to 20cm H2O) • Airways synced to the respiratory rate • Variable compliance • Variable bronchi resistance • Audible needle decompression with realistic feedback • Can't intubate, can't ventilate **Auscultation** • High-fidelity heart, lung, and bowel sounds • Independent normal / abnormal heart sounds at mitral (1), aortic and pulmonic (2) sites • Abdominal murmurs: normal / abnormal • Korotkoff sounds auscultation while monitoring blood pressure • Programmable bilateral chest rise and fall, synced with breathing **Neurology** • Convulsions • Programmable blinking • Programmable muscle tone: active, decreased, hypotonia, lacking • Programmable palpable fontanel • Moving Limbs to show baby active **CPR** • Realistic chest compressions • Automatic activity log, displaying all user actions • Depth, frequency, hands placement assessment and log • Ventilation volume • Manual configuration of CPR protocols • Printable detailed CPR assessment **Vascular access** • Intravenous injections (hands, scalp, umbilicus) • Intraosseous access (tibia, bilateral) **Other features** • Sounds: crying, screaming, coughing, moaning, grunts • Sucking reflex • Pre-installed themes, scenarios, programs • Realistic bone structure, palpable ribs, kneecaps and many more	1

4	**Premature Infant** **Patient Simulator** representing a 27-week premature baby, is designed for neonatal life support training. It helps healthcare professionals prepare for the critical challenges of caring for preterm infants, enabling hands-on practice in resuscitation, airway management, ventilation, and emergency interventions Supports intravenous puncture in superficial temporal veins, allowing fluid injection and drainage. Enables oropharyngeal and nasopharyngeal airway placement, intubation, and supraglottic device use. Simulated chest rise and fall during ventilation; esophageal intubation triggers abdominal distention. Includes two arteries and one vein, fully compatible for cannulation. A replaceable IO training module for intraosseous infusion practice. Realistic chest compressions Automatic activity log, displaying all user actions Depth, frequency, hands placement assessment and log Ventilation volume **Accessory:** UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally)	1

LOT 9: ADVANCED SKILL TRAINERS (HIGH FIDELITY SIMULATORS) FOR POST GRADUATE TRAINING

1	**High fidelity Laparoscopy simulator with all associated modules** Simulator has been designed for surgeons and a wide range of medical specialists to safely learn, refine and retain laparoscopic skills. From basic to advanced levels of operation, Laparoscopy Simulator provides a comprehensive educational platform that tests technical skills in a variety of surgical scenarios. Complete with a library of educational modules of common laparoscopic procedures, Laparoscopy Simulator can be easily integrated into any surgical curriculum or training program Instrument Simulation • Realistic, wireless instruments that resemble their real counterparts • Magnetic haptic feedback with true-to-life tissue resistance • Zero delay tracking Virtual OR • 3D Anatomy Atlas • Video hints, step-by-step instructions and video courses • Complications and pathologies • Free mode of operation • Videos from real surgeries Magnetic Haptic System is also more reliable than mechanical versions • Wireless instruments can be completely removed from the port **Refining dexterity in instrument handling** • Control of camera with multiple viewing angles • Vessel clipping and capturing • Electrocoagulation operating skills • Endoscopic scissor handling • Suturing • Knot tying • The task on on 3-D coordination, grip of the instruments, movement and rotation of objects Complex of training tasks on suturing and knotting Interrupted (loop) suture for curved incision • Interrupted (loop) suturing technique • Square knot tying for right/left hand • Surgeon's knot tying for right/left hand Special critical skills of suturing and knotting • Mattress suturing technique • Square knot tying on a thread without a needle • Surgeon's knot tying on a thread without a needle • Suturing by right-hand / left-hand needle • Training of skills of needle orientation in the need-holder • Z-shaped suturing technique Acute adhesive small bowel obstruction • Acute adhesive small bowel obstruction in the right/left area Diagnosis of the abdominal cavity	1

	• Diagnosis of appendicitis • Diagnosis of cholecystitis • Diagnosis of ectopic pregnancy • Diagnosis of ovarian cysts • Diagnosis of perforated duodenal ulcer **Skills in gynecological surgery** • Preventive ophorectomy • Tubal sterillization • Tubectomy with abdominal pregnancy in ampullar area of the right/left fallopian tube with active bleeding • Tubectomy with abdominal pregnancy in ampullar area of the right fallopian tube in ampulla of the right tube • Tubotomy with abdominal pregnancy in isthmic area of the right fallopian tube **Skills in laparoscopic nephrectomy** • Clipping and intersection of the ureter • Clipping and intersection of the vessels • Mobolization of the descendig colon • Removal of the kidney **Important skills in laparoscopic cholecystectomy** • Traction and dissection of the peritoneum • Dissection of structures in Calot's triangle • Clipping and cutting of cystic artery and cystic duct • Mobilisation of the gall bladder Execution of hysterectomy • Execution of total hysterectomy • Subtotal hysterectomy **Execution of laparoscopic appendectomy** • Acute phlegmonous appendicitis in pregnant woman • Acute phlegmonous appendicitis with effusion in the area of the appendix • Acute phlegmonous appendicitis with local peritonitis • Acute phlegmonous appendicitis with retrocecal location of the appendix • Acute phlegmonous appendicitis • Gangrenous appendicitis with effusion and local peritonitis **Sigmoid colon resection** • Cutting vessels, mobilisation and intersection of the sigmoid colon **Full procedure of laparoscopic cholecystectomy** • Planned cholecystectomy with acute catarrhal cholecystitis • Cholecystitis with phlegmonic cholecystitis • Urgent cholecystectomy with gangrenous cholecystitis with local peritonitis **Splenectomy** Salpingo oophorectomy Nephrectomy Hernioplasty	

	Internal bleeding that occurs during the exercise will lead to changes in the patient's condition including possible death; When coagulating or dissecting, the tissues of the internal organs change and react accordingly; Realistic fluid physics;	
2	**High Fidelity Endoscopy simulator including upper n lower GI, Bronchoscopy** standard in simulation for hands-on-training in endoscopic procedures. Allowing trainees realistic and safe clinical experiences, Endo Simulator offers exposure to an extensive library of modules and patient cases to challenge diagnostic and psychomotor skills in preparation for real presentations. True-to-life instruments for procedures in Bronchoscopy, Gastroscopy and Colonoscopy, along with an interactive 3D anatomy atlas, videos, texts and automatic data capture for quality debriefing, high standards of competency are assured. The simulator offers various modules and their combinations, i.e. bronchoscopy, gastroscopy, colonoscopy and an all-in-one version. Real adapted gastroscope, bronchoscope, colonoscope High-precision no-lag instrument tracking system provides accurate, smooth response for all your actions **Modules include:** **Bronchoscopy Modules:** Bronchoscope Handling Skills in Real Anatomical Environment Transbronchial needle aspiration Instrument handling skills Diagnostic Bronchoscopy Therapeutic Bronchoscopy Endobronchial ultrasound transbronchial needle aspiration **Upper GI Endoscopy** Gastroscopy Modules: Therapeutic Gastroscopy Diagnostic Gastroscopy Endoscopic Ultrasonography **Lower GI Endoscopy** Colonoscopy Modules: Sigmoidoscopy Diagnostic Colonoscopy Therapeutic colonoscopy Endoscopic Mucosal Resection	1

3	**High Fidelity ULTRASOUND simulation including TEE, TTE, FAST, OBSGYN** ultrasound diagnostic simulator is a professional medical training tool. This virtual simulator is designed for developing and improving diagnostic medical sonographer skills. Ultrasound simulation is used by students and practitioners in clinics and hospitals. An ultrasound simulator is a great add-on to traditional healthcare education and professional development training. The next-generation ultrasound simulator ensures the highest level of detail of internal organs imaging. An anatomically correct manikin provides realistic feel and imaging during scanning. The simulator offers more than or up to 40 clinical scenarios. 3D model of organs displayed in a virtual reality window Thorough medical history for each clinical case Real-time ultrasound probe tracking Ultrasound measurements and image optimization • Anatomy of the healthy patient • Ultrasound study module for abdominal organs and retroperitoneal space • Transthoracic echocardiography (TTE) skills training module • Trans esophageal Echocardiography (TEE) skills training module • Transthoracic Echocardiography (TTE) based on data from real patients training module • Focused assessment with sonography for trauma (FAST) skills training module • Gynecology basic skills training module • The first trimester obstetrics skills training module • Urinary bladder (female anatomy) and female pelvis (uterus, ovaries) ultrasound scanning skills training module with abdominal transducer Thyroid ultrasound scanning skills training module	1
4	**Endovascular Cath lab simulation** Complete virtual cath lab station with complete Cath lab table and two displays of atleast size 44 inches and 21 inches each to simulate a real Cath lab environment simulator offers a wide range of training modules and utilizes Haptic technology for unmatched force range and accuracy. It provides an ideal environment for procedural training, patient-specific simulation, and skills assessment. Allows for simultaneous manipulation of up to five devices in parallel for advanced interventional techniques such as bifurcation stenting, balloon assisted coiling, and buddy wires. **Supports real clinical devices – from 0.014" up to 24 F** Access to up to 24 modules software including: **Cardiovascular** • Aortic Valve Implant (TAVI) • Arterial Septic Defect & Patent Foramen Ovale Occlusion (ASD PFO, can be integrated with optional TEE Probe) • Cardiac Rhythm Management	1

	• Bifurcation • Rotablation/Atherectomy • Standard PCI • Left atrial appendage Occlusion • Thoracic Endovascular Aortic Repair • Transseptal Puncture (Can be integrated with optional TEE Probe) • Uterine Artery Embolization **Neurovascular:** • Acute Ischemic Stroke Intervention • Carotid Intervention • Neurovascular coiling • Neurovascular Essentials (Included in the list) • Neurovascular thrombectomy **Peripheral and related:** • Transarterial Chemoembolization • Renal Intervention • Renal Denervation • Prostatic Artery Embolization • Peripheral Angiography (Included by default) • Iliac and SFA • Below the Knee Intervention • Vascular trauma management • EVAR TEVAR **MUST have features included and intergraded with module** • IVUS • OCT • FFR • TEE probe handling and integration with the cases **Accessory:** UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally	
	NOTE: Warranty & Support for all items: • 3 years warranty, with complete replacement of parts • Complete installation & commissioning with required MEP works with materials • After the delivery and installation of the equipment, the vendor shall be responsible for detailed testing and verification of the equipment's performance to ensure the equipment is installed and functioning correctly. This shall include a complete test run of all operational procedures to demonstrate full functionality. • All materials, reagents, and consumables required for the first test-run, shall be provided by the vendor at no additional cost to the purchaser. • If the complexity of an equipment requires specialized knowledge beyond what the User possesses, the vendor must provide a qualified individual (an "equipment expert") to be on site to demonstrate all operational procedures of that equipment. • Onsite Staff Application Training & Service training of Biomedical Engineer / Technical Staff at factory site. • Provision of Spare parts for period of 10 years • Services: Five-year service contract on request of Client Accessories: Dust Cover, User and Service manual (hard and soft copy) must be provided.	

LOT – 10 : CENTRIFUGES		
1	**Refrigerated Centrifuge Machine (Bench top)**	2
	Description:	
	A compact lab device that spins samples at high speed to separate components based on density. Uses: separating blood components, isolating DNA/RNA, pelleting cells, and clarifying solutions.	
	Physical & Technical Characteristics:	
	The centrifuge Must be able to accommodate mix loading of 2ml,15,50, 250 ml,750ml & pcr plates on the same rotor.	
	The instrument must be capable of identifying the rotor type automatically.	
	The rotational speed should be 14000 revolutions per minute or better.	
	The refrigerant used should be CFC-Free with an ozone depletion optional(ODP) of zero.	
	The instrument must have built in condensation drain to eliminate water accumulation & prevent corrosion.	
	Must have "At set rpm" function which enables timer countdown to be started only when selected speed is achieved.	
	Must have wide temperature range of -9°C- + 40°C, which is modifiable during the run operation.	
	The centrifuge should must have dynamic compressor control technology for optimized cooling.	
	Centrifuge must have a „fast cool" function where low temperature can be reached quickly and maximum temperature accuracy of the rotor	
	Should must have dynamic compressor control technology for optimized cooling.	
	Maintains constant 4 °C at maximum speed, lowest attainable temperature is 0 °C.	
	Must have a **standby cooling.**.	
	Brushless maintenance free drive	
	All rotors should be certified from Portorn UK	
	The noise level should be equal to 56 dBA or less	
	The maximum access height should be 30 cm or better.	
	The instrument Must follow safety standards set by IEC 1010-2-020	
	All the aerosol-tight rotor lids must be certified by a third certified source.	
	Must have 10 acceleration and 10 deceleration ramp for different type of samples.	
	Rotors:	
	Fixed angle aerosol-tight Rotor with ClickSeal Bio-Containment Lid	
	Swing-Bucket Rotor with **4*750 ml round backets with Aerosol-tight cap** and **plate Bucket with Aerosol-tight cap**	
	Adopters for 4 ml, 15ml, 50 ml, 250 mL Bottle, 500 mL Bottle, 750 mL Bottle	
	Safety Features:	
	- Lid safety interlock to prevent opening while rotor is spinning.	
	- Imbalance detection and automatic shut-off.	
	Standards ISO 14971, ISO 13485, ISO 9001	
2	**Refrigerated Micro Centrifuge**	2
	A compact, high-speed refrigerated centrifuge designed for small-volume tubes (0.2–2.0 mL)	
	Specifications:	

	Capacity: 24x1.5/2 ml tubes	
	insrtuemnt should offer optional 5 ml rotor	
	Rotor: Aluminum(opt bowl design for quite operation)	
	Speed : 15000 Rpm (50 rpm steps)	
	21,130 x g	
	Temprature range: -10 to +40 C	
	FastTemp function: quick pre-cooling of the centrifuge, e.g. from ~ 21 °C to 4 °C in only 8 minutes	
	Noise Level <54 Db(A) or better	
	Built-in condensation drain: to eliminate water accumulation in the rotor chamber	
	Soft Key: option to accelerate and decelerate gently for sensitive samples using a separate „soft" key	
	Set Rpm Function: Able to start timer countdown only when selectable speed is achieved by using a „at set rpm" function	
	Safety: Must follow safety standards set by IEC 1010-2-020	
	All the aerosol-tight rotor lids must be certified by a third source	
	Separate short-spin key for quick centrifugation.	
	Certified aerosol-tight rotor. All the rotor should must be certified from a third source.	
	The instrument should must have Dynamic Compressor Control technology (DCC). To optimized cooling	
	Rotors:	
	PTFE Fixed-angle rotor, autoclavable, 24 x 1.5/2.0 mL Rotor with ClickSeal Bio-Containment Lid	
	Safety Features:	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months.**	
	- Lid safety interlock to prevent opening while rotor is spinning.	
	- Imbalance detection and automatic shut-off.	

LOT – 11: NEXT GENERATION SEQUENCERS

1	**Next Generation Sequencer Medium Throughput**	1
	Description:	
	Used for whole-genome sequencing, whole-exome sequencing, targeted sequencing, metagenomics, and gene expression analysis, etc.	
	Physical & Technical Characteristics:	
	- Systems offer broad platform utility with the flexibility to expand applications and scale efficiently.	
	- With fast, accurate results, outputs from 10 Gb up to 540 Gb, and integrated informatics options.	
	- Ideal for data analysis tools will allows us to handle a broad range of project sizes efficiently.	
	- The system supports a wide range of research and clinical applications such as targeted sequencing, small whole genome sequencing, RNA sequencing and whole exome sequencing, low-pass whole genome sequencing. wide range of applications across metagenomics, spatial transcriptomics, single-cell studies, and more.	
	- Systems offer access to onboard, local, and cloud-based analysis software, giving users the flexibility to analyze data in manner that meets their needs	
	- The sequencer supports paired-end sequencing.	
	- **Accuracy:** The system should have a high base call accuracy, Q30 score ≥80% for different read lengths (Q30 ≥85% for shorter reads).	
	- Machine integrated informatics pipeline	
	- Onboard DRAGEN (Dynamic Read Analysis for GENomics) secondary analysis for an accurate, efficient solution for variant calling.	
	- hardware-accelerated algorithms for a wide variety of genomic analysis solutions, including base call (BCL) file conversion, compression, mapping, alignment, sorting, duplicate marking, and variant calling.	
	- Onboard solution provides access informatics pipelines, enabling users to generate results in as little as two hours. Informatics use best-in-class pipeline algorithms to help users overcome bottlenecks in data analysis and reduce reliance on external informatics experts.	
	- Onboard DRAGEN analysis is included in the instrument cost and does not require the purchase of an additional license.	
	- • Total output: approximately 10-540 GB per	
	• Read length: 1 × 50 bp, 2 × 50 bp, 2 × 100 bp, 2 × 150 bp and 2 × 300 bp	
	• Reads: approximately 100 million – 1.8 Billion	
	• Turnaround Time: Around 08-44 hrs.	
	• High-performance XLEAP-SBS chemistry	
	• Base Unit: 2U Microserver located inside the instrument Memory: 288 GB Hard Drive: 3.8 TB SSD Operating System: Linux CentOS 7.6	
	- CE-marked, IEC/NRTL certified, Class-1 Laser device (or as applicable)	
	Library Prep Automation	
	- Automated Library Prep offers semi-automated library preparation - streamlining the workflow, significantly reducing manual errors, increasing reproducibility all while minimizing hands-on time.	
	- Capable of handling up to 24 libraries.	
	- Incorporates a 96 Well Magnetic Station for bead clean-up steps, with off-deck heating to reduce robotic downtime.	

	- The workflow is split into manageable runs, with safe stopping points after the various library preparation steps including bead clean up.	
	- Ready-to-use NGS scripts	
	Bioinformatics Analysis System	
	Software type: tertiary analysis & variant interpretation software; cloud-based genomics data management, analysis, warehousing platform	
	Intended Use: interpret NGS variant data (DNA & RNA) for oncology (and other) workflows. Manage, analyze, store large multi-omics / NGS datasets in regulated cloud environment.	
	Variant interpretation (Insights): Accepts VCF/secondary analysis outputs, supports SNVs, indels, CNVs, fusions, SVs, genome-wide biomarkers (TMB, MSI, HRD) for oncology.	
	Knowledgebases & automation: Insights: > 55 knowledge sources (e.g., OncoKB, CKB) integrated. Automation from data upload to draft report.	
	Deployment options – Insights: Cloud deployment OR on-premises (via server)	
	Data protection & certification – Insights: AES encryption (in-transit & at-rest), audit logs, Tier III data centre specs, ISO/IEC 27001 certified	
	Regulatory suitability – Analytics: ISO 27001, ISO 27701, ISO 13485	
	License model – Insights: Software subscription (cloud) or license (on-premises); user/workgroup licensing.	
	License model – Analytics: Annual subscription + "iCredits" for storage/analysis.	
	With workflows: Insights: compatible with assays/instruments; ingest data from any assay. Analytics: supports sequencers and custom pipelines	
	Implementation & training: Supplier must provide installation, configuration, user training, documentation.	
	Area of Manufacturing: USA/ Japan/ Europe/ China/ Taiwan	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months**.	
	Previous Experience: Suppliers must provide at least one satisfactory reports from previous installations.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance**. This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally)	
2	**Next Generation Sequencer (Low throughput) with accessories, softwares and consumables.**	1
	Description:	
	Used for real-time analysis of DNA and RNA for a wide range of applications including pathogen identification and outbreak investigation, clinical disease testing, human and microbial genomics, agricultural genetic improvement, and environmental monitoring	
	Physical & Technical Characteristics:	
	General Description	

	Instrument Type: Benchtop Next-Generation Sequencing (NGS) platform based on Sequencing-by-Synthesis (SBS) chemistry	
	Intended Use: High-accuracy sequencing for small-genome, targeted panels, amplicon, 16S/metagenomic, and low-plex transcriptomic workflows	
	2. Throughput & Performance	
	Output per run: Approx. 1.5 – 30 Gb (depending on flow cell type and read length)	
	Reads per run: 10 – 200 million paired-end reads	
	Read lengths supported: 1×36, 1×75, 2×75, 2×150, 2×300, and up to 2×500 bp	
	Q30 quality score: ≥ 90 % of bases at or above Q30 for recommended read lengths	
	Run time: 4 – 24 hours depending on flow-cell and read-length combination	
	Cluster generation: Fully automated onboard (no external cluster station required)	
	3. Flow Cell & Reagents	
	Flow-cell format: Integrated cartridge design combining reagents, flow cell, and fluidics	
	Flow-cell types: 5M, 25M, 50M, and 100M flow-cell kits compatiblity	
	Reagent storage: Reagents stable at room temperature, no thawing or ice bath required	
	Loading method: Automated (no manual pipetting into flow-cell lanes)	
	Indexing: Dual-index supported; 24–384-plex capability depending on kit	
	4. Data & Analysis	
	Output formats:FASTQ, BAM, and native file formats	
	On-board computing: Integrated DRAGEN analysis pipelines (amplicon, small genome, alignment, variant calling)	
	Data storage: Onboard SSD storage (≥ 2 TB or equivalent), automatic upload to Cloud (optional)	
	Connectivity: Ethernet, USB, and Wi-Fi (optional)	
	5. Instrument Hardware	
	Optical system: LED-based imaging with high-resolution CMOS sensor	
	Operating temperature: 19 – 25 °C	
	Power requirements: 100–240 V AC, 50/60 Hz, 350 W (max)	
	Noise level: ≤ 55 dB	
	6. Software & Licenses	
	System control software: System Control Software with onboard DRAGEN integration	
	Analysis pipelines: Support for Amplicon, Small-Genome, RNA, and Custom workflows	
	Data export: Direct export to BaseSpace Sequence Hub or local LIMS	
	License:Perpetual software license included for system operation	
	7. Compliance & Certification	
	Standards: ISO 13485 manufacturing, RoHS compliant	
	Documentation: Manufacturer's authorization and technical datasheet required in tender	
	Area of Manufacturing: USA/ Japan/ Europe/ China/ Taiwan	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months**.	
	- Supplier must provide **installation, commissioning, and on-site operational training**.	
	After-Sales Support: Local technical support and spare parts availability for 10 years.	
	Previous Experience: Suppliers must provide at least one satisfactory report from previous installations.	
	Service Contracts: At least five years of services must be provided on request of Client	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes**	

	of backup power for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance**. This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally)	

LOT – 12: GENETIC ANALYZER

1	**Genetic Analyzer with complete accessories**	1
	Description:	
	8-capillary sequencing platform that can be used for a wide variety of applications, including de novo sequencing and resequencing (mutational profiling), as well as microsatellite analysis, MLPA™, LOH, MLST, and SNP validation or screening.	
	Physical & Technical Characteristics:	
	Features:	
	Single-line, 505 nm, solid-state, long-life laser that uses a standard power supply and requires no heat-removal ducting	
	Powerful, integrated data collection and primary analysis software provides real-time assessment of data quality	
	Radio frequency identification (RFID) technology tracks key consumables data and records administrative information	
	Advanced multiplexing capabilities for DNA fragment analysis with up to six unique dyes	
	Unrivaled application flexibility—one array and one polymer are used for most applications	
	Simple setup, operation, and maintenance	
	Specifications:	
	Number of Capillaries: 8	
	Number of Dyes: 8-dye capable	
	Sample Format: 4-plate capacity: 96-well plates or 8-tube strips	
	Dimensions (W×D×H): 70×67.5×86.5 cm (27.6×26.6×34.1 in.)	
	Weight: 115 kg (253.5 lb)	
	Power Input: 100–240 V	
	Internal Hard Drive: 512 GB solid-state drive (SSD)	
	Excitation Source: 505 nm solid-state laser	
	Software: Sequencing analysis software and Gene Mapper software for sequencing and fragmentation, GeneMapper ID-X Software v1.7	
	Applications: The Instrument must be able to do data collection, Sanger Sequencing, fragment analysis, and human identification (HID) analysis for forensic analysis	
	On-instrument Tracking: Radio frequency identification (RFID); internal barcode reader	
	Communication Interface: Thermo Fisher Connect Platform with cloud-enabled capability; local area network (LAN); USB port for Wi-Fi dongle; 3 RJ-45 Ethernet ports; LIMS compatibility	
	Configuration: Stand-alone; optional desktop or laptop computer available	
	Remote Troubleshooting: Smart Help and remote support enable fast and more effective resolution of instrument issues to minimize downtime	
	Capillary Length: 50 cm, 36 cm (one each)	
	Green Features: Energy efficient, Fewer resources used and less waste	
	Polymer: POP-4™, POP-6™, POP-7™ (one each)	
	Accessories:	
	External Computer: Core i7 latest generation, Processor 3.1 GHz or above (Turbo Processor or better performance) Hard Drive: 2x 500GB SSD and best available Data Burst Cache Memory, RAM 16 GB DDR4 or better Operating System: Windows 11 (Professional Edition, Licenced). Accessories: (21 inch LED screen of good company, keyboard, mouse).	
	Warranty:	
	Complete installation & commissioning with required MEP works with materials	

	Onsite Staff Appliation Training & Service training of Biomedical Engineer / Technical Staff at factory site.	
	Provision of Spare parts for period of 10 years	
	Three Year Limited Warranty (effective from date of installation and First run) on Parts and Labor. Service Installation and Application Training on site included	
	Services: At least five years of services must be provided along with system	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months.**	
	- Supplier must provide **installation, commissioning, and on-site operational training.**	
	After-Sales Support: Local technical support and spare parts availability for 10 years.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance**. This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	
	Additional Requirements:	
	Materials, reagent s, and consumables (for Genetic Analyzer)	
a	Septa for 96-Well Plates, for SeqStudio™ 8 Flex. **Part # 4412614;**	3
	Used to seal 96-well plates on Applied Biosystems SeqStudio™ Flex genetic analyzers.	
b	96-Well Plate Retainer & Base Set, for SeqStudio™ Flex. Part # A49316;	4
	A set including a plate retainer and a base for holding a Standard 96-well plate on the SeqStudio™ Flex Genetic Analyzer.	
c	Anode Buffer Container (ABC), for SeqStudio™ Flex **Part # 4393927;**	3
	Contains 1X running buffer for all electrophoresis applications; disposable container with an RFID tag.	
d	Conditioning Reagent, for SeqStudio™ Flex **Part # 4393718**	3
	Ready-to-use pouch for priming the polymer pump, washing the pump between polymer changes, and instrument shutdown.	
e	Cathode Buffer Container (CBC), for SeqStudio™ Flex **Part # 4408256**	3
	Contains the cathode buffer for electrophoresis on Applied Biosystems SeqStudio™ Flex genetic analyzers; disposable with RFID tag.	
f	POP-7™ Polymer, for SeqStudio™ Flex **Part # 4393708**	10
	Separation matrix for sequencing and fragment analysis applications on SeqStudio™ Flex Genetic Analyzers.	
g	Hi-Di™ Formamide **Part # 4401457**	10
	Highly deionized (Hi-Di) formamide used to resuspend samples before electrokinetic injection in capillary electrophoresis.	
h	Sequencing Standard, BigDye™ Terminator v3.1, for SeqStudio™ Flex **Part # 4404312**	3
	Contains DNA of a known 1200 base pair sequence prepared with BigDye Terminator v3.1 for spectral calibration and control runs.	
i	MicroAmp™ Optical 96-Well Reaction Plate with Barcode **Part # 4306737**	20

	96-well, 0.2 mL, polypropylene plate with a barcode, optimized for real-time PCR (qPCR) and thermal cyclers.	
j	Septa Cathode Buffer Container, for SeqStudio™ Flex **Part # 4410715**	3
	Septa used to seal the Cathode Buffer Container.	
k	ExoSAP-IT™ PCR Product Cleanup Reagent **Part # 78200.200.ul**	10
	Enzymatic cleanup reagent containing Exonuclease I and Shrimp Alkaline Phosphatase to remove unincorporated primers and dNTPs from PCR products.	
l	BigDye™ Terminator v3.1 Cycle Sequencing Kit **Part # 4337455**	10
	Robust, highly flexible chemistry for de novo sequencing, resequencing, and finishing; optimized for long read lengths.	
m	BigDye XTerminator™ Purification Kit **Part # 4376486**	5
	A fast, simple purification kit that removes unincorporated BigDye terminators and salts from DNA sequencing reactions.	
n	SeqStudio™ Flex Genetic Analyzer 8-Capillary Array **Part # A49106**	5
	A replaceable capillary array containing 8 capillaries with a length of 50 cm for the SeqStudio™ Flex Genetic Analyzer.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally)	

LOT – 13 : PCR & ALLIED

1	**Digital PCR/ DNA microarray**	1
	System should be fully automated and have 4 channels or more for detction	
	Sample Input Volum: 16uL or less	
	System Capacity: 48 or 96 well throughput	
	Throughput: 1-96 samples per run	
	Droplet Generation: Generates over 20,000 droplets	
	Detection Channels; 4-color multiplexing (FAM, HEX, ROX, Cy5)	
	Thermal Gradient; Yes	
	Thermal Cycling: Up to 8 discrete thermal profiles per plate	
	Quantification: Absolute quantification without a standard curve	
	Applications: Gene expression, Copy number variation, Mutation detection, Pathogen detection NGS validation	
	Dimensions: (W x D x H): 61 x 61 x 53 cm (24 x 24 x 21 in)	
	Software: Intuitive software for run setup and data analysis	
	Warranty:	
	Three Year Limited Warranty (effective from date of installation and First run) on Parts and Labor. Service Installation and Application Training on site included	
	Services: At least five years of services must be provided along with system on request of Client	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months.**	
	Complete installation & commissioning with required MEP works with materials	
	Onsite Staff Appliation Training & Service training of Biomedical Engineer / Technical Staff at factory site.	
	After-Sales Support: Local technical support and spare parts availability for 10 years.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance**. This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally)	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	
2	**qPCR / Real-time PCR with complete accessories**	1
	Description:	
	Used for live cell and tissue culture observation. Real-time PCR (qPCR) system with quantitative and qualitative analysis capability. Compatible with TaqMan® and SYBR Green chemistries.	
	Physical & Technical Characteristics:	
	· Should be compatible for 96 well block.	
	· Should have optical shuttle system with 5 excitations (450–684 nm) and 5 emissions (515–730 nm) filter sets with one dedicated channel for FRET.	

	· Should support two homogeneous reaction chemistries, the fluorogenic 5′ nuclease assay using probes and the DNA binding dye chemistry.	
	· The instrument should have a software designed to collect and analyse the fluorescence data for the applications of absolute quantification, relative quantification, presence/absence assays, and allelic discrimination/SNP (Single Nucleotide Polymorphism) detection.	
	· System should have a function of thermal gradient for optimization of multiple temperatures in a single assay with temperature differences of up to at least 24°C front-to-back.	
	· Multiplexing: 96 well up to 5 targets	
	· Heating / Cooling method; Peltier	
	· Maximum block ramp rate: 5 °C/sec	
	· Average sample ramp rate: 3.3 °C/ Sec	
	· Temperature uniformity: 0.3 °C.	
	· Temperature accuracy: ±0.2 °C.	
	· Sensitivity; Detect differences as small as 1.3-fold in target quantities.	
	· System should be able to run real-time PCR experiments without being attached to a computer.	
	· System should have the feature of cloud platform for remote monitoring, experiment set up, and Cq/Ct analysis.	
	· System should be able integrate with any laboratory information management system (LIMS) using built-in LIMS file management.	
	· Software of the system should be a security Edition of providing a secured user log-in, detailed audit trail reporting, and electronic record-keeping tools to assist compliance with U.S. FDA 21 CFR Part 11 regulations.	
	· System should be pre-factory calibrated.	
	· With operating manual, factory QC release, DQ and calibration certificate	
	Software & Data Analysis:	
	Pre-installed software for absolute quantification, relative quantification (ΔΔCt), SNP genotyping, HRM, and melt curve analysis.	
	Accessories & Consumables:	
	Starter kit with standard reagents and consumables.	
	Plates, optical films, and tubes compatible with the system.	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months**.	
	- Supplier must provide **installation, commissioning, and on-site operational training**.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance**. This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	
3	**Thermal Cycler 96 well**	4

	Description:	
	Thermal Cycler delivers proven reliability with advanced temperature control technology and connectivity. Thermal Cycler have blocks that are controlled by multiple Peltier elements and are used to optimize PCR temperature with precision. The hermal Cycler allows zones of independent temperature control, giving you the ultimate control of your PCR workflows.	
	Physical & Technical Characteristics:	
	· Should be compatible for fixed 96 well block,	
	· System should have a function of thermal gradient for optimization of multiple temperatures in 8 rows with 1-24°C span.	
	- Heating / Cooling method; Peltier	
	- Maximum block ramp rate: 5 °C/sec	
	- Average sample ramp rate: 3.3 °C/ Sec	
	- Temperature uniformity: ±0.4 °C.	
	- Temperature accuracy: ±0.2 °C.	
	- Temperature Range=4-100°C	
	· Lid heating: 30-110°C	
	· Memory: 4.6GB / 100,000 files storage capacity	
4	**Horizontal Gel electrophoresis apparatus**	4
	Description:	
	Designed for separation and analysis of DNA fragments in agarose gels.	
	Physical & Technical Characteristics:	
	A) <u>Horizontal Electrophoresis Unit</u>	
	Sample Throughput: Capacity to run at least 40 samples in a single run using suitable combs.	
	Gel Tray Sizes: Supplied with at least two UV-transparent gel trays (~10 × 10 cm and ~15 × 20 cm or equivalent).	
	Trays should allow flexibility for small and large gels.	
	Compatible with both precast and hand cast mini-format gels.	
	Supports TGX Precast Gels and handcast gels using spacer plates .	
	Runs gels in 30 minutes for efficient workflows.	
	Should be Fast, simple setup with user-friendly assembly .	
	Should be Indestructible molded polycarbonate construction.	
	Should be Leak-free electrophoresis and gel casting.	
	Should have a compatible power supply or recommend power Supply.	
	Should run TGX Precast Gels and Hand cast gels by using spacer plates.	
	Cell (Tank) Construction: Leak-proof, durable, autoclavable acrylic/polycarbonate; transparent for observation.	
	Combs: At least two sets of combs, ≥20 wells each, ~1.5 mm thickness.	
	Electrodes: Platinum wire electrodes, corrosion-resistant, uniform current distribution.	
	Total buffer volume required for 2 gels Should be 700 ml and 1,000 ml for 4 gels.	
	Safety Features: Safety lid with interlock; transparent cover.	
	<u>Accessories:</u>	
	* Casting dams/tape-less casting system	

	* spare comb	
	B) Power Supply	
	Output Range:	
	Voltage: 10–300 V (continuously adjustable).	
	Current: 10–400 mA.	
	Power: Up to 100 W or more.	
	Display: Digital display for voltage, current, and time.	
	Programming: Timer up to 999 minutes or continuous mode.	
	Outputs: 2–4 output jacks to run multiple gels simultaneously.	
	Safety Features: No-load detection, auto shutdown, over-voltage/current protection, alarm at run completion.	
	Construction: Compact, lightweight, non-slip base.	
	Operating Conditions: 220–240 V, 50/60 Hz AC input.	
	Training:	
	Training: Supplier must provide operational training for staff, covering gel casting, electrophoresis, power supply handling, safe imaging, and software use.	
5	**Gel Documentation System**	1
	Supports fluorescence detection across broad spectra: RGB, far-red, and near-infrared fluorophores for multiplexed detection.	
	Retains all automation benefits of the standard Touch system, including Smart Tray, autofocus, auto-exposure, and stain-free normalization.	
	• **Smart Tray Technology:** Automatic Identification of application specific tray and adjustment of image parameters with multi touch capability	
	• **Automated Optimization Features:** Pre-calibrated focus for zoom setting. Both auto exposure, Rapid or optimal.	
	• **Touch Screen:** 9.7-inch color multitouch interface (1,024 x 768 resolution).	
	• **Detector**: 20.48-megapixel resolution with 75% quantum efficiency at 425nm providing exceptional sensitivity and clarity for gel and western blot imaging.	
	• **Camera Sensor:** Back-Side Illuminated (BSI) CMOS sensor for exceptional sensitivity and low noise.	
	• **Filters of Emission:** Motorized 6-position filter wheel for flexibility, 520/260 BP, 590/110BP, 695 LP.	
	• **Dynamic Range**: Greater than 4 orders of magnitude.	
	• **Emission Wavelength Range:** UV to near-infrared (300–800 nm).	
	• **Multiplex Imaging:** Minimal bleed-through between channels for clear fluorescent signal detection.	
	• **Maximum Image Area**: 21 x 14 cm (W x H) with 65,535bit depth.	
	• **Illumination Sources**: Equipped with multiple light sources, including trans-UV, trans-blue, trans-amber, Epi-UV, Epi-Green modules.	
	• **Imaging Applications:** Chemiluminescence (for Western blots), Multiplex fluorescence (up to three fluorescent channels simultaneously), Colorimetric detection (e.g., Coomassie and silver staining), Stain-free technology for instant visualization of proteins without staining, Nucleic acid detection using safe dyes (e.g., SYBR Green)	

	• **Primary Uses:** Protein and nucleic acid gel imaging, Western blot quantification, Band densitometry and molecular weight analysis	
	• **Software and Data Management:** Automated exposure, focus, and image optimization, Quantitative analysis: densitometry, molecular weight estimation, and normalization, Band detection and quantitation for both chemiluminescent and fluorescent signalsand Supports real-time preview of images.	
	• **Automation and Connectivity:** Auto-focus and exposure optimization, Motorized filter adjustment for seamless protocol execution, USB 3.0 for data transfer and Ethernet port for network integration and cloud sharing.	
	• **Instrument Dimensions:** Width: 36 cm, Depth: 48 cmand Height: 36 cm	
	• **Data Output:** SCN, MSCN, SSCN, JPEG and TIFF (16 bit or 8 bit)	
	• **Cloud Connectivity:** Secure cloud-based system for image analysis and storage	
	• **Power Requirements:** 100–240 VAC, 50/60 Hz	
	• **Country of Origin:** USA/ Europe/ Japan or Equivalent	
	Additional Requirements	
	- Must be **brand new, factory-calibrated,** and **manufactured within the last 12 months.**	
	- Supplier must provide **installation, commissioning, and on-site operational training.**	
	Service Contracts: At least five years of services must be provided along with system	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance.** This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	
6	**HB Electrophoresis**	1
	Purpose: Designed for paper electrophoresis, cellulose acetate membrane (CAM) electrophoresis, and slide electrophoresis—commonly used in hemoglobinopathies (e.g., thalassemia, Hb variants) diagnostics	
	Model: DYCP-38C electrophoresis cell paired with DYY-6D power supply	
	DYCP-38C Electrophoresis Cell	
	Dimensions (L × W × H): approximately **370 × 270 × 110 mm**	
	Gel Size (Support Media): Supports media size of **70 × 250 mm** or **90 × 250 mm** (dual-row capability for simultaneous runs)	
	Buffer Volume: around **1000 mL**	
	Electrodes: Equipped with **three platinum wire electrodes** (purity ≥ 99.95%), known for corrosion resistance and high-temperature tolerance	
	Design Features:	
	One cathode and two anodes enable dual-line processing	
	Molded, leak-resistant body with a lid that **automatically cuts power when opened**	
	Includes adjustment sticks for media sizing flexibility	
	Caps support use with cellulose acetate membranes, paper, or slides	
	DYY-6D Power Supply	

	Dimensions (L × W × H): approx. **246 × 360 × 80 mm**	
	Electrical Output:	
	Voltage: **6–600 V**	
	Current: **4–600 mA**	
	Power: up to **300 W**	
	Output Terminals: Four pairs in parallel—facilitates multi-channel setups	
	Control & Display Features:	
	Microcomputer-based intelligent control with an LCD showing voltage, current, and time	
	Adaptive parameter adjustment during runs	
	Operation modes: **constant voltage**, **constant current**, timer-controlled runs	
	Supports up to **10 programmable protocols**, each with 3 steps	
	Memory and **resume functionality after power loss**, along with **protection for over/under-loads**, and gradual current ramp-down post-run	
	Enhanced oxygen anion production for improved lab environment	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months**.	
	- Supplier must provide **installation, commissioning, and on-site operational training.**	
	Service Contracts: At least five years of services must be provided along with system	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	

LOT – 14 : CYTOGENETIC IMAGING & ANALYSIS SYSTEM

1	**Fully upright Motorized microscope with automatic, karyotyping and FISH**	1
	microscope for cytogenetics (automatic scanning, karyotyping & FISH). Upright fully motorized microscope with nose piece focus and control touch panel, Motorized functions with High-performance control box with FireWire interface.	
	Illumination: Built-in Köhler illumination for transmitted light, light intensity LED indicator, built-in motorized field stop High color reproductivity LED light source.	
	Revolving Nosepiece: Motorized septuple revolving nosepiece, with a slot for DIC Slider/analyzer	
	Objectives: Objective must be chromatic aberration correction from 400nm - 1000nm.	
	Plan apochromatic objectives	
	Objectives (infinity-corrected, cytogenetics-grade)	
	4X (NA 0.16 WD 13mm)	
	10X (NA 0.40 WD 3.1mm)	
	20X (NA 0.8 WD 0.6mm)	
	40X (NA 0.95 WD 0.18mm)	
	60X oil (NA1.42 WD 0.15mm)	
	100X oil (NA1.45 WD 0.13mm)	
	Observation Tube:	
	Widefield trinocular, Trinocular head and angle type fixing.	
	Motorized stage with X, Y movement controller.	
	Condenser:	
	Phase/darkfield condenser , Contrast Method BF/PH/DF.	
	Fluorescence Illuminator:	
	Motorized multi-purpose , motorized 8-position mirror unit turret, 4-position ND slider.	
	Fluorescence Light Source:	
	LED and LDP light source with liquid light guide. Laser safety class:1 emission wavelength 360-665nm.	
	Bright field Automatic Karyotyping:	
	Automation	
	Chromosome classification and other tasks are performed automatically.	
	Correct imperfections of the image	
	Automatic zooming and panning of the image help to get an overview of the chromosomes for easier correction of details such as deletion of attached artifacts, chromosome cropping, or telomere region redefinition.	
	Acquire extra large scenes	
	The seamless image stitching algorithm enables you to merge several fields of view of the camera together.	
	No chromosome escapes	
	The chromosomes which escaped too far from the metaphase can be easily moved to the metaphase image. The Capture Chromosome feature lets you easily acquire a missing chromosome even after karyotyping.	
	Chromosome clipping	
	Easy chromosome separation using automatic and semi-automatic functions. Chromosome clipping, and overlap resolving tools will help you to create karyograms fast and comfortably.	

Arrange the karyogram
A variety of functions including a multifunctional tool that allows for alignment, smooth rotation, 180° chromosome flipping or chromosome alignment on the centromere.
Use predefined ideograms or create your own
Ideograms for different techniques and banding resolutions are provided (G300, G400, G550, G700, G850, R400) according to the latest ISCN, and custom ideograms can be created as well.
Chromosome classification
Highly efficient banding pattern classifier developed by artificial intelligence with the possibility of further training. The classifier detects bands on each chromosome for the most accurate automatic karyogram arrangement.
See where chromosomes originate from
Simultaneous display of the karyogram and the metaphase image couples the corresponding chromosomes.
Chromosome enhancement
A selection of multiple functions to improve the quality of chromosome staining and banding pattern on the whole karyogram or a single chromosome.
Browse the history of actions comfortably
Use the multiple-step back and forth ability. The number of steps remembered is not limited and is saved into the database together with the document.
Audit trial module
Enables to fully manage document history and patient data including examinations.
Microscope Camera for Bright field FISH Imaging monochrome camera
Sensor cooling Sony CCD 2/3" monochrome sensor CCD Array 1360 x 1024 22 fps at full resolution USB 3.0 digital Interface
Sensor Type Sony ICX-825 Scientific Interline CCD monochrome CCD Array 1360 x 1024 Pixel Size 6.45 µm x 6.45 µm
Active Area 8.8 mm x 6.6 mm (11 mm diagonal)
Peak Quantum Efficiency 75% at 600 nm
Full Well Capacity >11,000e- single pixel Digital Output 14 bit at 50 MHz
Digitization Rate USB3 – 50 MHz high frame rate
650 kHz low noise mode USB2 – 17.5 MHz high frame rate
650 kHz low noise mode
Read Noise (typical) 50 MHz – < 7 e- RMS 650 kHz – < 5 e- RMS Frame Rate 22 fps at full resolution 31 fps binned 2x2 Exposure Time Range 25 µs – 5 sec
Supported Binning Modes 1x1, 2x2, 4x4, 6x6, 8x8, 12x12, 16x16 Dark Current Rate (typical) 0.0005 e/p/s at -20C regulated Sensor Cooling 0° C stabilized at 22° C ambient Thermoelectric cooling with forced air
Operating Systems/Platforms Windows 8 (64 bit), and Windows 10 (64 bit)
Digital Interface USB 3.0 (USB 2 compatible at reduced max fps) Optical Interface 1"
C-mount optical format Mounting Hole Thread Size 1/4" - 20 thread, 4 sides.
Computer system:
HP Z2 G9 TWR i7-13700K, 32GB, 1TB, T1000 8GB, Windows 11 64b, keyboard, mouse (incl. software and device driver's installation, testing) 4 PM_Z24 Monitor HP LCD E24q G5 24"/2560x1440, IPS/4ms/1000:1/300 nits/HDMI/DP/4xUSB 3.2/LED
FISH:
Automated Microscope Control

	Control of all motorized parts of a microscope. Control of external devices: shutter, filter turret, filter wheels, light path etc. Image acquisition settings per fluorescent probe set. Observation filter (used for eye piece) per fluorescent probe set.
	Flexible FISH Image Acquisition
	Image acquisition with different levels of user control, from fully-automatic to fully-manual. Separate camera settings are saved for each fluorescent probe. Various automatic exposure options:
	Continuous or single-push auto exposure.
	User defined target values (% of overexposed pixels, target maximum intensity).
	Live image speed acceleration. » Reducing image to a region of interest (area probe).
	Usage of a highly sensitive CCD camera (up to 14 bits and 67 dB SNR).
	Maximum-quality or minimum-time image acquisition. Extended depth of focus (EDF) acquisition for thick samples such as tissue sections. Fully automated EDF.
	Thick sample acquisition
	Different objects are visible when focusing through Z axis (Z1, Z2). The thick sample acquisition (EDF) tool merges focused areas of the whole Z-stack and creates a single perfectly focused image.
	True or False Color Display
	During the acquisition, each image component is associated with a probe and obtains its name and display color.
	The name and color of the components can be changed later, the information is stored with the image.
	True (real) or false (pseudo) color display can be achieved by assigning appropriate colors to each image component.
	One component, usually DAPI, can be marked as counterstaining - this component can be displayed as inverted (black on the white background).
	Any combination of components or a single component alone can be displayed.
	The color display options can differ for on-screen display, reports and exports.
	Image Enhancements and Annotations
	Easy per component contrast enhancement can be done by specifying the „background"area in the image.
	Delete unwanted objects with a simple eraser tool.
	Tune the resulting colors by the signal purification procedure or by color unmixing.
	Align components by pixel-shifting to correct possible inaccuracies caused by misalignment of filter cubes.
	Simply annotate the image using custom predefined phrases and arrows.
	Database and Report
	Use the powerful Lucia Database™ to store and manage your results. Create perfectly looking layouts for reports, presentations or publications. Modify the image display specially for report purposes - e.g. a selected component, any component combination, inverted counterstain, thumbnail mosaic, etc.
	FL Filters:
	DAPI, GREEN, ORANGE, Dual band Green/Orange, Trippel band Dapi/Green/Orange.
	Warranty: 3 Year Warranty on Parts and Labor, Service.
	Additional Requirements
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months.**
	- Supplier must provide **installation, commissioning, and on-site operational training.**
	Service Contracts: At least five years of services must be provided along with system

	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally)	

LOT – 15 : NGS LIBRARY PREPARATION & QUALITY CONTROL SYSTEM

1	**Qubit Fluorometer**	1
	Description:	
	Used for quantification of DNA, RNA, and protein using fluorescence-based assays.	
	Physical & Technical Characteristics:	
	Detection Method: Fluorescence detection with excitation and emission filters optimized for Qubit assay dyes.	
	Dynamic Range (assay dependent):	
	DNA: ~10 pg/µL to 1000 ng/µL	
	RNA: ~250 pg/mL to 1000 ng/µL	
	Protein: ~12.5 µg/mL to 5 mg/mL	
	Sample Volume Required: 1–20 µL (typically 1–10 µL of sample).	
	Cuvette Type: 0.5 mL thin-walled, clear plastic tubes (Qubit assay tubes).	
	Instrument Features	
	Display: Color touchscreen	
	Power: Universal AC adapter (100–240 V, 50/60 Hz).	
	User Interface: Pre-programmed assays, simple touch navigation.	
	Power: Universal AC adapter (100–240 V, 50/60 Hz).	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months.**	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance.** This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	
2	**Bioanalyzer TapeStation or Equivalent**	1
	Description:	
	a compact microfluidics-based instrument widely used for assessing the quality, quantity, and integrity of DNA, RNA, proteins, and cells.	
	Technology: Automated capillary electrophoresis (Lab-on-a-chip) for nucleic acids, proteins, and cell analysis	
	Physical & Technical Characteristics:	
	Applications: Widely used in QC workflows for NGS, gene expression studies, biopharma, and gene editing	
	Sample Capacity: Capable of analyzing 10–12 samples per chip in one run	
	Run Time: Results are delivered in ~30–45 minutes depending on assay	
	Sample Volume: Requires only 1–5 µL of sample for analysis	
	Power: Universal AC adapter (100–240 V, 50/60 Hz).	
	Safety Standards: IEC, CSA, UL certified; Pollution Degree 2; Installation Category II; Laser Class 1	

	Regulatory Compliance: RoHS compliant. Supports GLP/GMP with IQ/OQ services and 21 CFR Part 11–compliant software workflows	
	Replaceable electrode cartridges enable contamination-free switching between assay types	
	Digital data generation with software tools for overlay, zoom, QC flags, RIN metrics, and more	
	Software: Comes bundled with **Expert Software**, offering powerful analysis tools including RNA Integrity Number (RIN), scoring, overlay analysis, and compliance modules	
	Data Handling: Supports digital data export, archival, and PI3 workflows; ideal for regulated environments	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months**.	
	- Supplier must provide **installation, commissioning, and on-site operational training.**	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance.** This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	
3	**Sonicator**	**1**
	Sonicators—also known as ultrasonic homogenizers—use high-frequency mechanical vibration to generate cavitation in liquids, enabling applications like cell disruption, emulsification, nanoparticle dispersion, and more. Below is a detailed breakdown using representative models:	
	Ultrasonic Power: Adjustable **20 to 2000 watts** Labtronlabtron.us	
	Disruption Capacity: **100–2000 mL** Labtronlabtron.us	
	Probe: Standard **Φ22 mm** horn; optional range including **Φ10–25 mm** Labtronlabtron.us	
	Frequency: **19.5–20.5 kHz**, with automatic tracking Labtronlabtron.us	
	Control & Display: TFT touch screen, microcomputer–controlled, programmable duty cycles, long run-time control (up to ~99 h) Labtronlabtron.us	
	Built-in Temperature Management: Integrated temperature monitoring and over-temperature protection Labtronlabtron.us	
	Accessories Included:	
	Stand, jacketed beakers (1000–2000 mL), horns of various sizes, cooling chiller, temperature-controlled beakers (50–2000 mL) Labtronlabtron.us	
	Enclosure: Soundproof box with optional features like lighting, sterilization, and auto-lifting of sample stage Labtronlabtron.us	
	Size & Weight:	
	Host + accessories: ~410×225×290 mm, 15 kg	
	Sound-proof box: ~290×280×490 mm, 8 kg	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months.**	
	- Supplier must provide **installation, commissioning, and on-site operational training.**	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	

	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
	After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance**. This shall include a **complete test run of all operational procedures** to demonstrate full functionality.	
	All **materials, reagents, and consumables required for the first test run** shall be **provided by the vendor at no additional cost** to the purchaser.	

LOT – 16 : OPTHALMOLOGY

1	**ERG Machine: Portable by RETeval**	1
	General Description	
	RETeval is a **handheld, portable ERG system** that allows **objective measurement of retinal function** without requiring corneal electrodes or dilation. It uses **skin electrodes placed on the lower eyelid** for painless testing and can be used in clinics, bedside, or field studies.	
	Core Specifications	
	1. Device Type	
	Portable, handheld electroretinograph (ERG).	
	Non-invasive, skin electrode-based system.	
	2. Stimulus	
	Full-field **Ganzfeld stimuli** integrated into the handheld device.	
	Stimulus type: **white, red, blue light flashes** (LED-based).	
	Adjustable luminance and flicker frequencies.	
	3. Recording	
	Uses **disposable skin electrodes** (sensor strips on lower eyelid).	
	Eliminates need for corneal contact lens electrodes.	
	Records **ERG waveforms** and **pupillary light reflex (PLR)**.	
	4. Compliance & Standards	
	ISCEV-compliant ERG testing protocols (International Society for Clinical Electrophysiology of Vision).	
	Automated analysis and comparison with normative database.	
	5. Output & Data Handling	
	Onboard display for real-time waveform visualization.	
	Internal storage for test data.	
	USB / WiFi connectivity for data transfer to PC/EHR systems.	
	Reports available in PDF/CSV format.	
	6. Power & Portability	
	Rechargeable battery (8+ hours use per charge).	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months**.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	
2	**Fundoscopy: Optomed smartscope**	1
	Optomed Smartscope PRO – Handheld Fundus Camera	
	General Description	
	The Optomed Smartscope PRO is a **portable, handheld non-mydriatic fundus camera** designed for **retinal imaging and screening**. It enables high-quality digital images of the fundus without requiring dilation, making it suitable for use in **clinics, hospitals, or outreach screening programs**.	
	Core Specifications	

	1. Imaging	
	Field of View (FOV): 40° (single image), wider with montage.	
	Image Resolution: 5 MP (high-resolution fundus images).	
	Modes: Color, Red-free, External eye imaging.	
	Focus: Auto-focus and manual focus options.	
	Pupil Size Requirement: ≥3 mm (non-mydriatic).	
	2. Device Features	
	Modular design: attachable optics for fundus, anterior segment, and external imaging.	
	Integrated **image capture and preview screen**.	
	LED illumination for consistent and safe retinal imaging.	
	Patient-friendly, can be used without dilation in most cases.	
	3. Data Management	
	Storage: On-device memory + microSD card.	
	Connectivity: USB, WiFi (optional) for data transfer.	
	Image formats: JPEG, DICOM compatible.	
	Compatible with **Electronic Health Records (EHR)** and telemedicine platforms.	
	4. Portability & Power	
	Lightweight, handheld (approx. 400–500 g).	
	Rechargeable lithium-ion battery (several hours of operation).	
	Designed for use in **clinics, bedside, and field screening programs**.	
	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and **manufactured within the last 12 months**.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	The **installation and commissioning** of the UPS shall be carried out **in all respects**, including the provision of **all necessary materials, accessories, cables, connectors, and any other prerequisites** required to ensure full and reliable operation of the system.	

LOT – 17 : VERTICAL STEAM JACKETED AUTOCLAVE

1	**Automated Auto clave (Steam Jacketed vertical large)**	1
	Description:	
	Used for rapid, effective sterilization of a wide range of medical, laboratory, and other items by using high-temperature, high-pressure steam to kill microorganisms.	
	Physical & Technical Characteristics:	
	Technical Specifications:	
	Total/ Usable Volume of the chamber: 175/153	
	External dimensions LxDxH mm: 750x820x1400	
	Loading Height mm: 1085	
	Safety Features:	
	Safety valve	
	Safety thermostats with manual rearm for heating jacket and the heating elements	
	Pneumatic door blocking system while positive pressure exists inside the chamber	
	Open door sensor.	
	Thermally insulated door	
	Water level detector in the sterilization chamber	
	Water level detector (min./max.) in the independent water tank.	
	Bacteriological filter for inlet air.	
	Heating elements cover	
	Several visual and acoustic safety and warning alarms	
	General features	
	Adjustable sterilization temperature: 100 - 134 ºC	
	Adjustable sterilization time: 1 - 250 min	
	Adjustable drying time: 3 - 99 min	
	Max. pressure: 2.1 bar	
	Sterilization control system: Fully automatic microprocessor control by either chamber temperatrue probe	
	Air Purge System: Mechanical displacement by vacuum pump	
	Vacuum drying system: Vacuum pump plus heating jacket	
	External building material: AISI-304 stainless steel	
	Sterilization chamber material: AISI-316L stainless steel	
	Gasket material: Silicone rubber	
	Connection to PC: RS-232	
	Connection to printer	
	Number of programs: 10 (4 preset and 6 user free)	
	Programmable auto-start: Up to 24h	
	Screen type: LCD display	
	Opening door mode: Horizontal swiveling door with blocking wheel	
	Monitoring of sterilization parameters: Self-control of obtained values (Tº & t) vs programmed values. Cycle is automatically interuptted when obtained values are different from programmed values	
	Pressure display: Pressure gauge on control panel	

	Water management: An Independent manually fed water tank that automatically supplies the sterilization chamber. Waters returns automatically to the independent water tank after completing the sterilization phase
	Drainage system: A drainage connection and a manual valve for overflow and drainage of the independent water tank and a screw to manually clean the drainage filter and drain the sterilization chamber
	Casters: Medical grade casters
	Regulations
	All our autoclaves are designed to comply with the strictest international directives and standards, including the following regulations:
	EN-61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use.
	EN-61010-2-040: Requirements for laboratory autoclaves
	EN-61326: Electrical equipment for measurement, control and laboratory use. EMC requirements
	AD 2000 Merkblatt: Pressure vessels
	2014/35/UE: Low voltage
	2014/30/UE: Electromagnetic compatibility
	2014/68/UE: Pressure equipment
	Integrated Basket Lift System
	Classic LIFT-R
	Dimensions LxDxHmm: 800x300x2600
	Power W: 480
	Voltage V: 230
	Stainless steel electric lift system built into the side of the autoclave with swivel arm to help load and unload heavy items.
	Motor with auto brake system in the event of obstacle or overload
	Make: Europe, UK, USA, Japan
	Accessories & Options:
	Chamber baskets / perforated trays
	Validation ports: for independent sensor/thermocouple placement
	Drain cooling system: to cool effluent below 60 °C before discharge
	Wheels / castors: with locking for large vertical floor models
	Stainless steel wall-mounted/floor-standing cabinet as per lab requirement (to be provided locally)

NOTE: Warranty & Support for all items

3 years warranty, with complete replacement of parts

Complete installation & commissioning with required MEP works with materials

After the delivery and installation of the equipment, the **vendor shall be responsible for detailed testing and verification of the equipment's performance** to ensure the equipment is installed and functioning correctly. This shall include a **complete test run of all operational procedures** to demonstrate full functionality.

All **materials, reagents, and consumables required for the first test-run,** shall be **provided by the vendor at no additional cost** to the purchaser.

If the complexity of an equipment requires specialized knowledge beyond what the User possesses, the vendor must provide a qualified individual (an "equipment expert") to be on site to demonstrate all operational procedures of that equipment.

Onsite Staff Application Training & Service training of Biomedical Engineer / Technical Staff at factory site.

Provision of Spare parts for period of 10 years

Services: Five-year service contract on request of Client

Accessories: Dust Cover, User and Service manual (hard and soft copy) must be provided.