Government of Pakistan

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

INVITATION TO E-BIDS

SZABMU/2026/TENDER NO. 44

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 Equipment of **"MOLECULAR BIOLOGY, REGENERATIVE MEDICINE, INFECTIOUS DISEASES, PHARMACOLOGY, PHYSIOLOGY, ANATOMY, PATHOLOGY, BIOCHEMISTRY LABS& CLINICAL TRIAL UNIT" (ITEM-WISE) for the Academic Block.**
2. Firms should provide Name of Business, Registered Office, NTN, GST number, and relevant experience as per bidding documents. Prices must be quoted in **PKR for local supply (DDP 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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

20x4

PROCUREMENT OF MEDICAL/LAB EQUIPMENT OF

MOLECULAR BIOLOGY, REGENERATIVE MEDICINE, INFECTIOUS DISEASES, PHARMACOLOGY, PHYSIOLOGY, ANATOMY, PATHOLOGY & BIOCHEMISTRY DEPARTMENTS

(ITEM-WISE, CURRENCY: DDP)

(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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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 manufacturer 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 no 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 Pid 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 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 can quote item-wise according to the technical specifications. 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 Prices shall be quoted in PKR for local supply (DDP Islamabad).

14.2 The price for individual item, 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.

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 Subm'ssion 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 items, 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 DDP basis; item-wise prices quoted in PKR will be compared.

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 Financial Years)**	**10**	Income Tax Returns must be attached.
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.

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 item-wise in PKR.

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.

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 item-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) 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), 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

41.1 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 Parues, 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, 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. 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 soft wares, 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 The payment will be made 100% after presentation of the delivery/ Installation/commissioning/completion report of the equipment and all other works described in Contract. Part supply and part payment will be made for those items which are indicated in the Technical Specifications.

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.

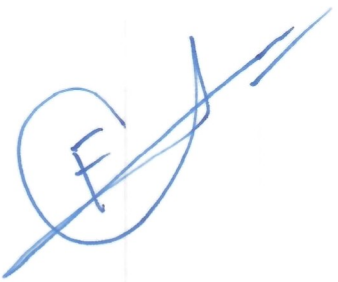
28. Applicable Law

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, European, Japanese and Russian 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% after presentation of the delivery/ Installation/commissioning/completion report of the equipment and all other works described in Contract for complete store. Part supply and part payment will be made for those items which are indicated in the Technical Specifications.

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 / .nagnetic/ 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, represer tation 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)
(DDP 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	Qty	Unit Price (Rs)	Total Price for each item (Rs)
Total Package Cost (Rs.) (DDP Component)									

Sign and Stamp of Bidder _____

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

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/Inctitutes 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 only those items which conform to the specifications otherwise the item will not be accepted.
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

MOLECULAR BIOLOGY, REGENERATIVE MEDICINE, INFECTIOUS DISEASES & ALLIED LABS		
Sr. #	**Name of Equipment**	**Qty**
1	**Laboratory Incubator (30o – 75o C), with complete accessories**	3
	Description:	
	Provides high temperature incubation facility for bacterial cultures	
	Physical & Technical Characteristics:	
	Temperature range: (30o - 75 C) or better	
	Adjustable temperature	
	Accuracy: (+/-) 1 deg C or better	
	Humidity Control	
	Thermostatically controlled	
	Capacity : 100 liters or more	
	Temperature monitoring alarms	
	Data loging	
	Door: Glass for inner viewing	
	Material: Stainless steel	
	Area of Manufacturing	
	USA/JAPAN/Western Europe.	
	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.	
	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.	
38a	**CO2 Laboratory Incubator with CO2 Cylinder**	3
	Description:	
	Specialized laboratory equipment that maintains a controlled, stable and sterile environment for cell and tissue colture	
	Physical & Technical Characteristics:	
	Microprocessor PID-temperature controller	
	Temperature range: (05o - 100 C) or better	
	Adjustable temperature	
	Accuracy: (+/-) 1 deg C or better	
	Humidity Control	
	Thermostatically controlled	
	Capacity : 100 liters or more	
	Data loging	
	CO2 concentration: 0.5-20% or higher	
	Recovery time after door opening: 6 minutes or less	
	Material: Stainless steel (interior)	
	Exterior body of steel sheet	

	Himidity control: water pan and RH monitoring	
	Contamination Control	
	Accessories:	
	3 Cylinder of 16 Liter capacitiy	
	Area of Manufacturing	
	USA/JAPAN/Western Europe.	
	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.	
	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.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
47	**Incubator Water Bath with incubation**	1
	Description:	
	Used for cell culture and DNA extraction	
	Physical & Technical Characteristics:	
	Capacity: 10-20 litres or above	
	Temperature: +5C - 100 C or above	
	Temperature accuracy: 0.2Centigrade or better	
	Heating elements: corrosion resistants stainless steel heater	
	Data loging	
	Inner chamber: stainless steel	
	Lid: Hindged or removable (stainless steel)	
	Power supply: 220-240V AC	
	ISO/ CE Certified Manufacturer	
72	**Lab Shaking Incubator / Shaker incubator**	5
	Description:	
	Used for cell culture and sample mixing	
	Physical & Technical Characteristics:	
	Benchtop	
	Orbital shaking incubator	
	Microprocessor Proportional Integral Derivative (PID)-temperature controller	
	Temperature accuracy and uniformity: +- 0.5 centigrade	
	Tempeature range; +5 centrigrade to +0 centigrade or above	
	Shaking speed: 30 to 400 rpm or above	
	Shaking motion: orbital	
	Orbital diameter 19-25 mm	
	Programmable Digital timer	
	Capacity: perform to hold multiple flasks at one time. For example, 250 ml x 12 or 500 ml x 6	
	Data loging	
	Other features: Viewing window, interlal light and adjustable shelves	

	Chamber innner material: Stainless steel	
	Outer material: stainless steel or powder coated	
	ISO/ CE Certified Manufacturer	
	Area of Manufacturing	
	USA/JAPAN/Western Europe.	
	Warranty: 3 years	
	Accessories:	
	Complete accessories	
	UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
136	**Hot Incubator / Hot Air Incubator**	4
	Description:	
	Used to create a controlled warm environment for cell culture, microbial growth and chemical reactions	
	Physical & Technical Characteristics:	
	Temperature range: adjustable +5 centigrade to 250 centigrace	
	Temperature accuracy: +/- 1 centigrade	
	Insulated doors with toughned glass viewing window for inner viewing	
	Material: Stainless steel (in'erior)	
	Exterior body of steel sheet	
	Microprocessor controlled unit/ Thermostatically controlled	
	Alarm system	
	Digital programmabe timer	
	Over temperature protection cut-off fuse / circuit breaker	
	Digital display	
	Data loging	
	Capacity: 100 litres or above	
4	**Freeze Dryer / Lypholizer**	1
	Description:	
	Freeze drying is the removal of ice or other frozen solvents from a material through the process of sublimation and the removal of bound water molecules through the process of desorption	
	Physical & Technical Characteristics:	
	Temperature Control:	
	* Shelf Temperature Range: −80°C to +60°C (or wider)	
	* Shelf Temperature Accuracy: ±0.5°C or better	
	* Ramp Rate: Adjustable, slow and precise ramping (e.g., 0.1–5°C/min) to avoid thermal shock	
	* Product Temperature Monitoring: Multiple sensors for direct product temperature (thermocouples or RTDs)	
	Vacuum System:	
	* Vacuum Range: Down to ≤10 mTorr (1.3 Pa) or better	
	* Vacuum Stability: ±1% or better during drying phases	
	* Vacuum Measurement: High-accuracy Pirani and capacitance manometers	
	* Vacuum Control: Automated valve control for precise pressure adjustments during primary and secondary drying	
	Condenser:	
	* Condenser Temperature: ≤ −85°C (deep cooling to capture sublimated vapor effectively)	
	* Condenser Capacity: Sufficient for sample load; scalable depending on batch size	
	* Defrost and Cleaning: Easy maintenance with automatic defrost cycle	
	Chamber and Load Capacity:	
	* Chamber Material: Stainless steel (316L preferred) with smooth interior surfaces for cleanability	
	* Chamber Size: Scalable depending on sample volume (e.g., 1–10 L for benchtop, up to 50 L+ for pilot scale)	

	* Sample Holders: Compatible with trays, shelves, vials, or bulk tissue loads (customizable)	
	* Loading Configuration: Uniform shelf heating with temperature sensors on multiple shelves	
	Automation & Software:	
	* Programmable Protocols: Multiple user-defined freeze-drying cycles with detailed control over temp, vacuum, and timing	
	* Data Logging: Continuous recording of all process parameters with export options	
	* Compliance Features: Support for GMP or ISO standards (audit trails, electronic signatures, 21 CFR Part 11)	
	* User Interface: Intuitive touchscreen or PC interface with real-time monitoring	
	Safety & Maintenance:	
	* Alarms and Interlocks: For over-temp, vacuum loss, power failure	
	* Easy Maintenance: Removable shelves and trays; accessible condenser and vacuum pumps	
	* Remote Access & Diagnostics: Optional remote monitoring and troubleshooting capability	
	Additional Features:	
	* Load Ramping: Ability to implement controlled pressure rise (shelf or chamber) to protect delicate structures	
	* Inert Gas Backfill: Optional nitrogen or argon backfill for oxygen-sensitive samples	
	* Validation Support: IQ/OQ/PQ protocols and documentation for clinical-grade applications	
	Area of Manufacturing	
	USA/JAPAN/Western Europe.	
	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.	
	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.	
5	**Water Distillation Plant 30 Ltr**	2
	Description:	
	The system must provide Ultrapure Type 1 water for molecular biology and analytical applications, as well as RO/Type 3 water for general laboratory use. System should include a main purification unit, integrated tank, and dispensing unit(s).	
	Physical & Technical Characteristics:	
	Capacity: 30 litres	

	Both Ultrapure (Point-of-Use) and RO water should meet or exceed the following specifications. Type 1 Water (Ultrapure) Specifications	
	Resistivity: 18.2 MΩ·cm at 25 °C	
	Conductivity: 0.055 µS/cm at 25 °C	
	TOC: ≤ 5 ppb	
	Particles: No particles ≥ 0.22 µm	
	Proteases: < 0.15 µg/mL	
	DNases: < 5 pg/mL	
	RNases: < 1 pg/mL	
	Endotoxins (Pyrogens): < 0.001 EU/mL	
	Bacteria: ≤ 0.01 cfu/mL	
	Flow Rate: Up to 2 L/min	
	Type 3 Water (RO) Specifications	
	Production Flow Rate: 8 L/h (Model EQ 7008) 16 L/h (Model EQ 7016)	
	Resistivity: > 0.05 MΩ·cm at 25 °C	
	RO Ionic Rejection: 97–98%	
	Organics Rejection: ≥ 99% (depending on molecule)	
	TOC: < 200 ppb	
	Colloids: < 1000 ppb	
	Bacteria: < 1000 cfu/mL	
	Distilation time: 1 hour per 30 litre	
	Distillation quality: free from dissolved solids, heavy metals, chlorine and bacteria	
	CE/ISO compliance	
	Additional Requirements	
	Modular system with provision for expansion and optional add-ons (e.g., UV lamp, ultrafiltration, sterilizing-grade filters).	
	Built-in monitoring of resistivity, conductivity, and TOC with digital display.	
	Automatic system sanitization or cleaning cycle.	
	Easy replacement of consumables (cartridges, filters, UV lamps, etc.).	
	Tank with integrated vent filter to ensure water quality preservation.	
	System must be CE marked / ISO certified.	
	Area of Manufacturing	
	USA/JAPAN/Western Europe.	
	Warranty: 3 Year Warranty on Parts and Labor, Service.	
	Additional Requirements	
	- 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.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
6	**Nanodrop**	1
	Description:	
	Used to measure concentration and purity of biological molecules (DNA, RNA and Protein) for small volume	
	Physical & Technical Characteristics:	
	Wavelength range: 190 to 850 nanometer	
	Wavelength accuracy: +/- 1.0 namometer or better	
	Sample volume: 0.5 to 2.0 micro-liter	

	Pathlength: Auto-ranging	
	Concentration Ranges: 2 to15,000 nanogram/microliter (dsDNA) or better	
	Connectivity/ data export option: USB, bluetooth, ethernet and wifi	
	Measuring time: Less than 8 seconds per sample	
	Absorbance accuracy: +/- 3% @ 0.76 A (at 302 nanometer)	
	Absorbance precision: greater than or equal to 1.5% CV	
	Software features: Pre-configjured methods for DNA, RNA, Protein	
	Touch Screen interface or PC-based control software	
	CE/ISO certification compliance	
	On site installation and operational training included	
	Accessories:	
	Cuvettes for sample loading	
	Area of Manufacturing	
	USA/JAPAN/Western Europe.	
	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.	
	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.	
7	**Flourescent Microscope with digital camera attachment, computer, scanner, printer and 50" LED & multimedia**	1
	Description:	

	Inverted fluorescence microscope suitable for cell biology, stem cell,• Optical System Infinity-corrected optics. **Objectives:** Plan Achromat / Plan Fluor / Plan Apo (4×, 10×, 20×, 40×, 60×/100× oil). Fluorescence excitation: LED or mercury/xenon lamp. Filter cubes: DAPI, FITC, TRITC, Cy5 (minimum 4 channels). Stage & Focus. Motorized XY stage with precise positioning (optional for imaging). Coaxial coarse/fine focus.Stage size: compatible with standard slides and culture plates.Camera & Imaging: High-sensitivity CCD / sCMOS camera for fluorescence imaging. Compatible with image acquisition and analysis software. USB / Ethernet connection to computer. **Accessories:** 1.Fluorescence filter sets (DAPI, FITC, TRITC, Cy5) 2. Objectives (4×, 10×, 20×, 40×, 60×/100× oil) 3.Immersion oil, lens cleaning kit 4. LED / mercury/xenon lamp and power supply 5. Eyepieces (10× widefield) 6. Motorized XY stage (if specified) 7. High-sensitivity camera (CCD/sCMOS) 8. Computer with imaging software (acquisition, analysis) 9. Dust cover, power cables, and manuals 10. One-year warranty and on-site installation & training **Operating software**: Computer system with intel i7 are better processor latest generation 16GB RAM minimum SSD (>500GB or better)Full HD or better 24-27 inches LED monitor Multiple front and back USB 3 and HDMI ports Genuine Microsoft window 11 latest professional edition	
8	**Liquid Nitrogen Tank (for saving samples and cell cultures for long term with tube holder)**	1
	Description:	
	Cryogenic liquid nitrogen (LN2) storage system designed for long-term cryopreservation of biological samples (e.g,, stem cells, gametes, tissues, etc.)	
	Physical & Technical Characteristics:	
	Type: Liquid nitrogen storage Dewar, vertical, static or transportable type	
	Material: High-strength, corrosion-resistant aluminum alloy or stainless steel	
	Storage Capacity: 100 liters	
	Holding Time Minimum 90–150 days	
	Static Evaporation Rate <0.20 liters/day	
	Neck Diameter 50–125 mm	
	Number of Canisters Minimum 6–10 stainless steel/aluminum canisters (with tube holders)	
	Canister Size Capable of holding 1.2 mL–2.0 mL cryovials in standard cryoboxes	
	Vial Capacity 3000 to 6000 cryovials (1.2 mL),	
	Insulation: Multi-layer vacuum insulation for extended holding time	
	Exterior Finish Powder-coated or anodized surface for durability and easy cleaning	
	Mobility: Equipped with heavy-duty caster wheels with locking mechanism	
	Accessories:	
	✓ Tube holders (racks/canisters): Stainless steel or aluminum, with dividers for cryovials	
	✓ Level measuring stick or digital LN_2 level monitor	
	✓ Lockable lid or cap with venting mechanism	
	✓ Roller base / wheeled cart (for mobility)	
	✓ Protective cryogenic gloves (pair, CE-certified)	
	✓ Face shield or safety goggles	
	✓ Cryo labels and marking pen (for labeling vials)	
	✓ Instruction manual and safety data sheet	

	Safety & Compliance:	
	Compliant with CE, ISO 13485 / ISO 9001	
	Must meet EU standards and safety regulations	
	Pressure release safety valve or vent for safe nitrogen vapor discharge	
	Designed to prevent ice clogging and pressure buildup	
	Must include compliance certificates from manufacturer	
	◆ Cryo-monitoring system: Real-time temperature & LN level monitoring with alarm	
	◆ Data logger or connectivity: USB, Ethernet and Wifi	
	◆ Transport container: Rugged cryoshipper with vapor-phase storage for sample transfer	
	◆ Sample inventory software (2 years subscription.. Detail)	
	Technical Details:	
	Storage Temperature: -196°C (liquid phase) / -150°C (vapor phase)	
	Insulation Type: Super-insulated vacuum with reflective layers	
	Weight (Empty/Full): 20–80 kg empty / up to 150 kg full	
	Power Requirement: 220V AC	
	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.	
9	**Microtome**	1
	Description:	
	To section paraffin-embedded biological tissues (e.g., cartilage, skin) into uniform thin slices (typically 3–10 µm) for microscopic examination in histology and pathology labs.	
	Physical & Technical Characteristics:	
	Microtome Type:	
	Rotary microtome (manual, semi-automatic, or fully automatic depending on lab need)	
	Ergonomic design for precise and safe tissue sectioning	
	Sectioning Performance:	
	* Section thickness range: 1 – 60 µm	
	* Minimum sectioning increment: 1 µm or finer	
	* Trimming thickness range: 5 – 500 µm	
	* Precision feed mechanism for reproducible sectioning	
	Specimen Holder:	
	* Universal clamp compatible with standard cassettes and tissue blocks	
	* Multi-directional specimen orientation: at least ±8° X/Y axis	
	* Quick-release mechanism for fast specimen change	
	Blade System:	

	* Compatible with disposable blades (high-profile)	
	* Blade holder with lateral movement to use blade edges efficiently	
	* Blade guard for operator safety	
	* Anti-roll plate to avoid section curling	
	Sectioning Modes:	
	* Manual as well as motorized operation	
	* Adjustable cutting speed (minimum 1 mm/sec or equivalent)	
	* Optional foot pedal control for hands-free sectioning	
	* Manual override option for fine control	
	Waste Management:	
	* Removable section waste tray for paraffin debris	
	* Easy-to-clean design	
	Ergonomics & Safety:	
	* Smooth-operating handwheel with lock mechanism	
	* Clearly marked controls for easy operation	
	* Safety features to prevent injury during operation or cleaning	
	Accessories (Mandatory):	
	* Blade holder for disposable blades	
	* Starter pack of high-profile disposable blades (minimum 100 blades)	
	* Anti-roll plate	
	* Brush, forceps, cleaning tools	
	* Dust cover	
	Accessories:	
	* Foot pedal for motorized sectioning	
	* Cooling tray or chilling plate (for specimen pre-chilling)	
	* Blade disposal box	
	Block cabinets with 14 drawers	
	Slide cabinets with 7 drawers	
	Certifications:	
	* CE marked or equivalent international certification	
	* ISO 9001 or ISO 13485 quality compliance	
	Documentation & Support:	
	* User and service manuals in English	
	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 insta"ation 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.	
11	**Florescent Activated Cell Sorter (FACS)/ Flow cytometer**	1
	Description:	
	Bench-top, compact, and fully automated flow cytometer suitable for multi-parameter analysis of fluorescently labeled cells and particles.	
	Capable of simultaneous 6-color detection with 4 lasers. (or better)	
	Specification: Flow Cytometer (FACS) – Four Laser System	
	High-speed fluorescence-activated cell sorter (FACS sorter) with fully integrated analysis and sorting functions.	
	Suitable for multi-colour phenotyping (e.g., CD marker panels) and subsequent physical isolation of live cells for downstream culture, assays or genomics.	
	Lasers & Optical Configuration	
	Four solid-state lasers (minimum): e.g., 405 nm (violet), 488 nm (blue), 561 nm (yellow-green) and 640 nm (red).	
	(Preferably upgradeable to additional lasers: e.g., 355 nm UV, 445 nm, etc.)	
	Detection channels: Minimum 12-18 fluorescence detectors plus forward scatter (FSC) & side scatter (SSC).	
	Optical filters: Factory-aligned, user-changeable bandpass filters.	
	Automated optical alignment, drop-delay calibration and compensation routines.	
	Sorting Capabilities	
	Sorting modes should be 4-way and ideally up to 6-way simultaneous sorting	
	Nozzle options (e.g., 70 µm, 85 µm, 100 µm, 130 µm) to accommodate different cell-sizes and pressures.	
	Collection formats: tubes (1.5 mL, 5 mL, 15 mL, 50 mL), multi-well plates (96)	
	Temperature-controlled collection (4-37°C) for live cell viability.	
	Aerosol management/biosafety cabinet integration (for live/primary cells, especially stem cells).	
	High purity and recovery: e.g., purity ≥ 99% and recovery ≥ 80%	
	Sample Handling & Fluidics	
	Sample introduction: compatible with tubes and plate loaders (e.g., 96 well) for high throughput.	
	Sheath fluid system with waste and cleaning bottles integrated.	
	Flow stability: e.g., CV ≤ 5% on alignment beads.	
	Automatic cleaning and de-bubble protocols. ability to safeguard sterility.	
	Performance	
	Sensitivity: e.g., ≤100 MESF for FITC or similar, ≤75 MESF for PE (or better) — aim for highly sensitive detection of dim markers.	
	Dynamic range: ≥5 decades.	
	Fluorescence resolution: full peak CV <3%.	
	Throughput: in analysis mode up to ~70,000 events/sec (depending on parameters) and in sort mode, suitable rates (varies with nozzle, cell size).	
	Software	
	Acquisition, sorting control, compensation, gating, overlays, population comparison and reporting.	
	Export to FCS 3.0/3.1, compatibility with downstream analysis software (e.g., FlowJo).	
	Multi-user access, secure user management, data backup, and audit trail.	
	Sort monitoring (real-time drop monitoring, stream camera, sort statistics, abort logic for purity).	
	Accessories	
	Calibration & QC bead sets (fluorescence alignment beads, drop delay beads).	
	Starter reagent kit: sheath fluid, cleaning solutions, waste containers.	
	Computer workstation: e.g., ≥16 GB RAM, 1 TB SSD, Windows 10/11 Pro.	
	Spare filters, tubes, fluidic connectors, tubing set.	
	Anti-vibration steel table with anti-static top.	

	Software license (lifetime or ≥5 years).	
	Dust cover, maintenance kit, 3-year warranty with service option.	
	Utilities & Environment	
	Power: 220-240 V AC, 50/60 Hz,	
	Compliance & Documentation	
	CE / ISO / UL / RoHS certified.	
	Factory calibration certificate and performance validation report.	
	Aerosol containment certification (BSL-2+ where applicable) for live cell sorting.	
	Service and maintenance contract options; local support and spare parts availability.	
	Preferred Features	
	Upgrade slot for additional lasers (for future proofing).	
	High-parameter detection (e.g., 30+ or even 50 parameters) for deep phenotyping.	
	Index sorting (linking sorted cell identifier to phenotype).	
	Plate sorting automation (96/384/1536 wells) with robotic loader.	
	On-board temperature control for both sample and collection chambers.	
	Live stream camera of droplet break-off for quality monitoring.	
	Real-time reagent/fluorochrome tracking & instrument self-check diagnostics.	
	Factory calibration certifica'e and performance validation report required.	
	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.	
	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.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
12	**Laminar Flow Cabinet**	5
	Description:	
	Used for aseptic handling of biological samples in a molecular biology laboratory.	
	Physical & Technical Characteristics:	
	Type: Horizontal	
	Air Cleanliness: Class 100 / ISO Class 5 or better.	
	Airflow Velocity: Uniform laminar airflow of 0.3–0.5 m/s ± 20%.	
	Filtration:	
	- Primary: HEPA filter (≥ 99.97% efficiency for 0.3 µm particles).	
	- Pre-filter for dust and larger particles.	
	Work Area Material: Stainless steel (Grade 304 or better), seamless for easy cleaning.	
	Front Shield/Window: Transparent, shatterproof acrylic or tempered safety glass.	
	Lighting: Built-in fluorescent or LED lighting with ≥ 800 lux illumination in work area.	
	UV lamp: 40 W	
	Noise Level: ≤ 65 dB.	
	Controls: Soft-touch or digital control panel for blower and lighting.	
	Power Supply: Compatible with standard laboratory AC voltage (220–240 V, 50/60 Hz).	
	Safety Feature: Low-noise motor/blower	

13	**Bio Safety Cabinet (Level II)**	3
	Application scope: For all-round protection of laboratory environment, personnel and samples.	
	Features:	
	Integral molding: Integral worktable, internal sidewalls and rear wall are integrated all-metal structure to prevent leakage, internal corner arc design for easy cleaning;	
	Safety and security: 3 minutes self-cleaning function, also equipped with a variety of alarm functions such as abnormal wind speed, abnormal door position, sensor failure;	
	Ergonomic design: 250mm large-view glass door opening height and 10° tilted front window design, creating a convenient operating environment	
	Dual Fan System	
	Unique downflow and inflow fan, with double wind speed sensors, real- time detection the downflow and inflow wind, both of them controlled by fan motor for adjusting, to maintain a stable flow rate for protecting the personnel and samples.	
	Multi-specification Options	
	GBC series is the most widely used A2 bio-safety cabinets, realize the allround protection of laboratory environment, personnel and samples in one machine; configure single/double positions at the same time, four models are available to meet the needs of different experimental operations.	
	HD Display	
	Directly showing the operating status of the equipment, real-time display of the downflow, inflow air speed and the remaining life of the filter.	
	One-button Operation	
	Display screen and button, with corresponding button indicator for notice.	
	HEPA Filter	
	HEPA filter, filtration efficiency 99.995%@MPPS (H14), equipped with filter life countdown, filter differential pressure alarm function.	
	Technical Specifications:	
	Internal Dimensions (mm): 1860 x 630 x 660	
	Internal Work Area, Space: 1.17m2	
	Downflow (m/s): 0.32	
	Inflow (m/s): 0.53	
	Volume: 1307m³/h	
	Inflow Volume: 887m³/h	
	Downflow Filter:HEPA H14 99.995%@MPPS	
	Inflow Filter: HEPA H14 99.995%@MPPS	
	Certification Standard: EN12469, YY0569	
	Average Light intensity (Lux): ≥900 (220V)	
	UV radiation intensity: >400mW/sqm	
	Noise: <65dB	
	Excellent light distribution: Yes	
	RMS: <5μm	
	Main Body: 1.5mm Galvanized Steel	
	Work Zone: 1.5mm Stainless Steel, type 304	
	Front Window : 10°, 6mm Tempered Glass, UV Safety, Anti UV	
	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.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
14	**Bio Safety Cabinet (Level III)**	1
	Applications	
	Suitable for work with the most hazard group 4 pathogens.	
	Offer the maximum protection to laboratory personnel, the community, and the environment because all hazardous materials are contained in a totally enclosed, ventilated cabinet, when correctly installed	
	Both the transfer hatch and working chamber volumes operate in negative pressure to the surrounding environment with the exhausted air being vented through a system of double H 14 HEPA/ULPA filters	
	Working chamber is bathed by Class ISO 3 laminar flow avoiding product cross-contamination	
	Operating Principles	
	Glove boxes designed with a frontal screen equipped with gloves, in order to isolate the applications from the operators.	
	A transfer hatch (equipped with H 14 HEPA/ULPA filter) allows materials to be introduced into the Class III cabinet without breaking the integrity of the sealed enclosure	
	Gloves fitted upon glove-ports allow the users to manipulate the samples and products secure in the knowledge of complete isolation from the pathogens and infective or toxic materials being used	
	Key Points	
	Ergonomic Design: The angled sloping (7°) front stratified safety-glass provides optimum visibility of all objects placed in the interior workspace.	
	Real Laminar AirFlow: Frontal screen 7° sloped as well as back side wall to convey in unidirectional pattern the air flow. As a consequence, the front and back panels are parallel one with the other and there is the real presence of Laminar AirFlow in the whole working area.	
	Interlocking system: Internal and external door of the transfer hatch are synchronized by means of interlock system allowing the external door opening only when the internal door is closed in order to avoid contamination.	
	ECS® Eco Controling System: The new ECS® microprocessor employs the latest innovative methods of integrated management of all principal functions of ventilation and filtration - self-regulating all the main filtration and ventilation system components	
	Anti Bacterial Coating: Exclusive Dupont™ ALESTA® anti-bacterial "Ag+ cations-based solution", capable to prevent microbial contamination of surfaces thereby inhibiting long term surface growth.	
	Silent Operation: The TNT plenum, the structures of the electric motors of the fans fitted on their antivibration mounts and the software itself designed to provide optimum air handling characteristics guarantee quiet operation of this silent safety cabinet, with sound-pressure levels recorded way below the parameters specified in the current EN:12469 European Standard for Microbiological Safety Cabinets.	
	High Level Lighting: The safety glass side-windows with the ideal positioning and sizing of the light-system provide the highest level of luminosity to the work area.	
	Footswitch: A footswitch is supplied as standard in order to un-lock the internal door of the chamber without removing the hands form the gloves.	
	Safety service connections: Gas and vacuum and one (for size 312) or two (for size 315 and 318) electrical socket(s) fitted as standard in each size model	
	Technical Specifications	

	Glove Ports: 300mm glove ports with standard 0.4mm neoprene sleeves and gloves. Unmatched abrasion resistance textile sleeves clamped with PVC flanges by means of strong rubber bands.	
	Transfer hatch: Made by epoxy coated steel and equipped with double in-line H14 HEPA/ULPA and classified as C2 type as per ISO-FDIS 14644-7	
	Sliding Tray: Stainless Steel AISI 316L transfer hatch work surface with sliding tray to move samples and components inside the working chamber	
	External structure: External structure in epoxy powder coated cold-rolled steel for excellent corrosion resistance to the attack by aggressive common chemicals.	
	Rear wall: Rear wall in stainless steel AISI 304 L, designed to conform to requirements and pass the "cleanability test" according to EN12469:2000	
	Work surface: Work surface in stainless steel AISI 316L consisting of sections (or in one piece upon request) which are easily removable for carrying out routine cleaning and/or autoclaving sterilization procedures; closed or perforated on request.	
	Individual testing ports: Individual testing ports positioned on the main chamber and the transfer hatch, in order to connect external devices for various testing	
	Re-circulating and extractor fans: The units are supplied with double motor-fan in order to discharge the total volume of treated filtered air outside the laboratory through a ducting system.	
	Filtration: H14 HEPA/ULPA filters with an efficiency better than 99,995 % MPPS (EN-1822).	
	Operation Condition: Air cleanliness in Class ISO 3 as per ISO:EN 14644-1.	
	User-friendly practical keyboard	
	Display of laminar airflow velocity and frontal air barrier velocity	
	Display of inside and outside temperature	
	Display of residual lifetime of HEPA/ULPA filters, UV Lamp and activated carbon filter (if fitted)	
	Display of total number of hours of operation	
	Display of saturation level of HEPA/ULPA filters	
	Audio-visual alarms provided for:	
	out of range or incorrect laminar airflow velocity and frontal air barrier velocity	
	Incorrect position of front sash window	
	Clogging of HEPA/ULPA filters	
	End of life-cycle of UV lamp	
	Fan-motor malfunction	
	Power failure	
	Lighting	
	Fluorescent tubes in built-in housing, placed outside the contaminated area	
	D.O.P.-DEHS	
	Inlet port for testing the HEPA/ULPA filters	
	Exhaust hard duct connection	
	Due to their intrinsic feature to handle the most hazard group 4 of pathogen, supplied with a 200mm diameter collar on top of the unit for direct connection to exhaust system	
	Technical Sheet	
	Useful dimension mm: WxDxH: 1497x580x740	
	Overall dimension: WxDxH: 2315x880x1740	
	Noise level (dbA): 56	
	Lighting level (lux): >1000	
	Weight (kg): 390	
	Electrical data [230V]: 230 V - 50 Hz	
	- 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.	
	Make: Europe, UK, USA, Japan	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
15	**Digital Electronics Weighing Balance**	11
	Description:	
	Used for weighing chemicals, reagents and biological materials in lab. Also used in sample preparation	
	Physical & Technical Characteristics:	
	Maxium Weighing capacity: 300 g	
	Accuracy: 0.001 g check if 0.0001 accuracy needed	
	Top loading balance	
	Changeable Battery	
	,Digital display Set zero or calibration	
	Windshield: transparent glass draft shield with 3 sliding doors	
	Pan size: 80mm - 120 mm	
17	**Digital Benchtop pH Meter**	9
	Description:	
	Used for measurement of pH of water, buffer and different lab solutions	
	Physical & Technical Characteristics:	
	pH range: 0-14	
	pH resulution: 0.01 pH or better	
	pH accuracy: +/- 1 mV or better	
	mV range: +/- 1999 or better	
	Ta (C) 0 to 99.9 or better	
	System should have auto buffer recognition system for 3 buffer, PH 4, pH 7 and pH9.21.	
	Display: Large backlit LED digital display (multi-line)	
	Data storage: memory up to 100-500 data sets	
	Connectivity: RS-232/USB/Bluetooth / Wifi	
21	**Vortex Mixture**	6
	Description:	
	Type: Compact, benchtop vortex mixer	
	Used for mixing and homogenezing different liquids / substances efficiently and quickly.	
	Purpose: Gentle and efficient mixing of small volumes such as stem cell suspensions, reagents, and media	
	Application: Mixing tubes (0.2 mL to 50 mL), microcentrifuge tubes, culture media tubes, and other lab vessels	
	Physical & Technical Characteristics:	
	Mixing Action: Orbital or circular vortex motion	
	Speed Range: Adjustable, typically 0 to 3000 RPM or better	
	Speed Control: Variable speed dial or digital control	
	Timer: Optional timer function (seconds to minutes)	
	Tube Capacity: Compatible with 0.2 mL to 50 mL tubes and microplates	

	Platform Type: Rubber or silicone cup or flat platform for various tubes	
	Operation Mode: Continuous or touch/press-to-operate mode	
	Power Supply: 110–240 V, 50/60 Hz	
	Noise Level: <60 dB	
	Shaking movement: Orbital	
	Orbital diameter: 4mm	
	Construction Material: Durable plastic housing with corrosion-resistant platform	
	Safety Features: Non-slip base, overload protection	
23	**Benchtop refrigerated Centrifuge (falcon tubes)**	2
	Description:	
	A compact, tabletop device with adjustable speed and time settings, used for quick and efficient sample separation in small-volume tubes in molecular biology workflows.	
	Physical & Technical Characteristics:	
	Built in speedometer	
	Variable speed control	
	Swing-bucket rotors and adapters accommodate tubes and bottles from 0.2 mL to 500mL	
	Plate rotor options for centrifugation of all types of MTP, PCR or Deepwell Plate	
	Fixed-angle rotors for high-speed molecular biology applications in tubes from 0.2 mL to 50 mL	
	High centrifugation speed of up to 21'194 × g (13,700 rpm) Centrifuge lid with soft-touch lid closure	
	Compact footprint saves valuable bench space	
	Automatic rotor recognition and imbalance detection for maximum operational safety	
	Temperature range from -11 °C to 40 °C	
	Max. Relative Centrifugal Force (RCF): 21194 × g (g: gravity) or better	
	Noiseless and vibration free	
	Maintenance free motor	
	Lid safety interlock	
	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**.	
	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.	
	Refrigerator (14 cft)	1
	Discription	
	To preserve the efficacy and safety of chemicals and other temperature sensitive kits	
	Physical & Technical Characteristics:	
	Inverter compressor	
	Capacity: Large	
	Temperature contol	
	LED Lighting,	
	Branded company	

30	**Storage Refirigirators (2 - 8° C)**	5
	Description:	
	To preserve the efficacy and safety of drugs, vaccines and other temperature sensitive pharmaceuticals	
	Physical & Technical Characteristics:	
	Temperature Range: 2 to 8 Centigrade	
	Temperature accuracy: precise temperature control within range of +/- 1 degree centigrade	
	Stability: should maintain stable temperature	
	Temperature Monitoring: Digital Display	
	Microprocessor PID-temperature controller	
	Safety alarms: ice/low, door opening, power failure	
	Capacity:	
	Material: stainless steel	
	Data Logging	
33	**Refrigerator large Double door**	10
	Description:	
	Large-capacity, double-door refrigerator for safe storage of temperature-sensitive reagents, samples, and consumables in a molecular biology laboratory	
	Physical & Technical Characteristics:	
	Type: Upright, double-door laboratory refrigerator.	
	Capacity: Minimum 500–800 liters	
	Temperature Range: +2 °C to +8 °C	
	Temperature Control: Digital temperature controller with clear display (°C).	
	Temperature Uniformity: ± 2 °C throughout the cabinet.	
	Shelves: Adjustable, corrosion-resistant wire or solid shelves (minimum 6).	
	Refrigeration System: CFC-free, energy-efficient compressor with forced-air cooling.	
	Defrost System: Automatic or manual defrost	
	Alarm System: Audible and visual alarms for high/low temperature and door open.	
	Material: Exterior – powder-coated steel, Interior – corrosion-resistant stainless steel or high-quality ABS.	
	Power Supply: 220–240 V, 50/60 Hz, single phase.	
	Compressor: Inverter	
	Compressor Warranty: 10 Years	
	Freezer Capacity Ltr. 186	
	Net Capacity 465	
	Warranty: 3 Year Warranty on Parts and Labor, Service.	
	Additional Requirements	
	External Data Logger must be provided	
34	**Freezer (-20°C) Upright**	5
	Description:	
	Standard upright lab freezer for routine storage of reagents, media, enzymes (short-term biological samples)	
	Physical & Technical Characteristics:	
	Capacity (Liters): ~300 – 400 L	
	Capacity (Cubic Feet): ~10 – 14 ft³	
	Door type: Solid or glass; lockable door with key or electronic access	
	Shelves or Drawers: 5 (movable)	
	Construction: Powder-coated steel exterior, stainless steel interior	
	Insulation: High-efficiency polyurethane foam	
	Temperature range: -10°C to -25°C	
	Temperature uniformity: ±2°C	
	Temperature fluctuation: ±2°C	
	Controller: Microprocessor with digital display	
	Alarm system: Visual & audible for high/low temperature, power failure, door ajar, sensor failure	

	Power failure protection: turn on delay of the cooling system when power failure, restart delay protection.	
	Defrost type: Manual / automatic	
	Certifications: CE / ISO 13485 / ISO 9001 or equivalent	
	Power supply: Specify voltage (e.g., 220–240 V, 50 Hz)	
	Warranty: 3 Year Warranty on Parts and Labor, Service.	
	Additional Requirements	
	External Data Logger must be provided	
	Stainless Steel (SS) racks for upright freezers, for the direct storage of 15 ml or 50 ml centrifuge tubes. Qty: 10	
35	**Storage Freezer (-40°C)**	1
	Description:	
	Standard upright lab freezer for routine storage of reagents, media, enzymes (short-term biological samples)	
	Physical & Technical Characteristics:	
	Capacity (Liters): ~400 – 500 L	
	Capacity (Cubic Feet): ~14 – 18 ft³	
	Door type: Solid or glass; lockable door with key or electronic access	
	Shelves or Drawers: 5 (movable)	
	Construction: Powder-coated steel exterior, stainless steel interior	
	Insulation: High-efficiency polyurethane foam	
	Temperature range: -10°C ~ -40°C	
	Temperature uniformity: ±2°C	
	Temperature fluctuation: ±2°C	
	Controller: Microprocessor with digital display	
	Alarm system: Visual & audible for high/low temperature, power failure, door ajar, sensor failure	
	Power failure protection: turn on delay of the cooling system when power failure, restart delay protection.	
	Defrost type: Manual / automatic	
	Certifications: CE / ISO 13485 / ISO 9001 or equivalent	
	Power supply: Specify voltage (e.g., 220–240 V, 50 Hz)	
	Warranty: 3 Year Warranty on Parts and Labor, Service.	
	Additional Requirements	
	External Data Logger must be provided	
	Stainless Steel (SS) racks for upright freezers, for the direct storage of 2 ml, 15 ml or 50 ml centrifuge tubes. Qty: 10	
	- 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.	
36	**Ultra Low Temperature Freezer (-80°C Large)**	1
	Description:	
	Standard upright lab freezer for routine storage of reagents, media, enzymes (short-term biological samples)	
	Physical & Technical Characteristics:	
	Capacity (Liters): ~500 – 700 L	
	Capacity (Cubic Feet): ~18 – 25 ft³	
	Door type: Solid or glass; lockable door with key or electronic access	

	Shelves or Drawers: 5 (movable)	
	Construction: Powder-coated steel exterior, stainless steel interior	
	Insulation: High-efficiency polyurethane foam	
	Temperature range: -50°C to -86°C	
	Temperature uniformity: ±2°C	
	Temperature fluctuation: ±2°C	
	Controller: Microprocessor with digital display	
	Alarm system: Visual & audible for high/low temperature, power failure, door ajar, sensor failure	
	Power failure protection: turn on delay of the cooling system when power failure, restart delay protection.	
	Defrost type: Manual / automatic	
	Certifications: CE / ISO 13485 / ISO 9001 or equivalent	
	Power supply: Specify voltage (e.g., 220–240 V, 50 Hz)	
	Warranty: 3 Year Warranty on Parts and Labor, Service.	
	Additional Requirements	
	External Data Logger must be provided	
	Stainless Steel (SS) racks for upright freezers, for the direct storage of 2 ml, 15 ml or 50 ml centrifuge tubes. Qty: 10	
	- 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.	
37	**Horizontal Electrophoresis Unit + Power Supply**	1
	Description:	
	Designed for separation and analysis of DNA fragments in agarose gels.	
	Physical & Technical Characteristics:	
	A) Horizontal Electrophoresis Unit	
	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 (e.g., \~10 × 10 cm and \~15 × 20 cm or equivalent).	
	- Trays should allow flexibility for small and large gels.	
	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.	
	Buffer Volume: Low buffer consumption (\~400–700 mL).	
	Safety Features: Safety lid with interlock; transparent cover.	
	Accessories:	
	* Casting dams/tape-less casting system	
	* spare comb	
	* User manual	

	* starter kit.	
	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.	
38	**Laminar flow cabinet (not for biohazard, but for contamination control).**	3
	Benchtop, enclosed on 3 sides with transparent polycarbonate or tempered glass.	
	Core Specifications	
	1. Construction	
	Powder-coated steel or aluminum frame.	
	Transparent front shield with sash/door for access.	
	Stainless steel or chemical-resistant work surface.	
	2. Airflow & Filtration	
	Vertical laminar airflow (HEPA-filtered, efficiency ≥99.99% at 0.3 µm).	
	Provides particle-free work zone to minimize contamination of PCR reagents.	
	3. UV Decontamination	
	Built-in **UV germicidal lamp (254 nm)** for pre- and post-work decontamination.	
	Safety interlock: UV automatically switches off when sash is open.	
	Optional **timed UV cycle** for automatic sterilization.	
	4. Lighting	
	LED or fluorescent white light for clear workspace visibility.	
	5. Electrical & Safety	
	220–240 V, 50/60 Hz (Pakistan standard).	
	Internal power sockets for pipettes, mini-centrifuges, etc.	
	Alarm/indicator for HEPA filter replacement.	
39	**Thermoblock (Heat Block)**	1
	Description:	
	Used for precise and uniform heating of small-volume biological samples (DNA, RNA, proteins, enzymes) in microtubes, PCR tubes, and microplates during molecular biology and biochemistry experiments.	
	Physical & Technical Characteristics:	
	Instrument should be suitable for use in molecular biology, biochemistry, and clinical laboratories.	
	Designed for uniform and precise heating of microtubes, PCR tubes, cryovials, and microplates.	
	Compact, benchtop model with robust construction for continuous laboratory use.	
	Easy to operate with digital display and user-friendly interface.	
	Should meet international safety and quality standards (CE/ISO certified).	
	Technical Specifications:	
	Temperature Range: Ambient +5 °C to 100–120 °C (or higher).	
	Temperature Accuracy: ±0.2–0.5 °C.	
	Temperature Uniformity: ±0.3 °C across block.	
	Heating Rate: ≥ 5 °C/min (from ambient to 100 °C).	
	Timer Function: Programmable timer (1 min to 99 hrs or continuous).	

	Control System: Microprocessor-controlled with digital temperature and time display.	
	Interchangeable Blocks: Compatible with multiple block types (0.2 mL, 0.5 mL, 1.5/2.0 mL microtubes, 15 mL & 50 mL centrifuge tubes, PCR strips/plates).	
	Capacity: At least 1–2 interchangeable blocks; minimum capacity for 24 × 1.5/2.0 mL tubes.	
	Safety Features: Over-temperature protection, auto cut-off, heat-resistant body.	
	Power Supply: 220–240 V, 50/60 Hz (compatible with local standards).	
	Accessories: 3 interchangeable aluminum blocks of commonly used sizes should be included.	
	Warranty: 3 years warranty with after-sales support.	
40	**Multi-plate shaker**	2
	Digital orbital **microplate shaker**.	
	Compatible with standard **96-well, 384-well, and deep-well plates**.	
	Specifications	
	1. Capacity	
	Holds **standard microplates (SBS format)** simultaneously.	
	Spring or clamping mechanism to secure plates.	
	2. Shaking Motion	
	Orbital shaking with diameter: **2–3 mm** (optimized for microplates).	
	Speed range: **200 – 1,200 rpm** (variable).	
	Digital speed control with accuracy ±5 rpm.	
	3. Timer & Control	
	Programmable timer: **1 min – 99 hrs** (continuous mode available).	
	Digital LCD/LED display for time, speed, and operation status.	
	Microprocessor-controlled for precise reproducibility.	
	4. Construction	
	Compact benchtop design.	
	Non-slip platform with anti-vibration mechanism.	
	Easy-clean corrosion-resistant body.	
	5. Safety Features	
	Overload and overheating protection.	
	Audible alarm after program completion.	
	Automatic stop if lid/plate holder is not secured.	
	6. Environment & Performance	
	Operating temperature: **+4 °C to 40 °C**, humidity up to 80%.	
	Suitable for use inside CO_2 incubators (optional advanced models).	
	Quiet operation (<65 dB).	
	7. Power Supply	
	220–240 V, 50/60 Hz (Pakistan compatible).	
	Energy-efficient low-maintenance motor.	
	Warranty: 3 Year Warranty on Parts and Labor, Service.	
	Additional Requirements	
	- 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.	
41	**Computer System**	5
	Processor (CPU)	
	Intel **Core i9-14900K** (24 cores, up to 6.0 GHz) or AMD Ryzen 9 7950X3D (16 cores, 32 threads, 5.7 GHz)	
	Supports AI acceleration and heavy computational loads.	
	Memory (RAM): 32 GB DDR5	
	High frequency (5600–6400 MHz).	
	Dual-channel for maximum bandwidth.	
	Storage	
	Primary: **1 TB NVMe Gen 4 SSD** (OS + software, ultra-fast).	

	Secondary: **2–4 TB HDD or SSD** for large datasets, raw sequencing files, backups.	
	Graphics (GPU)	
	NVIDIA **RTX 4080 / RTX 4090 (16–24 GB GDDR6X)** for computational biology, AI/ML, deep learning, molecular modeling, and visualization.	
	Motherboard	
	Compatible with latest Intel Z790 / AMD X670E chipset.	
	PCIe 5.0 support, multiple M.2 NVMe slots.	
	At least **2.5 Gbps LAN** and Wi-Fi 6E.	
	Power Supply	
	850W – 1000W, 80+ Gold/Platinum certified (for GPU support).	
	Cooling System	
	Liquid cooling or high-performance air cooling.	
	Multiple fans for stable thermal management during long simulations.	
	Display	
	27–32 inch **4K UHD monitor**, IPS or OLED, anti-glare, with >90% sRGB/AdobeRGB (for detailed image analysis).	
	Option: Dual-monitor setup for productivity.	
	Operating System	
	Windows 11 Pro (64-bit) *a.d/or* Ubuntu Linux (dual boot for bioinformatics tools).	
	Ports	
	Multiple USB 3.2 / USB-C	
	HDMI 2.1 / DisplayPort 1.4	
	Thunderbolt 4 (if Intel-based)	
	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**.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
42	**Data Analysis Work-Station**	1
	Processor (CPU): AMD Ryzen Threadripper PRO 5975WX	
	32 cores / 64 threads	
	Base Clock: 3.6 GHz (Boost up to 4.5 GHz)	
	128 MB L3 cache	
	Ideal for multi-threaded computational biology, NGS pipelines, and simulations.	
	Graphics (GPU): NVIDIA GeForce RTX 4090	
	24 GB GDDR6X dedicated VRAM	
	CUDA, Tensor, and RT cores optimized for **AI/ML, deep learning, and molecular modeling**	
	4 × DisplayPort 1.4a + 1 × HDMI 2.1	
	Memory (RAM): 128 GB DDR4 ECC Registered	
	High-bandwidth for running multiple heavy applications and datasets simultaneously.	
	Storage	
	2 TB NVMe SSD (Primary, Gen 4) → Fast OS, applications, and NGS dataset processing.	
	4 TB HDD (Secondary, 7200 RPM) → Data archiving and long-term storage.	
	Motherboard	
	ASUS PRO WS WRX80E-SAGE SE WiFi	
	Supports Threadripper PRO processors	
	ECC memory support	
	Dual Intel 10G LAN + WiFi 6E	
	Multiple PCIe 4.0 slots for expandability	
	Display	
	Dell P2219H 21.5" Monitor	
	Full HD 1080p IPS LED-Lit	

	60 Hz refresh rate	
	Ultrathin bezel for multi-monitor setup	
	Adjustable stand (tilt, swivel, pivot, height)	
	Additional Features	
	High-efficiency liquid cooling for CPU.	
	1200W Platinum-rated PSU for GPU + CPU stability.	
	Chassis with optimized airflow and expansion capability.	
	Pre-configured for **Ubuntu Linux (dual boot)**.	
	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**.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
43	**Heat Block**	2
	Description:	
	Used for precise and uniform heating of small-volume biological samples (DNA, RNA, proteins, enzymes) in microtubes, PCR tubes, and microplates during molecular biology and biochemistry experiments.	
	Physical & Technical Characteristics:	
	Instrument should be suitable for use in molecular biology, biochemistry, and clinical laboratories.	
	Designed for uniform and precise heating of microtubes, PCR tubes, cryovials, and microplates.	
	Compact, benchtop model with robust construction for continuous laboratory use.	
	Easy to operate with digital display and user-friendly interface.	
	Should meet international safety and quality standards (CE/ISO certified).	
	Technical Specifications:	
	Temperature Range: Ambient +5 °C to 100–120 °C (or higher).	
	Temperature Accuracy: ±0.2–0.5 °C.	
	Temperature Uniformity: ±0.3 °C across block.	
	Heating Rate: ≥ 5 °C/min (from ambient to 100 °C).	
	Timer Function: Programmable timer (1 min to 99 hrs or continuous).	
	Control System: Microprocessor-controlled with digital temperature and time display.	
	Interchangeable Blocks: Compatible with multiple block types (0.2 mL, 0.5 mL, 1.5/2.0 mL microtubes, 15 mL & 50 mL centrifuge tubes, PCR strips/plates).	
	Capacity: At least 1–2 interchangeable blocks; minimum capacity for 24 × 1.5/2.0 mL tubes.	
	Safety Features: Over-temperature protection, auto cut-off, heat-resistant body.	
	Power Supply: 220–240 V, 50/60 Hz (compatible with local standards).	
	Accessories: 3 interchangeable aluminum blocks of commonly used sizes should be included.	
	Warranty: 3 years warranty with after-sales support.	
44	**Laboratory Ice Maker Machine**	1
	Description:	
	Compact, automatic machine producing flake/cube ice using purified water; stainless steel body, corrosion-resistant.	
	Physical & Technical Characteristics:	
	Automatically Controlled Processes for ice making continuously.	
	Ice storage capacity: 10kg or more	
	Dimensions WxDxH (mm): 330x470x605	
	Net/gross weight : 40/45kg approximately	

	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**.	
	An **Uninterruptible Power Supply (UPS)** shall be installed to provide a **minimum of 30 minutes of backup power** for the equipment.	
	Maximum Speed: ≥ 6,000 rpm (or ≥ 2,000 × g).	
	Operation: Instant spin with lid-close activation; automatic stop when lid is opened	
	Rotor Type: Fixed-angle rotor, durable and autoclavable	
	Material: Chemical-resistant, robust construction	
	Power Supply: Compatible with standard laboratory AC voltage (220–240 V, 50/60 Hz)	
45	**Cell counter (fully automated)**	1
	Description:	
	Fully automated, AI-powered cell counter for brightfield and dual fluorescence imaging.	
	Slide-free operation with a reusable built-in sample surface.	
	Physical & Technical Characteristics:	
	Counting and Analysis Features:	
	Cell concentration measurement range: approximately 5 × 10^3 to 2 × 10^7 cells/mL (dependent on cell type).	
	Supports viability assays using dyes such as Acridine Orange (AO) and Propidium Iodide (PI), Trypan Blue, and others.	
	Automated detection and counting of single cells, clusters, debris exclusion, and viability differentiation.	
	Brightfield and fluorescence imaging with built-in filters for dual channel analysis.	
	AI-enabled image recognition and analysis for fast, reproducible results.	
	Sample Handling:	
	No disposable slides required; sample is applied directly to the imaging surface.	
	Minimum sample volume: ~10 µL.	
	Easy cleaning and maintenance of sample surface between measurements.	
	Performance:	
	Rapid analysis time: ≤ 15 seconds per sample.	
	High accuracy and reproducibility, with automated focusing and image capture.	
	Results displayed on an integrated touchscreen interface.	
	User Interface and Software:	
	Intuitive, touchscreen-operated software with pre-loaded protocols for common cell types (including stem cells and iPSCs).	
	Capability to customize protocols and save measurement parameters.	
	Software supports data storage, statistical analysis, and report generation.	
	Physical and Environmental Requirements:	
	Compact footprint suitable for standard laboratory benches.	
	Power supply: standard 220–240 V AC	
	Operating temperature: 15–30°C; humidity: 20–80% non-condensing.	
	Additional Features:	
	Portable and easy to relocate within the laboratory.	
	Minimal calibration requirements.	
	Robust construction with warranty and service support options.	
	Warranty: 3 Year Warranty on Parts and Labor, Service.	
	Additional Requirements	
	- 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.	
46	**Vacuum aspirator pump / suction pump** with collection bottle.	5
	Oil-free (diaphragm or piston type) for clean operation.	
	Vacuum Range	
	Adjustable vacuum pressure: **0 – 700 mmHg (0 – 93 kPa)**.	
	Flow rate: **10–30 L/min** depending on model.	
	Collection System	
	1–2 L autoclavable bottle (polypropylene or glass).	
	Overflow protection & hydrophobic filter to prevent contamination.	
47	**Large-capacity laboratory-grade microwave oven.**	6
	Specifications	
	1. Capacity	
	≥ 40 liters internal chamber volume.	
	Stainless steel interior (easy to clean and corrosion-resistant).	
	Flatbed design preferred (no rotating plate, uniform heating).	
	2. Power & Control	
	Microwave output power: **≥ 1,000 W** adjustable in multiple steps.	
	Frequency: 2.45 GHz.	
	Programmable digital microprocessor controller.	
	Adjustable time (seconds to hours) and power settings.	
	3. Temperature Control	
	Built-in temperature sensor/probe for monitoring.	
	Temperature range: **Ambient to 100 °C (or higher depending on application)**.	
	Accuracy: ±1 °C.	
	4. Safety Features	
	Door safety interlock system (microwave shuts off if door opened).	
	Overheating protection with auto shut-off.	
	Ventilation system with filter.	
	ISO/CE certified for lab use.	
	5. Construction	
	Double-walled stainless steel chamber with reflective interior.	
	Outer body: Powder-coated steel.	
	Large viewing window with protective screen.	
	Interior light for monitoring samples.	
	6. Display & Operation	
	Digital LCD/LED display for power, temperature, and time.	
	Programmable memory for multiple protocols.	
	Audible alarms on cycle completion.	
	7. Power Supply	
	220–240 V, 50 Hz (Pakistan compatible).	
	Energy-efficient inverter technology preferred	
48	**Slide trays**	100
	Laboratory-grade **microscope slide storage trays**.	
	Suitable for long-term storage and easy retrieval of standard 25 × 75 mm slides.	
	Specifications	
	1. Material	

	Made of **durable, chemical-resistant ABS plastic / high-quality polystyrene / metal (powder-coated steel)** depending on model.	
	Smooth finish, washable, and resistant to alcohol, xylene, and other common lab chemicals.	
	2. Capacity	
	Each tray should hold **≥ 100 slides** (standard size: 25 × 75 mm).	
	Numbered slots for easy slide identification and indexing.	
	Grooved channels to prevent slides from overlapping or sticking.	
	3. Design	
	Low-profile and stackable design for compact storage.	
	Sliding or lift-off transparent cover (dust-proof).	
	Non-slip base.	
	Option of **wooden slide trays** (polished hardwood with numbered slots and hinged cover) acceptable for histopathology museums.	
	4. Dimensions	
	Standard tray dimensions: approx. **34 × 25 × 3 cm** (for 100-slide capacity).	
	Should fit into laboratory slide storage cabinets.	
	5. Labeling	
	Numbered index slots (1–100).	
	Labeling area for tray identification.	
	6. Color / Finish	
	Light-colored interior (for visibility of slides).	
	Trays may be supplied in assorted colors for coding.	
49	**Laboratory-grade Hot Plate with Magnetic Stirring function.**	3
	Specifications	
	1. Heating Plate	
	Material: **Ceramic-coated / Stainless steel** (chemical- and corrosion-resistant).	
	Plate size: **≥ 140 × 140 mm** (medium) or **≥ 180 × 180 mm** (large).	
	Temperature range: **Ambient +5 °C to ≥ 320–400 °C**.	
	Temperature accuracy: ±1 °C (with external probe).	
	Uniform heat distribution across surface.	
	2. Stirring System	
	Stirring speed: **100 – 1500 rpm** (adjustable).	
	Stirring capacity: **up to 2–5 liters (H_2O)** depending on model.	
	Powerful magnetic coupling with PTFE-coated stir bars.	
	3. Control & Display	
	Separate knobs/dials for **temperature** and **stirring speed**.	
	Digital/LED display preferred for accuracy.	
	Safety warning indicator for hot surface.	
	4. Safety Features	
	Over-temperature protection with automatic shut-off.	
	Non-slip, chemical-resistant body.	
	Enclosed design to prevent liquid entry.	
	CE/ISO certified laboratory equipment.	
	5. Power Supply	
	220–240 V, 50 Hz (Pakistan-compatible).	
	Power: **≥ 500–800 W**.	
	6. Accessories	
	PTFE-coated magnetic stir bars (assorted sizes).	
	Optional: External **temperature sensor probe (Pt100)**.	
	Support rod & clamp for holding glassware/thermometers.	
50	**Laboratory-grade borosilicate glass staining jars with matching metal or plastic racks.**	10
	Specifications	
	1. Material	
	Borosilicate glass (heat- and chemical-resistant).	
	Transparent, autoclavable.	

	Racks: **Stainless steel (SS 304)** or **Teflon-coated metal/plastic**.	
	2. Jar Dimensions & Capacity	
	Capacity: **250–500 mL per jar**.	
	Standard size to accommodate **slides 25 × 75 mm**.	
	Leak-proof design with ground glass or tight-fitting lid.	
	3. Slide Rack Specifications	
	Holds **10–24 slides** (standard 75 × 25 mm).	
	Removable, corrosion-resistant, and easy to clean.	
	Smooth edges to prevent slide breakage.	
	4. Temperature & Chemical Resistance	
	Withstands **–20 °C to +2^0 °C**.	
	Resistant to xylene, alcohol, and common staining reagents.	
	Autoclavable at **121 °C**.	
	5. Safety & Handling	
	Easy-grip design for safe transfer.	
	Compatible with staining setups (manual and automated).	
	Non-reactive and reusable.	
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
51	**Grossing Tool Set Kit**	3
	Complete set of **grossing and dissection instruments** for histopathology and anatomy labs.	
	Packed in a durable box or sterilizable tray.	
	Specifications	
	1. Material	
	High-grade stainless steel (SS 304 / SS 316).	
	Corrosion-resistant, reusable, and autoclavable.	
	Ergonomically designed handles for safe grip.	
	2. Standard Kit Contents *(minimum required)*	
	Dissecting scissors – Straight & curved, 6–8 inches (2–3 pcs).	
	Forceps – Toothed & non-toothed, 6–8 inches (2–3 pcs).	
	Scalpels/Handles – No. 3 & 4 with disposable blades (pack of 100 blades).	
	Ruler/Scale – Stainless steel, 15–30 cm.	
	Bone cutter / Rib shear – 8–10 inches.	
	Dissecting knife / Grossing knife – Stainless steel blade, 6–8 inches (1–2 pcs).	
	Chisel & mallet (for hard tissue samples, optional).	
	Probe with seeker / Applicator – 6–8 inches.	
	Measuring calipers – Stainless steel, 15 cm.	
	Disposable gloves & marking pens – Starter pack.	
	3. Storage & Sterilization	
	Packed in **autoclavable stainless steel/instrument tray** with lid.	
	Foam/slot inserts for secure instrument placement.	
	Resistant to repeated sterilization cycles.	
	4. Safety Features	
	Blunt tip scissors/forceps for safe grossing.	
	Non-slip handles.	
	Instruments meeting **ISO / CE certification** standards.	
52	**Refrigerated Centrifuge for Stem Cell Laboratory**	1
	Description:	
	The instrument must have the capacity of 1000-100,000 RPM with 100 RPM steps	
	The system should have heat out put not more than 1KW	
	The Max. capacity of system should be 6x 230 mL or better	
	The system must offer atleast 1000 number of programs	
	The system should have Rotor life management and Rortor ID detection system	
	The noise level of the system must not be more than 51 dB(A)	
	The system should offer USB : 1xHost, 1xDevise / 1xLAN Interfaces	
	The centrifuge must be a refrigerated centrifuge with temeperature range of 0 to 40 °C and accuracy of ±0.5 °C	
	The system must have a Thermo-module cooling system (CFC/HCFC/HFC-free)	

	The system must offer 10 acceleration and 11 decceleration modes or better	
	The system must be offering Oil rotary vaccum pump and oil diffusion pump	
	The system should have regenerative braking system with energy recovery	
	The system must have 29 number of rotors compatible or better including Fixed angle, neo angle, swing bucket and vertical rotor	
	atleast one fixed angle rotor with the capacity of 10 x 12 mL should be provided with the system	
	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.	
53	**Steel racks for gross specimens**	10
	Heavy-duty stainless steel storage racks designed for safe storage of gross pathology specimens in jars/containers.	
	Suitable for **histopathology, anatomy, and medical teaching labs**.	
	Specifications	
	1. Material	
	High-grade stainless steel (SS 304 or better).	
	Rust-proof, corrosion-resistant, and easy to disinfect.	
	Smooth polished finish (hygienic and chemical resistant).	
	2. Dimensions	
	Customizable, but typical size: **6–7 feet (H) × 3–4 feet (W) × 1.5–2 feet (D)**.	
	Shelves: **4–6 adjustable shelves per rack**.	
	Shelf clearance: **≥ 40 cm** (to accommodate specimen jars of various sizes).	
	3. Load Capacity	
	Each shelf should support **≥ 50–80 kg** distributed load.	
	Reinforced frame for heavy specimen jars.	
	4. Shelf Design	
	Flat or perforated stainless steel shelves.	
	Adjustable height to fit different container sizes.	
	Rounded edges for safety.	
54	**Online UPS (10kVA)**	5
	Capacity & Topology	
	Rated Power: 10 kVA (≈10 kW for PF ≈1)	
	Topology: Double-conversion on-line (AC → DC → AC) — provides continuous pure sine wave output and isolates the load from mains disturbances. gdcboysang.ac.in+3Norden Communication+3assets.serverroomenvironments.co.uk+3	
	Output Power Factor: Typically 0.9 to 1.0 (i.e., 10 kVA ~ 9 kW to 10 kW) Norden Communication+1	
	Input / Output Electrical Characteristics	
	Input Voltage: 220/230/240 V AC (single phase + neutral + earth) or optionally 200/208/220 240 V depending on region. deltapowersolutions.com+1	
	Input Voltage Range: e.g., 175-280 V (for full load) or wider depending on model. deltapowersolutions.com+1	

	Input Frequency: 50/60 Hz auto-sensing; e.g., 40-70 Hz support. Norden Communication+1	
	Output Voltage: Selectable, e.g., 220/230/240 V AC (single phase) Norden Communication+1	
	Voltage Regulation (line mode): ±1% typical. Norden Communication+1	
	Frequency Stability: e.g., 50/60 Hz ±0.05 Hz or similar. deltapowersolutions.com	
	Output Waveform: Pure sine wave. Norden Communication+1	
	Total Harmonic Distortion (THD) at output:	
	≤2% with linear loads Norden Communication+1	
	≤5% with non-linear loads in some specs. Norden Communication	
	Efficiency & Power Factor	
	Efficiency (on full load): typical > 92–95% for many models. gdcboysang.ac.in+1	
	In "Eco" / energy-saving mode: up to ~99% in some models. deltapowersolutions.com	
	Battery & Runtime	
	Battery Voltage: e.g., 192/216/240 VDC (e.g., 16/18/20 cells) or other battery configuration. Norden Communication+1	
	Recharge Time: Typical 6–8 hours to ~90% capacity. Norden Communication	
	Runtime: Depends on battery bank size; many spec sheets require e.g., 60 minutes at full load for procurement. BidPlus+1	
	Physical & Environmental	
	Overload Capacity: e.g., 106-125% for 5–30 minutes; 126-150% for shorter durations. deltapowersolutions.com+1	
	Noise Level: Typically <50 dB-A at 1 m for 10 kVA units. deltapowersolutions.com+1	
	Operating Temperature: 0-40 °C or up to 55 °C with de-rating. deltapowersolutions.com+1	
	Humidity: 5-95% non-condensing (varies). deltapowersolutions.com	
	Protection: Input under/over voltage, overload, short-circuit, battery low/high voltage, internal fault bypass (static/automatic). gdcboysang.ac.in	
55	**Refrigerated Micro-Centrifuge**	2
	Description:	
	a compact, high-speed centrifuge designed for small-volume tubes (0.2–2.0 mL) in molecular biology labs.	
	Physical & Technical Characteristics:	
	Type: Bench-top microcentrifuge for 1.5/2.0 mL microtubes (optional adaptors for	
	Capacity: Minimum 24 × 1.5/2.0 mL tubes or equivalent rotor options.	
	Maximum Speed: ≥ 14,000 rpm (≥ 16,000 × g RCF).	
	Speed Control: Digital or analog with variable speed settings.	
	Rotor Type: Fixed-angle rotor, autoclavable.	
	Display: Digital display for speed and time (where applicable).	
	Operation: Timer range at least 0–30 minutes; continuous mode available.	
	Material: Chemical-resistant, robust construction.	
	Noise Level: ≤ 60 dB during operation.	
	Power Supply: Compatible with standard laboratory AC voltage (220–240 V, 50/60 Hz).	
	Safety Features:	
	- Lid safety interlock to prevent opening while rotor is spinning.	
	- Imbalance detection and automatic shut-off.	
56	**Micro Pipettes manual (Variable Volume i.e., 2 ul, 10 ul, 20 ul, 100 ul, 200 ul and 1000 ul)**	20
	Description:	

	Sophisticated calibrated instruments used for accurately and precisely measuring the small volumes of reagents and fluids for reactions	
	Physical & Technical Characteristics:	
	Type: Adjustable, variable-volume, single-channel micropipettes.	
	Volume ranges:	
	* 0.5–10 µL : (Qty 03)	
	* 2–20 µL : (Qty 03)	
	* 20–200 µL : (Qty 03)	
	* 100–1,000 µL : (Qty 03)	
	Accuracy and Precision: Must comply with ISO 8655 standards.	
	Features:	
	Ergonomic, lightweight design with low plunger force.	
	Autoclavable lower parts (cone, piston, ejector).	
	Easy volume adjustment with click-stop mechanism.	
	Volume clearly displayed on digital counter window.	
	Durability: Chemical-resistant materials, long service life.	
	Supplied As: Pack of 4 pipettes with calibration certificate.	
	Supplied with compatible pipette tips (1 pack for each pipette)	
	User manual and calibration certificate included	
	Warranty: 3 years with local service support.	
57	**Digital / Electronic Pipettes, single channels**	12
	Description:	
	Digital/Electronic Motorized pipette with digital display used for precise volume settings and reducing manual error in repetitive or sensitive experiments.	
	Physical & Technical Characteristics:	
	Volume ranges:	
	* 0.5–10 µL with increment : 0.01 µL (Qty 04)	
	* 2–20 µL with increment : 0.02 µL (Qty 04)	
	* 100–1000 µL with increment : 1 µL (Qty 04)	
	Accuracy and Precision: Must comply with ISO 8655 standards.	
	Type of Equipment:	
	* Single-channel	
	* Electronically controlled digital pipette	
	* Battery-powered with rechargeable battery	
	Display and Controls:	
	* Clear digital display of set volume	
	* User-friendly interface (button or touch control)	
	* Easy volume adjustment with lock function to prevent accidental changes	
	* Display of battery status (optional)	
	Performance and Features:	
	Ergonomic, lightweight design	
	High accuracy and repeatability	
	Programmable for multiple pipetting modes	
	Volume clearly displayed on digital counter window.	
	Durability: Chemical-resistant materials, long service life.	
	Supplied As: Pack of 3 pipettes with calibration certificate.	
	Autoclavable lower parts or easily detachable components for sterilization	
	Power Supply:	
	Rechargeable battery with long battery life	
	Battery backup or manual override	
	Accessories and Consumables:	
	Supplied with compatible pipette tips (1 pack for each pipette)	
	Charging unit or USB cable included	
	Stand or holder for storage	

	User manual and calibration certificate included	
	Compliance and Certification:	
	* ISO 8655 compliance	
	* CE, RoHS certified or equivalent	
	* Manufacturer should be ISO 9001 certified	
	Warranty and Support:	
	* Option for AMC (Annual Maintenance Contract) post-warranty	
58	**Digital/Electronics Multi-channel Pipettes (08 channels)**	6
	Description:	
	Pipette with multiple channels for simultaneous sample transfer.	
	Physical & Technical Characteristics:	
	Type: 8-channel adjustable volume micropipette	
	Multichannel pipettes can be used with 96- and 384-well microplates and may be programmable or feature adjustable tip spacing	
	Volume ranges:	
	* 0.5–10 µL with increment : 0.01 µL (Qty 03)	
	* 2–20 µL with increment : 0.02 µL (Qty 03)	
	* 100–1000 µL with increment : 1 µL (Qty 03)	
	Provide as set of 3 pipetters, each set contains all abovementioned ranges.	
	Clear, legible LCD screen	
	Intuitive interface with user-friendly design allows easy operation.	
	Soft touch pipetting key and adjustable finger rest provides added comfort.	
	Rechargeable battery provides over 4000 pipetting cycles between charges.	
59	**Digital/Electronics Multi-channel Pipettes (12 channels)**	15
	Description:	
	Pipette with multiple channels for simultaneous sample transfer.	
	Physical & Technical Characteristics:	
	Type: 12-channel adjustable volume micropipette	
	Multichannel pipettes can be used with 96- and 384-well microplates and may be programmable or feature adjustable tip spacing	
	Volume ranges:	
	* 0.5–10 µL with increment : 0.01 µL (Qty 03)	
	* 2–20 µL with increment : 0.02 µL (Qty 03)	
	* 100–1000 µL with increment : 1 µL (Qty 03)	
	Provide as set of 3 pipetters, each set contains all abovementioned ranges.	
	Clear, legible LCD screen	
	Intuitive interface with user-friendly design allows easy operation.	
	Soft touch pipetting key and adjustable finger rest provides added comfort.	
	Rechargeable battery provides over 4000 pipetting cycles between charges.	
60	**Pipette Filler / Sucker (automatic)**	3
	Description:	
	Used for aspirating and dispensing liquids with automatic mechanism.	
	Physical & Technical Characteristics:	
	For pipettes from 0.1 to 100 ml.	
	One-finger control for the dispensing and blow-out functions.	
	Pump speed control.	
	Supplied with wall holder.	
61	**Tissue processor (Rapid)**	1

	Cassette capacity: up to 300 cassettes Storage temp of reagents should be ambient to 35deg C Reagent temperature in processing chamber from Ambient to 55 deg C Paraffin processed in chamber at a temperature of 60 deg C to 75 deg C Paraffin melt time from pellets should be 4-5 hours	
62	**Fully automated multimode microplate reader.**	1
	Compatible with 96-well, 384-well, and optional 1536-well plates.	
	Suitable for molecular biology, biochemistry, drug discovery, and clinical diagnostics.	
	Specifications	
	1. Detection Modes	
	UV-Visible Absorbance (200–1000 nm)	
	Fluorescence Intensity (FI).	
	Fluorescence Polarization (FP) (optional).	
	Luminescence (LUM).	
	Time-Resolved Fluorescence (TRF).	
	AlphaScreen/AlphaLISA (optional in high-end models).	
	2. Optics System	
	Monochromator-based or filter-based optics (dual option preferred).	
	Spectral scanning capability across the full range.	
	Wavelength selection: **1 nm increments.**	
	High sensitivity photomultiplier tube (PMT) detector.	
	3. Measurement Performance	
	Absorbance range: **0–4 OD**.	
	Wavelength accuracy: ±1 nm.	
	Fluorescence detection limit: **<1 pM fluorescein equivalent**.	
	Luminescence: **>8 decades dynamic range**.	
	Read speed: <20 seconds for 96-well plate.	
	4. Plate Compatibility	
	Standard: 6–384 well plates.	
	Plate shaking (linear/orbital, variable speed).	
	Automatic plate recognition and calibration.	
	5. Software	
	User-friendly software with predefined assay protocols.	
	Data export in Excel, PDF, and LIMS-compatible formats.	
	Kinetic, endpoint, and spectral scanning modes.	
	Curve fitting, IC_{50}/EC_{50}, and statistical analysis tools.	
	6. Temperature & Environment Control	
	Incubation range: **Ambient +4 °C to 45 °C** (±0.5 °C).	
	CO_2/O_2 control module (optional).	
	Suitable for kinetic cell-based assays.	
	8. Safety & Power	
	Auto lamp shut-off when idle.	
	Overload and overheating protection.	
	220–240 V, 50 Hz (Pakistan compatible).	
	Warranty: 3 Year Warranty on Parts and Labor, Service.	
	Additional Requirements	
	- 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.	
63	**Ice box chiller plastic with lifting handle**	5
	Description:	
	Used in laboratories and fieldwork to preserve temperature-sensitive materials within 2–8 °C for extended periods.	
	Physical & Technical Characteristics:	
	Capacity: 3 Liters (±10%)	
	Temperature Holding: Should maintain 2–8 °C for at least 12–18 hours with ice packs at 32–35 °C ambient temperature.	
64	**Cryoboxes**	10
	Description:	
	Rigid storage boxes with grid dividers used for the organized storage and identification of cryovials at ultra-low temperatures in freezers	
	Physical & Technical Characteristics:	
	Durabe all-plastic cryoboxes for short- and long-term storage	
	Usable at temperature range from -196°C to +121°C or better	
	Boxes should have dividers and vents in base for good drainage and air circulation.	
	Dividers: from 25 to 169 tube storage or more	
	Color: Blue (preferrably)	
	Shape: Square	
	Holds: 81 (for storage of 1 to 2 mL Vials) or more	
	Tube Array: 9 x 9	
	Box Length: 5.25 inches or more	
	Box Width: 5.25 inches or more	
	Box Height: 2 inches or more	
	Box Weight: 0.63 kg (approximately)	
65	**Transfert system Transblot turbo**	1
	Rapid, high-efficiency electrotransfer of proteins from SDS-PAGE gels to PVDF or nitrocellulose membranes for Western blot analysis	
	Model: Trans-Blot® Turbo or equivalent	
	Semi-dry electrotransfer system with uniform pressure and controlled current for consistent protein transfer	
	Fast transfer in **3–10 minutes** for most proteins	
	Compatible with **Mini (7.5 × 8.5 cm)** and **Midi (13.5 × 8.5 cm)** gels	
	- **Preset Programs**: Standard, high-molecular weight, and low-molecular weight protein modes	
	- **User-defined Programs**: Custom voltage/time settings	
	Output Voltage / Current / Power	
	Up to **25 V DC, 2.5 A, 300 W (max)**	
	LCD graphical display with membrane keypad control for protocol selection and real-time monitoring	
	Storage for **≥ 25 user-defined protocols**	
	Safety Features	
	Automatic power cutoff when lid opened, over-current and temperature protection	
	Compatible Membranes	
	PVDF (0.2 µm) and Nitrocellulose membranes	
	Buffer System	
	Compatible with pre-assembled transfer packs and user-prepared buffers	
	Accessories / Consumables	
	- Trans-Blot Turbo Mini and Midi PVDF Transfer Packs	

	- Trans-Blot Turbo Mini and Midi Nitrocellulose Packs	
	- PVDF membrane rolls (0.2 µm)	
	Power Requirements	
	100–240 V AC, 50/60 Hz (auto-sensing)	
	Temperature: 10–30 °C ; Humidity ≤ 85 % (non-condensing)	
	Certifications	
	CE, cUL, RoHS compliant	
	Supplied With	
	Main unit, power cord, user manual, starter pack (Mini & Midi transfer packs)	
	Additional Requirements	
	- Must be new and manufactured within the last 12 months	
	Service Contracts: At least five years of services must be provided along with system	
	- Vendor must provide installation, demonstration, and basic user training at site	
	- Must include certificate of conformity and manufacturer's authorization	
66	**Plate sceller PX1 PCR**	1
	Automated thermal sealing of PCR plates, qPCR plates, and microplates to prevent evaporation and contamination during thermal cycling or sample storage.	
	PX1™ PCR Plate Sealer	
	Sealing Method	
	Heat sealing using pre-cut sealing films or foils.	
	Seal Compatibility	
	Compatible with 96-well and 384-well PCR plates (skirted, semi-skirted, and non-skirted).	
	Aluminum foil, clear polypropylene, optically clear films (qPCR compatible), pierceable films, and gas-permeable membranes.	
	Adjustable from **80 °C – 200 °C** (programmable).	
	Adjustable **0.1 – 10 seconds** (user-selectable).	
	Uniform flat-block heating element ensuring consistent sealing temperature across plate surface.	
	Fixed and optimized for microplate sealing; uniform sealing pressure across full plate.	
	Digital LCD display with simple keypad or touchscreen for setting temperature and time.	
	Storage for at least **10 user-defined sealing protocols**.	
	≤ 5 minutes to reach sealing temperature.	
	Up to **6 plates per minute** (depending on sealing conditions).	
	Safety Features	
	Over-temperature protection, automatic standby mode, and insulated heat block to prevent burns.	
	Power Requirements	
	100 – 240 V AC, 50/60 Hz (auto-sensing)	
	Operating Environment	
	15 – 30 °C; relative humidity ≤ 80 % non-condensing.	
	Accessories / Consumables	
	- Aluminum sealing foil rolls or sheets	
	- Optical adhesive sealing film (qPCR compatible)	
	- Gas-permeable film for cell culture plates	
	CE, UL, RoHS compliant.	
	Main unit, power cable, starter sealing film pack, operation manual, and toolkit (if applicable).	
	Additional Requirements	
	- Must include **installation and user training** at site.	
	- Must be **brand-new and manufactured within the last 12 months**.	
	- Vendor must supply **certificate of conformity and manufacturer's authorization**.	
67	**LFluorimeter Qubit 4**	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).	
	Onsite Equipment Installation & Customer Application Training	
	Warranty: 3 Year Limited Warranty on Parts and Labor, Service Installation and Application Training Included	
68	**Snellen Chart**	2
	Specification / Requirement	
	Snellen Visual Acuity Chart	
	Standard Snellen chart for distance vision testing.	
	Chart displaying **letters, numbers, or optotypes** arranged in rows of decreasing size from top to bottom.	
	- **Distance:** 6 meters (20 feet) or equivalent optical projection distance.	
	- **Notation:** Snellen fraction (6/6, 6/9, 6/12, etc.).	
	- **Printed version:** Non-reflective, durable plastic, laminated card, or matte-finished board.	
	- **Illuminated version**: Light box type with even LED backlight.	
	Sans-serif optotypes, high-contrast black letters on white background.	
	- Uniform LED illumination (300-600 lux).	
	- Low heat generation and long life (>30,000 hours).	
	- Power supply: 100–240 V AC, 50/60 Hz.	
	- Wall-mountable or tabletop installation.	
	Wall-mountable printed chart with anti-glare matte finish.	
	Marked at 6 m or adjustable according to chart size.	
	Approx. **60 × 30 cm** (±10%) for standard distance testing.	
	- Snellen E chart (for illiterate patients)	
	- Tumbling E or Landolt C versions.	
	- Remote control (for illuminated model)	
	- Power adapter and mounting hardware.	
	CE / ISO 13485 compliant.	
	Minimum **1 year warranty** for illuminated models.	
	- Must be **new, original, and of high-contrast print quality**.	
	- Supplier must specify whether chart is **illuminated or printed** model.	
	- Must include **user manual and mounting accessories**.	
69	**Autorefractor**	1
	For objective measurement of the refractive index of the human eye (sphere, cylinder, and axis) to aid in prescribing corrective lenses.	
	Tabletop automatic refractometer with LCD/LED screen and built-in printer.	
	Automatic, non-contact optical measurement of refractive error using infrared or visible light.	
	Measurement Parameters	
	- **Sphere (S)**: –25.00 D to +22.00 D or wider	
	- **Cylinder (C)**: 0 to ±10.00 D	
	- **Axis (A)**: 0° – 180°	

	- **Pupil Distance (PD):** 45 – 85 mm	
	Measurement Accuracy	
	- **Sphere:** ±0.12 D	
	- **Cylinder:** ±0.12 D	
	- **Axis:** ±1°	
	2.0 mm or smaller	
	High-resolution **color LCD screen (≥ 7 inch)** for real-time observation and alignment.	
	Auto-alignment and auto-measurement with 3D tracking for improved accuracy.	
	Measurement Mode Options	
	- Single eye / binocular mode	
	- Continuous / averaging measurement	
	- Keratometry mode (if autorefractor-keratometer model)	
	Keratometry (optional)	
	- Radius of curvature: 5.0 – 13.0 mm	
	- Corneal power: 25 – 67 D	
	- Accuracy: ±0.05 mm	
	Internal auto fogging target with adjustable illumination to reduce accommodation.	
	Built-in **thermal printer** with easy paper roll replacement.	
	USB or RS-232 port for data transfer to external computer or EMR system.	
	100–240 V AC, 50/60 Hz (auto-sensing).	
	Accessories / Standard Supply	
	- Dust cover	
	- Power cable	
	- Printer paper roll	
	- User manual and cleaning tools	
	Temperature 10–40 °C, Humidity 30–85% (non-condensing)	
	CE, ISO 13485, and FDA approved (if available)	
	Minimum **1 year comprehensive warranty**	
	Additional Requirements	
	- Unit must be **brand-new and recently manufactured** (within last 12 months).	
	- Vendor must provide **installation, calibration, and user training** at site.	
	- Must include **manufacturer's authorization and certificate of conformity**.	
70	**Retinal Camera**	1
	For high-resolution imaging of the retina, optic disc, macula, and posterior pole to aid in diagnosis of diabetic retinopathy, glaucoma, macular degeneration, and other retinal diseases.	
	Non-Mydriatic Fundus Camera (preferred) with capability for **mydriatic imaging** as well.	
	High-resolution **digital CMOS or CCD sensor ≥ 18 megapixels.**	
	Field of View (FOV)	
	≥ 45° (standard), expandable up to **60° or more** with optional settings.	
	Pupil Diameter Requirement	
	≤ 4.0 mm (suitable for non-mydriatic imaging).	
	Auto-focus and manual focus modes.	
	Auto-alignment with 3D tracking (X, Y, Z axis) and auto capture option.	
	Internal LED fixation target with multiple positions (central and peripheral).	
	Approximately **40–50 mm** from corneal vertex.	
	LED illumination for low heat and long life (>50,000 hours).	
	Low-intensity flash or IR pre-flash to minimize patient discomfort.	
	High-resolution still image capture (color fundus) with auto-exposure control.	
	- Built-in **high-resolution LCD display (≥10 inch)** touch screen.	
	- Live fundus image preview and capture interface.	
	Internal memory (≥500 images) + external storage via USB / LAN / Wi-Fi.	
	Software Features	
	- Image review, enhancement, zoom, and comparison tools.	

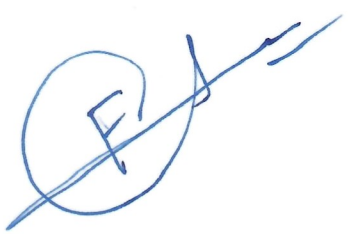
	- DICOM compatibility for PACS connectivity.	
	- Patient database management.	
	Optional Features (if available)	
	- **Anterior segment imaging** capability.	
	- **Auto montage** and **stitching software** for wide-field retinal imaging.	
	- Integration with **EHR / EMR systems**.	
	Accessories / Standard Supply	
	- Dust cover	
	- Power cable	
	- Calibration tool / test eye	
	- User manual and cleaning kit	
	CE, ISO 13485, and FDA approved (if available).	
	Minimum **1 year comprehensive warranty**.	
	Additional Requirements	
	- System must be **brand-new and manufactured within the last 12 months**.	
	- Vendor must provide **installation, calibration, and on-site user training**.	
	- Must include **manufacturer's authorization and certificate of conformity**.	
71	**VT 1 Vision Screener**	1
	For rapid, non-invasive screening of visual acuity, color vision, depth perception, and binocular vision in both adults and children. Suitable for ophthalmology departments, vision clinics, and school screening programs.	
	Tabletop or portable **automatic vision screener** with built-in illumination and multiple visual test slides.	
	Test Capabilities	
	Must be capable of performing the following tests:	
	- **Visual acuity** (far and near)	
	- **Binocular vision / Phoria test**	
	- **Color vision**	
	- **Depth perception / Stereopsis**	
	- **Fusion and suppression tests**	
	- **Horizontal and vertical muscle balance**	
	Viewing Distance	
	Simulated optical distance: **6 meters (20 feet)** for distance vision and **40 cm** for near vision.	
	Optical System	
	High-precision **lens and mirror system** to reproduce accurate optical distances.	
	Illumination Source	
	Uniform **LED illumination** (long life >50,000 hours) with low heat and consistent brightness.	
	Slide System	
	- Interchangeable or electronically selectable test slides.	
	- Minimum **12–20 standard test slides** included.	
	- Optional **custom test slides** for special testing.	
	User-friendly **digital or mechanical control panel** for slide selection, illumination adjustment, and occluder control.	
	Independent right / left eye occlusion or simultaneous binocular view.	
	100–240 V AC, 50/60 Hz (auto sensing).	
	Temperature: 10–40 °C, Humidity: ≤80% non-condensing.	
	LCD or LED screen display with measurement output and patient result summary (in digital versions).	
	Accessories / Standard Supply	
	- Dust cover	
	- Test slides set (minimum 12)	
	- Power cord	
	- User manual	
	- Certificate of calibration	
	CE marked, ISO 13485 compliant.	

	Additional Requirements	
	- Must be **brand new, factory-calibrated**, and manufactured within the last 12 months.	
	- Supplier must provide **installation, user training, and technical support**.	
	- The model offered must be **equivalent or superior** to the **Titmus VT-1** Vision Screener.	
72	**Cannon Camera TSR with video**	3
	For capturing **high-resolution still images** and **high-definition video recordings** in laboratory, clinical, academic, or documentation environments. Suitable for use with microscopes, examination setups, or standalone photography stations.	
	Professional-grade **digital camera system** (DSLR / mirrorless / industrial TSR series) with **photo and video** recording capability.	
	High-sensitivity **CMOS or CCD sensor**, resolution **≥ 20 megapixels**.	
	Video Recording Resolution	
	- **Full HD (1920 × 1080)** and/or **4K (3840 × 2160)** video capture.	
	- Frame rates: **30–60 fps** (Full HD), **30 fps (4K)**.	
	Interchangeable **standard zoom lens (e.g., 18–55 mm or equivalent)** or **dedicated TSR optical lens** depending on system type.	
	Auto and manual focus options with **face/subject tracking**.	
	3-inch or larger LCD screen, high resolution, tilting or vari-angle type.	
	Built-in or lens-based optical image stabilization.	
	- **Still images:** JPEG, RAW	
	- **Video:** MP4 / MOV (H.264 or H.265 codecs).	
	ISO range **100–25,600** or higher, expandable.	
	USB, HDMI, Wi-Fi, and Bluetooth for image/video transfer and live streaming.	
	SD / SDHC / SDXC memory card compatible (minimum Class 10 / UHS-I).	
	Rechargeable **Li-ion battery pack** with AC adapter compatibility.	
	- Compatible with **Windows / macOS**.	
	- Includes **camera control and image capture software**.	
	Optional Mounting / Accessories	
	- **Tripod mount**	
	- **External microphone port**	
	- **Ring light / LED light source**	
	- **Protective carrying case**	
	CE / ISO 9001 / FCC certified.	
	Minimum **1-year comprehensive warranty**.	
	Additional Requirements	
	- Equipment must be **brand new, factory-calibrated**, and **manufactured within the last 12 months**.	
	- Supplier must provide **installation, demonstration, and user training**.	
	- Must include **complete accessories** and **user manual**.	
73	**Bio Reactor (fully autmated)**	1
	Description:	
	An advanced, closed system, automated cell expansion plateform designed for clinical and research-grade expansion of adherent or suspesion cell types, specially Mesenchymal Stem Cells (MSCs) for therapeutic use.	
	Physical & Technical Characteristics:	
	Cell Types Supported: MSCs, iPSCs	
	Culture Mode: Adherent and suspension	
	Growth Surface Area: >= 11,500 cm^2 per cartridge (hollow fiber membrane technology)	
	Media Exchange: Continuous perfusion with automatic waste removal	
	Monitoring & Control: Real-time control of flow rates, pressure, temperature, and pH	
	Software Interface: Touchscreen with user-defined protocols and data logging	
	Connectivity: USB, Ethernet	
	Data Logging: Electronic batch record	

	Power Supply: 100-240 V AC, 50/60 Hz (international compatibility)	
	Footprint / Dimensions: Compact benchtop system	
	Accessories:	
	Touchscreen control module: 1 unit	
	Power cables and international adapters: 1 set	
	Software License for protocol setup: 1 user license. (registration included. validity)	
	Data export USB & Ethernet connectivity: included	
	Installation kit: 1 complete kit	
	user manuals and SOPs: 1 set	
	IQ/OQ documents for validation: 1 set	
	Consumables for patients trials	
	Cell Expansion Sets: 5 sets .	
	Tubing sets (sterile, single use): 5 sets	
	Cell harvest containers: 5 Number (per expansion) check all notes	
	Perfusion media bags (2 L or 5 L): 10 bags	
	Waste bags / collection kits : 5 sets (disposable)	
	Cleaning/disinfection kits : 2–3 sets	
	Gas line filters (HEPA/CO_2 filters) : 4–6	
	pH/temperature calibration accessories : 1 kit	
	1 Cylinder of capacitiy, serially connected, along with test report and 1st time filled delivery, (ground floor, or baseement or 3rd floor) write above if all 4 serially connected	
	Cylinder specifications:	
	Material: High strength seamless steel or aluminium alloy	
	Valve & Fitting: Brass or stainless steel	
	Internal surface: clean, oil free, suitable for laboratory gas use	
	Capacity / typical volume 40-50 litres	
	Gas Capacity: 6.8-7.5 kg (approximately)	
	Weight: 15-20 kg (empty)	
	Weight: 32-35 kg (full)	
	Dimensions: 140-150 (height), 20-30 cm (diameter)	
	Working Pressure: 150-200 bar (2200-3000 psi)	
	Test Pressure: 250-300 bar	
	Factory Hydro tested	
	Gas purity >= 99.99$ (Medical Grade CO^2)	
	Impurities: Less than 10 ppm moisture, hydrocarbons, and other contaminants	
	Connections & Valves:	
	Valve type: CGA 320 OR din compatible valve fitting	
	Regular compatibility: Comparatible with standard lab CO^2, regulators for incubators	
	Pressure relief devices; Built-in safety burst disc or relief valve	
	Additional Features:	
	Color coding: According to local standards	
	Labeling: Clear labeling with gas type, purity, safety instructions	
	Accessories: Protective cap or color or valve protection during transport and handling	
	Trolley: for proper lifting and moving large cylinders (good quality) Qty: 1	
	Usage considerations:	
	Refillable and reusable cylinder with proper inspection and certification	
	1st time filled and provided by the vendor	
	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.	

PHARMACOLOGY LAB		
Sr. #	**Product Description**	**Qty**
75	**Water Distillation Plant 15 Ltr**	1
	Description:	
	water distillation plant with the capacity of 15 litres to produce high purity distilled water, suitable for laboratory	
	Physical & Technical Characteristics:	
	Capacity: 15 litres	
	Digital PID controller with high limit protection	
	Boiler chamber material : stainless steel (food or pharma grade)	
	Storage tank, frame and piping material: stainless steel	
	Gas kits and seals: food grade	
	Distilation time: 1 hour per 30 litre	
	Distillation quality: free from dissolved solids, heavy metals, chlorine and bacteria	
	CE/ISO compliance	
	Accessories: User and Service manual (hard and soft copy)	
76	**Fully Automated Elisa processor / analyzer with PC system**	1
	Description:	
	To process sample and link to result analysis	
	Physical & Technical Characteristics:	
	Robotic arms	
	Sample Capacity: 180 to 384 samples per 2µm (2 micrometer)	
	Throughput: up to 70 - 100 tests per hour	
	Temperature ranges:	
	Controlled incubation units ranges from RT to 45°C	
	Main features:	
	Robotic arm, pipetting probe (10 - 1000 µL)	
	Minimum 2 units, 96 well Microplates (independent incubating)	
	Minimum 1 reader and washer (auto-reading and washing)	
	Washing: system:	
	Automated well-washing system with multiple wash buffers and precise working protocols are necessary to remove unbound material.	
	Reading capabilities:	
	Reading micro plate reader with multiple wavelength capabilities and high sensitivity are used to measure the result.	
	Flexibility:	
	Customisable setting for reagent, plates and protocols, allowing them to adopt to various assay type.	
	Safety:	
	Safety features like tip detiction and clot detection, help prevent errors and ensure reliable results.	
	Sample Module:	
	Teflom coating probe to prevent cross contamination.	
	Automated liquid handling	
	Precise pipetting and dispensing system	
	Barcode scanning: integrated barcode scanner for sample and reagent identification.	
	Data Management:	

	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.	
	Accessories:	
	- Pass-through window stainless steel grade 316, with UV light, to install on wall & drywall partitions in Regenerative Medicine Lab (qty: 5)	
	- UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
74	**Stainless Steel Tables With Stainless Bases For Cleanrooms**	20
	Description:	
	Tables which meet strict specifications for material, design, and performance to ensure contamination control, durability, and safety. Key requirements include corrosion-resistant stainless steel construction, smooth surfaces, and high load capacity. hygiene, chemical resistance, and durability	
	Physical & Technical Characteristics:	
	Material Grade: AISI 316 type stainless steel	
	Construction: Fully welded to eliminate gaps, seams, or crevices where dirt, bacteria, or particles could accumulate.	
	Hygienic Design: Rounded corners and arc transitions	
	Surface Finish: A smooth, non-porous surface	
	Gauge: 14	
	Weight Capacity: 1000 pounds approximately	
	Dimensions: 24"W x 48"L x 35"H (or closer as adviced by user-end)	
	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.	



	Software for data processing, analysis and reporting connectivity: bi directional LIS interface for seamless integration with laboratory system.	
	Accessories: User and Service manual (hard and soft copy)	
	Cabinets for lab items (upvc, floor/wall mounted) to be provided by the successful vendor	
77	**Hot plate with magnetic stirrer**	2
	Physical & Technical Characteristics:	
	Stirring Speec: 50-1500 rpm	
	Capacity: 20 Litre atleast	
	Material: Ceramic (ceramic top plate)	
	Motor Brush DC motor	
	External sensor with safety	
	Accessories: User and Service manual (hard and soft copy)	
78	**Micro Pipettes manual (Variable Volume i.e., 2 ul, 10 ul, 20 ul, 100 ul, 200 ul and 1000 ul)**	20
	Description:	
	Sophisticated calibrated instruments used for accurately and precisely measuring the small volumes of reagents and fluids for reactions	
	Physical & Technical Characteristics:	
	Type: Adjustable, variable-volume, single-channel micropipettes.	
	Volume ranges:	
	* 0.5–10 µL : (Qty 03)	
	* 2–20 µL : (Qty 03)	
	* 20–200 µL : (Qty 03)	
	* 100–1,000 µL : (Qty 03)	
	Accuracy and Precision: Must comply with ISO 8655 standards.	
	Features:	
	Ergonomic, lightweight design with low plunger force.	
	Autoclavable lower parts (cone, piston, ejector).	
	Easy volume adjustment with click-stop mechanism.	
	Volume clearly displayed on digital counter window.	
	Durability: Chemical-resistant materials, long service life.	
	Supplied As: Pack of 4 pipettes with calibration certificate.	
	Supplied with compatible pipette tips (1 pack for each pipette)	
	User manual and calibration certificate included	
79	**Cryoboxes**	10
	Descripition:	
	Rigid storage boxes with grid dividers used for the organized storage and identification of cryovials at ultra-low temperatures in freezers	
	Physical & Technical Characteristics:	
	Material: Fully plastic.	
	Temperature resistance: Must withstand extremely low temperatures typically down to -196°C or better to protect viability.	
	Dimensions: Commonly square boxes with outer dimensions of 133 mm or similar to fit standard cryogenic freezer drawers.	
	Lid: Boxes usually come with lid to protect content.	
	Tube capacity: Designed to hold a specific number of vials, such as 81 well or 100 well configurations for different vial sizes (e.g. 0.5 ml and 1.5/2.0 ml)	

	Multi-format boxes with adjustable or removable inserts	
	Accessories: User and Service manual (hard and soft copy)	
80	**Agarose Gel Electrophoresis system with Power Pack**	1
	Descripition:	
	PC-1: Electrophoresis is used to separate proteins with the help of electric charges	
	Physical & Technical Characteristics:	
	A) For Electrophoresis Appratus:	
	Cell size (W x L x H):17.8 x 22.5 x 6.8 cm, and 9.2 x 25.5 x 5.6 cm	
	Gel tray sizes (OD) (W x L): 15 X 7 cm, 15 x 10 cm, 7 x 7 cm, 7 x 10 cm	
	Should have Ready agarose gels accomodated for wide, mini and 96 plus formats, 8-, 12-, 2 x 8 - well.	
	Should have Sample throughput around 10 - 60.	
	Should have Base buffer volume approximately - 650 ml.	
	Should not have Buffer recirculation.	
	Should have Bromophenol blue migration - 4.5 cm/hr (at 75 V)	
	B) For Power Pack:	
	Should be suitable for running horizontal and vetical electrophoresis applications.	
	Should have control of constant voltage output as well as constrant current output.	
	Output currrent should be in the range 10 - 300 V, fully adjustable in 1 V steps 4 - 400mA, fully adjustable in 1 mA steps 75 W (maximum) and timer, 1 min 99 hr 59 min, fully adjustable and crossover Output terminals 4 pair recesses banana jacks in parallel.	
	Manual programmign of voltage, current, temporary changes to power and timer paraameters can be made in the power pakc without interring the run.	
	4 or more frequently used programme should be stored in the system of power pack.	
	Should include Safety compliance No-load detection; paid resistance change detection, ground leak detection, overload/short circuit detection, overvoltage protection, over-temperature protection, Input protection Fuse on hot and neutral.	
	Should be suitable to operate at 220 to 230 V AC, 50 to 60 Hz.	
	Should have UV torch with dual Wavelength (365 and 254 nm) for gel viewing and gel rocker for gel stainng.	
	Certification. ISO or equivalent.	
	Accessories: Cabinets for lab items (upvc, floor/wall mounted) to be provided by the successful vendor	
81	**Eppendorf tubes (1.5ml)**	1000
	Descripition:	
	Used for sample preparation, mixing, centrifuging, and storing liquids and solids in laboratories.	
	Physical & Technical Characteristics:	
	General Features:	
	Chemical Resistance: High resistance to a wide range of chemicals.	
	Sample Integrity: Manufactured to prevent sample loss and minimize evaporation during storage and incubation due to precise lid sealing.	
	Ergonomics: Designed for simple, one-handed operation.	
	Compatibility: Precise dimensions ensure compatibility with most standard centrifuge rotors, mixers, and shakers.	

	Capacity 1.5 mL	
	Material Polypropylene (PP)	
	Dimensions Approx. 10.8 mm (diameter) x 39-41 mm (height)	
	Centrifugation Up to 30,000 × g (some variants up to 70,000 x g in a form-fitting rotor)	
	Temperature Range -86 °C to 100 °C (ensured functionality)	
	Autoclavability Yes, when open (121 °C, 20 min)	
	Lid Type Hinged "Safe-Lock" lid to prevent accidental opening	
	Labeling Large frosted writing area on the side and lid for easy labeling	
	Graduations Clear volume marks (e.g., at 0.1, 0.5, 1.0 mL) for visual control	
	Purity/Quality Available in various grades (e.g., PCR clean, Biopur®, Forensic DNA Grade), free of plasticizers, slip agents, biocides, DNase, and Rnase	
82	**Measuring cylinders (10 ml, 50 ml, 100 ml, 500 ml, 1000 ml)**	45 (5 each)
	Warranty: 1 year	
82-a	**Erlenmeyer flask**	5
	Description:	
	Used for mixing, heating, and storing solutions safely in laboratories	
	Physical & Technical Characteristics:	
	Volume: Ranges typically from 25 mL, 125 mL, 250 mL, 500 mL, 1000 mL	
	Material: Borosilicate Glass or Sterile Plastic (PC, PETG)	
	Neck Type: Narrow mouth or standard taper joint	
	Caps: Vented or plug seal caps (for plastic flasks)	
	Base: Flat bottom	
	Graduations: Approximate molded or enamel markings (±5% accuracy)	
	Sterility: pre-sterilized and autoclavable	
	other option: Baffles preferably	
82-b	**Volumetric flask**	5
	Description:	
	Used to prepare solutions with precise and accurate concentrations by diluting a stock solution or by dissolving a precise amount of a substance to a specific volume	
	Physical & Technical Characteristics:	
	Volume Markings:	
	A single, permanent calibration line in the neck indicating the exact volume.	
	Material:	
	Usually made from borosilicate glass, prized for its chemical durability and resistance to heat and thermal shock all sizes 10 ml, 50 ml, 250 ml and 500 ml	
82-c	**Round bottom flask**	5
	Physical & Technical Characteristics:	
	Material:	
	Made from borosilicate 3.3 glass, excellent heat resistance.	
	Neck:	
	Tubular neck with a ground glass joint. Capacity: 50 ml and 100 ml.	
	Marking Area:	
	White frosted area for marking with ordinary pencil for easy calibration.	

82-d	**Florence flask**	5
	Physical & Technical Characteristics:	
	Material:	
	High Quality, heavy duty, borosilicate glass	
	Round Bottom:	
	Round bottom (Traditional) or flat bottom (For stability)	
	Neck:	
	Narrow neck with beaded Rim	
	Shape:	
	Spherical body that tappers to narrow neck	
	Suitable for:	
	Boiling, heating, distillation and storage.	
	Capacity:	
	50 ml, 100 ml, 125 ml, 250 ml and 500 ml.	
82-e	**Buchner flask**	5
	Description:	
	Physical & Technical Characteristics:	
	Material:	
	Borosilicate and porcelain autoclavable.	
	Stem:	
	Tapered, Porosity, Joint stem	
	Sizes:	
	35mm, 40mm, 60 mm, 90mm	
82-f	**Beaker**	5
	Physical & Technical Characteristics:	
	Different sizes	
	Material: Glass, typically borosilicate for excellent chemicl and thermal resistance.	
	Metal	
	Safe and durable	
82-g	**Test tube**	5
	Physical & Technical Characteristics:	
	Diameter: commonly 10 mm to 25 mm	
	Length: 50 mm to 200 mm	
	12 x 100 mm	
	13 x 100 mm	
	16 x 150 mm	
	Material Glass: Borosilicate glass	
82-h	**Funnel**	5
	Physical & Technical Characteristics:	
	Borosilicate shape conical	
	Capacity: 3.5 ml to 100 ml	
	Size (diameter): 34 mm to 183 mm	
	Cooling capacity: at least 550 W at +20 °C or 300 W or better	
	Digital display	

	Tank volume: 3 liters or more	
	Coolant must be cpc-free	
	Pump type: 2 or 3 stage speed control vaccuum pump.	
82-i	**Petri dish**	5
	Physical & Technical Characteristics:	
	Lab used	
	Size: 33 mm, 90 mm, 100 mm	
	Warranty: 1 year	
83	**Rotary evaporator with vacuum pump and chiller**	3
	Physical & Technical Characteristics:	
	Rotation speed: 20-280 rpm	
	Evaporatory flask volume ranges from 50 ml to 2000 ml	
	Lift: Automatic lift to a higher position in case of power failure.	
	Digital display auto-shut off adjustable immersion	
	Accessories: User manual	
84	**Kymographs**	5
	Physical & Technical Characteristics:	
	Control: Digital Microprocessor controlled unit	
	Display: 16x2 (or better) LCD digital display with backlight	
	Speed Selection: Digital speed selection offering high accuracy, typically multiple fixed speeds (e.g., 0.12, 0.25, 0.50, 0.75, 1.00, 1.35, 2.50 mm/sec)	
	Timer: Built-in digital timer and time multiplier with audio and visual alarm indicators for precise timing of experiments (e.g. drug injection times, wash cycles)	
	Operation Modes: Normal mode and an auto concentration response curve (CRC) mode.	
	Data Output: Digital system will display waveforms on screen, data can be saved shared and analyzed with integrated software.	
	Connectivity/Storage: Integration with data acquisition software, potentially offering options like battery backup, flash memory storage, or even cloud backup, and integration with Electronic Health Records (EHR) systems.	
	Accessories: Required Equipment parts, User manual and serivce manual, dust cover	
85	**Extractor for Plants**	1
	Physical & Technical Characteristics:	
	Ultrasound assorted or microwave extraction	
	Extraction efficienty 98 to 100 %	
	Fully automated	
	Compatibility and integration	
	With other necessary equipment such as chillers	
86	**Distillation Apparatus**	1
	Physical & Technical Characteristics:	
	Borosilicate glass heat resistance 250 ml and 500 ml	
	High efficienty condenser	
	Round-bottomed for uniform heating	
	Production captivity in litres per hour	

	Distellate quantity for water sills, pyrogen free pH range	
87	**Analytical Drug Testing Instruments**	1
	TYPE-1: Modern LC-MS/MS System	
	Description:	
	General Specifications for a Modern LC-MS/MS System LC-MS/MS has become the dominant gold standard technique for targeted drug testing in blood and other biological matrices. Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS) has become the preferred technology in modern clinical and forensic toxicology laboratories for drug analysis in blood. It combines the physical separation power of Liquid Chromatography (LC) with the exceptional detection and identification capabilities of Tandem Mass Spectrometry (MS/MS). General Specifications for a Modern LC-MS/MS System LC-MS/MS has become the dominant gold standard technique for targeted drug testing in blood and other biological matrices. Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS) has become the preferred technology in modern clinical and forensic toxicology laboratories for drug analysis in blood. It combines the physical separation power of Liquid Chromatography (LC) with the exceptional detection and identification capabilities of Tandem Mass Spectrometry (MS/MS).	
	Physical & Technical Characteristics:	
	A) Liquid Chromatograph (LC)	
	Pumps:	
	High-Pressure Pumps with maximum pressure ratings of ≥ 1,200 bar. Capable of accurate, pulseless flow rates from 0.001 to 2.0 mL/min or higher for precise gradient formation.	
	Autosampler:	
	Thermostatted Robotic Autosampler with a 96-well or 384-well plate capacity. Features:	
	- Temperature control: 4°C to 40°C to maintain sample stability.	
	- Needle Wash: Multiple solvent ports for extensive internal/external washing to minimize carryover to < 0.01%.	
	- Integrated Diluter/Dispatcher for automated sample prep steps.	
	Column Oven:	
	Thermostatted Colun.n Compartment with a temperature range from 5°C above ambient to 90°C+. Features dual-sided connections for easy column switching and multi-column setups.	
	System Overview:	
	Low-Dispersion, Low-Dead-Volume Flow Path (< 50 µL) from injector to detector to preserve chromatographic resolution. Capable of high-speed gradient re-equilibration for fast cycle times.	
	B) Mass Spectrometer (MS)	
	Type:	
	Triple Quadrupole (QqQ) with a linear or curved collision cell. The industry standard for quantitative MRM analysis.	
	Ionization Source:	

	* Source Temperature: Up to 600°C+ for rapid desolvation of high-flow LC eluents.	
	* Probe Design: Easy to remove and clean without tools, minimizing downtime.	
	* Ionization Modes: Positive and negative switching within the same run (< 20 ms).	
	Vacuum System:	
	Dual-Stage Pumping:	
	* High-Throughput Turbo Molecular Pump for the mass analyzer.	
	* Dry Scroll or Diaphragm Pump as a backing pump to eliminate oil	
	* Achieves operating vacuum from vented state in < 3 minutes.	
	Mass Range:	
	Wide Mass Range: Typically 2 – 2,400 m/z to cover everything from small ions to large peptides and biopolymers.	
	Scanning Speed:	
	Extremely High Speed: Capable of performing > 500 MRM transitions per second without significant sensitivity loss, allowing for monitoring of hundreds of compounds in a single run.	
	Collision Cell:	
	Curved or Linear Collision Cell with advanced RF focusing for high fragmentation efficiency and low cross-talk.	
	Detector:	
	Extended Dynamic Range Detector (e.g., hybrid photomultiplier or electron multiplier) with a guaranteed linear dynamic range of ≥ 10^6 (from low pg/mL to high µg/mL on-column) for accurate quantitation of major and minor analytes.	
	C) Software & Data:	
	Software Platform	
	Integrated, 21 CFR Part 11 Compliant Software. Manages instrument control, data acquisition, processing, and reporting. Includes full audit trails and user management.	
	Acquisition Modes:	
	Multiple Reaction Monitoring (MRM) is the primary mode. Also includes:	
	* Scheduled MRM: Acquires transitions only around a compound's expected retention time, maximizing dwell time and sensitivity.	
	* Product Ion Scan / Precursor Ion Scan: For method development and	
	Quantitation:	
	Advanced Automated Processing:	
	* Automatic peak integration, recognition, and calibration curve building (linear, quadratic, 1/x weighting).	
	* Automatic calculation of precision, accuracy, and other QC parameters.	
	* Automatic recognition and flagging of ion ratio discrepancies for confirmatory analysis.	
	System Suitability:	
	Integrated Performance Monitoring: Automated tuning and system suitability tests using reference standards to ensure the instrument is performing optimally before a batch is run.	
	C) Key Application Features:	
	Multiplexing:	
	Capable of monitoring 500+ MRM transitions in a single method for comprehensive panels (opioids, benzodiazepines, stimulants, etc.).	

	Sensitivity:	
	Ultra-High Sensitivity: Capable of detecting and quantifying analytes at low picogram-per-milliliter (pg/mL) levels in blood, essential for potent synthetic opioids (e.g., carfentanil) and cannabinoids.	
	Robustness:	
	Engineered to handle 1,000+ injections of crude biological extracts (like precipitated blood plasma) without significant loss of performance or requiring source maintenance.	
	TYPE-2: Gas Chromatography-Mass Spectrometry (GC-MS/MS)	
	Description:	
	GC–MS/MS is a highly sensitive and specific analytical technique that combines the separation power of gas chromatography (GC) with the identification and quantification capabilities of tandem mass spectrometry (MS/MS). It is especially useful for volatile, semi-volatile, and thermally stable compounds.	
	:Application of GC–MS/MS in Clinical Toxicology (Drug Identification in Biological Samples)	
	GC–MS/MS is widely used in clinical and forensic toxicology laboratories because of its high selectivity, sensitivity, and ability to confirm the presence of drugs in complex biological matrices.	
	Physical & Technical Characteristics:	
	A) Gas Chromatograph (GC) Module	
	Injector / Inlet:	
	Programmable Temperature Vaporizer (PTV) Inlet with solvent vent mode. Allows for large volume injection (LVI) of 10-50 µL to significantly enhance sensitivity for trace-level analytes.	
	Autosampler:	
	Robotic, XYZ-Arm Liquid Autosampler with a capacity for ≥ 192 samples (2x 96-well plates). Features:	
	* Integrated Agitator/Heater: For mixing and incubating samples.	
	* Syringe with solvent wash stations (multiple solvents) and sample rinse cycles to carryover to an absolute minimum (< 0.01%).	
	* Barcode reader for full sample tracking and data integrity.	
	Oven:	
	Advanced Forced Convection Oven with:	
	* Temperature Range: -10°C to 450°C (cryogen-free cooling system using liquid CO_2 or electricity).	
	* Max Ramp Rate: ≥ 120°C per minute for fast cycle times.	
	* Precision: ±0.01°C setpoint accuracy.	
	* Capability: 999-programmable temperature steps and holds for complex method development.	
	Carrier Gas System:	
	Electronic Pressure Control (EPC) for up to 3 gases (Carrier, Make-up, Auxiliary). Provides constant pressure, constant flow, or advanced pressure programming modes. Monitors gas pressures and consumption.	
	Columns & Connections:	

	Capable of Dual Column / Dual Detector Analysis. Features advanced capillary flow technology to split flow to two different columns or to the MS and a second detector (e.g., FID) simultaneously. All connections are gold-sealed and heated to prevent active sites and analyte degradation.	
	B) Mass Spectrometer (MS) Module	
	Type:	
	Triple Quadrupole Mass Analyzer with a curved pre-quadrupole collision cell. This is the core of modern quantitative analysis.	
	Ionization Source:	
	High-Efficiency, Extended Linear Range Electron Impact (EI) Source.	
	* Temperature Range: Up to 350°C to prevent contamination from blood matrix components.	
	* Easy-Access Design: Allows for cleaning without breaking vacuum, minimizing downtime.	
	* Energy: Standard 70 eV for reproducible library-matchable spectra.	
	Vacuum System:	
	Dual Stage Pumping System:	
	* High Capacity Turbo Molecular Pump: ≥ 300 L/s for the mass analyzer.	
	* Mechanical Backing Pump: Dry, diaphragm, or scroll pump to eliminate oil contamination.	
	* Achieves operating vacuum in < 3 minutes from a standby state.	
	Mass Range:	
	Wide Mass Range: At least 0.5 to 1200 m/z to cover everything from small solvents to large derivatized molecules.	
	Scanning Speed:	
	Very High Speed: ≥ 20,000 amu/second to ensure enough data points are collected across very narrow GC peaks (which can be < 2 seconds wide) for accurate quantitation.	
	Resolution:	
	Unit Mass Resolution (1 Da) across the entire mass range. The latest systems offer enhanced resolution modes (< 0.5 Da) for separating isobaric interferences.	
	Collision Cell:	
	Curved, LINAC® or HyperQuad Design: A curved collision cell filled with an inert gas (argon or nitrogen) to efficiently remove neutral noise and prevent "ghost" peaks, dramatically boosting signal-to-noise ratios.	
	Detector:	
	High-Energy Dynode (HED) Electron Multiplier with a continuous dynode design. Offers a linear dynamic range of > 6 orders of magnitude (e.g., from 1 pg to 100 ng on-column) to quantify both trace and major components in a single run.	
	C) Data System, Software & Key Features	
	Software Platform:	
	Integrated, 21 CFR Part 11 Compliant Software. Includes:	
	* Method setup, data acquisition, qualitative and quantitative processing, and reporting in a single platform.	
	* Full audit trails, electronic signatures, and user role management for regulatory compliance (forensic and clinical labs).	
	Acquisition Modes:	

	Multiple Data Acquisition Modes in a Single Run.	
	* Full Scan: For untargeted screening and library matching.	
	* Selected Ion Monitoring (SIM): For high-sensitivity targeted analysis.	
	* Multiple Reaction Monitoring (MRM): The gold standard for quantitation. Moniters specific precursor ion -> product ion transitions for each analyte, providing the highest specificity and sensitivity against a complex blood matrix background. A modern system can monitor hundreds of MRM transitions in a single method.	
	Spectral Libraries:	
	Integrated NIST Mass Spectral Library (latest version with > 300,000 spectra) and the ability to create and search custom user libraries.	
	Quantitation & Reporting:	
	Advanced Automated Data Processing:	
	* Automatic peak integration, calibration curve generation (with various weighting models: 1/x, $1/x^2$), and calculation of concentrations.	
	* Scheduled MRM: Algorithms that only acquire specific MRMs when their expected analyte elutes, maximizing dwell time and sensitivity.	
	* Customizable report templates for exporting to LIMS (Laboratory Information Management System).	
	System Diagnostics:	
	Integrated Health Monitoring: Continuous monitoring of vacuum pressures, gas flows, temperatures, and detector performance with alert systems for predictive maintenance.	
	Accessories: Cabinets for lab items (upvc, floor/wall mounted) to be provided by the successful vendor	
	Accessories:	
	- Full face Respirator Mask with filter (good quality, adequate for drug testing procedures)	
	- UV/UPVC wall-mounted/floor-standing cabinets as per lab requirement (to be provided locally)	
88	**Automated Dissolution Apparatus:**	2
	Description:	
	PC-1: Used for measuring the rate of drug release from a dosage form and the key word here is "standardization" because for any results to be meaningful, it is essential that all the apparatus used for the testing,	
	Physical & Technical Characteristics:	
	Automated Sampling:	
	The system can automatically take sample at programmed lime points.	
	Automated Media Handling:	
	Media include automated media circulation, pre-heating and temperature monitoring.	
	Vessel Configurations:	
	With different numbers of testing stations. Eg. 6, 12, or 14 positions.	
	Stagerred Start:	
	To allow for stagerred initiation of indivudual tests within a run.	
	Vessel Cover:	
	Low evaporation sealing covers to maintain medium levels during testing.	
	On Board Diagnostics:	
	Check for suitability and error reporting before and during a test.	
	Temperature Control:	
	Critical for ensuring the disolution medium remains at a specified temperature.	

	Integration and Data:	
	Integration with UV/VIS Sepcto-photometers for online analysis or collection of spectial data	
	Connectivity:	
	USB ports and RS 232 ports (wifi preferably) for remote control and data transfer to laboratory information system.	
	Software Control:	
	User-friendly software for managing test methods, data, user administration and compliance reporting. With life time license	
89	**Work Station for PCR area**	2
	Description:	
	Physical & Technical Characteristics:	
	Enclosure:	
	* 3-sided cabinet with front sash to allow access for operators while providing a contained environment.	
	UV Germicidal Lamp:	
	* Lamp emitting 254 nm UV light to sterilize the work surface and de contaminate it from DNA/RNA and other contaminates before and after use.	
	Timer:	
	A timer for UV lamp with typical setting from 0-60 minutes.	
	Hepa Filter:	
	A high efficiency particulate and (HEPA) filter to remove 99.99 % of particles 0.3 micrometer and larger from the ear, ensuring a sterile environment.	
	Work Surfaces:	
	Made from materials that are durable and resistance to chemicals and decontamination processes such as steelless steel chemically resistance HDPE.	
	Power:	
	Standard Electrical specification for lab equipment. For example; 110 V or 100-240V, 50/60 Hz.	
90	**Automated Dessicator**	2
	Description:	
	The primary function is to maintain a specific stable humidity level, often with a set range of 10-60% RH and a smaller set-up range like 20-40% for moisture-sensitive materials.	
	Physical & Technical Characteristics:	
	Temperature Control:	
	Real time temperature display and control to ensure optimal condition for stored material	
	Calibration and alarms:	
	Features like humidity and temperature deviation, notification, calibration function and warming lights for issues such as high or low pressure, or prolonged door opening improve stability.	
91	**Glass flasks for bacterial culture in broth**	2
	Physical & Technical Characteristics:	
	Material:	
	Borosilicate glass with stand	

	Repeated autoclaving at 121 °C	
	Shape:	
	Erlenmeyer flasks with a narrow neck, used with various caps and plugs.	
	Aration:	
	Both for aerobic culture and anaerobic culture	
	Autoclavability:	
	The flask should be designed to withstand at least 10 stem sterilization cycle at 121 °C and 15 psi	
	Volume to fill ratio:	
	Use a medium to flask volume ratio between 1:10 and 1:4 to provide adequate headspace for aeration and gas exchange.	
92	**Torches**	15
	Physical & Technical Characteristics:	
	Light Source:	
	High quality LEDs, typically with the option to switch between a bright, focused beam for detail and a dimmer setting for pupil dilation or sensitive procedure	
	Material:	
	Durable and often disinfect able material, such as aluminum alloy or ABS plastic, with a coating to prevent scratches and facilitate cleaning	
	Power Source:	
	Easily applicable AAA batteries or a built-in technology battery for convenience and cost effectiveness	
93	**Scissors**	10
	Physical & Technical Characteristics:	
	Material: Surgical-grade stainless steel or or titanium	
	Tip Configuration: Sharp/Sharp (S/S), Blunt/Blunt (B/B), Sharp/Blunt (S/B)	
	Blade Shape: Straight, Curved	
	Blade/Overall Length: range from 4 to 7 inches or 10.5 cm to 17 cm	
	Handle Type: Finger-ring handles, or spring handles	
	Finish: brushed satin or non-reflective finish.	
	Reusable and compatible with standard sterilization methods (e.g., autoclaving) and disinfectants.	
	Warranty: 1 year	
94	**BP apparatus** **mercury type, table top with all standard cuffs**	10
	Description:	
	To check and Monitor Blood Pressure	
	Physical & Technical Characteristics:	

	Intel license Technology:	
	Ensures Comfortable, Soft Inflation of the cuff	
	Memory:	
	Store readings, often with a Cast measurement or average of a cast readings function.	
	Cuff Features:	
	Includes a cuff wrap guide and 50m times a specific cuff size range, such as 22-32 cm	
	Warranty: 1 year	
95	**Stethoscope**	10
	Physical & Technical Characteristics:	
	Chest Piece:	
	Material High-quality stainless or lightweight aluminum.	
	Type:	
	Often dual-head, with a diaphragm for high-frequency sounds and a bell for low-frequency sounds.	
	Diaphragm Diameter:	
	Typically, around 47mm, with a thin fiber diaphragm for sound amplification.	
	Warranty: 1 Year	
96	**Polygraphs with transducer and organ bath (including printer, scanner) and other accessories, complete in all aspects.**	1
	Description:	
	Four channels with transducers and organ bath. Used for pharmacology research and practicals, designed for high quality data acquisition and analysis of physiology signals, with all the necessary equipment/ modules	
	Physical & Technical Characteristics:	
	4-channel recorder	
	Continuous 200,000 samples/s	
	16-bit resolution recorder with programmable gain SE/Diff amplifiers.	
	Bipolar stimulator:	
	High grade isometric Transducer	
	* high sensitivity: 0-25 g	
	* compatible with Bridge Amps	
	* supplied with and 8-pin DIN connector	
	Isotonic Transducer:	
	* with pre-adjusted loads in the range of +/- 15	
	* compatible with B idge Amps or GP Amps	
	Thermo-regulated water pump	
	Bridge Amplifier	
	Organ Bath:	
	* Uniform heating and temperature stability	
	* Platinum electrones and stimulators	
	* Chamber size: 300 ml	
	* Integration characteristics: can be linked with other systems / PC via USB	
	Accessories:	
	Core i7, latest generation. 1tb SSD hard disk, 16 gb ram (new)	
	LED monitor of 19" size (good brand, new), keyboard & wireless mouse	

PHYSIOLOGY, ANATOMY & PATHOLOGY LABS

Sr. #	Product Description	Qty
97	**Digital Electronics Weighing Balance**	2
	Electronic balance digital top loading with Uni-block technology, One single block non-breakable, this brings various advantages fast response, high stability, long life operation, metal housing. Readability: 0.01gm Capacity: 6200gm Built in under weighing hook, piece counting function built in. RS 232C Data interface, overload protection. stainless steel pan 170 x 180mm with draft shield. Operated on 220 volts	
98	**ELISA Microplate Washer**	2
	The microplate washer is a device specially used for cleaning the microplate, and it is generally used in conjunction with the microplate reader. It is mainly used to clean some residues after the detection of the ELISA plate, thereby reducing the error caused by residues in the subsequent detection process. **Features:** •Microcomputer control, automatically complete the plate washing operation. •The liquid level sensing function automatically detects the liquid level, and automatically alarms when the cleaning liquid is insufficient and the waste liquid is overflowing. •The user-friendly operating system allows users to customize the plate type, set the number of washes, the amount of wash solution, the way to wash the plate, the suction point, the soaking and shaking time and other parameters. **Technical Specifications:** Cleaning Head8 channels Microplate TypesFour kinds: flat bottom, U bottom, V bottom, round bottom Average Residue<1μl (per hole), <0.7μl (per hole) Liquid Suction Time0.1~999.9 seconds adjustable, with an interval of 0.1 seconds Line Flush Time0~240 seconds, adjustable Washing Programs:Up to 200 programs Display7-inch touch display Liquid Injection Channels3 (2 types of lotion and 1 type of distilled water) Cleaning Needle Position6 types (horizontal, left, middle, right, bottom, hole spacing) Consumption80W Operated on 220 volts	
99	**ELISA Microplate reader 96 well**	
	Reliable ELISA & absorbance analysis in just 6 seconds The Apollo Absorbance Reader is an intuitive and reliable filter-based microplate reader that can be used for a wide variety of research and routine applications. The system has been designed to help you accelerate your research combining fast measurement of 96-well plates in just 6 seconds with intuitive 7-inch colour touchscreen stand-alone operation. ▪Expand your application reach further: The system is equipped with a built-in shaker with speed selection as standard. The I-model with incubator reaches incubation temperatures up to 60 °C to enable your temperature-sensitive assays. ▪ Wide variety of applications: With its wavelength range from 340 to 750 nm it is ideal for ELISA, cytotoxicity assays, protein colorimetric assays, nucleic acid quantification (DISCHE assay), endotoxin assays and more. ▪ Fast measurement: Read your samples in just 6sec (fast mode). ▪ Intuitive operation: 7" colour touchscreen and preprogrammed protocols simplify operation of the system. **Technical Specifications** System Light Source Quartz Halogen Lamp Detector Photo diode, 8 channel + 1 reference channel Wavelength range 340 – 750 nm Dynamic range 0 – 4.0 OD Accuracy ± 1 % or ± 0.005 OD (0-3 OD) whichever is greater (@ 405 nm) ± 2 % (3-4 OD) (@ 405 nm) Precision ≤ 0.2 % CV (@ 0-3 OD) (@ 405 nm) ≤ 1 % CV (@ 3-4 OD) (@ 405 nm) Microplate types 96-well Reading speed Single wavelength < 15 s / 96 well (6 s in fast mode) Double wavelength < 28 s / 96 well (11s in fast mode) Shaking 3 shaking modes: slow, medium and fast Filter wheel capacity 8 Filters supplied 405/450/492/630 nm User interface 7-inch touchscreen (800 x 480 dots) Connectivity 3 USB ports, for PC, printer and thumb-drive Software Onboard software Operated on 220 Volts.	2
100	**Water bath**	6
	Basic class for standard temperature control tasks •Temperature range min. 5 °C above ambient up to +95 °C with additional boiling mode (+100 °C) •State-of-the-art control technology of the Basic a. .l models •Microprocessor PID-temperature controller with integrated auto diagnostic system with fault indicator •Integrated digital timer from 1 min. to 99.59 hours •Over temperature Protection (double) •Interior Stainless Steel Tank & Textured Stainless Steel Casing •Fitted With Gabled Cover Operated on 220volts, WNB Series Capacity 14 Lit., interior dimension 350x290x140mm	
101	**Refrigerator**	

	Laser Printer latest model. A4, Legal, Letter size. Ethernet & wife connected (new)	
	Cabinets for lab items (upvc, floor/wall mounted) to be provided by the successful vendor	
	Other main features:	
	EEG surface electrode cable adapte	
	Grounding electrode and bar electrode	
	Moment sensors	
	Respiratory belts for breathing patterns	
	Sphymomanometer sensors	
	photoplethysmographs sensors	
	ETT activity monitoring sensors	
	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 Client.	
	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 Appliation 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.	

	Application scope: For storing human test samples, drugs, insulin, vaccines, biological products, reagents, etc. Precise Control •Microprocessor controlling, non-volatile operation. It will be operated based on the previous setting if power off and resume after a period of time. • Real-time display the compressor and defrosting status. • Aluminum evaporator, to make sure uniform & stable temperature. User-friendly design • The outer chamber is made of sprayed steel plate and the inner chamber is made of 304 stainless steel plate, which is elegant and durable, rust and corrosion resistant. • Internal LED lighting, high brightness and energy saving. • MPR-313 with 4 small doors, reduce the cold air leakage when door opening. • Auto-evaporation of condensing water, no need for manual handling Technical Specifications Temperature range:2°C~8°C External dimensions:800 x 499 x 1800 (mm) Internal dimensions:720 x 350 x 1435 (mm) Power max (W):235 Capacity (L):340 Operated on 220volts	4
102	**Tissue Flotation Water bath/Tissue Embedding Center**	2
	Features: • The newest high technology and Touching Screen Control, new type of heating material. • The machine is made up of embedding machine, freezing part. The design can be flexibly selected between embedding machine and freezing part. •Automated processor control system make it possible for presetting the start time and temperature of any day. •Special Nano technical make it heat up quickly and equably. •The LCD display can show you the temperatures of the paraffin bath, thermostatic bath and paraffin nozzle. So the user can operator it easily. •inductive head lamp and metal switch, user can touch the switch by tweezers or knifes to control the paraffin. •Automatic memory the presetting temperatures and start to work based on the time. • Small cold sport in working table . •Large capacity crock can contain enough paraffin for use at one time. • Multilevel security protection system. •There are 3 heating hole for forceps in two side of the paraffin nozzle. Specification: • Capacity of the wax bath : 6000 ml. • Melting paraffin prefabricate: 0 ~99°C • Freezing range temperature cold plate : 0 ~ -20°C • Freezing range temperature cold spot in working table : 0 ~ -15°C • Complete machine consuming more electricity: Less than 1KVA • Control mode: Auto, foot • Environment temperature: 0°C~ 40°C Standard Accessory •1 Foot Switch •1 Tissue Molds (4 pcs) •1 pc Power Wire •2 pcs Fuse Operated on 220volts	
	Accessories: 1 uPVC wall mounted cabinet approximately 12 -14 feet long for materials storage, as per lab requirement	
103	**Pipettes of all ranges**	10
	lowest pipetting forces for hours of comfortable pipetting, accuracy, precision and performance with the highest comfort. Built-to-Last and Convenient Made of resistant materials, premium durability. Built-to-last. Simple to Maintain Routine cleaning and maintenance and design allows for easy access to user-serviceable parts, along with a fully autoclavable tip holder and ejector. Ranges as follows :- •Measuring Range 0.2 to 2µl, Accuracy ±0.014µl. •Measuring Range 0.5 to 10µl, Accuracy ±0.040µl. •Measuring Range 2 to 20µl, Accuracy ±0.060µl. •Measuring Range 10 to 100µl, Accuracy ±0.15µl. •Measuring Range 20 to 200µl, Accuracy ±0.30µl. •Measuring Range 100 to 1000µl, Accuracy ±1.5µl. •Measuring Range 500 to 5000µl, Accuracy ±8µl. •Measuring Range 1 to 10ml, Accuracy ± 30µl	
104	**pH Conductivity meters**	2
	PH range: 0-14 or more, MV range +/-1999 or better, Ta (C) 0 to 99.9 or better, System should have auto buffer recognition system for 3 bugger, PH 4, pH 7 and pH9.21.	
105	**Homogenizer /Tissue Hmogenizer**	3

	Tissue Homogenizer ideal solution for dispersing, homogenizing, mixing and grinding biological tissue samples (cells, animal and plant tissues), pharmaceutical products, cosmetics and food products. Features: •High versatility •Flexible, easy-to-use, rapid and user-friendly •Stator and rotor interchangeability •Built-in electronic motor control •Soft start prevents spillage •Automatic overload protection increases the life span •One shaft for all applications •High Strength, Excellent Durability •Rotor/Stator configuration can assembled in a few seconds and without the use of tools •Stainless steel shaft with PTFE seals Performance Stirring speed:From 10000 to 30000 rpm Stirring speed:Graduated scale Stirring volume max (H2O):from 0.2ml to 8 liters as homogenizer Stirring volume max (H2O):Up to 40 liters as high speed mixer Max viscosity (mPas):10.000 Ultimate fineness: Suspension10-50µm Emulsion1-10 µm Safety:Overload protection, Smooth start, Safety switch Power:500 W Weight:1.3 Kg (2.9 lb) Complete unit including H-stand, strap clamp, boss head clamp and dispersing tools range 100-5000ml	

106	**Rotary Evaporator**	1
	Laboratory device used for gentle and efficient removal of solvents from samples by evaporation under reduced pressure.Essential in physiology and biochemistry labs for concentrating samples, solvent recycling, purification, and preparation of extracts. Provides controlled heating and rotation to ensure uniform solvent removal without damaging heat-sensitive compounds. Widely used in sample preparation for analytical and experimental work.Physical & Technical Characteristics: Rotation Speed: Adjustable, typically 20–280 rpm. Heating Bath: Digital water/oil bath with adjustable temperature up to 180 °C. Temperature Control: Accuracy ±1 °C, with digital display. Vacuum System: Compatible with external vacuum pump for reduced pressure operation. Glassware: High-quality borosilicate glass evaporation flask, receiving flask, and condenser. Condenser: Vertical or diagonal type with high-efficiency cooling for maximum solvent recovery. Vacuum System: Compatible with external vacuum pump for reduced pressure operation. Lift Mechanism: Motorized or manual lift for safe flask positioning. Safety Features: Overheating protection, dry-run protection, and shatter-resistant glass shield. Compliance: Must conform to international safety and laboratory equipment standards. Accessories:Complete glassware set (evaporation flask, condenser, receiving flask).Vacuum pump compatible with the system. Tubing, connectors, and clamps for assembly. Spare seals and gaskets.User manual and calibration certificate.Build & Ergonomics:Compact, benchtop design with stable base.Chemical-resistant housing for durability.Easy-to-use control panel with digital displays. Power Requirements: 220–240 V, 50/60 Hz, compatible with local standards.	
107	**Viscometer**	1
	Features 5-inch Full-Color Touch Screen Display •User Interface •Enhanced Controls •Real Time Trend Indicator Displayed Info: •Viscosity (cP, mPa s, P, Pa s) •Temperature (°C, °F or K) •Torque: %, mNm, Dyne cm •Speed/Spindle •Displayed with test data 740 Speeds provide great range capabilityDirect Access to time measurement function (time to torque, time to temperature, time to stop) Accuracy: ±1.0% of range Repeatability: ±0.2% Temperature off-set capability to ±5°C Dynamic User interface for more direct access to features Automatic Range Calculation: •Full Scale Range (FSR) at 100% •Maximum viscosity measured with Spindle / Speed combination Viscosity range 1 cp to 6 million cp. (Min range can be extended with Brookfield optional accessories) Speed Range (1 to 200 rpm). Complete with set of 4 spindles. Stand & carrying case. Operated on 220 Volts.	
108	**ECG**	1
	Twelve Channel ECG on at least 5 inches LCD display. Variable gain: 1/2, 1, 2 cm/mV, Recording Trace speed: 10, 25 and 50 mm/sec. Muscle artifact and AC (50Hz) interference filters. Built-in AC operation & battery backup minimum 30mins	
109	**Monarc Bicycle**	1
	A precision exercise ergometer designed for controlled physical activity and physiological testing.	
	Used in physiology labs for cardiovascular, respiratory, and exercise tolerance studies.	
	Provides accurate measurement of workload (watts) for standardized testing.	
	Essential for experiments involving oxygen uptake, heart rate, endurance, and metabolic assessment.	
	Physical & Technical Characteristics.	
	Type: Electrically braked or mechanically braked ergometer cycle.	
	Workload Range: 20–1200 W adjustable (or equivalent).	
	Workload Control: Continuous, stepwise, or programmable increments.	
	Resistance System: Electromagnetic braking system (preferred for accuracy).	
	Display: Digital LCD/LED screen for time, speed (km/h), distance, workload (W), and RPM.	
	Heart Rate Monitoring: Integrated with chest strap or handle sensors.	
	Seat & Handlebar: Fully adjustable for different body sizes.	
	Data Output: USB/Bluetooth/serial port for connection to PC or data acquisition systems.	
	Accuracy: ±2% workload error.	
	Compliance.	
	CE and ISO certified.	
	Must conform to international standards for medical/physiological exercise testing equipment.	
	Accessories:	
	Heart rate chest strap.	
	Calibration weights or system.	
	Power adapter and cables.	
	User manual.	
	Build & Ergonomics.	
	Heavy-duty steel frame with stable, vibration-free design.	
	Adjustable pedals with foot straps.	
	Silent operation with smooth pedaling.	
	Power Requirements.	
	220–240 V, 50/60 Hz (for electronic model) Option for mechanical braking system requiring no power.	
110	**Spirometer**	1
	Description:	
	A diagnostic instrument used to measure lung function, specifically the volume and flow of air during inhalation and exhalation.	
	Essential in physiology labs for respiratory studies, pulmonary function tests (PFT), and student demonstrations.	
	Used for assessing vital capacity, tidal volume, forced expiratory volume (FEV1), and peak expiratory flow rate.	
	Provides accurate and reproducible results for teaching and clinical research purposes.	
	Physical & Technical Characteristics:	
	Type: Digital handheld or PC-based spirometer.	
	Parameters Measured: FVC, FEV1, FEV1/FVC ratio, PEF, MVV, and other standard indices.	
	Flow Sensor: High-accuracy turbine or pneumotach sensor.	

	Volume Range: 0–10 L	
	Flow Range: 0–14 L/sec	
	Accuracy: Volume ±3%, Flow ±5%	
	Display: LCD/LED screen with real-time flow-volume and volume-time curves	
	Memory/Storage: At least 1000 test results or PC connectivity	
	Calibration: Volume calibration syringe compatibility	
	Software: PC software for data storage, graphical display, and analysis	
	Compliance:	
	CE and ISO certified	
	Must conform to ATS/ERS (American Thoracic Society / European Respiratory Society) standards for spirometry	
	Accessories:	
	Reusable or disposable mouthpieces	
	Nose clips	
	Calibration syringe (minimum 3 L)	
	USB cable and software (for PC model)	
	User manual and calibration certificate	
	Build & Ergonomics:	
	Portable, lightweight design for classroom/lab use	
	Easy-to-clean surfaces with antimicrobial housing (preferred)	
	Ergonomic handheld design or stable benchtop option	
	Power Requirements:	
	Rechargeable battery or 220–240 V adapter (depending on model)	
111	**AMBU bag**	4
	Description:	
	A hand-held device used to provide positive pressure ventilation to individuals who are not breathing adequately or at all.	
	Essential in physiology and clinical skill labs for teaching cardiopulmonary resuscitation (CPR) and emergency ventilation techniques.	
	Used for resuscitation training, demonstration of respiratory mechanics, and emergency preparedness.	
	Suitable for adult, pediatric, and neonatal applications (different sizes required)	
	Physical & Technical Characteristics:	
	Material: Medical-grade silicone or PVC, autoclavable	
	Self-inflating Bag Volume:	
	* Adult: 1600 ml ± 100 ml	
	* Pediatric: 500–700 ml	
	* Neonatal: 240–300 ml	
	Reservoir Bag Volume: ≥ 2000 ml for adults	
	Oxygen Inlet Valve: Allows connection to oxygen supply for FiO_2 up to 100%	
	Patient Valve: One-way valve with minimal dead space (< 6 ml)	
	Mask: Transparent, anatomically shaped, cushioned mask in multiple sizes	
	Operating Temperature Range: 0–50 °C	
	Reusability: Autoclavable (for silicone type) or disposable single-use (for PVC type)	
	Compliance:	
	CE and ISO certified	
	Must conform to international standards for medical resuscitation devices (ISO 10651-4)	
	Latex-free and biocompatible materials	
	Accessories:	
	Complete set of masks (adult, child, infant)	
	Oxygen tubing	
	Reservoir bag	
	Carrying case	
	Instruction/user manual	
	Build & Ergonomics:	
	Lightweight, ergonomic design for single-person operation	
	Quick reassembly and disassembly for cleaning	
	Transparent mask and valve for visual monitoring of airflow and secretions	
112	**Ice box (for Physiology)**	2
	Description:	
	A portable insulated container designed to store and transport temperature-sensitive biological samples, reagents, and chemicals.	
	Essential in physiology labs for preserving samples such as blood, enzymes, and tissue extracts during experiments or transport.	
	Maintains stable low temperatures using ice packs or dry ice.	
	Useful for field studies, specimen collection, and temporary cold storage.	
	Physical & Technical Characteristics:	
	Capacity: Minimum 10–20 liters (other sizes optional)	
	Insulation Material: High-density polyurethane or equivalent	
	Temperature Maintenance: 2–8 °C for at least 12–24 hours with ice packs	
	Wall Thickness: ≥ 30 mm for effective insulation	
	Lid: Airtight, leak-proof, with secure locking system	
	Carrying: Sturdy side handles or top handle for portability	
	Durability: Impact-resistant, corrosion-proof, and easy-to-clean surface	
	Compliance:	
	CE and ISO certified	
	Must conform to international biosample storage and transport standards	
	Made from food-grade, non-toxic, and chemical-resistant material	
	Accessories:	
	Reusable ice packs (minimum 4 included)	
	Internal separator/tray for sample organization	
	Instruction/user manual	
	Build & Ergonomics:	
	Lightweight, ergonomic design for single-person operation	
	Smooth edges and reinforced corners for safety and durability	
	Easy-to-clean with disinfectants	
113	**Audiometer**	2

	Frequency upto 8KHz Air conduction, Bone conduction, Narrow band, Speech , Power supply 220/240V AC, AC Headset, BC Headset, Microphone, Compatible printer, Patient response switch	
114	**Stop Watch**	2
	Description:	
	A precision timing device used to measure short intervals of time during physiology experiments	
	Essential for exercises such as cardiovascular fitness testing, reflex time measurement, and muscle endurance studies	
	Provides accurate recording of start/stop events in laboratory protocols	
	Physical & Technical Characteristics:	
	Type: Digital preferred	
	Display: Large LCD with clear readout	
	Accuracy: ±0.01 seconds	
	Functions: Start, stop, split/lap timing, reset	
	Memory: Minimum 10–30 lap recalls	
	Alarm: Audible start/stop beep	
	Casing: Shock-resistant ABS plastic	
	Battery: Replaceable standard cell with long life (≥12 months)	
	Portability: Lightweight with neck strap	
	Compliance:	
	CE and ISO certified	
	Must meet laboratory-grade accuracy standards	
	Accessories:	
	Lanyard/strap	
	Extra battery included	
	Instruction manual	
	Build & Ergonomics:	
	Compact, lightweight, and comfortable to handle	
	Water- and dust-resistant for durability in lab and field	
115	**Weight & Height Scale**	2
	Description:	
	Combined equipment used to measure body weight and height of subjects	
	Fundamental for physiological experiments. BMI (Body Mass Index) calculation, and assessment of growth, nutrition, and health status	
	Required for routine lab classes, research studies, and clinical physiology demonstrations	
	Type: Mechanical or digital (digital preferred for accuracy)	
	Weight Capacity: At least 200–250 kg	
	Accuracy: ±100 g for weight, ±0.1 cm for height	
	Height Rod Range: 60–210 cm (or wider)	
	Platform: Non-slip, stable, wide enough for all foot sizes	
	Display (Digital type): Clear LCD/LED backlit display for weight	
	Units: kg/lb convertible	
	Material: Durable steel/aluminum frame with corrosion resistance	
	Compliance:	
	CE and ISO certified medical-grade scale	
	Should meet international accuracy standards for anthropometric measurements	
	Accessories:	
	Detachable height rod	
	Power adapter (for digital type)	
	Rechargeable/replaceable batteries	
	Build & Ergonomics:	
	Sturdy, rust-proof body for long-term institutional use	
	Easy to clean and maintain	
	Stable base to ensure accurate readings	
116	**Digital Tympanic Thermometer**	5
	Description:	
	A medical thermometer designed to measure core body temperature via the ear canal (tympanic membrane)	
	Provides rapid, non-invasive, and accurate readings, making it suitable for physiology practicals, clinical demonstrations, and emergency settings	
	Useful in teaching thermoregulation, fever studies, and clinical physiology experiments	
	Physical & Technical Characteristics:	
	Measurement Site: Ear canal (tympanic membrane)	
	Range: 32 °C – 42.5 °C	
	Accuracy: ±0.2 °C	
	Response Time: 1–2 seconds	
	Display: Digital LCD with backlight for easy reading	
	Memory: Stores last 10–30 readings	
	Units: Switchable between °C and °F	
	Probe: Infrared sensor with disposable probe covers for infection control	
	Auto Shut-off: Saves battery when not in use	
	Compliance:	
	Must comply with CE, ISO, and FDA standards for medical devices	
	Biocompatible probe covers to ensure patient/student safety and hygiene	
	Accessories:	
	Disposable probe covers (minimum 100)	
	Protective storage case	
	Spare batteries or rechargeable option	
	Build & Ergonomics:	
	Compact and lightweight design for frequent classroom use	
	Easy single-button operation for students	
	Durable body resistant to disinfectants and alcohol wipes	
117	**Appropriate dissecting instrument sets for 2 cadavers**	10

	All instruments made of high-grade stainless steel (AISI 304/316), corrosion-resistant, autoclave-safe, and ergonomically designed. Supplied in stainless steel trays with labelled compartments, instrument inventory chart, and autoclavable cover. Each set to include all essential tools for general and fine dissection work. Each Set to include (Minimum) Scalpels: 1 handle with 5 blades (replaceable type) Scissors: Straight, curved, and fine (iris type) Forceps: Tooth, non-tooth, and fine-tip Probes/Needles: Double-ended probe, straight and curved teasing needles Accessories: Ruler, dissecting pins, kidney tray, bowl, dropper Storage: Stainless steel instrument tray (approx. 350 × 250 × 50 mm) with perforated lid Optional: Chain hook, small measuring ruler, cleaning brush Quality and Finish: Mirror or satin polish, burr-free edges, precision-ground cutting surfaces Instruments compliant with ISO 13485 / ASTM standards for surgical instruments Additional Requirements: 10% spare consumables (e.g., blades, pins) per set Minimum 12-month warranty	
118	**Multichannel micropipette**	2
	Descripition:	
	Precision laboratory instruments designed to dispense exact volumes of liquid across multiple wells simultaneously.	
	Widely used in physiology, biochemistry, molecular biology, and microbiology labs.	
	Essential for high-throughput experiments such as ELISA, PCR, cell culture, and plate-based assays.	
	Saves time, reduces error, and ensures reproducibility when working with 8-well or 12-well microplates.	
	Physical & Technical Characteristics:	
	Channels: Available in 8-channel and 12-channel versions.	
	Volume Range: Complete set covering 0.5–10 µl, 10–100 µl, 30–300 µl.	
	Accuracy: ≤ ±1% error across all channels.	
	Adjustment: Digital or mechanical volume setting with clear display.	
	Tip Compatibility: Compatible with universal standard pipette tips.	
	Tip Ejector: Ergonomic design with single-step tip ejection.	
	Calibration: Factory-calibrated; must allow easy recalibration.	
	Ergonomics: Lightweight with minimal plunger force to reduce strain during repetitive use.	
	Material: Resistant to commonly used laboratory solvents and sterilization.	
	Compliance:	
	CE and ISO certified.	
	Must comply with international standards for precision pipetting and contamination control.	
	Accessories:	
	Full range of sterile and non-sterile filter tips (universal fit).	
	Pipette stand for multichannel pipettes.	
	Calibration certificate.	
	User manual.	
	Build & Ergonomics:	
	Autoclavable lower parts.	
	Color-coded for easy identification of volume ranges.	
	Designed for smooth, consistent aspiration and dispensing across all channels.	
119	**Autoclave/Autoclave Digital Microprocessor**	1
	Controlled Vertical Unit Temperature Range 105 to 135° C Interior Chamber Stainless steel, capacity 20-25 Lit interior chamber dimension 300 x 710 D mm or better , with Built in Timer 1 to 250 Minutes and Pressure Gauge 0 to 0.4 mpa, Selected Modes for Liquid and Solids and Agar Process, Complete with stainless Steel Basket operated on 220 Volts with following Features:- a.Electromechanical Lock System. b.Dual Sensing Interlock mechanism. c.Pulse Sensing System for Air Exhaust. d.Programmable Auto start e.Process Status Display f.Over Pressure Cutoff. Over Temperature Cutoff. Pressure Safety valve. Complete Unit as above with standard accessories.	
120	**Centrifuge (12 tubes)**	2
	With Angle Rotor Capacity 12 x 15ml, Speed 6,000rpm Digital Microprocessor Controlled Speed range 200 to 6000rpm, digital display of preset and actual speeds, timer range 0–99hr 59 minutes and continuous run with lid lock system, automatic imbalance indication with safety shut off, ABS housing resistant against shock & chemicals, Foil Key Board, 10 acceleration & deceleration rates, Noiseless and vibration free, Centrifuge conforms to CE & 61010 standards Operated on 220 Volts	
121	**Centrifuge machine for 50 ml tubes**	2

	Microprocessor with large LCD display Electrical lid lock Quick access to samples Active imbalance identification and cut-off Quick Acceleration and Deceleration Noise level < 60 dBA, at max. speed Easy removal of rotor, without tools Manufactured in accordance to international Safety regulations, i.e. IEC 61010 Distinct Control Panel Control panel with Touch-Operation Simple one –handed operation Easy to program with gloves on Splash-proof foil keyboard Permanent indication of pre-set and actual values Selection of speed in both rpm and g-force, in increments of 10 10 acceleration and deceleration rates, possibility of unbraked deceleration Pre- selection of the running time, from 10s to 99h 59min or continuous Storage of up to 99 runs Quick –key for short runs Technical Data Max. Speed: 6,800 rpm Max. RCF: 4,445xg Max. Volume: 8x15ml Speed range 200-6,800 rpm Running time 59min 50 s /10 s increments 99 h 59 min / 1 min increments 01-No. Combi Rotor 4 x 50 ml / 4 x 15 ml Speed 6,800rpm Complete with above operated on 220 Volts.	
122	**Water Purification System**	2
	practical compact system with One-hand dispenser when both pure and ultrapure water is required in small quantities. The combination of state-of-the-art treatment techniques enables the extraction of pure and ultrapure water from just one system. It can be connected directly to a drinking water pipe. The flexible dispenser is used to extract category I ultrapure water. The removal takes place at the push of a button via the digital control of the dispenser. An integrated 7 litre tank with recirculation keeps the quality permanently at type II. Ultrapure water values type II Pure water performance at 15°C [l/h] 5 Conductivity at 25°C [µS/cm] 0.067 up to 0.1 Resistance at 25°C [MΩ x cm] 15 up to 10 Ultrapure water values type I Conductivity at 25°C [µS/cm] 0.055 Resistance at 25°C [MΩ x cm] 18.2 TOC-value* [ppb] < 10 Dispensing performance [l/min.] up to 2 Particles** > 0.2µm [1/ml] < 1 Bacteria** [KBE/ml] < 0.01 *The values given are typical and may vary depending on the quality of the feed water ** With sterile filter capsule 0.2µm Feedwater requirements Tap water according to DIN 2000 Feedwater pressure [bar] 0.5 up to 6 Feedwater temperature [°C] +2 up to 35 Conductivity at 25°C [µS/cm] < 2000 Colloid index SDI < 10 Dissolved CO2[ppm] < 30 Free chlorine [ppm] < 3 TOC-value [ppm] < 1 Hardness [as CaCO3]* < 300 Silica [ppm] < 30 pH range 4 up to 10 * For higher values, pre-treatment must be carried out upstream Technical data	
123	**Exercise Physiology System for Sports Science, Respiratory and Metabolic Studies.** A complete physiology recording system for monitoring cardiorespiratory and metabolic functions during exercise	1
	Accessory: UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement	
124	**Sonicator**	1
	Description:	
	Laboratory device that uses ultrasonic waves to agitate particles in a solution	
	Commonly used for cell disruption, homogenization, mixing, degassing liquids, and nanoparticle preparation	
	In physiology labs, it is required for preparing biological samples, breaking cell membranes, and assisting in biochemical and molecular experiments	
	Physical & Technical Characteristics	
	Frequency Range: 20–40 kHz (ultrasonic range)	
	Power Output: Adjustable, typically 100–500 W	
	Modes: Continuous and pulsed operation	
	Probe (Horn): Titanium alloy probe for efficient energy transfer	
	Timer: Digital, programmable (up to 99 minutes)	
	Display: Digital LCD for power, time, and frequen / settings	
	Volume Capacity: Compatible with 0.5 ml to 500 ml sample tubes/beakers	
	Cooling System: Integrated protection against overheating	
	Compliance:	
	CE and ISO certified laboratory equipment	
	Should comply with international safety standards for ultrasound devices	
	Accessories:	
	Interchangeable probe tips (micro-tip for small volumes)	
	Soundproof chamber (to reduce noise)	
	Protective goggles and earplugs (for operator safety)	
	Build & Ergonomics:	
	Compact bench-top model	
	Noise reduction casing preferred for classroom use	
	Easy-to-clean, chemical-resistant exterior	
125	**Bright field microscope**	1

	Body:Aluminum die-cast metal frame, protective plastic covering Optical System:Infinity optical system Illumination System:Built-in transmitted illumination system LED power consumption: 0.5 W (nominal value) Focusing:Stage height movement Coarse movement stroke: 15 mm Coarse adjustment limit stopper Torque adjustment for coarse adjustment knob Fine focus knob (minimum adjustment gradations:2.5 μm) Revolving Nosepiece:Fixed quadruple nosepiece with inward tilt Stage: Wire movement mechanical fixed stage Size (W × D): 174 mm × 89 mm Traveling range (X × Y): 76 mm × 30 mm Specimen holder •Specimen position scale Observation Tube:Type: Binocular, anti-fungal Eyepiece (Anti0Fungal): 10X Field Number 20 Tube Inclination: 30° Light Path Selector: None Interpupillary distance adjusting range: 48-75mm Eye Point Adjustment: 370.0 – 432.9 mm Condenser:Abbe condenser NA 1.25 with oil immersion Built-in aperture iris diaphragm Objectives:Plan Achromat, anti-fungal 4X NA 0.1W.D. 27.8 mm 10X NA 0.25 W.D. 8.0 mm 40X NA 0.65 W.D. 0.6 mm 100XOil NA 1.25 W.D. 0.13 mm	
126	**Tissue processor (Rapid)**	1
	Description: suited for histology processing of animals and plant specimens. It is used to perform fixation, dehydration, clearing and infiltration. This instrument is used for rapid and automatic processing of varied specimens of all histological specimens **Specifications:** Cassette capacity: up to 300 cassettes Storage temp of reagents should be ambient to 35deg C Reagent temperature in processing chamber from Ambient to 55 deg C Paraffin processed in chamber at a temperature of 60 deg C to 75 deg C Paraffin melt time from pellets should be 4-5 hours	
127	**LED Microscope**	1
	Body:Aluminum die-cast metal frame, protective plastic covering Optical System:Infinity optical system Illumination System:Built-in transmitted illumination system LED power consumption: 0.5 W (nominal value) Focusing:Stage height movement Coarse movement stroke: 15 mm Coarse adjustment limit stopper Torque adjustment for coarse adjustment knob Fine focus knob (minimum adjustment gradations:2.5 μm) Revolving Nosepiece:Fixed quadruple nosepiece with inward tilt Stage: Wire movement mechanical fixed stage Size (W × D): 174 mm × 89 mm Traveling range (X × Y): 76 mm × 30 mm Specimen holder •Specimen position scale Observation Tube:Type: Binocular, anti-fungal Eyepiece (Anti0Fungal): 10X Field Number 20 Tube Inclination: 30° Light Path Selector: None Interpupillary distance adjusting range: 48-75mm Eye Point Adjustment: 370.0 – 432.9 mm Condenser:Abbe condenser NA 1.25 with oil immersion Built-in aperture iris diaphragm Objectives:Plan Achromat, anti-fungal 4X NA 0.1W.D. 27.8 mm 10X NA 0.25 W.D. 8.0 mm 40X NA 0.65 W.D. 0.6 mm 100XOil NA 1.25 W.D. 0.13 mm	
128	**Compound Microscopes**	10
	Body:Aluminum die-cast metal frame, protective plastic covering Optical System:Infinity optical system Illumination System:Built-in transmitted illumination system LED power consumption: 0.5 W (nominal value) Focusing:Stage height movement Coarse movement stroke: 15 mm Coarse adjustment limit stopper Torque adjustment for coarse adjustment knob Fine focus knob (minimum adjustment gradations:2.5 μm) Revolving Nosepiece:Fixed quadruple nosepiece with inward tilt Stage: Wire movement mechanical fixed stage Size (W × D): 174 mm × 89 mm Traveling range (X × Y): 76 mm × 30 mm Specimen holder •Specimen position scale Observation Tube:Type: Binocular, anti-fungal Eyepiece (Anti0Fungal): 10X Field Number 20 Tube Inclination: 30° Light Path Selector: None Interpupillary distance adjusting range: 48-75mm Eye Point Adjustment: 370.0 – 432.9 mm Condenser:Abbe condenser NA 1.25 with oil immersion Built-in aperture iris diaphragm Objectives:Plan Achromat, anti-fungal 4X NA 0.1W.D. 27.8 mm 10X NA 0.25 W.D. 8.0 mm 40X NA 0.65 W.D. 0.6 mm 100XOil NA 1.25 W.D. 0.13 mm	
129	**ETT Machine**	1

	Analysis of ST levels, ST slopes and ST-index etc. Report: 12 leads, rhythm and full disclosure arrhythmia, and exercise summary, trend. Holter and Stress test review. Treadmill, medical grade, controllable from main unit Speed adjustable from 0-15 km/h. Emergency stop button. Bearing capacity of minimum 180kg. Complete integrated full functional workstation	
130	**EMG Machine**	1
	12 Channels,Input impedance: 1000 MOhm (Common Mode). CMRR >106db (Balanced Mode). CMRR >112db (Isolation Mode). Noise level: 0.6 uV RMS or better. Low-cut filter, Skin electrode contact impedance check A/D converter. Continues EMG recording up to 10 min. Storage to EMG with full acquisition resolution.	
131	**EEG Machine**	1
	32 channel. Input impedance: 100 MΩ. Internal noise level: Less than 1.5 μVp-p CMRR: 100 dB or greater. Low-cut filter / notch filter Sampling frequency: 100 - 2000Hz. AC interference filter: 50 or 60 Hz. Sensitivity: EEG INPUT:. Ethernet/ USB connectivit. Impedance check capability. Patient event switch interface.	
	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 (or "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.	
	1 UV/UPVC wall-mounted/floor-standing cabinet as per lab requirement be provided by the most successful bidder.	

Clinical Trial Unit

S. No.	Product Description	Quantity
132	**Fowler beds with over bed table and bed side cabinet.**	20
	Fowler Bed (Locally Made)	
	Frame: Heavy-duty **mild steel (MS) tubular frame**, epoxy powder-coated for durability and corrosion resistance.	
	Positioning: Four position Fowler bed with adjustable sections (backrest, knee rest).	
	Mechanism: Smooth crank mechanism (manual) with foldable handles at foot end.	
	Mattress Platform: Perforated/ventilated steel sheet platform, four sections (v good quality)	
	Side Rails: Collapsible/ swing type aluminum or stainless steel side rails (pair).	
	Head & Foot Panels: Detachable, made of ABS/laminated board with aluminum edges.	
	Mobility: Four swivel castors (125–150 mm) with at least two having brakes.	
	Dimensions: Standard hospital bed size approx. **2000 × 900 × 600 mm**.	
	Load Capacity: ≥ 150–180 kg.	
	Over-Bed Table	
	Frame: Mild steel/ stainless steel with powder coating.	
	Table Top: Laminated wooden/ABS t p, smooth, stain-resistant, and easy to clean.	
	Height Adjustment: Screw/lever type, adjustable height.	
	Mobility: Mounted on 4 small castors for easy movement.	
	Dimensions: Approx. **900 × 450 mm (top surface)**.	
	Bedside Cabinet	
	Material: Powder-coated steel body with ABS/laminated wood top.	
	Features:	
	One drawer for personal belongings.	
	One storage cabinet with door.	
	Open shelf for utility items.	
	Mobility: Optional castors for easy relocation.	
	Dimensions: Approx. **450 × 450 × 750 mm** (L×W×H).	
	General Requirements	
	Locally manufactured in Pakistan with hospital-grade materials.	
	Welded joints, smooth edges, rust-proof finish.	
	Easy to disinfect and maintain.	
	Supplied as a **complete set (Bed + Over-Bed Table + Bedside Cabinet)**.	
	Warranty: **Minimum 1 year against manufacturing defects**.	
133	**Syringe pumps**	20
	Syringe pump for fluid administration. Flow Rates: 0.1 - 400 ml/hr. (Approx). Universal Syringe acceptance capability for disposable, Plastic, Size, 10, 20, 50, 60 ml. Drive Accuracy ±3%. Quick freed/rapid infusion facility. Battery back up 3 to 4Hours.	
	Microprocessor-controlled infusion/syringe pump for precise and continuous infusion of fluids, drugs, or reagents.	
	Suitable for **clinical use (ICU/ward)** and research/biotech labs.	
	Syringe Compatibility	
	Compatible with standard disposable syringes: **10 ml, 20 ml, 30 ml, 50/60 ml.**	
	Automatic recognition of syringe size and brand.	
	Flow Rate	
	Range: **0.1 ml/hr to ≥ 1200 ml/hr** (depending on syringe size).	
	Flow accuracy: **±2%** or better.	
	Incremental adjustment: **0.1** ml/hr.	
	Display & Control	
	Large LCD/TFT **digital display** for infusion rate, volume, and alarms.	
	User-friendly keypad/touch controls.	
	Memory for last settings.	
	Alarms & Safety Features	
	Occlusion (blockage) alarm.	
	End of infusion alarm.	
	Syringe dislodgement / empty syringe alarm.	
	Low battery alarm.	
	Door open alarm.	
	Automatic stop during alarm activation.	
	Power Supply	
	Operates on **220–240 V AC** (50 Hz).	
	Built-in rechargeable battery: ≥ 6–10 hours backup.	
134	**Infusion pumps**	10
	Electrically operated **volumetric infusion pump** for continuous, accurate, and safe delivery of intravenous fluids, medications, and nutrients.	
	Suitable for **adult, pediatric, and neonatal** use.	
	Functional Requirements	
	Specification:	
	Flow Rate Range: 0.1 to 1200 mL/hour (programmable)	
	Flow Rate Accuracy: ±5% or better	

	Volume to be Infused (VTBI): 0.1 to 9999 mL	
	KVO (Keep Vein Open) Rate: Adjustable, typically 0.1–5 mL/hour	
	Occlusion Pressure: Adjustable (Low/Medium/High), with alarm	
	Infusion Modes: Volume/time mode, rate mode, drop control mode	
	Air Bubble Detection: Ultrasonic or optical sensor with automatic alarm & pump stop	
	Anti-Bolus Function: Automatic release after occlusion removal	
	Memory Function: Retains last program and alarm history after power failure	
	Alarm System: Occlusion, air in line, empty, door open, end of infusion, low battery, AC failure	
	Display: Large backlit LCD or color screen showing real-time flow, pressure, volume, and battery level	
	Operation Keys: Soft-touch membrane keypad or touch screen, easy to disinfect	
	Infusion Set Compatibility: Dedicated or standard IV sets with anti-free flow mechanism	
	Free Flow Protection: Mechanical and electronic safety interlock	
	Power Source: AC mains 100–240V, 50/60 Hz, with internal rechargeable lithium-ion battery (≥6 hours at 5 mL/hr)	
	Battery Recharge Time: ≤6 hours	
	Data Port / Connectivity: Optional RS232 / USB / Wi-Fi interface for data download or central monitoring	
	Operating Conditions: Temperature 10–40°C, Relative Humidity ≤90% non-condensing	
	Weight: ≤2.5 kg	
	Mounting: IV pole clamp / bedside stand compatible	
	Accessories: Power cord, IV pole clamp, standard IV infusion set (5 nos.), instruction manual	
	Safety and Standards	
	Must comply with international standards:	
	IEC 60601-1 (Electrical Safety)	
	IEC 60601-2-24 (Infusion Pump Standard)	
	ISO 13485 (Quality Management)	
	CE / US FDA certification	
	Over-infusion and under-infusion protection system.	
	Alarm volume adjustable but non-mutable for critical alerts.	
	System self-test at power-on.	
	Warranty & After-Sales Support	
	Minimum 2-year comprehensive warranty	
	Availability of spare parts and consumables for at least 5 years.	
	On-site user training and preventive maintenance schedule by authorized service engineer.	
135	**Defibrillator**	2
	A defibrillator is a life-saving medical device designed to deliver a controlled electrical shock to the heart to restore a normal rhythm in cases of ventricular fibrillation, ventricular tachycardia, or cardiac arrest.	
	It may function as a manual, automated external (AED), or biphasic monitor-defibrillator used in hospitals, ambulances, and emergency units.	
	Specification	
	Type: Biphasic defibrillator (manual / AED / monitor-defibrillator)	
	Waveform: Truncated exponential or rectilinear biphasic waveform	
	Energy Range: 1–200 Joules (biphasic), 1–360 Joules (monophasic) selectable	
	Energy Accuracy: ±10% or better across full range	
	Charge Time: ≤5 seconds to full charge at 200 Joules	
	Synchronization: Synchronized with R-wave for cardioversion	
	ECG Monitoring: 3-lead / 5-lead ECG via patient cable, paddles, or pads	
	Heart Rate Range: 30–300 bpm	
	Alarms: Audible & visual for asystole, VF, low battery, charging failure	
	Display: High-resolution color LCD ≥5.7", showing ECG, energy level, and patient info	
	Memory / Data Storage: Built-in memory to store at least 200 events (ECG, shock data, patient ID, date/time)	
	Connectivity: USB / SD card / Bluetooth / Wi-Fi for data transfer	
	Recorder: Thermal printer (optional) for ECG waveform and event log	
	Battery Backup: Rechargeable battery ≥3 hours monitoring or ≥100 shocks at 200J	
	Power Supply: AC mains 100–240V, 50/60 Hz; DC battery operation	
	Charging Indicator: Audible and visual	
	Self-Test Function: Automatic power-on self-test and daily self-check	
	Controls: User-friendly rotary knob / membrane keypad for mode & energy selection	
	Environmental Conditions: Operating temperature: 10–40°C; humidity ≤90% non-condensing	
	Accessories: Adult paddles, pediatric paddles/adapters, ECG cable, patient pads, battery, power cord, printer paper roll, user manual	
	Safety and Performance Standards	
	IEC 60601-1 (Medical Electrical Safety)	
	IEC 60601-2-4 (Defibrillator Safety)	
	ISO 13485 (Quality System)	
	CE / US FDA certification	
	Output energy and waveform should be automatically compensated based on patient impedance.	
	Protection against inadvertent shock ,safety interlock).	
	Battery level and system status continuously displayed.	
	Warranty and Maintenance	
	Minimum 2 years comprehensive warranty.	
	Calibration certificate provided on delivery.	
	Availability of authorized service center and spare parts for 5 years.	
	On-site training for doctors, nurses, and biomedical engineers.	

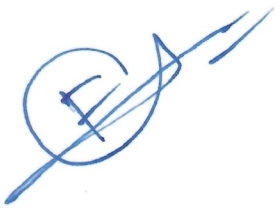
136	**Oxygen cylinders with accessories**	10
	General Description	
	Medical-grade oxygen cylinders are high-pressure gas containers designed to safely store and supply medical oxygen (O_2) for hospital wards, ICUs, operating rooms, and emergency use.	
	Each cylinder must comply with international safety standards (ISO, BS, or equivalent) and include regulator, flowmeter, humidifier bottle, and trolley/stand as required.	
	Cylinder Specifications	
	Type: High-pressure seamless steel cylinder for medical oxygen use	
	Water Capacity / Size Options: 20-25 L (common hospital sizes)	
	Working Pressure: 150–200 bar (typically 150 bar at 15°C)	
	Test Pressure: 250–300 bar	
	Gas Capacity: ~2.8 m^3 (20L)	
	Material: Seamless Manganese or Chrome-Molybdenum steel (BS 5045 / ISO 9809 certified)	
	Neck Thread: Standardized neck thread compatible with CGA / BS / DIN valves	
	Valve Type: Brass chrome-plated valve with pin-index safety system	
	Color Coding: Body: Black / Shoulder: White (as per ISO 32 for medical oxygen)	
	Markings: Permanent stamp for working pressure, test pressure, manufacturer, test date, serial number	
	Safety Device: Burst disc or pressure relief valve	
	Certification: Must comply with ISO 9809 / EN 1964 / PESO / CE standards	
	Accessories (Complete Set)	
	Oxygen Regulator: Two-stage type, brass body, pressure gauge (0–250 bar), outlet pressure range 0–10 bar adjustable	
	Flowmeter Unit: Flow range 0–15 L/min, with accurate calibration and control knob	
	Humidifier Bottle: Polycarbonate or autoclavable type, with diffuser to provide humidified oxygen	
	Pressure Gauge: Dual gauge (for cylinder pressure and delivery pressure) with clear dial	
	Outlet Fittings: Standard hose nipple / quick connector / Schrader fitting	
	Safety Features: Non-return valve, pressure relief, fire-resistant materials	
	Stand / Trolley: Heavy-duty MS powder-coated cylinder trolley with rubber wheels, chain/strap for securing cylinder	
	Flexible Oxygen Tubing: 2–5 m transparent, kink-resistant medical-grade tubing	
	Mask / Cannula: Oxygen mask, nasal cannula (adult/pediatric sizes)	
	Cap and Seal: Protective cap for valve during transport and storage	
	Quality and Safety Standards	
	Conforms to:	
	ISO 9809 / ISO 11120 – Seamless gas cylinders	
	EN 1964 – Gas cylinders for permanent gases	
	CE / PESO / FDA approved manufacturing	
	Fire and explosion-proof design	
	Each cylinder supplied pre-filled with medical-grade oxygen (99.5% purity) and leak-tested.	
	Cylinders must bear inspection and hydro-test certificate from authorized body.	
	Recommended Supply Set (Typical Hospital Package)	
	Oxygen Cylinder : 1 No.	
	Oxygen Regulator with Flowmeter: 1 No.	
	Humidifier Bottle: 1 No.	
	Oxygen Trolley: 1 No.	
	Oxygen Mask / Nasal Cannula: 1 set	
	Certificate of Hydrostatic Test: 1 copy	
	Warranty & Support	
	Minimum 1-year warranty on regulator and flowmeter assembly.	
	Replacement guarantee for manufacturing defects.	
	Supplier must ensure availability of spare parts and refilling services for at least 5 years.	
	On-site demonstration and training for clinical staff.	
137	**Fiber Optic Largynosscope**	1
	A fiber optic laryngoscope is a medical instrument used for visualization of the larynx and vocal cords during intubation and airway management.	
	The fiber optic system provides bright, cool, and shadow-free illumination through fiber bundles integrated into the blades, ensuring clear visibility and patient safety.	
	Specification	
	Type: Reusable Fiber Optic Laryngoscope Set (Adult + Pediatric)	
	Handle Type: Medium and Small handles, stainless steel, knurled for firm grip	
	Power Source: 2 × C or AA batteries / rechargeable lithium battery	
	Light Source: High-intensity LED bulb (≥ 3,000 lux) or xenon light, integrated in handle	
	Illumination Type: Fiber optic cold light with high-transmission glass fibers	
	Blade Type: Macintosh and Miller blades (curved and straight)	
	Blade Sizes: Macintosh: 0, 1, 2, 3, 4; Miller: 0, 1, 2, 3, 4	
	Material: High-grade, medical stainless steel (AISI 304 or 316)	
	Fiber Optic Bundle: Minimum fiber diameter 3.0 mm with ≥5,000 fibers for uniform illumination	
	Light Transmission: ≥90% with minimal heat generation	
	Connection Type: Standard ISO 7376 ("Green Line") compatible	
	Autoclavable: Fully autoclavable at 134°C for at least 1000 cycles	
	Assembly: Quick-release, easy-fit blades for rapid exchange	
	Finish: Satin or matte finish to minimize light reflection	

	Functional Requirements	
	Illumination: Bright, white light without heat; even distribution across blade tip	
	Handle Compatibility: Interchangeable blades across all sizes	
	Power Switch: Automatic ON/OFF when blade attached	
	Durability: Must withstand repeated sterilization and disinfection cycles	
	Optical Performance: No fiber breakage or black spots after 100 cycles	
	Battery Life: ≥2 hours continuous operation with standard batteries	
	Standard Accessories (Complete Set)	
	Handles: 2 (Medium and Small)	
	Blades (Macintosh): Sizes 0, 1, 2, 3, 4	
	Blades (Miller): Sizes 0, 1, 2, 3, 4	
	Spare LED Bulb / Light Source: 1 No.	
	Battery Set / Rechargeable Pack: 1 complete	
	Sterilization Tray: Autoclavable plastic or stainless steel tray	
	Carrying Case: Rigid, foam-lined aluminum or plastic box with secure locks	
	User Manual: Instruction and sterilization guide	
	Safety & Standards Compliance	
	Must comply with the following standards:	
	ISO 7376:2009 – Laryngoscopes for tracheal intubation (Green Standard)	
	IEC 60601-1 – Medical electrical equipment safety	
	CE / FDA certification	
	EN ISO 13485 – Quality Management System for Medical Devices	
	All components **latex-free** and **biocompatible**.	
	Electrical components must comply with **low-voltage** safety and **EMC requirements**.	
	Warranty and Maintenance	
	Minimum **2 years comprehensive warranty** (excluding consumables).	
	Supplier must provide:	
	Calibration / performance testing report	
	Training for operation and sterilization	
	Availability of spare blades and handles for 5 years	
138	**Ambu Bag**	2
	An **Ambu Bag**, also known as a **Manual Resuscitator or Bag-Valve-Mask (BVM)**, is a hand-held medical device used to provide **positive pressure ventilation** to patients who are not breathing or not breathing adequately.	
	It shall be **self-inflating, reusable or disposable**, and available in **adult, pediatric, and infant sizes**.	
	Types and Sizes	
	Adult: >30 kg; 1500 mL	
	Pediatric: 7–30 kg; 500–700 mL	
	Infant / Neonate: <7 kg; 250–300 mL	
	Construction and Materials	
	Resuscitator Bag: Medical-grade silicone or thermoplastic elastomer (TPE); self-inflating, durable, non-toxic, latex-free	
	Reservoir Bag: Silicone or PVC, capacity ≥ 1500 mL (adult)	
	Oxygen Reservoir Tubing: 1.5–2 m long, kink-resistant, standard diameter	
	Patient Valve (Non-rebreathing): One-way valve ensuring 100% fresh gas delivery	
	Inlet Valve: Allows ambient or supplemental oxygen intake	
	Mask: Transparent, anatomical cushion mask, soft silicone or PVC with air cushion and inflation valve	
	Pressure Relief Valve: Integrated pop-off valve (40 ± 5 cmH_2O) for infant/pediatric models	
	Oxygen Inlet Port: Standard 22 mm / 15 mm ISO connection	
	Reusability: Fully autoclavable (reusable type) / Single use (disposable type)	
	Material Compliance: Latex-free, phthalate-free, biocompatible materials	
	Operating Temperature: 0–50°C	
	Functional Requirements	
	Self-Inflating: Bag must reinflate automatically without external gas source	
	Oxygen Enrichment: Delivers up to 100% O_2 when connected to oxygen supply and reservoir	
	Dead Space: Minimal, ensuring effective tidal volume delivery	
	Resistance: Low inspiratory and expiratory resistance	
	Disassembly: All parts easily detachable for cleaning and sterilization (reusable models)	
	Transparency: Valve and mask clear for visual monitoring of patient ventilation	
	Compatibility: Standard 15 mm/22 mm connectors compatible with ET tubes, masks, and filters	
	Accessories (Complete Set)	
	Self-Inflating Bag: 1 unit	
	Oxygen Reservoir Bag: 1 unit	
	Oxygen Tubing: 1 unit	
	Face Masks: 3 sizes (adult / pediatric / infant)	
	Pop-Off Valve: Fitted in pediatric and infant models	
	Carrying Case: Soft or hard case for protection and transport	
	Instruction Manual: Operation and sterilization guide	
	The device must comply with:	
	ISO 10651-4:2002 / ISO 80601-2-12 – Lung ventilators and resuscitators	
	EN ISO 5356-1 / ISO 5356-2 – Breathing system connectors	
	CE Marked / FDA Approved	
	ISO 13485:2016 – Quality Management System for Medical Devices	
	Must be **latex-free, non-toxic, and autoclavable** (for reusable models)	

	Warranty and Maintenance	
	Reusable models: Minimum 1-year warranty against manufacturing defects.	
	All reusable parts must withstand minimum 50 autoclave cycles at 134°C.	
	Supplier to ensure availability of spare masks, valves, and tubing for 5 years.	
	Training and demonstration to be provided upon delivery	
	Safety and Quality Standards	
139	**IV Pole with Stand**	20
	An Intravenous (I.V.) Pole with Stand is a height-adjustable mobile support system designed to securely hold I.V. fluid bottles and infusion pumps during patient care in wards, ICUs, and operating rooms.	
	It shall be stable, corrosion-resistant, and easy to clean and disinfect.	
	Construction and Material	
	Base Type: Mobile base with 4 or 5 legs for maximum stability	
	Base Material: Stainless steel (AISI 304) or powder-coated mild steel / aluminum alloy	
	Pole Material: Stainless steel (twin-tube, telescopic type) for height adjustment	
	Height Adjustment Range: 1350 mm to 2300 mm (±50 mm), with knob or clutch mechanism	
	Hooks: Minimum 2 or 4 stainless steel hooks, capable of holding ≥2 IV bottles or bags	
	Hook Design: S-shaped or swivel type, rounded edges for safety	
	Pole Diameter: 25–32 mm (outer tube), 20–25 mm (inner tube)	
	Finish: Polished / brushed stainless steel, corrosion-resistant	
	Locking Mechanism: Knob-type or screw-type height adjustment lock	
	Base Diameter: Minimum 550 mm for stable load distribution	
	Mobility Features	
	Castors: 4 or 5 swivel castors (≥50 mm diameter), antistatic and non-marking	
	Brakes: At least 2 wheels with individual locking mechanism	
	Mobility: 360° smooth rotation and movement	
	Noise Level: Low-noise movement suitable for ward and ICU use	
	Load Capacity and Stability	
	Load Capacity: Minimum 10–15 kg distributed load	
	Stability: No tipping or vibration under full load	
	Anti-Tip Design: Weighted base or wide-leg design for balance	
	Optional Accessories / Variants	
	Pump Mount Clamp: For infusion/syringe pump mounting	
	Bottle Holder Rings: Adjustable stainless steel rings for extra bottles	
	Plastic Drip Pan / Tray: For syringe or medicine placement	
	Twin Pole Design: For heavy load or multiple pump setups	
	Wall-Mounted Type: Optional fixed pole for ICU / OT use	
	Quality & Safety Standards	
	Manufactured in compliance with:	
	ISO 13485:2016 – Quality Management System for Medical Devices	
	CE / FDA certification	
	ISO 9001:2015 – General Quality Standards	
	Materials must be non-toxic, corrosion-resistant, antistatic, and easy to disinfect.	
	All edges and corners rounded for patient safety.	
	Warranty and After-Sales Service	
	Minimum 1-year warranty against manufacturing defects.	
	Supplier to provide spare parts availability for ≥5 years.	
	Demonstration and user training to be provided at the time of delivery.	
140	**Largynosscope**	2
	A Laryngoscope is a medical instrument used to visualize the larynx and vocal cords during endotracheal intubation.	
	It shall be durable, autoclavable, and provide bright illumination (either bulb or fiber optic) for safe and effective airway management in adults and pediatrics.	
	Type	
	Reusable Laryngoscope Set (Conventional / Fiber Optic type)	
	Complete Adult & Pediatric Set	
	Construction & Material	
	Material: High-quality medical grade stainless steel (AISI 304 or 316)	
	Blade Type: Macintosh (curved) and Miller (straight)	
	Blade Sizes: 0, 1, 2, 3, 4	
	Blade Design: Smooth surface, rounded edges to prevent patient trauma	
	Handle Type: Medium and small handles with knurled grip, corrosion-resistant	
	Light Source (Conventional): Halogen or LED bulb fitted in the blade	
	Light Source (Fiber Optic): Cold light via fiber optic bundle integrated into blade	
	Light Intensity: ≥3,000 lux at blade tip	
	Power Supply: 2 × C or AA batteries / Rechargeable lithium-ion battery	
	Illumination: White, shadow-free, cool illumination	
	Connection: ISO 7376 (Green Standard) compatible	
	Autoclavable: Yes, complete sterilization at 134°C for ≥1000 cycles	
	Finish: Matte or satin finish (non-reflective)	
	Functional Features	
	Illumination System: Uniform light across entire blade	

	Blade Fitment: Quick-release, secure fit to handle	
	ON/OFF Function: Automatic when blade is attached	
	Durability: Resistant to corrosion and repeated sterilization	
	Ease of Use: Ergonomic handle design for firm grip	
	Compatibility: Interchangeable with all ISO 7376 Green Standard components	
	Standard Accessories (Complete Set)	
	Handles: 2 (Medium and Small)	
	Macintosh Blades: Sizes 0, 1, 2, 3, 4	
	Miller Blades: Sizes 0, 1, 2, 3, 4	
	Spare Bulb / LED Light: 1 No.	
	Rechargeable Battery Pack: 1 complete set	
	Sterilization Tray: Autoclavable (stainless steel or plastic)	
	Carrying Case: Hard aluminum or ABS case, foam-lined interior	
	User Manual: Operation and sterilization instructions	
	Safety & Quality Standards	
	Must comply with:	
	ISO 7376:2009 – Laryngoscopes for tracheal intubation (Green Standard)	
	IEC 60601-1 – Medical electrical safety	
	EN ISO 13485 – Quality management for medical devices	
	CE / FDA approved manufacturing	
	Latex-free, biocompatible, and non-toxic materials.	
	Illumination system should **not generate heat** at the blade tip.	
141	**Crash Cart trolley**	2
	A **Crash Cart Trolley** is a **mobile emergency cart** designed for use in hospital wards, ICUs, operating rooms, and emergency departments for the **storage and rapid access of resuscitation and emergency equipment and drugs**.	
	The trolley shall be **ergonomically designed, durable, corrosion-resistant,** and **easy to clean and disinfect**.	
	Construction and Material	
	Frame Construction: High-quality stainless steel (AISI 304 grade) or powder-coated mild steel frame with reinforced structure	
	Top Surface: ABS molded / Stainless steel flat or slightly raised edge top, easy to clean, chemical resistant	
	Drawers: Three or more lockable drawers with smooth, ball-bearing slides; drawers of varying depths for medicine, instruments, and accessories	
	Lower Section: Cupboard / cabinet with hinged doors, suitable for larger emergency equipment	
	Locking System: Central locking mechanism securing all drawers and cupboard doors simultaneously	
	Edges & Corners: All edges rounded for staff and patient safety	
	Color Coding: Optional color-coded drawers (for easy drug segregation)	
	Dimensions (Approx.): 900 mm (H) × 750 mm (W) × 500 mm (D)	
	Mobility and Support	
	Castors: 4 high-quality cushioned, non-marking swivel castors, ≥100 mm diameter	
	Brakes: Minimum 2 castors with foot-operated braking system	
	Mobility: 360° swivel for smooth movement even in confined spaces	
	Handles: Ergonomic push handle for easy maneuvering (stainless steel / ABS)	
	Integrated Accessories	
	I.V. Pole: Double-hook stainless steel I.V. pole, height adjustable and detachable	
	Cylinder Holders: Two stainless steel oxygen cylinder holders with safety straps or clamps	
	Cardiac Board: Cardiac board (resuscitation board) – size 600 × 400 × 55 mm, made of laminated or HDPE material, with stainless steel housing brackets at rear side of trolley for easy mounting	
	Waste Bin / Sharps Container: Optional dual bin attachment (for biohazard and general waste)	
	Utility Baskets: Side-mounted stainless steel or ABS baskets for accessories	
	Defibrillator / Monitor Shelf: Flat top shelf capable of securely holding a defibrillator or monitor	
	IV Fluid Holder / Accessory Rail: Provision for side rail mounting of accessories (optional)	
	Performance and Quality Standards	
	Smooth operation of drawers and locks.	
	All components corrosion-resistant and disinfectant-safe.	
	Construction must withstand continuous hospital use.	
	Complies with **ISO 9001, ISO 13485,** and CE quality standards.	
	Materials used must be **antibacterial, antistatic, and easy to sterilize**.	
	Warranty and After-Sales Support	
	Minimum **1-year comprehensive warranty**	
	Supplier must provide **spare parts availability for at least 5 years.**	
	Training / demonstration on use and maintenance to be provided upon installation.	
	NOTE: Warranty & Support for all items:	
	3 years warranty, with complete replacement of parts (or stated individually)	
	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 Client.	
	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 Appliation 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



CHEMICALS, ANTIBODIES, MEDIUMS, SERUMS, PLASTICWARES & GLASSWARES FOR MOLECULAR BIOLOGY, REGENERATIVE MEDICINE, INFECTIOUS DISEASES AND ALLIED LABS		
Sr. #	**Name of Equipment**	**Qty**
142	**Chemicals, Antibodies, Mediums, serums, Plasticwares and GlasswareS**	
142 a	**PCR 96-Well Rack with lid, assorted colors**	10
	Rack compatible with standard 96-well PCR plates and strips; autoclavable polypropylene construction; assorted colors	
	Thermo Fisher/ Heathrow Scientific or equivalent	
142 b	**Four-way Microtube Rack, assorted colors**	10
	Interlocking rack for 0.5 mL, 1.5 mL, and 2.0 mL tubes; autoclavable; assorted colors	
	Thermo Fisher/ Heathrow Scientific or equivalent	
142 c	**Interlocking Puzzle Rack for 1.5/2.0, 15, and 50 mL tubes**	10
	Modular polypropylene racks that interlock for convenient tube organization	
	Thermo Fisher/ Heathrow Scientific or equivalent	
142d	**Switchable Storage Rack for 15 mL or 50 mL Tubes**	10
	30 x 15 ml and 20 x 50 ml	
	Dual-use rack for conical centrifuge tubes, autoclavable polypropylene	
	Thermo Fisher/ Heathrow Scientific or equivalent	
142 e	**Axygen-Tips 10 µL, non-sterile (bulk pack)**	3
	Nonsterile, sterile, non-filtered, and other features for specialized applications. Flexible walls and a series of internal sealing rings ensure a secure fit with less force required to load and eject.	
	These polypropylene tips are RNase-/DNase-free.	
	20,000 tips/case	
142 f	**Axygen-Tips 200 µL, non-sterile (bulk pack)**	3
	Nonsterile, sterile, non-filtered, and other features for specialized applications. Flexible walls and a series of internal sealing rings ensure a secure fit with less force required to load and eject.	
	These polypropylene tips are RNase-/DNase-free.	
	20,000 tips/case	
142 g	**Axygen-Tips 1000 µL, non-sterile (bulk pack)**	3
	Nonsterile, sterile, non-filtered, and other features for specialized applications. Flexible walls and a series of internal sealing rings ensure a secure fit with less force required to load and eject.	
	These polypropylene tips are RNase-/DNase-free.	
	10,000 tips/case	
142 i	**Axygen-Tips 10 µL, filtered, Sterile**	3
	Universal Tips designed to fit a wide variety of single and multi-channel pipettes, compatible with most popular brands of pipettes. These polypropylene tips are nonpyrogenic and certified to be RNase-/DNase-free.	
	Technologically advanced filter material allows free passage of air while blocking aerosol contamination.	
	Filter membrane contains no leachable additives.	
	Human gDNA- and PCR-inhibition-free	
	10,00 tips/case	
142 j	**Axygen-Tips 200 µL, filtered, Sterile**	3
	Universal Tips designed to fit a wide variety of single and multi-channel pipettes, compatible with most popular brands of pipettes. These polypropylene tips are nonpyrogenic and certified to be RNase-/DNase-free.	
	Technologically advanced filter material allows free passage of air while blocking aerosol contamination.	
	Filter membrane contains no leachable additives.	
	Human gDNA- and PCR-inhibition-free	
	10,00 tips/case	
142 h	**Axygen-Tips 1000 µL, filtered, Sterile (bulk pack)**	3
	Universal Tips designed to fit a wide variety of single and multi-channel pipettes, compatible with most popular brands of pipettes. These polypropylene tips are nonpyrogenic and certified to be RNase-/DNase-free.	

	Technologically advanced filter material allows free passage of air while blocking aerosol contamination.	
	Filter membrane contains no leachable additives.	
	Human gDNA- and PCR-inhibition-free	
	10,00 tips/case	
142 i	**Eppendorf® PCR Cooler**	5
	Iceless cold storage system for 0.2 mL PCR tubes/strips or 96-well plates; maintains 0–4 °C for ≥1 hr at room temperature	
	Eppendorf or equivalent	
142 j	**Eppendorf® PCR Cooler**	5
	Iceless cold storage system for 0.2 mL PCR tubes/strips or 96-well plates; maintains 0–4 °C for ≥1 hr at room temperature	
	Eppendorf or equivalent	
142 k	**Ethanol, absolute (≥99.8%)**	10* 2.5 L Bottles
	Molecular biology grade, DNase/RNase-free; suitable for nucleic acid precipitation and purification	
	Sigma-Aldrich / Thermo Fisher	
142 l	**Hydrochloric Acid, concentrated (32%)**	2 * 2.5 L Bottles
	Analytical reagent (AR) grade, 32–37%, for buffer pH adjustment and cleaning; molecular biology compatible	
	Sigma-Aldrich / Merck	
142 m	**Trizma Base (Tris Base)**	1 * 5 Kg
	Ultra-pure grade, ≥99.9% titration; used for preparing Tris buffer solutions (pH 7–9)	
	Sigma-Aldrich	
142 n	**EDTA disodium salt ($Na_2EDTA{\cdot}2H_2O$)**	1 * 5 Kg
	Molecular biology grade, ≥99%; chelating agent for metal ions; DNase/RNase-free	
	Sigma-Aldrich	
142 o	**SDS (Sodium Dodecyl Sulfate)**	1 * 5 Kg
	Molecular biology grade; ≥99%; electrophoresis grade detergent for protein denaturation	
	Sigma-Aldrich	
142 p	**Chloroform, stabilized**	3 * 2.5 L Bottles
	Molecular biology grade, free from ethanol; used in nucleic acid purification; DNase/RNase-free	
	Sigma-Aldrich	
142 q	**10X PBS (Phosphate-Buffered Saline)**	5 * 5 L Bottles
	Sterile, pH 7.4 ± 0.2; DNase/RNase-free; ready-to-use; for cell culture and molecular biology	
	Sigma-Aldrich	
142 r	**DMSO (Dimethyl Sulfoxide)**	1 * 100 ml Bottles
	Molecular biology grade, ≥99.9%; DNase/RNase-free; cryoprotectant and solvent	
	Sigma-Aldrich	
142 s	**Proteinase K**	10 * 50 mg
	Recombinant enzyme, ≥30 U/mg; for DNA/RNA isolation from tissues and cells	
	Thermo Fisher / Qiagen	
142 t	**Phenol-Chloroform-Isoamyl Alcohol (PCI, 25:24:1)**	10 * 400 ml
	Molecular biology grade, equilibrated; ratio 25:24:1 (v/v/v); free of DNase/RNase; for nucleic acid extraction	
	MP/ Thermo Fisher / Sigma-Aldrich	
142 u	**Boric Acid**	1 * 5 Kg
	Molecular biology grade; ≥99.5%; used in TBE buffer preparation for electrophoresis	
	MP/ Thermo Fisher / Sigma-Aldrich	
142 v	**Ethidium Bromide (10 mg/mL)**	5 * 10 ml
	Ready-to-use DNA gel stain; molecular biology grade; for agarose gel electrophoresis	
	MP/ Thermo Fisher / Sigma-Aldrich	
142 w	**Agarose (Electrophoresis Grade)**	5 * 500 mg
	High-purity agarose, low EEO (<0.13); optimized for nucleic acid electrophoresis	
	MP/ Thermo Fisher / Sigma-Aldrich	
142 x	**Sodium Chloride (NaCl)**	1 * 5 Kg
	Molecular biology grade; ≥99.5%; used for buffer and solution preparation	

	Thermo Fisher / Sigma-Aldrich	
142 y	**Potassium Chloride (KCl)**	1 * 5 Kg
	Molecular biology grade; ≥99.0%; reagent for PBS and buffer formulations	
	Thermo Fisher / Sigma-Aldrich	
142 z	**Sodium Acetate ($CH_3COONa·3H_2O$)**	1 * 1 Kg
	Molecular biology grade; ≥99%; buffer component for DNA precipitation	
	Thermo Fisher / Sigma-Aldrich	
142 aa	**Ammonium Persulfate (APS)**	1 * 1 Kg
	Electrophoresis grade; ≥98%; initiator for polyacrylamide gel polymerization	
	Thermo Fisher / Sigma-Aldrich	
142 ab	**Formamide**	5 * 10 ml
	Deionized, molecular biology grade, DNase/RNase-free; for nucleic acid hybridization	
	Thermo Fisher / Sigma-Aldrich	
142 ac	**Triton X-100**	1 * 500 ml
	Molecular biology grade, non-ionic surfactant; for membrane solubilization	
	Thermo Fisher / Sigma-Aldrich	
142 ad	**Isopropanol (2-Propanol)**	10 * 2.5 L
	Molecular biology grade; ≥99.5%; for nucleic acid precipitation and cleaning	
	Thermo Fisher / Sigma-Aldrich	
142 ae	**Acetone**	5 * 2.5 L
	Analytical reagent (AR) grade; ≥99.5%; for cleaning and dehydration steps	
	Thermo Fisher / Sigma-Aldrich	
142 af	**Taq DNA Polymerase (recombinant, 5 U/µL)**	20 * 500 U
	Recombinant thermostable enzyme from *Thermus aquaticus* for routine PCR; supplied with 10× reaction buffer and $MgCl_2$. 500 U	
	Thermo Fisher Scientific	
142 ag	**DreamTaq DNA Polymerase (5 U/µL)**	10 * 500 U
	High-performance recombinant Taq polymerase with optimized buffer for high yield and fidelity	
	Thermo Fisher Scientific	
142 ah	**Long PCR Enzyme Mix (5 U/µL)**	5 * 500 U
	Blend of Taq and proofreading polymerase for long-template amplification (>20 kb)	
	Thermo Fisher Scientific	
142 ai	**T4 DNA Ligase**	1 * 1,000 U
	Catalyzes phosphodiester bond formation between adjacent DNA fragments; supplied with 10× ligation buffer (ATP-containing)	
	Thermo Fisher Scientific	
142 aj	**Rapid DNA Ligation Kit**	10 rxn
	Ready-to-use kit for ligation of PCR fragments or restriction-digested DNA in ≤5 min	
	Thermo Fisher Scientific	
142 ak	**Shrimp Alkaline Phosphatase (faStAP, 500 U)**	10 * 500 U
	Recombinant SAP enzyme for PCR cleanup; heat-labile; 20 U/µL	
	Thermo Fisher Scientific	
142 al	**Exonuclease I (E. coli, 20 U/µL)**	5 * 2000 U
	Removes residual primers and single-stranded DNA; for PCR and sequencing prep	
	Thermo Fisher Scientific	
142 am	**dNTP Mix (100 mM)**	1 kits
	25 mM each dATP, dCTP, dGTP, dTTP; molecular biology grade	
	Thermo Fisher Scientific	
142 an	**$MgSO_4$ (25 mM)**	5 * 5 ml
	Molecular biology grade solution for PCR optimization; DNase/RNase-free	
	Thermo Fisher Scientific	
142 ao	**Ampicillin sodium salt**	2 * 5 g
	Antibiotic for bacterial selection; ≥98% (HPLC); molecular biology grade	
	Thermo	
142 ap	**Kanamycin sulfate**	2 * 5 g
	Antibiotic for bacterial selection; cell culture and molecular biology grade	
	Thermo	
142 aq	**Chloramphenicol**	
	Antibiotic for recombinant clone selection; ≥98% purity	1 * 5 g
	Thermo	

142 ar	**Tris-HCl (ultra pure)**	5 * 1 L
	Ultra-pure grade buffer reagent; pre-adjusted pH 7.4–8.0; DNase/RNase-free	
	Thermo	
142 as	**Plasmid Miniprep Kit**	1 Kits
	Rapid isolation of high-purity plasmid DNA from *E. coli*; silica-based spin column; yield up to 20 µg DNA per prep	
	Thermo	
142 at	**Gel Extraction Kit**	1 Kits
	Extraction and purification of DNA fragments (40 bp – 10 kb) from agarose gels; silica membrane columns	
	Thermo	
142 au	**RNA Purification Kit**	1 Kits
	Total RNA isolation from animal tissues, cultured cells, or yeast; silica column-based; DNase-free	
	Thermo	
142 av	**PCR Purification Kit**	2 Kits
	Rapid cleanup of PCR products (up to 10 kb); removes primers, nucleotides, enzymes, salts	
	Thermo	
142 aw	**First Strand cDNA Synthesis Kit**	1 Kits
	Reverse transcription of RNA using oligo(dT) and random hexamer primers; includes RT enzyme and RNase inhibitor	
	Thermo	
142 ax	**Plant Genomic DNA Extraction Kit**	1 Kits
	For rapid isolation of total DNA from a wide range of plant tissues; compatible with polysaccharide-rich samples	
	Thermo	
142 ay	**TRIzol Reagent**	2 * 500 ml
	Monophasic solution of phenol and guanidine isothiocyanate for RNA, DNA, and protein extraction	
	Thermo	
142 az	**Protein Purification Kit**	1 Kits
	Affinity-based purification of recombinant His-tagged proteins; Ni-NTA spin column or magnetic bead format	
	Thermo	
142 aaa	**SYBR Green qPCR Master Mix with ROX (1000 reactions)**	5 Kits
	2X real-time PCR master mix containing SYBR Green I dye, ROX passive reference dye, hot-start DNA polymerase	
	Thermo	
142 aab	**Fast Digest Enzymes (EcoRI, BamHI, HindIII, XhoI, PstI, KpnI)**	6 Kits (one each)
	Restriction enzymes with optimized 5–15 min digestion; supplied with universal buffer	
	Thermo	
142 aac	**BigDye Terminator v3.1 Cycle Sequencing Kit (100 rxn)**	2 Kits
	Dye-terminator chemistry for Sanger sequencing on capillary systems (SeqStudio™, 3500, 3130)	
	Thermo	
142 aad	**Hi-Di Formamide (Genetic Analysis Grade)**	2 Kits
	Highly deionized formamide for resuspension of DNA prior to capillary electrophoresis	
	Thermo	
142 aae	**GeneScan™ LIZ® 500 Size Standard**	5 Kits
	Internal lane size standard labeled with orange LIZ dye for fragment analysis	
	Thermo	
142 aaf	**GeneRuler 1 kb Plus DNA Ladder (Ready to Use)**	5 Kits
	250 bp to 10 kb DNA marker mix pre-mixed with loading dye	
	Thermo	
142 aag	**GeneRuler 100 bp DNA Ladder (Ready to Use)**	5 Kits
	100–1,000 bp DNA ladder pre-mixed with loading dye	

	Thermo	
142 aah	**GeneRuler 50 bp DNA Ladder (Ready to Use)**	5 Kits
	50–1,000 bp DNA ladder, pre-stained and ready to load	
	Thermo	
142 aai	**6× Protein Loading Dye**	50 Kits
	Pre-mixed buffer with glycerol, SDS, bromophenol blue, and Tris-HCl; for SDS-PAGE loading	
	Thermo	
142 aaj	**DEPC-Treated Water**	10 Kits
	RNase-free molecular biology grade water treated with 0.1% DEPC and autoclaved	
	Thermo	
142 aak	**Parafilm® Laboratory Film Roll**	5
	Stretchable sealing film for microplates, tubes, and flasks; temperature range −40 °C to +50 °C	
142 aal	**Beakers (500 mL, 1000 mL)**	2 * 10
	Borosilicate glass; graduated; heavy-duty rim; ISO 3819 compliant	
	Pyrex / FisherBand/ Borosil	
142 aam	**Measuring Cylinders (100 mL, 1000 mL)**	2 * 10
	Class A/B; borosilicate glass; hexagonal base; graduated	
	Pyrex / FisherBand/ Borosil	
142 aan	**Volumetric Flasks (100 mL, 500 mL, 1000 mL, 2000 mL)**	4 * 2
	Class A, with interchangeable glass stopper; certified volume	
	Pyrex / FisherBand/ Borosil	
142 aao	**Glass Pipettes (1 mL, 5 mL, 10 mL, 25 mL)**	4*500
	Class A; graduated; color-coded; reusable; autoclavable	
	Pyrex / FisherBand/ Borosil	
142 aap	**Pasteur Pipettes (with rubber bulbs)**	500
	Borosilicate glass, length 150 mm; supplied with rubber bulbs	
	Pyrex / FisherBand/ Borosil	
142 aaq	**Reagent Bottles with Screw Cap (500 mL, 1000 mL)**	2*20
	Clear borosilicate glass; autoclavable PP cap; graduated	
	Pyrex / FisherBand/ Borosil	
142 aar	**Glass Petri Dishes (90 mm)**	500
	Clear glass; 90 mm diameter × 20 mm height; sterile or autoclavable	
	Pyrex / FisherBand/ Borosil	
142 aas	**Glass Test Tubes (10×75 mm, 12×100 mm, 16×125 mm)**	500
	Borosilicate glass; round bottom; autoclavable	
	Pyrex / FisherBand/ Borosil	
142 aat	**Glass Funnels (various sizes)**	50
	Borosilicate glass; short or long stem; sizes 40–100 mm	
	Pyrex / FisherBand/ Borosil	
142 aau	**Glass Slides and Cover Slips**	500
	Microscope glass slides (75×25 mm) and coverslips (22×22 mm), pre-cleaned	
	Pyrex / FisherBand/ Borosil	
142 aav	**Conical Flask (2000 mL)**	20
	Borosilicate glass; narrow neck; graduated; autoclavable	
	Pyrex / FisherBand/ Borosil	
142 aaw	**Petri Dish Rack (Stainless Steel/Glass)**	500
	Autoclavable rack for holding up to 20 petri dishes (90 mm)	
	Pyrex / FisherBand/ Borosil	
142 aax	**Reagent Bottle Amber (500 mL, 1000 ml)**	2*20
	Amber borosilicate glass bottle with screw cap; protects light-sensitive reagents	
	Pyrex / FisherBand/ Borosil	
142 aay	**PCR Master Mix (2X)**	50 Kits
	Ready-to-use 2X reaction mix containing Taq DNA polymerase, dNTPs, $MgCl_2$, and buffer; for routine PCR	
142 aaz	**BigDye Terminator v3.1 Sequencing Standard Kit**	2 Kits
	Complete kit including BigDye reagents, buffer, and standard for sequencing calibration	