

Standard Bidding Document

Tender Notice # GH-26/03-01
(Goods)

National

Single Stage-Two Envelope



March 13, 2026

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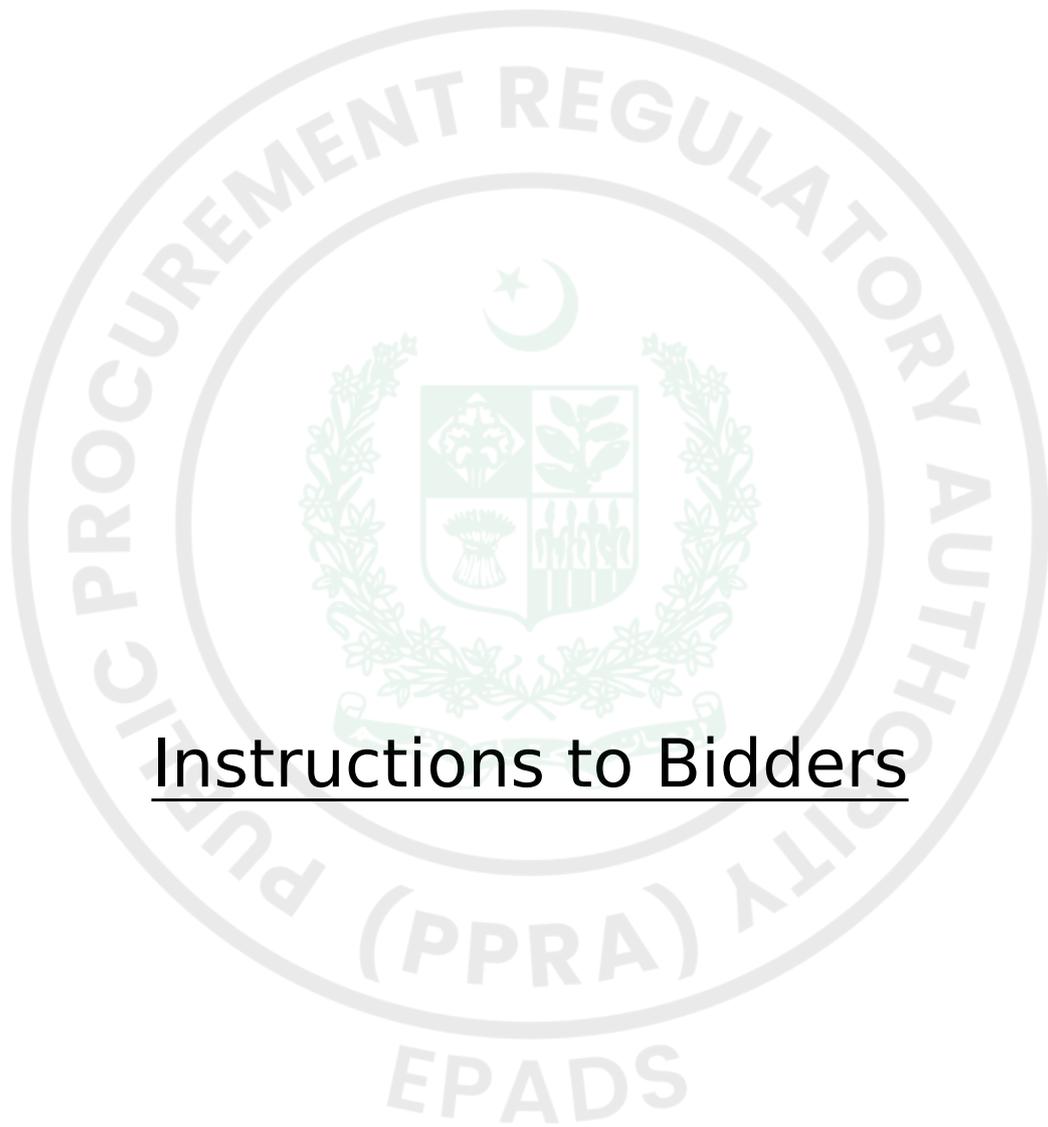
INVITATION TO BIDS PROCUREMENT OF GOODS

1. The **National Textile University (ORIC)** has reserved Funds for the procurement planned for FY **2025-26**. The **National Textile University (ORIC)** intends to apply part of the proceeds of this Fund to cover eligible payments under the contract for the "**Tender Notice # GH-26/03-01**".
2. The **National Textile University (ORIC)** invites E-bids from eligible Bidders for procurement of goods described in the bidding documents on **EPADS v2.0**.
3. **Single Stage-Two Envelope** will be used by adopting **Least Cost Based Selection (LCBS)** Technique for the subject procurement, in line with the Public Procurement Rules, 2004 and any Regulations, Regulatory Guides, Procurement Guidelines or Instructions issued by the Authority from time to time.
4. All Bids must be accompanied by a Bid Security amounting described in Bid Security Section in Bidding Document in the form of **Pay Order, Banker's Cheque, Call at Deposit, Demand Draft**. Where **Bid Security** is not required by the **Procuring Agency**, Bidders are required to furnish **Bid Security Declaration** as specified in Bidding Document.
5. E-Bidding documents, containing detailed terms & conditions, specifications and requirements etc. are available on **e-Pak Acquisition and Disposal System (EPADS)** at <https://vendors.epads.gov.pk/>.
6. Bidder(s) are required to get themselves registered on **EPADS v2.0** on or before **Tuesday, March 31, 2026 02:30 PM**. E-bids will be opened using **EPADS v2.0** on the same day at **Tuesday, March 31, 2026 03:00 PM**. Manual submission of Bids shall not be entertained. Those vendors who have not yet registered on the new version of **EPADS v2.0**, may register themselves on <https://vendors.epads.gov.pk/>. A tutorial to explain the registration process is available at <https://www.youtube.com/watch?v=MNW6T38v7tc>

In terms of Rules 48 of Public Procurement Rules, 2004 Grievance Redressal Committee (GRC) is notified for the subject procurement and notification copy is available on the procuring agency's website and on Authority's website at (www.ppra.org.pk).

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Instructions to Bidders

A. Introduction

1. Scope of Bids

1.1 The Procuring Agency (PA), as indicated in the **Bids Data Sheet (BDS)** invites Bids **through EPADS v2.0** for the provision of Goods for as specified in the BDS and **in Section V - Evaluation Criteria, Specifications & Schedule of Requirements**. The name, identification, and number of items/deliverables are provided in the **BDS**. The successful Bidders will be expected to provide the goods within the specified period and timeline(s) as stated in the **BDS**.

2. Source of Funds

2.1 Source of funds is referred in Clause-1 of Invitation for Bids.

3. Eligible Bidders

3.1A Bidder may be natural person, company or firm or public or semi-public agency of Pakistan or any foreign country, or any combination of them with a formal existing agreement (on Judicial Papers) in the form of a joint venture, consortium, or association. In the case of a joint venture, consortium, or association, all members shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The joint venture, consortium, or association shall nominate a Lead Member as nominated in the BDS, who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture, consortium, or association during the Bidding process, and in case of award of contract, during the execution of the contract.

Verifiable copy of the agreement that forms a joint venture, consortium or association shall be required to be submitted as part of the Bid.

The appointment of Lead Member in the joint venture, consortium, or association shall be confirmed by submission of a valid Power of Attorney to the Procuring Agency.

Any bid submitted by the joint venture, consortium or association shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated (or post qualified if required) with respect to its contribution only, and the responsibilities of each party shall not be substantially altered without prior written approval of the Procuring Agency and in line with any

instructions issued by the Authority.

(The limit on the number of members of JV or Consortium or Association may be prescribed in BDS, in accordance with the guidelines issued by the PPRA).

3.2 The invitation for Bids is open to all prospective suppliers, manufacturers, or authorized agents / dealers subject to any provisions of incorporation or licensing by the respective national incorporating agency or statutory body established for that particular trade or business. Procuring agencies shall specify the registration/licensing requirements for the foreign bidders keeping in view the requirement of that business.

3.3A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest with one or more parties in this Bidding process, if they:

1. are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring Agency to provide consulting services for the preparation of the design, specifications and other documents to be used for the procurement of the Goods to be purchased under this Invitation for Bids.
2. have controlling shareholders in common; or
3. receive or have received any direct or indirect subsidy from any of them; or
4. have the same legal representative for purposes of this Bid; or
5. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bids of another Bidder, or influence the decisions of the Procuring Agency regarding this Bidding process; or
6. Submit more than one Bid in this Bidding process.

3.4A Bidder may be ineligible if -

1. he is declared bankrupt or, in the case of company or firm, insolvent;
2. payments in favor of the Bidder is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting (in accordance with the national laws) in the total or partial loss of the right to administer and dispose of its property;

3. the Bidder is convicted, by a final judgment, of any offence involving professional conduct;

4. the Bidder is blacklisted locally or by international organizations and hence debarred due to involvement in corrupt and fraudulent practices, or performance failure or due to breach of Bid securing declaration.

3.5As and when required, bidders shall provide to the Procuring Agency evidence of their eligibility, proof of compliance with the necessary legal requirements to carry out the contract effectively.

3.6Bidders shall submit Bids relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract amounting to more than ten (10) percent of the Bid price is envisaged.

4. Eligible Goods and Related Services

4.1All goods and related services to be supplied under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such goods and services. For purpose of this Bid, ineligible countries are the countries declared ineligible by the Federal Government.

5. One Bid per Bidder

5.1A bidder shall submit only one Bid, in the same bidding process, either individually as a Bidder or as a member in a joint venture or any similar arrangement.

5.2The Bidder shall not engage a subcontractor for any portion of the contract if the value of such subcontracting exceeds thirty percent (30%) of the total contract amount.

6. Cost of Bidding

6.1Any cost incurred by the bidder relating to the preparation and submission of its Bid shall be borne by the bidder, 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.

B. Bidding Documents

7. Contents of Bidding Document

7.1 The Goods required, Bidding procedures, and terms and conditions of the contract are prescribed in the Bidding Documents. In addition to the Invitation for Bids, the Bidding documents which should be read in conjunction with any addenda issued in accordance with **ITB 9.1** include:

Section I - Invitation to Bids

Section II Instructions to Bidders (ITB)

Section III Bid Data Sheet (BDS)

Section IV Evaluation Criteria, Specifications, Schedule of Requirements

Section V Bid Forms

Section VI General Conditions of Contract (GCC)

Section VII Special Conditions of Contract (SCC)

Section VIII Contract Forms

7.2 The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding documents. Failure to furnish all the information required in the Bidding documents through **EPADS v2.0** will be at the Bidder's risk and may result in the rejection of his Bids.

8. Clarification of Bidding documents

8.1 A prospective Bidder requiring any clarification of the Bidding documents may notify the Procuring Agency through **EPADS v2.0**.

8.2 The Procuring Agency will within three (3) working days after receiving the request for clarification, respond to any request for clarification through **EPADS v2.0** provided that such request is received not later than three (03) days prior to the deadline for the submission of Bids as prescribed in **ITB 22**

8.3 Copies of the Procuring Agency's response will be forwarded to all identified Prospective Bidders through **EPADS v2.0**, including a description of the inquiry, but without identifying its source.

8.4 Should the Procuring Agency deem it necessary to amend the Bidding document as a result of a clarification, it shall do so following the procedure under **ITB 9**.

8.5 If indicated **in the BDS**, the Bidder's designated representative is invited at the Bidder's cost to attend a pre-Bid meeting at the place, date and time mentioned **in the BDS**. During this pre-Bid meeting, prospective Bidders may request clarification of the schedule of requirement, the Evaluation Criteria or any other aspects of the Bidding document.

8.6 Minutes of the pre-Bid meeting, if applicable, including the text of the questions asked by Bidders, including those during the meeting (without identifying the source) and the responses given, together with any responses prepared after the meeting will be uploaded on **EPADS v2.0**. Any modification to the Bidding documents that may become necessary as a result of the pre-Bid meeting shall be made by the Procuring Agency exclusively through the use of an Addendum pursuant to **ITB 9**. Non-attendance at the pre-Bid meeting will not be a cause for disqualification of a Bidder.

9. Amendment of Bidding documents

9.1 Before 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 or Pre-Bid meeting may modify the Bidding documents by issuing addenda through **EPADS v2.0**.

9.2 The Procuring Agency shall promptly publish the addendum through **EPADS v2.0**.

Any addendum issued including the notice of any extension of the deadline shall also be communicated through EPADS v2.0 to all the bidders who have already submitted their bids. Such bidders shall have the right to withdraw their already submitted bid and re-submit the revised bid prior to the original or extended bid submission deadline.

9.3 To give prospective Bidders reasonable time in which to take an addendum/corrigendum into account in preparing their Bids, the Procuring Agency may, at its discretion, extend the deadline for the submission of Bids through **EPADS v2.0**:

Provided that the Procuring Agency shall extend the deadline for submission of Bids, if such an addendum is issued within last three (03) days of the Bids submission deadline.

C. 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 Bids exchanged by the Bidder and the Procuring Agency shall be written in the English language unless otherwise specified in the BDS. 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 pages in the English language unless otherwise specified in the **BDS**, in which case, for purposes of interpretation of the Bidder, the translation shall govern.

11. Documents and samples Constituting the Bid

11.1 The Bid prepared by the Bidder shall constitute the documents required in the **BDS**.

Details of sample(s) where applicable and requested in the BDS.

Documentary evidence established in accordance with ITB that the Bidder is eligible and/or qualified for the subject bidding process;

Documentary evidence established in accordance with **ITB** that the Bidder has been authorized by the manufacturer to deliver the goods into Pakistan, where required and where the supplier is not the manufacturer of those goods;

Documentary evidence established in accordance with ITB that the goods and related services to be supplied by the Bidder are eligible goods and services, and conform to the Bidding Documents;

Bid security or Bid Securing Declaration furnished in accordance with **ITB 18**.

12. Documents Establishing Eligibility of the Goods and Conformity to Bidding documents

12.1 To establish the conformity of the bidder to the Bidding document, the Bidder shall furnish as part of its Bids the documentary evidence that Goods provided conform to the technical specifications and standards.

13. Documents Establishing Eligibility and Qualification of the Bidder

13.1The Bidder shall furnish, as part of its Bid, all those documents establishing the Bidder's eligibility to participate in the Bidding process and/or its qualification to perform the contract if its Bid is accepted.

14. Form of Bids

14.1The Bidder shall fill the Form of Bid furnished in the Bidding documents. The Bids Form must be completed without any alterations to its format and no substitute shall be accepted.

15. Bids Prices

15.1The Bids Prices quoted by the Bidder in the Form of Bid and in the Price Schedules shall conform to the requirements specified below or exclusively mentioned hereafter in the Bidding documents.

15.2All items in the Schedule of Requirement must be listed and priced separately in the Price Schedule(s). If a Price Schedule shows items listed but not priced and neither explicitly denied, their prices shall be construed to be included in the prices of other items.

15.3Items not listed in the Price Schedule shall be assumed not to be included in the Bid, and provided that the Bid is still substantially responsive in their absence or due to their nominal nature, the corresponding average price of the respective item(s) of the remaining substantially responsive Bidder(s) shall be construed to be the price of those missing item(s)

15.4The Bid price to be quoted in the Form of Bid in accordance with **ITB 14.1** shall be the total price of the Bid.

15.5The Bidder shall indicate on the appropriate Price Schedule, the unit prices (where applicable) and total Bid price of the Goods it proposes to provide under the contract.

15.6Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A Bid submitted with an adjustable price will be treated as non-responsive and shall be rejected.

16. Bids Currencies

16.1Prices shall be quoted in Pakistani Rupees unless otherwise specified in the BDS in accordance with Rule 42 (2) of the Public Procurement Rules, 2025.

17. Bids Validity Period

17.1 Bids shall remain valid for the period specified in the **BDS** after the Bid submission deadline prescribed by the Procuring Agency. A Bid valid for a shorter period shall be rejected by the Procuring Agency as non-responsive. The period of Bid validity will be determined from the complementary Bid securing instrument, i.e. the expiry period of Bid Security or Bids Securing Declaration as the case may be.

The procuring agency shall ordinarily be under an obligation to process and evaluate the bid and to issue letter of award within the stipulated bid validity period.

17.2 Under exceptional circumstances, prior to the expiration of the initial Bid validity period, the Procuring Agency may request the Bidders' consent to an extension of the period of validity of their Bids only once through **EPADS v2.0**, for the period not more than the period of initial bid validity. The Bid Security provided under **ITB 18** shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid security or causing to be executed its Bid Securing Declaration. A Bidder agreeing to the request will not be required nor permitted to modify its Bid, but will be required to extend the validity of its Bid Security or Bid Securing Declaration for the period of the extension.

18. Bid Security or Bid Securing Declaration

18.1 The Bidder shall furnish as part of its Bid, a Bid Security in accordance with the Public Procurement Rules.

The original Bid Security shall be enclosed within the sealed envelope and to be submitted physically before closing time for submission of bids. Whereas, scanned copy of bid security shall be uploaded electronically through EPADS v2.0 before closing hours for submission of bids.

The Bidder who failed to submit the original Bids security before the submission deadline shall be disqualified straightaway.

18.2 The Bid Security or Bid Securing Declaration is required to protect the Procuring Agency against the risk of Bidder's conduct which would warrant the security's forfeiture, pursuant to **ITB 18.7**.

18.3 The Bid Security shall be denominated in the local currency, and it shall be a Bank Draft in the name of the Procuring Agency and valid for twenty-eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period

for Bids/Bid Validity is extended. In either case, the form must include the complete name of the Bidder.

18.4 The Bid Security shall be payable promptly upon written demand by the Procuring Agency in case any of the conditions listed in **ITB 18** are invoked.

18.5 Unsuccessful Bidders' Bid Security will be discharged or returned as promptly as possible, however in no case later than thirty (30) days after the expiration of the period of Bids Validity prescribed by the Procuring Agency pursuant to **ITB 17**. The Procuring Agency shall make no claim to the amount of the Bid Security, and shall promptly return the Bid Security document, after whichever of the following that occurs earliest:

1. the expiry of the Bid Security;
2. the entry into force of a procurement contract and the provision of a Performance Guarantee, for the performance of the contract if such a guarantee, is required by the Bid documents;
3. the rejection by the Procuring Agency of all Bids;
4. the withdrawal of the Bids prior to the deadline for the submission of Bids, unless the Bids documents stipulate that no such withdrawal is permitted.

18.6 The successful Bidder's Bids Security will be discharged upon the Bidder signing the contract, or furnishing the Performance Guarantee.

18.7 The Bid Security may be forfeited or the Bid Securing Declaration executed:

1. if a Bidder:
2. withdraws its Bid during the period of Bid Validity as specified by the Procuring Agency, and referred by the Bidder on the Form of Bids except as provided for in **ITB 17.2**; or
3. does not accept the correction of errors; or
4. in the case of a successful Bidder, if the Bidder fails:
5. to sign the contract; or
6. to furnish Performance Guarantee.

19. Withdrawal, Substitution, and Modification of Bid

19.1 Before Bid submission deadline, any Bidder may withdraw, substitute, or modify its Bid after it has been submitted through EPADS v2.0. Bids requested to be withdrawn, shall be returned unopened to the Bidders through **EPADS v2.0**.

20. Format and Signing of Bid

20.1 The Bidder shall prepare and submit Bids with due diligence after carefully reading all the terms and condition **before bid submission deadline** through EPADS v2.0.

D. Submission of Bids

21. Submission of Bids through EPADS v2.0

21.1 The Technical and Financial Bids if required to be submitted, shall be submitted on **EPADS v2.0**.

22. Deadline for Submission of Bids

22.1 Bids shall be received by the Procuring Agency through **EPADS v2.0** before bid submission deadline.

22.2 The Procuring Agency may, under exceptional circumstances, extend the deadline for the submission of Bids, after recording reasons in writing and in an equal opportunity manner.

In such case, all rights and obligations of the Procuring Agency and the Bidders that were previously governed by the original deadline shall thereafter be subject to the revised deadline.

E. Opening and Evaluation of Bids

23. Opening of Bids

23.1 The Bid Evaluation Committee of the Procuring Agency shall open all Bids through the EPADS v2.0, on the date and time specified in the Bid Data Sheet (BDS).

23.2 The Bid Evaluation Committee **shall generate minutes through EPADS v2.0 containing brief details of bid opening process.** The record of the Bid opening shall include, as a minimum: the name of the Bidder, the Bid price if applicable, and the presence or absence of a Bid Security or Bid Securing

Declaration.

23.3 The procuring agency shall live broadcast the opening of bids on national media or on their website or digital channels, if the volume of procurement exceeds five hundred million rupees in case of goods and services and one thousand million rupees in case of works.

In case the date of opening of bid has been declared as public holiday or the procuring agency fail to open bid due to any EPADS v2.0 related issues, the submission and opening of bids shall be shifted to the next working day on the same time.

23.4 In case of Single Stage One Envelope Procedure, the Bidders names, the Bid prices, the total amount of each Bid and, the presence or absence of Bid Security, Bid Securing Declaration and such other details as the Procuring Agency may consider appropriate, will be announced by the Bid Evaluation Committee.

24. Clarification of Bids

24.1 To assist in the examination, evaluation and comparison of Bids of the Bidders, the Procuring Agency may, ask any Bidder for a clarification of its Bid including breakdown of prices.

24.2 The request for clarification and the response shall be sought through EPADS v2.0 before **three days prior to the deadline for submission of bids.** No change in the prices or substance of the Bids shall be sought, offered, or permitted.

24.3 The alteration or modification in the BIDS which in any way affect the following parameters will be considered as a change in the substance of a Bids:

1. evaluation & qualification criteria;
2. required scope of work or specifications;
3. all securities requirements;
4. tax requirements;
5. terms and conditions of Bidding documents.
6. change in the ranking of the Bidder

24.4 From the time of Bids opening to the time of Contract award if any Bidder wishes to contact the Procuring Agency on any matter related to the Bids it should do so through **EPADS v2.0**.

25. Preliminary Examination of Bids

25.1 Prior to the detailed evaluation of Bids, the Procuring Agency will determine whether each Bid:

1. meets the eligibility criteria defined in **ITB 3**;
2. has been prepared as per the format and contents defined by the Procuring Agency in the Bidding documents;
3. is accompanied by the required securities; and
4. is substantially responsive to the requirements of the Bidding documents.

The Procuring Agency's determination of a Bid's responsiveness will be based on the contents of the Bid itself.

25.2A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one that: -

1. affects in any substantial way the scope, quality, or performance of the Goods;
2. limits in any substantial way, inconsistent with the Bidding documents, the Procuring Agency's rights or the Bidders obligations under the Contract; or
3. if rectified, would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

25.3 If a Bid is not substantially responsive, it will be rejected by the Procuring Agency and may not subsequently be evaluated for complete technical responsiveness.

26. Examination of Terms and Conditions; Technical Evaluation

26.1 The Procuring Agency shall examine the Bids to confirm that all terms and conditions specified in the **GCC** and the **SCC** have been accepted by the Bidder without any material deviation or reservation.

The Procuring Agency shall evaluate the technical aspects of the Bids submitted, to confirm that all requirements specified in Schedule of Requirements and Technical Specifications of the Bidding documents have been met without material deviation or reservation.

26.3 If after the examination of the terms and conditions and the technical evaluation, the Procuring Agency determines that the Bid is not substantially responsive in accordance with **ITB**, it shall reject the Bid.

27. Correction of Errors

27.1 Bids determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -

1. if there is a discrepancy between unit prices 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, unless in the opinion of the Procuring Agency there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;
2. if there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and the total shall be corrected; and
3. where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.
4. Where there is discrepancy between grand total of price schedule and amount mentioned on the Form of Bids, the amount referred in Price Schedule shall be treated as correct subject to elimination of other errors.

27.2 The amount stated in the Bid will, be adjusted by the Procuring Agency in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, its Bid will then be rejected, and the Bid Security may be forfeited or the Bids Securing Declaration may be executed.

28. Conversion to Single Currency

28.1 To facilitate evaluation and comparison, the Procuring Agency will convert all Bids prices expressed in the amounts in various currencies in which the Bids prices are payable. For the purposes of comparison of bids quoted in different currencies, the price shall be converted into a single currency specified in the bidding documents. The rate of exchange shall be the selling rate prevailing on the date of opening of financial bids specified in the bidding documents, in accordance with weighted average customer exchange rates list issued by the State Bank of Pakistan on that day.

29. Evaluation of Bids

29.1 The Bids, quotations, or proposals shall be evaluated by the respective evaluation committees as per evaluation criteria described in the Bidding Documents in accordance with Rule 29 and 30 of the Public Procurement Rules, 2004.

Least Cost Based Selection (LCBS)

After meeting the requirements of eligibility, qualification and substantial responsiveness, the bid in compliance with all the mandatory (technical) specifications/requirements and/or requisite quality threshold (if any), and having lowest evaluated cost (or financial proposal) shall be considered Successful Bid.

Quality and Cost Based Selection (QCBS)

In such combination, there shall be some specific weightage of both the technical features and financial aspects of the proposal. The financial marks shall be awarded on the basis of inverse proportion calculations. The successful bid shall be declared, on the basis of combined evaluation.

Quality Based Selection (QBS)

After meeting the requirements of eligibility, qualification and substantial responsiveness the bid in compliance with all the mandatory (technical) specifications/requirements and attaining highest marks in the Technical Evaluation considering all other qualitative and/or quantitative parameters (or point rated criteria) for technical proposal(s) such as working methodology, implementation plan, resource allocation, additional functionalities, risk management approach, knowledge transfer techniques, post implementation methodology etc. shall be treated as highest ranked bid. Later on, the financial proposal of highest ranked bidder shall be opened, however, in case of failure to proceed further with such a bidder, the procuring agency may resort to second highest bidder and so on.

29.2 In case of tie of bids, the bidders shall be provided an opportunity to offer their best and final monetary offer through EPADS v2.0. However, in no case the rates shall be higher than the original financial bids.

30. Domestic Preference

30.1 The procuring agency shall evaluate and compare bids, allow for preference to domestic bidders, while competing with the international bidders in accordance with the policies of Federal Government.

The percentage of preference, to be accorded shall be clearly mentioned in the bidding documents under the bid evaluation criteria.

31. Determination of Successful Bid

31.1 Selection technique will be adopted for determining the Successful Bid in accordance with the criteria referred in the BDS or prescribed in the separate section titled as Evaluation Criteria.

In case where the Procuring Agency adopts the Cost Based Evaluation Technique and, the Bid with the lowest evaluated price from amongst those which are eligible, compliant and substantially responsive shall be the Successful Bid.

The Procuring Agency may adopt the Quality & Cost Based Selection Technique due to the following two reasons:

Where the Procuring Agency knows about the main features, usage and output of the products; however not clear about the complete features, technical specifications and functionalities of the goods to be procured and requires the bidders to submit their proposals defining those features, specifications and functionalities; or

Where the Procuring Agency, in addition to the mandatory requirements and mandatory technical specifications, requires parameters specified in Evaluation Criteria to be evaluated while determining the quality of the goods.

In such cases, the Procuring Agency may allocate certain weightage to these factors as a part of Evaluation Criteria, and may determine the ranking of the bidders on the basis of combined evaluation in accordance with provisions of Rule 2(1)(h) of the Public Procurement Rules, 2004.

32. Abnormally Low Financial Bids

32.1 Where the Bid price is considered to be abnormally low, the Procuring Agency shall perform price analysis either during determination of Successful Bids or as a part of the post-qualification process.

The Procuring Agency may reject an Abnormally low financial bids.

In order to identify the Abnormally Low Bids (ALB) following approaches can be considered to minimize the scope of subjectivity:

1. Comparing the Bids price with the cost estimate;
2. Comparing the Bids price with the Bids offered by other Bidders submitting substantially responsive Bids; and
3. Comparing the Bids price with prices paid in similar contracts in the recent past either government- or development partner-funded.

32.2 The Procuring Agency will determine to its satisfaction whether the Bidder that is selected as having submitted the successful bid is qualified to perform the contract satisfactorily.

32.3 The determination will take into account the Bidder's financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the Procuring Agency deems necessary and appropriate. Factors not included in these Bidding documents shall not be used in the evaluation of the Bidders' qualifications.

32.4 Procuring Agency may seek "Certificate for Independent Price Determination" from the Bidder and the results of reference checks may be used in determining an award of contract.

Explanation: The Certificate shall be furnished by the Bidder. The Bidder shall certify that the price is determined keeping in view of all the essential aspects such as raw material, its processing, value addition, optimization of resources due to economy of scale, transportation, insurance and margin of profit etc.

32.5 An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's Bids, in which event the Procuring Agency will proceed to the next ranked Bidder to make a similar determination of that Bidder's capabilities to perform satisfactorily.

F. Award of Contract

33. Criteria of Award

33.1 The Procuring Agency will award the Contract to the Bidder whose Bids has been determined to be substantially responsive to the Bidding documents and who has been declared as Most Advantageous Bidder.

34. Negotiations

34.1 The procuring agency shall not engage in negotiations with respect to scope and price with the bidder except when the procuring agency conducts a procurement using direct **or negotiated** contracting or a request for proposals with evaluation based on quality alone.

The procuring agency may negotiate with the most advantageous bid with a view to streamline the work or task execution, at the time of contract finalization on methodology, work plan, staffing, finalizing payment arrangements, delivery arrangements, minor amendments to the special conditions of the contract.

35. Procuring Agency Right to reject all bids

35.1 The Procuring Agency reserves the right to reject all bids or proposals at any time prior to the issuance of the Letter of Award, without incurring any liability, in accordance with Rule 33 of the Public Procurement Rules, 2004.

36. Cancellation of Procurement

36.1 The procuring agency reserves the right to cancel the procurement proceedings in accordance with Rule 33 of the Public Procurement Rules, 2004.

37. Procuring Agency's Right to Vary Quantities at the Time of Award

37.1 The Procuring Agency reserves the right at the time of contract award to increase or decrease the **quantity of** Goods originally specified in these Bidding documents provided this does not exceed **by** 15%, without any change in unit price or other terms and conditions of the Bids and Bidding documents.

38. Notification of Award

38.1 Prior to the award of contract, the procuring agency shall announce and publish the result of bid evaluation on **EPADS v2.0** in accordance with Rule 35 of the Public Procurement Rules, 2004.

The Bidder whose Bids has been accepted will be notified of the award by the Procuring Agency prior to expiration of the Bids/Bid Validity period. The Letter of Award will state the sum that the Procuring Agency will pay the successful Bidder in consideration for the delivery of Goods as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).

38.2 The Letter of award will constitute the formation of the Contract, subject to the Bidder furnishing the Performance Guarantee and signing of the contract.

39. Signing of Contract

39.1 Promptly after issuance of Letter of award, Procuring Agency shall send the successful Bidder the draft Contract, incorporating all terms and conditions as agreed by the parties to the contract.

39.2 Immediately after the Redressal of grievance by the GRC (if any), and **after fulfillment of all condition's precedent** of the Contract Form, the successful Bidder and the Procuring Agency shall sign the Contract.

40. Corrupt & Fraudulent Practices

40.1 Procuring Agencies (including beneficiaries of Government funded projects and procurement) as well as Bidders/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts, and will avoid to engage in any corrupt and fraudulent practices.

F. Grievance Redressal & Complaint Review Mechanism

41. Constitution of Grievance Redressal

41.1 The Grievance Redressal Committee shall address the grievance, if any submitted by any party, including the bidder, in accordance with Rule 48 of the Public Procurement Rules, 2004 to be read with Redressal of Grievances Regulations, 2021.

In case if any party or the bidder is not satisfied with the decision of the GRC or if it fails to decide within ten days, the bidder or the party may file an appeal

before the Appellate Committee of the Authority in accordance with Rule 48 of the Public Procurement Rules, 2004 to be read with Redressal of Grievances Regulations, 2021.

G. Mechanism of Blacklisting

42. Mechanism of Blacklisting

42.1 The Procuring Agency shall initiate blacklisting proceedings against any bidder, supplier, or contractor in accordance with the Mechanism for Blacklisting Regulations, 2024, read with Rule 19 of the Public Procurement Rules, 2004.

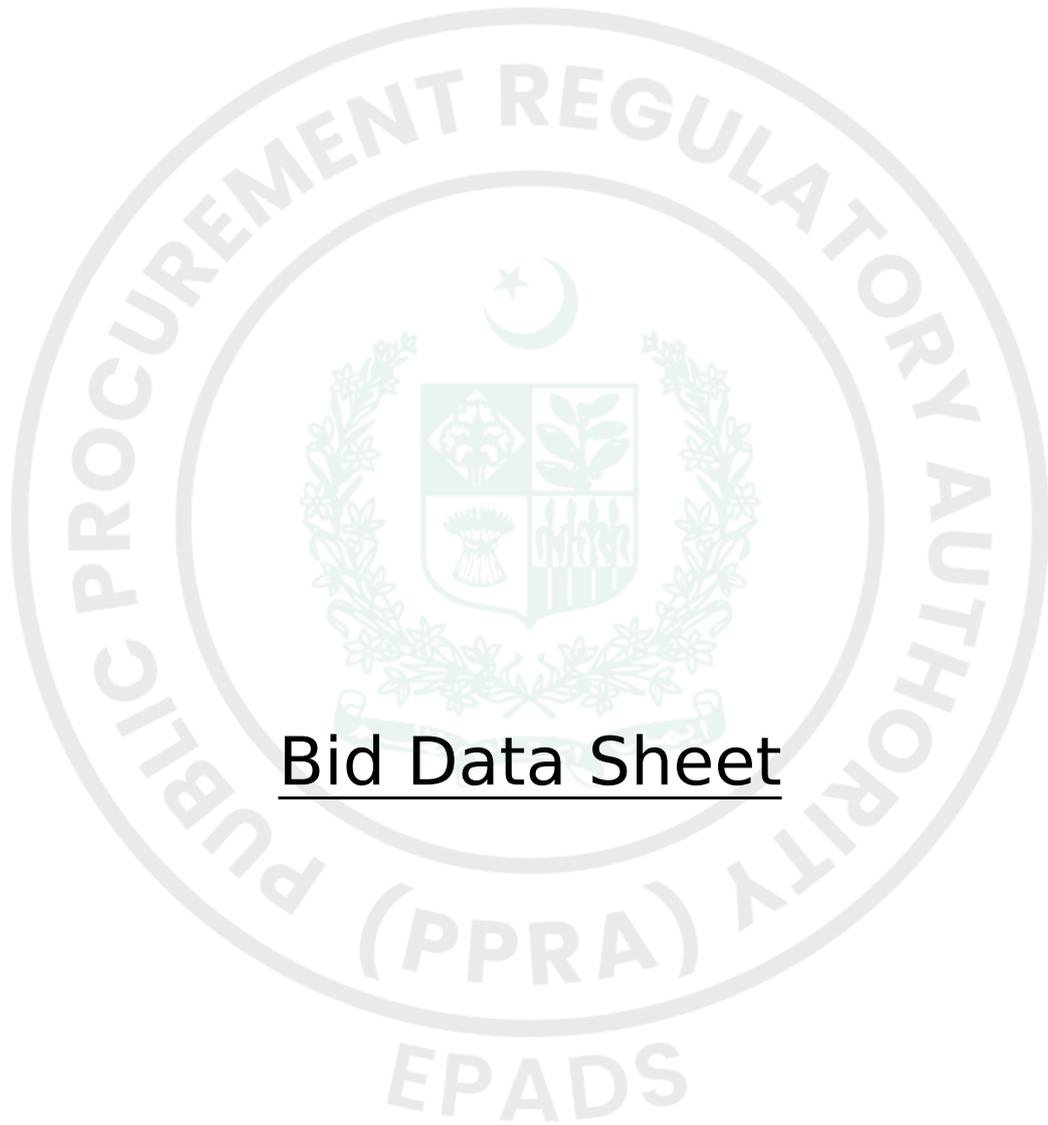
The blacklisted/debarred bidder may file the review petition before the Authority in accordance with Rule 19 of the Public Procurement Rules, 2004 to be read with Procedure of filing and disposal of Review Petitions Regulations, 2021.

43. Contract Management

43.1 For each procurement, the Procuring Agency shall designate a Contract Manager, who shall be duly responsible for the efficient management and administration of the contract in strict compliance with the provisions set forth under Rules 45 of the Public Procurement Rules, 2004 and in accordance with the condition of the contract.

44. Inspection of goods and evaluation of services.

44.1 The Inspection Committee or the Firm shall have the right to conduct inspections of the goods in accordance with condition of contract.



Bid Data Sheet

Bids Data Sheet (BDS)

The following specific data for the procurement of Goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

BDS Clause Number	ITB Number	Amendments of, and Supplements to, Clauses in the Instruction to Bidders
A. Introduction		
1	1.1	<p>Name of Procuring Agency: National Textile University (ORIC)</p> <p>The subject of procurement is: Tender Notice # GH-26/03-01</p> <p>Expected commencement date: Tuesday, May 5, 2026</p>
2.	2.1	<p>Financial year for the operations of the Procuring Agency: 2025-26</p> <p>Name and identification number of the Contract: P12089</p>
3.	3.1	<p>JV/Consortium or Association Allowed: No</p> <p>Number of JV/Consortium Members: Nil</p> <p><i>see section of eligibility criteria.</i></p>
B. Bidding Documents		
4.	8.1	<p>The Bidders may seek clarifications through EPADS v2.0 : Clarification Date: Tuesday, March 17, 2026</p>

C. Preparation of Bids

5.	10.1	<p>The Language of all correspondences and documents related to the Bids shall be in: English</p> <p>List of documents required along with the bid: No</p>
6.	11.1	<p>Items/Lots and threere relateddocuments: <i>See section items and Lots</i></p>
7.	12.1	<p>Items / Lots Specifications: <i>see section of items specifications.</i></p>
8.	13.1	<p>Price schedule will be provided according to the format defined and acquired. <i>see section price schedule.</i></p>
9.	15.6	<p>The price shall be Fixed.</p>
10.	16.1	<p>Currency of the Bids shall be : PKR</p>
11.	17.1	<p>The Bids/Bid Validity period shall be: 90 Days</p>
12.	18.1	<p>The amount of Bid Security shall be as defined in Bid Security Section for items and lots given in BDS 6</p> <p>The Bid Security shall be in the form of: Pay Order, Banker's Cheque, Call at Deposit, Demand Draft</p>

D. Submission of Bids

13.	20.1	<p>Bid shall be submitted online on EPADS v2.0 whereas hard copy of the bid security should be submitted to the following;</p> <p>203/RB Manawala, Sheikhupura Road,</p> <p>Bids that are not submitted on EPADS v2.0 shall be disqualified.</p> <p>The deadline for Bids submission is: Tuesday, March 31, 2026 02:30 PM</p>
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E. Opening and Evaluation of Bids

14.	23.1	<p>The Bids opening shall take place on EPADS v2.0.</p> <p>Day : Tuesday</p> <p>Date: Tuesday, March 31, 2026</p> <p>Time : 03:00 PM</p>
15.	31.1	<p>Selection technique adopted will be: Least Cost Based Selection (LCBS) <i>see Evaluation Criteria</i></p>

F. Award of Contract

16.	38.2	<p>The Performance guarantee shall: 6.00%.</p> <p>The Performance Guarantee shall be acceptable in the form of: Pay Order, Call at Deposit, Bank Guarantee, Demand Draft</p>
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G. Review of Procurement Decisions

18.	41.1	<p>Grievance against this procurement shall be submitted online on EPADS v2.0.</p> <p>Arbitrator shall be appointed by mutual consent of the both parties.</p>
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Eligibility Criteria

Bidder's Type	Required Registration
Individual / Individual Consultant	NADRA CITIZENSHIP (CNIC/NICOP)
Sole Proprietorship	FBR (NTN)
Partnership Firm	FBR (GSTN)
Company (Private Limited)	Punjab (PRA)
Company (Public Limited)	
Company (Holding Company)	
State Owned Enterprise (Private Limited)	

Evaluation Criteria

Eligible bidder(s) with substantially responsive bid(s) offering **Least Cost Based Selection (LCBS)** shall be considered for the award of contract(s).

Least Cost Based Selection (LCBS)

Technical Marks	790
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Passing Marks	672
Technical Evaluation Criteria for Serial No. 1 (Supply and installation of Solar System)	
Company Eligibility & Regulatory Compliance. (AEDB/AEDP license, valid registration, legal status, tax registration (NTN, GST), compliance with tender requirements) (Quantitative)(Doc Required)	15
Vendor Experience & Past Performance (Quantitative)(Doc Required)	15
Technical Specifications Compliance (As mentioned in Specification) (Quantitative)(Doc Required)	45
Warranty & Support (As mentioned in Technical Specifications) (Quantitative)(Doc Required)	25
Technical Evaluation Criteria Serial No. 2	
Company Eligibility & Regulatory Compliance. (AEDB/AEDP license, valid registration, legal status, tax registration (NTN, GST), compliance with tender requirements) (Quantitative)(Doc Required)	15
Vendor Experience & Past Performance (Quantitative)(Doc Required)	15
Technical Specifications Compliance (As mentioned in Specification) (Quantitative)(Doc Required)	45
Warranty & Support (As mentioned in Technical Specifications) (Quantitative)(Doc Required)	25
Technical Evaluation Criteria Serial No. 3	
Bidder must be manufacturer or authorized dealer of furniture. (Qualitative)(Doc Required)	15
Bidder must be tax registered (NTN & GST, PRA, PST etc.). (Qualitative)(Doc Required)	15
Furniture must comply with required material specifications and warranty. (Qualitative)(Doc Required)	70
Technical Evaluation Criteria Serial No. 4	
Bidder must be tax registered (NTN & GST, PRA, PST etc.). (Qualitative)(Doc Required)	15
Eligible Bidder may be manufacturer / authorized dealer /General Order Supplier (Qualitative)(Doc Required)	15

Compliance to Technical Specifications =100% (Qualitative)(Doc Required)	45
Warranty and support (As published in Specification) (Qualitative)(Doc Required)	15
Technical Evaluation Criteria Serial No. 5, 6, 7, 9, 11 and 14	
Eligible Bidder may be manufacturer / authorized dealer (Qualitative)(Doc Required)	15
Bidder must be tax registered (NTN & GST, PRA, PST etc.). (Qualitative)(Doc Required)	15
Compliance to technical Specifications (Qualitative)(Doc Required)	70
Technical Evaluation Criteria Serial No. 8	
Bidder must be authorized dealer or manufacturer representative of the quoted brand. (Qualitative)(Doc Required)	15
Bidder must be tax registered (NTN & GST, PRA, PST etc.). (Qualitative)(Doc Required)	15
Compliance to technical Specifications (Qualitative)(Doc Required)	70
Technical Evaluation Criteria Serial No. 10	
Bidder must be authorized dealer or manufacturer representative of the quoted brand for UTP Cable only (Qualitative)(Doc Required)	25
Bidder must be tax registered (NTN & GST, PRA, PST etc.). (Qualitative)(Doc Required)	15
Compliance to technical Specifications (Qualitative)(Doc Required)	60
Technical Evaluation Criteria for Serial No. 12 and 13	
Bidder must be tax registered (NTN & GST, PRA, PST etc.). (Qualitative)(Doc Required)	25
Bidder must be authorized dealer or manufacturer representative of the quoted brand (Qualitative)(Doc Required)	25

Compliance to technical Specifications (Qualitative)(Doc Required)

50

Items/Lots

Lot Title : Purchase and Installation of Solar System Complete (TurnKey Solution) for Faisalabad Campus

Bid Security : 158000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Supply of Solar System Complete (Turnkey Solution) Having a Capacity of 50 KW, On-Grid for NTU Faisalabad Campus	Solar power plants	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 1	1	Manufacturer Authorization form
Installation of Solar System Complete (Turnkey Solution) Having a Capacity of 50 KW, On-Grid for NTU Faisalabad Campus	Solar power plants	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 1	1	--

Lot Title : Purchase and Installation of Solar System Complete (Turnkey Solution) Karachi Campus

Bid Security : 67500

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
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Supply of Solar System Complete (Turnkey Solution) Having a Capacity of 20 KW, On-Grid for NTU Karachi Campus	Solar power plants	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 1	1	Manufacturer Authorization form
Installation of Solar System Complete (Turnkey Solution) Having a Capacity of 20 KW, On-Grid for NTU Karachi Campus	Solar power plants	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 1	1	--

Lot Title : Different Type of 19 Air Conditioners (1.0, 1.5 and 2.0 Ton) for P&D

Bid Security : 96000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Air Conditioners (1.0), Ton	Air conditioners	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 10	10	--
Air Conditioners (1.5), Ton	Air conditioners	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 05	5	--
Air Conditioners (2.0), Ton Invertor	Air conditioners	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 02	2	--
Air Conditioners (2.0), Ton Direct cool non Invertor	Air conditioners	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 02	2	--

Lot Title : Different Type of 09 Chemicals and 11 Consumable Items for NTRC

Bid Security : 21000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Different Type of 09 Chemicals for NTRC	Laboratory chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 09	9	--
11 Consumable Items for NTRC	Laboratory consumables and chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 11	11	--

Lot Title : Different Type of 82 Chemicals and Consumable Items for DOM

Bid Security : 51500

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Chemical	Laboratory chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 63	63	--
Consumables	Laboratory consumables and chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 19	19	--

Lot Title : Different Type of 28 Chemicals & Consumable Items for NTRC

Bid Security : 57000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Different Type of Chemicals for NTRC	Laboratory chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 11	11	--
Different Type of Consumable Items for NTRC	Laboratory consumables and chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 17	17	--

Lot Title : Rotary Evaporator “Qty = 01 No.” for NTRC

Bid Security : 90000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Rotary Evaporator for NTRC	Miscellaneous	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 01	1	Any
Rotary Evaporator for NTRC	Miscellaneous	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 01	1	Any

Lot Title : Different Type of 33 Chemicals for DAS

Bid Security : 10000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Chemicals	Laboratory chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 32	32	Any
Consumables (Aluminium Foil)	Laboratory consumables and chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 01	1	Any

Lot Title : Different Type of 08 IT Accessories for IT

Bid Security : 30000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
UTP Cable	Copper cable	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 4575	4575	Manufacturer Authorization form
IT Accessory	Miscellaneous	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 01	1	--

Lot Title : Different Type of 11 Chemicals for DTT

Bid Security : 62000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
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Hydrogen per Oxide	Laboratory chemicals	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 200	200	--
Laboratory Chemicals	Laboratory chemicals	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 1	1	--

Lot Title : Different Type of 09 Equipment

Bid Security : 34500

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Miscellaneous 8 Laboratory Equipments	Miscellaneous	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 1	1	Any
Digital Hot Plate with Magnetic Stirrer	Miscellaneous	Address: 203/RB Manawala, Sheikhupura Road, Schedule: May 15, 2026 Quantity: 3	3	Any

Lot Title : Different Type of 33 CRMs

Bid Security : 55000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
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Multielement Heavy Metal Crm 1000 ppm	Miscellaneous	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 100	100	--
Different Type of 32 CRMs	Miscellaneous	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 1	1	--

Lot Title : Different Type of 20 Chemicals and 05 consumable Items for DTT

Bid Security : 23500

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
Different Type of 20 Chemicals for DTT	Laboratory chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 1	1	--
Different Type of 05 consumable Items for DTT	Laboratory consumables and chemicals	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 1	1	--

Lot Title : Different Type of 09 Furniture Items

Bid Security : 90000

Item	UNSPSC	Delivery Schedule	Quantity	Manufacturer / Dealer Authorization
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Chairs (Chairs Revolving Executive and chairs wooden with Arms for visitors)	Miscellaneous	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 1	1	--
LAb and Office Furniture	Miscellaneous	Address: 203/RB Manawala, Sheikhpura Road, Schedule: May 15, 2026 Quantity: 1	1	--

Related Services of Goods:

No

Items/Lot Specification

Lot Title : Purchase and Installation of Solar System Complete (TurnKey Solution) for Faisalabad Campus

Item: Supply of Solar System Complete (Turnkey Solution) Having a Capacity of 50 KW, On-Grid for NTU Faisalabad Campus

UNSPSC: Solar power plants

Specifications / Requirements:

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus	
1. Photovoltaic Module	
Parameters	Min. Specifications required

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Module Make	Quoted brand given by the installer should be available (Tier 1 grade product) on official website of the manufacturer. All the specifications of the quoted module including product make, model, specifications and performance parameters should also be available on the official website of the vendor.
P.V. Module Capacity	600Watt (W) or better, N-Type Bifacial TOPCon Technology, must be compatible with the existing solar system.
Module Parameters	Efficiency equal or better than 23%, Low Temperature Coefficient (Pmax) - 0.29%/°C), heavy snow load equal or better than 5400 Pa, wind load equal or better 2400 Pa)
Power Tolerance	Between 0 ~ +10W
Power Bifaciality	Equal or better than 80%
Certification	T.U.V. Certified as per IEC 61215, IEC 61730, or equivalent.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

	<p>Potential Induced Degradation (P.I.D) free certificate from T.U.V must be provided.</p> <p>Must comply with I.P.68 standard including 3 bypass diodes with 1500V(I.E.C./UL) insulation class or above (must comply with safety standards concerning the system.</p>
Cable	4.0 mm ² (I.E.C.), 12 AWG (UL) insulation class or better
Module Fire Performance	Type 29 (UL 61730) or Class C (IEC61730)
Warranty	12 years product replacement warranty (Official)
	30 years linear power performance warranty (Official)
	First Year Power degradation no more than 1% and subsequent annual power degradation no more than 0.4%
	10 years of local product replacement warranty by the installer*

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Parameters	Min. Specifications required
Inverter Make	<p>The quoted brand must be an internationally recognized brand with a proven reputation for quality. Additionally, the brand should offer local official warranty support to ensure post installation services and maintenance within Pakistan. The quoted brand must be verifiable (product make, model, specifications, performance parameters) on the manufacturer's official website. The inverter must have a zero export feature built in, or an additional zero export device may be installed, which is compatible with the existing system.</p>
Operating Conditions	
Efficiency and related parameters	<ul style="list-style-type: none"> · Efficiency of 98.0 % or better · Power factor >0.99 (0.8 leading-0.8 lagging) · Multiple MPPTs with efficiency of 98% or better

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Protection and	<ul style="list-style-type: none"> · High power tracking density (100MPPT/MW)
Safety:	<ul style="list-style-type: none"> · I.P. 66 · DC reverse polarity protection · Short circuit protection · Output overcurrent protection
Other Parameter	<ul style="list-style-type: none"> · Anti islanding protection · Temperature protection · AFCI Protection · Transformer less topology · Night-time PID recovery (Optional) · Overvoltage load reduction and leakage suppression · Having must Anti Islanding feature · D.C. input voltage of up to 1000 V or higher (I.E.C. compliance) or as per design · MPPT Voltage Range 180-1000V · Maximum Input Current of 32A/ MPPT

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

	<ul style="list-style-type: none"> · Night SVG function
	<ul style="list-style-type: none"> · Intelligent String Monitoring
	<ul style="list-style-type: none"> · Data logger
	<ul style="list-style-type: none"> · Remote access
	<ul style="list-style-type: none"> · Advance metering Infrastructure (AMI) must be installed
DC to AC Ratio	150% or higher
Warranty	Must have 5 years or higher local replacement warranty.
Certification	Equaling or applicable standards such as I.E.C. 62109-1/-2, IEC 62116, IEC 61727 or other relevant certifications
3. Cabling	

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

1. All exposed wiring including connecting cables between inverter, electrical distribution board (Containing DC, AC breakers and SPDs) and PV Module strings interconnections must be covered in conduits/duct/trenches. The cable trench material should be galvanized iron (18 guage). Wiring passing through roofing, walls, or other structural elements shall be protected using appropriate bushings/grommets. Wiring passing through roofing shall be properly sealed to ensure waterproofing (applicable to wiring only).

2. All field-installed wiring shall be connected using approved terminal strips or screw-type connectors. Soldered or crimped joints in the field shall be avoided as far as practicable. Wire nuts are strictly prohibited. The current-carrying capacity of any joint shall not be less than the rated circuit current. All electrical connections shall be enclosed within junction boxes, having a minimum IP66 rating for open/exposed installations and IP65 rating for installations under shed/covered areas. Where practical, fittings for light switches and polarity-sensitive socket outlets may be used as junction boxes, provided they meet the applicable IP and safety requirements.

a. No conduit or fitting shall be attached directly to hatch or any other non-supportive surface

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

<p>b. Especially avoid installing the conduit direct over the roof; there must be distance not less than 3 inches between the roof surface and conduit/duct.</p>	
<p>c. Cables must be joined by the use of junction boxes, screw-connectors, and block connectors.</p>	
<p>d. All wires must be terminated with proper end sleeves and wire thimbles with different colours for positive and negative polarity.</p>	
<p>e. Field installed wiring must be joined using terminal strips or screw connectors. Soldering or crimping in the field must be avoided if at all possible. Wire nuts are not allowed.</p>	
<p>f. The rated current carrying capacity of the joint must not be less than the circuit current rating.</p>	
<p>g. Fittings for P.V. must be with polarity sensitive socket outlets to avoid short circuiting.</p>	
<p>h. Size, voltage grade and manufacturer name should be printed on every cable</p>	
<p>5. Cable specifications are as followed with BS/IEC standards compliance.</p>	
<p>Item</p>	<p>Requirement</p>

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

<p>1. P.V. to inverter</p>	<p>4 mm² Tinned Cu/XLPO/XLPV 1000/1500 V Cable (i.e. 99.9% pure copper, UV and Weather Resistant, Conductor Temperature of 120 °C with voltage drop less than 2%</p>
<p>2. Inverter to existing Load Bus Bar</p>	<p>70mm² (per core) 99.9% pure copper (Stranded) 4-core PVC/PVC AC cable with voltage drop less than 2%</p>
<p>4. Breakers for A.C. and D.C. Power:</p>	
<ul style="list-style-type: none"> · All circuit breakers shall be sourced from reputable international manufacturers, and samples shall be submitted to the Technical Committee for approval prior to installation. 	
<ul style="list-style-type: none"> · DC circuit breakers shall be rated for a minimum of 1000 V DC, or alternatively, DC fuses with compatible fuse bases shall be provided, suitable for the solar string operating voltage. 	
<ul style="list-style-type: none"> · The voltage rating of both DC and AC circuit breakers shall be at least 30% higher than the maximum circuit voltage, and the current rating shall be between 125% and 150% of the maximum design current of the respective circuit. 	

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· Breakers must have a clear visual indication of their state (ON/OFF or I/O) and marking

· An AC/DC Distribution Board shall be installed between the PV system and the Utility Bus Bar. The distribution board enclosure, including doors, locks, and hinges, shall be fabricated from 16-gauge Galvanized Iron (GI) and finished with powder-coated paint (RAL-7035). The distribution board shall be provided with ventilation grills and railing channels. The panels shall include protective sheets/covers for all electrical components, including MCBs, MCCBs, ACBs, circuit breakers, and fuses

· MCBs, MCCBs, ACBs, circuit breakers, or fuses shall be of appropriate ratings to safely connect and disconnect the PV system—including PV inverters, PV arrays, and AC disconnection to the utility grid. All distribution board accessories and internal power and control wiring shall be copper conductors, properly terminated using crimped thimbles with insulating shrouds. Standard color coding shall be strictly followed for all power and control cables. The distribution board shall be equipped with three indicator lamps and provision for displaying voltage, current, and power parameters.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· All 400 V AC and 230 V AC devices and equipment, including busbar support insulators, circuit breakers, SFU isolators (where applicable), SPDs, and other components installed within the switchgear, shall be suitably rated for continuous operation of both the existing and newly installed PV systems.

5. External Surge Arrester (A.C. and D.C.)

Parameters

min. Specifications required

Impulse current (Iimp)

min. 25kA (10/350μsec.)

Response time

≤ 50nsec

Leakage current

≤ 1 mA

Dielectric strength

2000 V AC @ 1 minute

Protection Class

Class 2(Type2)

Discharge voltage

As per design

Ingress Protection

IP20 or above

Short circuit withstand capacity

min. 20kA

6. Earthling, Lightning Arresters & Surge Protection System accessories

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Calculations shall be carried out in accordance with the Rolling Sphere Method or equivalent, with detailed calculations to be submitted at the time of execution.

- Solar panel-to-panel earthing wires shall be 6 mm² tinned copper flexible conductors (yellow-green), terminated with crimped thimbles and insulating shrouds.

- AC/DC earthing cables from AC/DC SPDs to ground level shall be 6 mm², and from ground level to the bore depth shall be 25 mm², terminated at earthing rods of 16 mm diameter and 10 ft length. Lightning arresters shall be connected using bare copper conductors, terminated in wet sand with copper rods of the same specifications.

- A minimum of three large pure copper lightning arresters shall be installed for protection of solar modules against lightning strikes. All earthing conductors shall be enclosed in PVC pipes or ducts, including bare copper conductors.

- All earthing bores (for AC, DC, and lightning arresters) shall be filled with earthing powder and completed to achieve an earthing resistance of 2.5 ohms or less.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· AC/DC distribution boxes and inverter enclosures shall be properly grounded.	
· Comprehensive specifications of the earthing system are provided below:	
Parameters	Min. Specifications Required
All calculations of air termination rods must be done using rolling sphere method or Equivalent	
Air termination rod material	Copper
Air termination rod length	As per design
Air termination rod diameter	As per design
Air termination rod	As per design
Cable for interconnecting metal structure and S.P.D.*.	6 mm ² or higher, 99.99% pure copper or higher (1 core) or equaling strip for grounding
Insulated Spacer	As per design
Cable Bracket	As per design
Stand - Fang Fix system	As per design
	Earthing of 2.5 ohm or less (with standard earthing pit)
Compliance	Applicable standards that may include

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

	ICE 62305-3 (EN62305-3)
	DIN VDE 0151 and DIN 18014
7. PV Mounting Structure	
Description	Requirement
	Shading analysis shall be conducted using SketchUp or equivalent simulation software to identify and mitigate any potential shadowing that could reduce system performance.
Shadow Analysis	The mounting system shall be designed to allow adequate air circulation for cooling under high-temperature conditions and shall withstand wind gusts of 130 km/h measured over a 3-second interval.
Wind loading	

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Mounting structure	The mounting structure should be L2, C-channel galvanized iron (GI) of 12 Gauge thickness or better with minimum 70-micron coating. An optimal tilt angle for solar structure with maximum production throughout the year must be selected. U-Clamps and foot Clamps should be also of 12 Guage thickness (70-micron coating). The Nut Bolt Grade should be S.S 304 or better. Aluminum Mid and End clamps for solar panels must be installed throughout the structure.
Certification	Vender will provide certificates from structural engineers for all installations (Structure Life grantee of 25 years).
· Real-time monitoring of newly installed as well existing PV systems must be available locally and remotely(online). The online monitoring must be displayed on LCD display (already installed) at Electric control room with proper inverter control functioning.	

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· PV array shall be installed in the terrace space free from any obstruction and/or shadow and to minimize effects of shadows due to adjacent PV panel rows.

· The solar PV array must be installed on the rooftop in such a way that there is sufficient space on the rooftop for maintenance etc.

· There should not be any damage what so ever to the rooftop due to setting up of the solar power plant so that on a later day there is leakage of rainwater, etc. from the rooftop.

· The roof top should look clean and tidy after installation of the array.

· Neatness, tidiness and aesthetics must be observed while installing the systems.

· All Civil works required for the installation of the PV system and other civil and electrical work in evacuation infrastructure, wherever necessary, shall be within the scope of the bidder.

· The civil work should be according to the approved civil engineering standards.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· All the rawl-bolts if required as drilled into the roof - RCC must be filled with epoxy adhesion paste to prevent the penetration of water in the slab/roof tiles

Important Notes

· The Company must train concerned staff / faculty members nominated by Institute authorities on site.

· The company must provide an appropriate schedule for maintenance to NTU officials.

· The installer will be bound to provide samples of all components of the PV system prior to the installation. The approved samples will be allowed to install and at any stage the University has the right to involve third party technical verification of any components.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· For successful bidders, Simulation analysis report, PV Modules, Samples of mounting structure, nut/bolts, MC4 Connectors, Electrical cables, SPDS, AC, DC Breakers, DB Box, and all additional accessories must be provided. Ten extra PV Panels must be provided.

· The Successful bidder will submit the report from Centre for energy research and Development (CERAD) University Engineering Technology Lahore of the samples of quoted items (all types of the cables, complete solar plate, mounting structure with nut bolts etc.) other than Invertor (if applicable).

· The installer will bear the cost of this verification process. Failure in passing the component authenticity test will result in the cancelation of the project.

· Vendors must design galvanized fitting material according to installation site. All the holes and cuttings must be done before the coating. No cutting edges making of holes or drilling will be allowed in structure laying to avoid rusting after installation.

· In case of system failure or break down during the warranty period, vendor is bound to rectify the issue or replace the faulty equipment within 48 hours from the fault reporting time maximum.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· The company must provide the import documents and submit the pre-shipment inspection (P.S.I.) report and certificate of conformity (C.O.C.) from approved / Authorized Govt firms.	
· Performance of the solar panel must be insured from internationally reputable company / agency that would be arranged by manufacturer of PV panel and will transfer to end user (NTU).	
· If panel would not provide committed power per years as per agreement then the contractor would be liable to provide more panels to achieve the committed energy.	

Item: Installation of Solar System Complete (Turnkey Solution) Having a Capacity of 50 KW, On-Grid for NTU Faisalabad Campus

UNSPSC: Solar power plants

Specifications / Requirements:

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

1. Photovoltaic Module	
Parameters	Min. Specifications required

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Module Make	Quoted brand given by the installer should be available (Tier 1 grade product) on official website of the manufacturer. All the specifications of the quoted module including product make, model, specifications and performance parameters should also be available on the official website of the vendor.
P.V. Module Capacity	600Watt (W) or better, N-Type Bifacial TOPCon Technology, must be compatible with the existing solar system.
Module Parameters	Efficiency equal or better than 23%, Low Temperature Coefficient (Pmax) - 0.29%/°C), heavy snow load equal or better than 5400 Pa, wind load equal or better 2400 Pa)
Power Tolerance	Between 0 ~ +10W
Power Bifaciality	Equal or better than 80%
Certification	T.U.V. Certified as per IEC 61215, IEC 61730, or equivalent.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

	<p>Potential Induced Degradation (P.I.D) free certificate from T.U.V must be provided.</p> <p>Must comply with I.P.68 standard including 3 bypass diodes with 1500V(I.E.C./UL) insulation class or above (must comply with safety standards concerning the system.</p>
Cable	4.0 mm ² (I.E.C.), 12 AWG (UL) insulation class or better
Module Fire Performance	Type 29 (UL 61730) or Class C (IEC61730)
Warranty	12 years product replacement warranty (Official)
	30 years linear power performance warranty (Official)
	First Year Power degradation no more than 1% and subsequent annual power degradation no more than 0.4%
	10 years of local product replacement warranty by the installer*

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Parameters	Min. Specifications required
Inverter Make	<p>The quoted brand must be an internationally recognized brand with a proven reputation for quality. Additionally, the brand should offer local official warranty support to ensure post installation services and maintenance within Pakistan. The quoted brand must be verifiable (product make, model, specifications, performance parameters) on the manufacturer's official website. The inverter must have a zero export feature built in, or an additional zero export device may be installed, which is compatible with the existing system.</p>
Operating Conditions	
Efficiency and related parameters	<ul style="list-style-type: none"> · Efficiency of 98.0 % or better
	<ul style="list-style-type: none"> · Power factor >0.99 (0.8 leading-0.8 lagging)
	<ul style="list-style-type: none"> · Multiple MPPTs with efficiency of 98% or better

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Protection and	<ul style="list-style-type: none"> · High power tracking density (100MPPT/MW)
Safety:	<ul style="list-style-type: none"> · I.P. 66 · DC reverse polarity protection · Short circuit protection · Output overcurrent protection
Other Parameter	<ul style="list-style-type: none"> · Anti islanding protection · Temperature protection · AFCI Protection · Transformer less topology · Night-time PID recovery (Optional) · Overvoltage load reduction and leakage suppression · Having must Anti Islanding feature · D.C. input voltage of up to 1000 V or higher (I.E.C. compliance) or as per design · MPPT Voltage Range 180-1000V · Maximum Input Current of 32A/ MPPT

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

	<ul style="list-style-type: none"> · Night SVG function
	<ul style="list-style-type: none"> · Intelligent String Monitoring
	<ul style="list-style-type: none"> · Data logger
	<ul style="list-style-type: none"> · Remote access
	<ul style="list-style-type: none"> · Advance metering Infrastructure (AMI) must be installed
DC to AC Ratio	150% or higher
Warranty	Must have 5 years or higher local replacement warranty.
Certification	Equaling or applicable standards such as I.E.C. 62109-1/-2, IEC 62116, IEC 61727 or other relevant certifications
3. Cabling	

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

1. All exposed wiring including connecting cables between inverter, electrical distribution board (Containing DC, AC breakers and SPDs) and PV Module strings interconnections must be covered in conduits/duct/trenches. The cable trench material should be galvanized iron (18 guage). Wiring passing through roofing, walls, or other structural elements shall be protected using appropriate bushings/grommets. Wiring passing through roofing shall be properly sealed to ensure waterproofing (applicable to wiring only).

2. All field-installed wiring shall be connected using approved terminal strips or screw-type connectors. Soldered or crimped joints in the field shall be avoided as far as practicable. Wire nuts are strictly prohibited. The current-carrying capacity of any joint shall not be less than the rated circuit current. All electrical connections shall be enclosed within junction boxes, having a minimum IP66 rating for open/exposed installations and IP65 rating for installations under shed/covered areas. Where practical, fittings for light switches and polarity-sensitive socket outlets may be used as junction boxes, provided they meet the applicable IP and safety requirements.

a. No conduit or fitting shall be attached directly to hatch or any other non-supportive surface

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

b. Especially avoid installing the conduit direct over the roof; there must be distance not less than 3 inches between the roof surface and conduit/duct.

c. Cables must be joined by the use of junction boxes, screw-connectors, and block connectors.

d. All wires must be terminated with proper end sleeves and wire thimbles with different colours for positive and negative polarity.

e. Field installed wiring must be joined using terminal strips or screw connectors. Soldering or crimping in the field must be avoided if at all possible. Wire nuts are not allowed.

f. The rated current carrying capacity of the joint must not be less than the circuit current rating.

g. Fittings for P.V. must be with polarity sensitive socket outlets to avoid short circuiting.

h. Size, voltage grade and manufacturer name should be printed on every cable

5. Cable specifications are as followed with BS/IEC standards compliance.

Item

Requirement

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

<p>1. P.V. to inverter</p>	<p>4 mm² Tinned Cu/XLPO/XLPV 1000/1500 V Cable (i.e. 99.9% pure copper, UV and Weather Resistant, Conductor Temperature of 120 °C with voltage drop less than 2%</p>
<p>2. Inverter to existing Load Bus Bar</p>	<p>70mm² (per core) 99.9% pure copper (Stranded) 4-core PVC/PVC AC cable with voltage drop less than 2%</p>
<p>4. Breakers for A.C. and D.C. Power:</p>	
<ul style="list-style-type: none"> · All circuit breakers shall be sourced from reputable international manufacturers, and samples shall be submitted to the Technical Committee for approval prior to installation. 	
<ul style="list-style-type: none"> · DC circuit breakers shall be rated for a minimum of 1000 V DC, or alternatively, DC fuses with compatible fuse bases shall be provided, suitable for the solar string operating voltage. 	
<ul style="list-style-type: none"> · The voltage rating of both DC and AC circuit breakers shall be at least 30% higher than the maximum circuit voltage, and the current rating shall be between 125% and 150% of the maximum design current of the respective circuit. 	

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· Breakers must have a clear visual indication of their state (ON/OFF or I/O) and marking

· An AC/DC Distribution Board shall be installed between the PV system and the Utility Bus Bar. The distribution board enclosure, including doors, locks, and hinges, shall be fabricated from 16-gauge Galvanized Iron (GI) and finished with powder-coated paint (RAL-7035). The distribution board shall be provided with ventilation grills and railing channels. The panels shall include protective sheets/covers for all electrical components, including MCBs, MCCBs, ACBs, circuit breakers, and fuses

· MCBs, MCCBs, ACBs, circuit breakers, or fuses shall be of appropriate ratings to safely connect and disconnect the PV system—including PV inverters, PV arrays, and AC disconnection to the utility grid. All distribution board accessories and internal power and control wiring shall be copper conductors, properly terminated using crimped thimbles with insulating shrouds. Standard color coding shall be strictly followed for all power and control cables. The distribution board shall be equipped with three indicator lamps and provision for displaying voltage, current, and power parameters.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· All 400 V AC and 230 V AC devices and equipment, including busbar support insulators, circuit breakers, SFU isolators (where applicable), SPDs, and other components installed within the switchgear, shall be suitably rated for continuous operation of both the existing and newly installed PV systems.

5. External Surge Arrester (A.C. and D.C.)

Parameters

min. Specifications required

Impulse current (Iimp)

min. 25kA (10/350μsec.)

Response time

≤ 50nsec

Leakage current

≤ 1 mA

Dielectric strength

2000 V AC @ 1 minute

Protection Class

Class 2(Type2)

Discharge voltage

As per design

Ingress Protection

IP20 or above

Short circuit withstand capacity

min. 20kA

6. Earthling, Lightning Arresters & Surge Protection System accessories

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Calculations shall be carried out in accordance with the Rolling Sphere Method or equivalent, with detailed calculations to be submitted at the time of execution.

- Solar panel-to-panel earthing wires shall be 6 mm² tinned copper flexible conductors (yellow-green), terminated with crimped thimbles and insulating shrouds.

- AC/DC earthing cables from AC/DC SPDs to ground level shall be 6 mm², and from ground level to the bore depth shall be 25 mm², terminated at earthing rods of 16 mm diameter and 10 ft length. Lightning arresters shall be connected using bare copper conductors, terminated in wet sand with copper rods of the same specifications.

- A minimum of three large pure copper lightning arresters shall be installed for protection of solar modules against lightning strikes. All earthing conductors shall be enclosed in PVC pipes or ducts, including bare copper conductors.

- All earthing bores (for AC, DC, and lightning arresters) shall be filled with earthing powder and completed to achieve an earthing resistance of 2.5 ohms or less.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· AC/DC distribution boxes and inverter enclosures shall be properly grounded.	
· Comprehensive specifications of the earthing system are provided below:	
Parameters	Min. Specifications Required
All calculations of air termination rods must be done using rolling sphere method or Equivalent	
Air termination rod material	Copper
Air termination rod length	As per design
Air termination rod diameter	As per design
Air termination rod	As per design
Cable for interconnecting metal structure and S.P.D.*.	6 mm ² or higher, 99.99% pure copper or higher (1 core) or equaling strip for grounding
Insulated Spacer	As per design
Cable Bracket	As per design
Stand - Fang Fix system	As per design
	Earthing of 2.5 ohm or less (with standard earthing pit)
Compliance	Applicable standards that may include

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

	ICE 62305-3 (EN62305-3)
	DIN VDE 0151 and DIN 18014
7. PV Mounting Structure	
Description	Requirement
	Shading analysis shall be conducted using SketchUp or equivalent simulation software to identify and mitigate any potential shadowing that could reduce system performance.
Shadow Analysis	The mounting system shall be designed to allow adequate air circulation for cooling under high-temperature conditions and shall withstand wind gusts of 130 km/h measured over a 3-second interval.
Wind loading	

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

Mounting structure	The mounting structure should be L2, C-channel galvanized iron (GI) of 12 Gauge thickness or better with minimum 70-micron coating. An optimal tilt angle for solar structure with maximum production throughout the year must be selected. U-Clamps and foot Clamps should be also of 12 Guage thickness (70-micron coating). The Nut Bolt Grade should be S.S 304 or better. Aluminum Mid and End clamps for solar panels must be installed throughout the structure.
Certification	Vender will provide certificates from structural engineers for all installations (Structure Life grantee of 25 years).
· Real-time monitoring of newly installed as well existing PV systems must be available locally and remotely(online). The online monitoring must be displayed on LCD display (already installed) at Electric control room with proper inverter control functioning.	

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· PV array shall be installed in the terrace space free from any obstruction and/or shadow and to minimize effects of shadows due to adjacent PV panel rows.

· The solar PV array must be installed on the rooftop in such a way that there is sufficient space on the rooftop for maintenance etc.

· There should not be any damage what so ever to the rooftop due to setting up of the solar power plant so that on a later day there is leakage of rainwater, etc. from the rooftop.

· The roof top should look clean and tidy after installation of the array.

· Neatness, tidiness and aesthetics must be observed while installing the systems.

· All Civil works required for the installation of the PV system and other civil and electrical work in evacuation infrastructure, wherever necessary, shall be within the scope of the bidder.

· The civil work should be according to the approved civil engineering standards.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· All the rawl-bolts if required as drilled into the roof - RCC must be filled with epoxy adhesion paste to prevent the penetration of water in the slab/roof tiles

Important Notes

· The Company must train concerned staff / faculty members nominated by Institute authorities on site.

· The company must provide an appropriate schedule for maintenance to NTU officials.

· The installer will be bound to provide samples of all components of the PV system prior to the installation. The approved samples will be allowed to install and at any stage the University has the right to involve third party technical verification of any components.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

· For successful bidders, Simulation analysis report, PV Modules, Samples of mounting structure, nut/bolts, MC4 Connectors, Electrical cables, SPDS, AC, DC Breakers, DB Box, and all additional accessories must be provided. Ten extra PV Panels must be provided.

· The Successful bidder will submit the report from Centre for energy research and Development (CERAD) University Engineering Technology Lahore of the samples of quoted items (all types of the cables, complete solar plate, mounting structure with nut bolts etc.) other than Invertor (if applicable).

· The installer will bear the cost of this verification process. Failure in passing the component authenticity test will result in the cancelation of the project.

· Vendors must design galvanized fitting material according to installation site. All the holes and cuttings must be done before the coating. No cutting edges making of holes or drilling will be allowed in structure laying to avoid rusting after installation.

· In case of system failure or break down during the warranty period, vendor is bound to rectify the issue or replace the faulty equipment within 48 hours from the fault reporting time maximum.

Technical Specifications of Proposed 50 KW Solar System for NTU Main Campus

<ul style="list-style-type: none"> · The company must provide the import documents and submit the pre-shipment inspection (P.S.I.) report and certificate of conformity (C.O.C.) from approved / Authorized Govt firms. 	
<ul style="list-style-type: none"> · Performance of the solar panel must be insured from internationally reputable company / agency that would be arranged by manufacturer of PV panel and will transfer to end user (NTU). 	
<ul style="list-style-type: none"> · If panel would not provide committed power per years as per agreement then the contractor would be liable to provide more panels to achieve the committed energy. 	

Lot Title : Purchase and Installation of Solar System Complete (Turnkey Solution) Karachi Campus

Item: Supply of Solar System Complete (Turnkey Solution) Having a Capacity of 20 KW, On-Grid for NTU Karachi Campus

UNSPSC: Solar power plants

Specifications / Requirements:

<p>Technical Specification of Split Air Conditioner Unit</p>	<p>__EMPTY</p>	<p>__EMPTY_1</p>	<p>__EMPTY_2</p>
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S/No	Item Name / Part Name / Product Capacity	Detail and description	QTY
1	Cooling Capacity	1 Ton (One Ton) Split Air Conditioner Unit (Full DC Invertor/Only cool option)	10
2	Evaporator	Pipe must be copper material	
3	Condenser		
4	Connecting coil	Connecting coil from evaporator to condenser must be of pure copper material	
4	Compressor type	T3 tropical compressor which can perform in 50-55 degree Celsius temperature,	
		Imported /local as per broacher / quoted model available at manufacturer website / Technical document	
5	Accessory	Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor	
6	Warranty	Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty	

		Free Installation		
		Product local warranty must be included		
7				
8	Operational Status	Must be operational on site (installation included)		
9	Outer units	Must be installed at lower level than the inner unit, where applicable		
10				
11			Fins type	Gold fin indoor and outdoor
Technical Specification of Split Air Conditioner Unit				
S/No	Item Name / Part Name / Product Capacity	Detail and description	QTY	
1	Cooling Capacity	1.5 Ton (One and Half Ton) Split Air Conditioner Unit (Full DC Invertor/Only cool option)	5	
2				
3	Condenser	Pipe must be copper material		

4	Connecting coil	Connecting coil from evaporator to condenser must be of pure copper material	
4	Compressor type	T3 tropical compressor which can perform in 50-55 degree Celsius temperature,	
5	Accessory	Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor	
6	Warranty	Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty	
		Free Installation	
		Product local warranty must be included	
7	Refrigerant	R-410	
8	Operational Status	Must be operational on site (installation included)	
9	Outer units	Must be installed at lower level than the inner unit, where applicable	
10			
11	Fins type	Gold fin indoor and outdoor	

Technical Specification of 2.0 Ton Split Air Conditioner Unit			
S/No	QTY		
1	Cooling Capacity	02 Ton (Two Ton) Split Air Conditioner Unit (Full DC Invertor/Only cool option)	2
2	Evaporator	Pipe must be copper material	
3	Condenser	Pipe must be copper material	
4	Connecting coil	Connecting coil from evaporator to condenser must be of pure copper material	
4			
		Imported /local as per broacher / quoted model available at manufacturer website / Technical document	
5	Accessory	Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor	
6	Warranty	Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty	

		Product local warranty must be included	
7	Refrigerant	R-410	
8	Operational Status	Must be operational on site (installation included)	
9	Outer units	Must be installed at lower level than the inner unit, where applicable	
10	Ac air throw	Long air throw	
11	Fins type	Gold fin indoor and outdoor	
Technical Specification 2 (Two) Ton Split Air Conditioner Unit			
S/No	Item Name / Part Name / Product Capacity	Detail and description	QTY
1	Cooling Capacity	2 (Two) Ton Split Air Conditioner Unit (Non Invertor Air Conditioner)	
2			
3			
4	Compressor	Imported /local as per broacher / quoted model available at manufacturer website / Technical document	

5	Accessory	Must be packed with.	2
		Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor	
6	Warranty	Compressor warranty minimum 3 year / acceptable more than three years as offered by manufacturer	
7	Refrigerant	R-410, R-22	
8	Operational Status	Operational on site	

Item: Installation of Solar System Complete (Turnkey Solution) Having a Capacity of 20 KW, On-Grid for NTU Karachi Campus

UNSPSC: Solar power plants

Specifications / Requirements:

Technical Specification of Split Air Conditioner Unit	__EMPTY	__EMPTY_1	__EMPTY_2
S/No	Item Name / Part Name / Product Capacity	Detail and description	QTY
1	Cooling Capacity	1 Ton (One Ton) Split Air Conditioner Unit (Full DC Inverter/Only cool option)	10
2	Evaporator	Pipe must be copper material	

Technical Specification of Split Air Conditioner Unit	_EMPTY	_EMPTY_1	_EMPTY_2
3	Condenser		
4	Connecting coil	Connecting coil from evaporator to condenser must be of pure copper material	
4	Compressor type	T3 tropical compressor which can perform in 50-55 degree Celsius temperature,	
		Imported /local as per broacher / quoted model available at manufacturer website / Technical document	
5	Accessory	Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor	
6	Warranty	Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty	
		Free Installation	
		Product local warranty must be included	
7			

Technical Specification of Split Air Conditioner Unit	_EMPTY	_EMPTY_1	_EMPTY_2
8	Operational Status	Must be operational on site (installation included)	
9	Outer units	Must be installed at lower level than the inner unit, where applicable	
10			
11			Fins type
Technical Specification of Split Air Conditioner Unit			
S/No	Item Name / Part Name / Product Capacity	Detail and description	QTY
1	Cooling Capacity	1.5 Ton (One and Half Ton) Split Air Conditioner Unit (Full DC Invertor/Only cool option)	5
2			
3	Condenser	Pipe must be copper material	
4	Connecting coil	Connecting coil from evaporator to condenser must be of pure copper material	

Technical Specification of Split Air Conditioner Unit	_EMPTY	_EMPTY_1	_EMPTY_2
4	Compressor type	T3 tropical compressor which can perform in 50-55 degree Celsius temperature,	
5	Accessory	Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor	
6	Warranty	Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty	
		Free Installation	
		Product local warranty must be included	
7	Refrigerant	R-410	
8	Operational Status	Must be operational on site (installation included)	
9	Outer units	Must be installed at lower level than the inner unit, where applicable	
10			
11	Fins type	Gold fin indoor and outdoor	

Technical Specification of Split Air Conditioner Unit	_EMPTY	_EMPTY_1	_EMPTY_2
Technical Specification of 2.0 Ton Split Air Conditioner Unit			
S/No	QTY		
1	Cooling Capacity	02 Ton (Two Ton) Split Air Conditioner Unit (Full DC Invertor/Only cool option)	2
2	Evaporator	Pipe must be copper material	
3	Condenser	Pipe must be copper material	
4	Connecting coil	Connecting coil from evaporator to condenser must be of pure copper material	
4			
		Imported /local as per broacher / quoted model available at manufacturer website / Technical document	
5	Accessory	Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor	
6	Warranty	Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty	

Technical Specification of Split Air Conditioner Unit	__EMPTY	__EMPTY_1	__EMPTY_2
		Product local warranty must be included	
7	Refrigerant	R-410	
8	Operational Status	Must be operational on site (installation included)	
9	Outer units	Must be installed at lower level than the inner unit, where applicable	
10	Ac air throw	Long air throw	
11	Fins type	Gold fin indoor and outdoor	
Technical Specification 2 (Two) Ton Split Air Conditioner Unit			
S/No	Item Name / Part Name / Product Capacity	Detail and description	QTY
1	Cooling Capacity	2 (Two) Ton Split Air Conditioner Unit (Non Invertor Air Conditioner)	
2			
3			

Technical Specification of Split Air Conditioner Unit	_EMPTY	_EMPTY_1	_EMPTY_2
4	Compressor	Imported /local as per broacher / quoted model available at manufacturer website / Technical document	
5	Accessory	Must be packed with. Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor	2
6	Warranty	Compressor warranty minimum 3 year / acceptable more than three years as offered by manufacturer	
7	Refrigerant	R-410, R-22	
8	Operational Status	Operational on site	

Lot Title : Different Type of 19 Air Conditioners (1.0, 1.5 and 2.0 Ton) for P&D

Item: Air Conditioners (1.0), Ton

UNSPSC: Air conditioners

Specifications / Requirements:

Technical Specification of Split Air Conditioner Unit S/No Item Name / Part Name / Product Capacity Detail and description QTY 1 Cooling Capacity 1 Ton (One Ton) Split Air Conditioner Unit (Full DC Invertor/Only cool option) 10 2 Evaporator Pipe must be copper

material 3 Condenser Pipe must be copper material 4 Connecting coil Connecting coil from evaporator to condenser must be of pure copper material 4 Compressor type T3 tropical compressor which can perform in 50-55 degree Celsius temperature, Imported /local as per broacher / quoted model available at manufacturer website / Technical document 5 Accessory Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor 6 Warranty Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty Free Installation Product local warranty must be included 7 Refrigerant R-410 8 Operational Status Must be operational on site (installation included) 9 Outer units Must be installed at lower level than the inner unit, where applicable 10 Ac air throw Long air throw 11 Fins type Gold fin indoor and outdoor

Item: Air Conditioners (1.5), Ton

UNSPSC: Air conditioners

Specifications / Requirements:

Technical Specification of Split Air Conditioner Unit S/No Item Name / Part Name / Product Capacity Detail and description QTY 1 Cooling Capacity 1.5 Ton (One and Half Ton) Split Air Conditioner Unit (Full DC Invertor/Only cool option) 5 2 Evaporator Pipe must be copper material 3 Condenser Pipe must be copper material 4 Connecting coil Connecting coil from evaporator to condenser must be of pure copper material 4 Compressor type T3 tropical compressor which can perform in 50-55 degree Celsius temperature, Imported /local as per broacher / quoted model available at manufacturer website / Technical document 5 Accessory Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor 6 Warranty Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty Free Installation Product local warranty must be included 7 Refrigerant R-410 8 Operational Status Must be operational on site (installation included) 9 Outer units Must be installed at lower level than the inner unit, where applicable 10 Ac air throw Long air throw 11 Fins type Gold fin indoor and outdoor

Item: Air Conditioners (2.0), Ton Invertor

UNSPSC: Air conditioners

Specifications / Requirements:

Technical Specification of 2.0 Ton Split Air Conditioner Unit S/No Item Name / Part Name / Product Capacity Detail and description

QTY 1 Cooling Capacity 02 Ton (Two Ton) Split Air Conditioner Unit (Full DC Invertor/Only cool option) 2 2 Evaporator Pipe must be copper material 3 Condenser Pipe must be copper material 4 Connecting coil Connecting coil from evaporator to condenser must be of pure copper material 4 Compressor type T3 tropical compressor which can perform in 50-55 degree Celsius temperature, Imported /local as per broacher / quoted model available at manufacturer website / Technical document 5 Accessory Must be packed with Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor 6 Warranty Upto 10-year compressor, 4-year PCB kit and 1-year Parts Warranty Free Installation Product local warranty must be included 7 Refrigerant R-410 8 Operational Status Must be operational on site (installation included) 9 Outer units Must be installed at lower level than the inner unit, where applicable 10 Ac air throw Long air throw 11 Fins type Gold fin indoor and outdoor

Item: Air Conditioners (2.0), Ton Direct cool non Invertor

UNSPSC: Air conditioners

Specifications / Requirements:

Technical Specification 2 (Two) Ton Split Air Conditioner Unit S/No Item Name / Part Name / Product Capacity Detail and description
QTY 1 Cooling Capacity 2 (Two) Ton Split Air Conditioner Unit (Non Invertor Air Conditioner) 2 Evaporator Pipe must be copper material 3 Condenser Pipe must be copper material 4 Compressor Imported /local as per broacher / quoted model available at manufacturer website / Technical document 5 Accessory Must be packed with. 2 Copper pipe for Suction & Discharge, Drain Flexible pipe, Electric Cables for indoor to outdoor 6 Warranty Compressor warranty minimum 3 year / acceptable more than three years as offered by manufacturer Parts warranty minimum 1 year / acceptable more than one year as offered by manufacturer 7 Refrigerant R-410, R-22 8 Operational Status Operational on site

Lot Title : Different Type of 09 Chemicals and 11 Consumable Items for NTRC

Item: Different Type of 09 Chemicals for NTRC

UNSPSC: Laboratory chemicals

Specifications / Requirements:

1-Chemicals # Chemical Name (write molecular weight where applicable) CAS # Grade/ Purity Packing size Quantity required Any Other Specs./ Special Instructions* 1. 1 Sulphuric acid, (H₂SO₄) 7664-93-9 98 % 2.5 Liter 40 Liter Certificate of analysis 2. m-cresol 108-39-4 98% 1 litre 1 litre Certificate of analysis 3. Formic acid 64-18-6 98-100 % 2.5 Liter 30 Liter Certificate of analysis 4. Zinc Chloride 7646-85-7 98% 1.0 kg 10 kg Certificate of analysis 5. 4 Dimethyl formamide 68-12-2 99% 2.5 Liter 10 Liter Certificate of analysis 6. Cyclohexanone -- 99% 2.5 Liter 2.5 Liter Certificate of analysis 7. Iodine -- 99.9% 50 grams 50 grams Certificate of analysis 8. Ethanol 64-17-5 Lab Grade 2.5 Liter 5.0 Liter Certificate of analysis 9. Potassium Carbonate 584-08-7 Lab Grade 1.0 Kg 1.0 Kg Certificate of analysis Note: 1. Without verified copy of Certificate of Analysis, no supply will be accepted. 2. Shelf life less than 2 Years, will not be accepted. 3. Supplies in parts, will not be accepted.

Item: 11 Consumable Items for NTRC

UNSPSC: Laboratory consumables and chemicals

Specifications / Requirements:

2- Consumables Sr # Consumables Specifications/Part No Packing size Quantity required Any Other Specs./ Special Instructions* 1. Rubbing Fabric (5cm x 5cm) -- 500 pieces pack 4 packing ISO 105-F09 2. Medicine Dropper Graduated No. 12 Conforms to AATCC 79 3. Air Filter -- No 02 Compatible With Denco Conditioner 4. Multifiber fabric DW (wool) 0.6 inch bands 50 meters roll 1 roll Complies with ISO 105 F10 5. Microscope Glass slides 1 x 3 inch 1-1.2 mm thick Pack of 72 2 Packs Ground Edges 6. Nitrile Gloves Box Pack of 100 2 Boxes Blue 7. Surgical Face Mask 3 layers Pack of 100 5 Packs (500 masks) -- 8. Test Paper for Phenolic Yellowing 100x 75 mm Pack of 50 1 Pack Conforms to ISO 105 X18 9. Standard Fabric for phenolic Yellowing 100x 30 mm Pack of 25 1 Pack Conforms to ISO 105 X18 10. Textile Permanent Marker -- No. 3 -- 11. Bursting Verification Foil Strength 9-15 Psi & 54-72 Psi Pack of 10 2 Pack Must Conform to ISO 13938-2 Note: 1. Without verified copy of Certificate of Analysis (where applicable), no supply will be accepted. 2. Supplies in parts, will not be accepted.

Lot Title : Different Type of 82 Chemicals and Consumable Items for DOM

Item: Chemical

UNSPSC: Laboratory chemicals

Specifications / Requirements:

Item: Consumables

UNSPSC: Laboratory consumables and chemicals

Specifications / Requirements:

Technical Specifications Consumables	__EMPTY	__EMPTY_1	__EMPTY_2
S/No	Name & Description		
64	Three Necks Round Bottom Flask 250 ml	Pyrex	3
65	Three Necks Round Bottom Flask 500 ml	Pyrex	3
66	Glass Separating Funnel 250 ml	Pyrex	2
67	Glass Separating Funnel 500 ml	Pyrex	2
68	Glass Beaker 100 ml	Pyrex	12
69	Glass Beaker 250 ml	Pyrex	6
70	Glass Beaker 500 ml	Pyrex	6

Technical Specifications Consumables	_EMPTY	_EMPTY_1	_EMPTY_2
71	Glass Spatula Stirrer Rod	Local	24
72	Glass Condensor	Pyrex	2
73	PLA 3D printer Roll (3D Printing PLA Filament Rolls)	PLA Filament, Dia 1.75mm, melt flow index of 8.1 g/10 min (210°C, 2.16 kg), melting point of 165-180 °C, density of 1.22 g/cm ³ Specific Viscosity (Ranges from 3.0 - 4.0+).	1 Roll
74	Hair Spray		1
75	tweezer		1
76	Disposable Syringe 10ml		100 Pcs Pack
77	Disposable Syringe 30ml		100 Pcs Pack
78	Disposable Syringe 60ml		100 Pcs Pack
79	Pipette Tube with Handle	Micropipette, Dragon China	1
80	Aluminium foil		1 Roll
81	Nitrile gloves		1 Box

Technical Specifications Consumables	__EMPTY	__EMPTY_1	__EMPTY_2
82	Scissor	6-inch stainless steel scissors with ergonomic handles, suitable for fabric and paper.	1

Lot Title : Different Type of 28 Chemicals & Consumable Items for NTRC

Item: Different Type of Chemicals for NTRC

UNSPSC: Laboratory chemicals

Specifications / Requirements:

Item: Different Type of Consumable Items for NTRC

UNSPSC: Laboratory consumables and chemicals

Specifications / Requirements:

Lot Title : Rotary Evaporator “Qty = 01 No.” for NTRC

Item: Rotary Evaporator for NTRC

UNSPSC: Miscellaneous

Specifications / Requirements:

Rotary Evaporator	__EMPTY
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Specification	
a-Rotary Eavaporator	
Type of Condenser	
Plastic Coated Safety Glassware	For condenser and receiving flask
Condensing Area	1500 cm ²
Available Evaporation Flasks	1000 ml
Available Receiving Flasks	1000 ml
Motor	DC
Speed Range	20-280 rpm
Lifting System	Electric drive; evaporation flask leaves heating bath automatically after power failure
Stroke	130 mm, adjustable, can be stopped at any position
Display and operation	Touch screen with multi-language user interface Easy to operate using the turn & push knob Multifunction display, for bath temperature, rotation speed, vacuum, vapor and condenser cooling water temperature
Sealing system	The unique sealing system allows a perfect vacuum-tight and anti-corrosion With chemically resistant gasket, suitable for various samples This sealing system is a standard feature in all strike models and can be used with all types of glassware sets

Vapor tube	Evaporating flasks and vapor tubes come with a standard NS 29/32 joint PTFE sleeves ensure a tight seal while preventing the glass from sticking together Easy to disassemble, clean and replace the parts
Glassware set	All glassware sets are also available with transparent plastic coating for added safety Different volumes of evaporating and receiving flasks Standard package includes one 1,000ml evaporating flask and one 1,000ml receivingflask Other accessories are optional, such as adapters, anti-sprinkling bubbles, vapor tubes...
Mechanical structure	With electric lifting device, adjustable stroke, and it can also stop at any position With powerful rotation motor, the speed up to 280 rpm Adjustable angle of the evaporating flask can be individually set according to your needs
Vacuum Controller	Compulsory
Vacuum Range	1-1014 mbar
Safety	A safety heating bath with overheating and dry running protection In case of a power outage, electric lifting device remove the flask from the heating bath to prevent the safety issues and potential thermal damage to your sample The shield is standard for all models. It can be removed by the operator and fitted beside the instrument
accessories and peripheral modules	Vacuum controller: the vacuum can be set and displayed directly on the touch screen Vacuum pumps, vacuum solvent recovery system, chillers, adapters and tubes
b-Water Bath	
Bath Temperature Range	Up to 180 °C
Set Temperature Resolution	0.1 °C

Heating Power	1400 W
Bath Volume	5 L
Heating Bath Material	PTFE-coated aluminum
Vapor Temperature Sensor	Yes
Cooling Temperature Sensor	Yes
Timer	Yes
Distillation Procedure	1 × 9 steps
c-Ultrasonic Bath	
Capacity	6L
Working Temperature Range	Ambient +5°C to 80 °C
Display	Digital LED
Freesncy	40kHz
Digital Time Setting	1-60 minutes
Interior Dimension (L x B x H) in mm	300 x 155 x 150 mm
Exterior Dimensions (L x B x H) in mm	330 X 180 X 330 mm

Ultrasonic Power	150W
Heater Power	425W
Material	Stainless Steel
Includes	Stainless-steel Wire Basket, Flat Lid, Drain fittings, Power cord
d-Vacume Pump	
Flow rate [m ³ /h] at atm. pressure	1.5
Flow rate [l/min] at atm. pressure	35
Ultimate vacuum [mbar abs.]	13
Max. Power P [W]	95
Motor speed [rpm]	1450
Pump head	Double stage
Hose connections [mm]	10
Noise [dB]	50
Weight [kg]	8.5
Power supply	220V/50Hz
e-Chemical Resistant Vacuum Controller	

Features	Wide measurement and control range Control the vacuum down to 0.1 mbar Up to 5-step program control All parts that come into contact with gases and vapors are made of PTFE or highly durable ceramic to ensure high chemical resistance Bright LED display and convenient on-touch control RS-232 and analog connection available Pressure release feature for easy vacuum system installation Direct electric control of the vacuum pump Energy saving and environmental friendly Suitable for continuous operation
Voltage	100-240 V, 50/60 Hz
Displayed Vacuum Accuracy (mbar)	0.1
Controllable Range (mbar)	0.1 - 1000
Measurement Accuracy	0.25% F.S
Display Type	LED
Control Mode	On-Touch
Timer / Program	Yes / Up to 5 steps
Pressure Release Feature	Yes
Electrical Control of Pump	Yes
Protection Category	IP40
Corrosion Resistance	All parts that come into contact with gases are made of PTFE or highly durable ceramic to ensure the resistance to various acid, base, or organic solvent gases.

f-Digital Circulation Water Bath(Chiller+Heater)	
Capacity	12.0Liter
Temperature range	-25°C - +150°C
Temperature accuracy	±0.1°C
Temperature control resolution	Display 0.1°C, control 0.1°C
Temperature uniformity	±0.2°C to -10°C
Controller	Temperature sensor PT100
Pump	Maximum Flow rate 25 liter/min,max presuure 7.5psi,max lift 4m nnovated powerful circulation pump ensures temperature uniformity: internal and external circulation and 5 steps circulation speed
Cooling System	Built-in refrigerator: 370 W
Heating Power	1.5 kW
Construction Material	stainless steel bath, polyurethane insulation of 40 mm thickness and body made of powder-coated steel,stainless steel flat lid & valve ball included
Connections	External circulation nozzle: inner: Ø10.5mm, outer Ø12.5mm, for inner circulating: connect directly the in-/outlet nozzles
Controller	Digital fuzzy controller with Jog-Dial-switch (turn + push) & capacitive touch button

Safety mechanism	overheat and over-current protection sensor error detection and leakage breaker low liquid level warning and automatic stop function locking mode
Refrigeration system	innovated refrigeration system ensures temperature performance, includes intelligent control for preventing compressor overload, CFC-free (R-404A)
Power Supply Options	230 V
Warranty	1 Year

Item: Rotary Evaporator for NTRC

UNSPSC: Miscellaneous

Specifications / Requirements:

Rotary Evaporator	EMPTY
Specification	
a-Rotary Eavaporator	
Type of Condenser	
Plastic Coated Safety Glassware	For condenser and receiving flask
Condensing Area	1500 cm ²
Available Evaporation Flasks	1000 ml

Rotary Evaporator	EMPTY
Available Receiving Flasks	1000 ml
Motor	DC
Speed Range	20-280 rpm
Lifting System	Electric drive; evaporation flask leaves heating bath automatically after power failure
Stroke	130 mm, adjustable, can be stopped at any position
Display and operation	Touch screen with multi-language user interface Easy to operate using the turn & push knob Multifunction display, for bath temperature, rotation speed, vacuum, vapor and condenser cooling water temperature
Sealing system	The unique sealing system allows a perfect vacuum-tight and anti-corrosion With chemically resistant gasket, suitable for various samples This sealing system is a standard feature in all strike models and can be used with all types of glassware sets
Vapor tube	Evaporating flasks and vapor tubes come with a standard NS 29/32 joint PTFE sleeves ensure a tight seal while preventing the glass from sticking together Easy to disassemble, clean and replace the parts
Glassware set	All glassware sets are also available with transparent plastic coating for added safety Different volumes of evaporating and receiving flasks Standard package includes one 1,000ml evaporating flask and one 1,000ml receiving flask Other accessories are optional, such as adapters, anti-sprinkling bubbles, vapor tubes...
Mechanical structure	With electric lifting device, adjustable stroke, and it can also stop at any position With powerful rotation motor, the speed up to 280 rpm Adjustable angle of the evaporating flask can be individually set according to your needs

Rotary Evaporator	EMPTY
Vacuum Controller	Compulsory
Vacuum Range	1-1014 mbar
Safety	A safety heating bath with overheating and dry running protection In case of a power outage, electric lifting device remove the flask from the heating bath to prevent the safety issues and potential thermal damage to your sample The shield is standard for all models. It can be removed by the operator and fitted beside the instrument
accessories and peripheral modules	Vacuum controller: the vacuum can be set and displayed directly on the touch screen Vacuum pumps, vacuum solvent recovery system, chillers, adapters and tubes
b-Water Bath	
Bath Temperature Range	Up to 180 °C
Set Temperature Resolution	0.1 °C
Heating Power	1400 W
Bath Volume	5 L
Heating Bath Material	PTFE-coated aluminum
Vapor Temperature Sensor	Yes
Cooling Temperature Sensor	Yes
Timer	Yes

Rotary Evaporator	EMPTY
Distillation Procedure	1 × 9 steps
c-Ultrasonic Bath	
Capacity	6L
Working Temperature Range	Ambient +5°C to 80 °C
Display	Digital LED
Freqesncy	40kHz
Digital Time Setting	1-60 minutes
Interior Dimension (L x B x H) in mm	300 x 155 x 150 mm
Exterior Dimensions (L x B x H) in mm	330 X 180 X 330 mm
Ultrasonic Power	150W
Heater Power	425W
Material	Stainless Steel
Includes	Stainless-steel Wire Basket, Flat Lid, Drain fittings, Power cord
d-Vaccume Pump	
Flow rate [m3/h] at atm. pressure	1.5

Rotary Evaporator	EMPTY
Flow rate [l/min] at atm. pressure	35
Ultimate vacuum [mbar abs.]	13
Max. Power P [W]	95
Motor speed [rpm]	1450
Pump head	Double stage
Hose connections [mm]	10
Noise [dB]	50
Weight [kg]	8.5
Power supply	220V/50Hz
e-Chemical Resistant Vacuum Controller	
Features	Wide measurement and control range Control the vacuum down to 0.1 mbar Up to 5-step program control All parts that come into contact with gases and vapors are made of PTFE or highly durable ceramic to ensure high chemical resistance Bright LED display and convenient on-touch control RS-232 and analog connection available Pressure release feature for easy vacuum system installation Direct electric control of the vacuum pump Energy saving and environmental friendly Suitable for continuous operation
Voltage	100-240 V, 50/60 Hz

Rotary Evaporator	EMPTY
Displayed Vacuum Accuracy (mbar)	0.1
Controllable Range (mbar)	0.1 - 1000
Measurement Accuracy	0.25% F.S
Display Type	LED
Control Mode	On-Touch
Timer / Program	Yes / Up to 5 steps
Pressure Release Feature	Yes
Electrical Control of Pump	Yes
Protection Category	IP40
Corrosion Resistance	All parts that come into contact with gases are made of PTFE or highly durable ceramic to ensure the resistance to various acid, base, or organic solvent gases.
f-Digital Circulation Water Bath(Chiller+Heater)	
Capacity	12.0Liter
Temperature range	-25°C - +150°C

Rotary Evaporator	EMPTY
Temperature accuracy	±0.1°C
Temperature control resolution	Display 0.1°C, control 0.1°C
Temperature uniformity	±0.2°C to -10°C
Controller	Temperature sensor PT100
Pump	Maximum Flow rate 25 liter/min,max presuure 7.5psi,max lift 4m nnovated powerful circulation pump ensures temperature uniformity: internal and external circulation and 5 steps circulation speed
Cooling System	Built-in refrigerator: 370 W
Heating Power	1.5 kW
Construction Material	stainless steel bath, polyurethane insulation of 40 mm thickness and body made of powder-coated steel,stainless steel flat lid & valve ball included
Connections	External circulation nozzle: inner: Ø10.5mm, outer Ø12.5mm, for inner circulating: connect directly the in-/outlet nozzles
Controller	Digital fuzzy controller with Jog-Dial-switch (turn + push) & capacitive touch button
Safety mechanism	overheat and over-current protection sensor error detection and leakage breaker low liquid level warning and automatic stop function locking mode
Refrigeration system	innovated refrigeration system ensures temperature performance, includes intelligent control for preventing compressor overload, CFC-free (R-404A)
Power Supply Options	230 V

Rotary Evaporator	__EMPTY
Warranty	1 Year

Lot Title : Different Type of 33 Chemicals for DAS

Item: Chemicals

UNSPSC: Laboratory chemicals

Specifications / Requirements:

Specifications		__EMPTY				
Sr #	Name of chemicals	CAS#	Grade/Purity	Any other Specification/Special instructions	M/U	Qty.
1	Malachite Green	004-001-01631	Lab Grade	(Packing size 25 g)	GRM	25
2	Nickel Chloride	004-001-0629	Lab Grade	(Packing size 500 g)	GRM	500
3	Sodium Oxalate	01-04-0426	Lab Grade	(Packing size 500 g)	KG	0.5
4	Ferric Chloride	01-04-0495	Lab Grade	(Packing size 1 KG)	KG	1

Specifications	_EMPTY					
5	Dichloromethane	75-09-2	Lab Grade Purity 99%	(Packing size 1 LTR)	LTR	1
6	Sodium Bisulphate	01-04- 0268	Lab Grade	(Packing size 1 KG)	KG	1
7	Zinc Nitrate	01-04- 0429	Lab Grade	(Packing size 1 KG)	KG	1
8	Cobalt Chloride	01-04- 0066	Lab Grade	(Packing size 500 GRM)	KG	0.5
9	Bromocresol green	01-04- 0559	Lab Grade	(Packing size 25 GRM)	GRM	25
10	Glucose D	01-04- 0203	Lab Grade	(Packing size 1 KG)	KG	1
11	Methyl Red	01-04- 0114	Lab Grade	(Packing size 250 GRM)	KG	0.25
12	Silver Nitrate	01-04- 0560	Lab Grade	(Packing size 25 GRM)	GRM	200
13	Potassium Iodide	01-04- 0141	Lab Grade	(Packing size 1 KG)	KG	1
14	Sodium Hydroxide	1310-73- 2	Lab Grade	(Packing size 1 KG)	KG	1

Specifications	_EMPTY					
15	Fructose	01-04-0266	Lab Grade	(Packing size 0.50 KG)	KG	0.5
16	Chitosan	01-04-0987	Analytical Grade	(Packing size 50 GRM)	GRM	50
17	Fluorescien	004-001-0716	Lab Grade	(Packing size 50 GRM)	GRM	100
18	Mureoxide	004-001-0715	Lab Grade	(Packing size 25 GRM)	GRM	25
19	Nickel Sulphate	004-001-0714	Lab Grade	(Packing size 500 GRM)	GRM	500
20	Potassium Thiocyanite	004-001-0712	Lab Grade	(Packing size 500 GRM)	GRM	500
21	Tertiary Butanol	004-001-0711	Lab Grade	(Packing size 1 LTR)	LTR	1
22	Titanium Tetrachloride	004-001-0710	Analytical Grade	(Packing size 100 GRM)	GRM	200
23	Sodium Benzoate	004-001-0709	Lab Grade	(Packing size 500 GRM)	GRM	500
24	D-Camphor	004-001-0708	Lab Grade	(Packing size 1 KG)	KG	1

Specifications	__EMPTY					
25	Benzaldehyde	004-001-0707	Lab Grade	(Packing size 500 ML)	ML	500
26	Barium Chloride	004-001-0717	Lab Grade	(Packing size 1 KG)	KG	1
27	Aluminium Foil	01-06-0792	ROL		ROL	3
28	PEDOT: PSS Poly(3,4-ethylenedioxythiophene)-poly(styrene sulfonate)	155090-83-8	Analytical Grade	Molecular Weight 326.4 g/mol	GRM	5
29	PANI	25233-30-1	Analytical Grade	Molecular Weight 5000 to 20,000 g/mol	GRM	5
30	Chromium Nitrate Cr (NO ₃) ₃	2/8/89	Analytical Grade	Molecular Weight 400.15 g/mol	GRM	100
31	Manganese Nitrate MN (NO ₃) ₂	10377-66-9	Analytical Grade	Molecular Weight 178.95 g/mol	GRM	50
32	Iron Nitrate Fe(NO ₃) ₃	7782-61-8	Analytical Grade	Molecular Weight 404 g/mol	GRM	10

Item: Consumables (Aluminium Foil)

UNSPSC: Laboratory consumables and chemicals

Specifications / Requirements:

Specifications Sr # Name of chemicals CAS# Grade/Purity Any other Specification/Special instructions M/U Qty. 1 Aluminum Nitrate Al (NO)3 7784-27-2 Analytical Grade Molecular Weight 375.13 g/mol GRM 10

Lot Title : Different Type of 08 IT Accessories for IT

Item: UTP Cable

UNSPSC: Copper cable

Specifications / Requirements:

Cat 6 UTP,23AWG 4Pair and Cable length should not be greater than 305 meter per reel Mechanical Characteristics Conductor: Solid Bare Copper AWG: 23 Color in Blue Conductor Dia Norm: 0.574 Insulation: PE Average Thickness (±0.03mm): 0.23 Min. Point Thickness (mm): 0.18 Insulation Dia. (±0.05mm): 1.04 Twisting Lay Length (mm): 30 underneath Cabling Lay Length (±10mm): 140 Filler: PE Jacket: PVC Average Thickness (±0.05mm): 0.50 Min. Point Thickness (mm): 0.46 Outer Dia. (±0.15mm): 6.20 NVP (%): 68 Electrical Characteristics UL Listed TIA-EIA ISO.

Item: IT Accessory

UNSPSC: Miscellaneous

Specifications / Requirements:

Technical Specification	_EMPTY			
Sr. No.	Hardware	Specification / Description	QTY	Unit
1	PVC Duct	Size (16mmx38mm) must be made of UPVC Material	1000	FT
2	PVC Duct	Size (40mmx40mm) must be made of UPVC Material	500	FT

Technical Specification	EMPTY			
3	Flexible pipe	Size diameter=1" must be made of UPVC Material Color in White	100	FT
4	Rawal Bolt	Size (1/2"x3") Material must be stainless steel (Grade 304 or 316) and finished with zinc plating or hot-dip galvanization	100	Nos
5	Electrical insulation tape	Size (19mm x 0.18mm x 20m) Color in RED and made of PVC	30	Nos
6	Screw	1.5" 8mm with Top of + color in BLACK	50	pkt
7	Screw Anchor (Gati)	Size 14mm and must be made of PVC Material Color in White	50	Gurs

Lot Title : Different Type of 11 Chemicals for DTT

Item: Hydrogen per Oxide

UNSPSC: Laboratory chemicals

Specifications / Requirements:

Title	Description
Hydrogen per Oxide	100 % Purity Commercial Grade, This is required for research purpose

Item: Laboratory Chemicals

UNSPSC: Laboratory chemicals

Specifications / Requirements:

Pectinase enzyme Kg 10 Powder, >1 unit/mg, Lab grade Cellulase enzyme Kg 20 Powder, ≥1 unit/mg solid, Lab grade Laccase enzyme Kg 10 Powder, ≥0.5 unit/mg, Lab grade Hemicellulase enzyme Kg 10 Powder, 0.3-3.0 unit/mg solid, Lab grade Mannanase Kg 10 Powder, >1 unit/mg, Lab grade Amylase Kg 10 Powder, >1 unit/mg, Lab grade Lipase Kg 10 Powder, >1 unit/mg, Lab grade Silicone elastomeric softener Liters 10 PH value: 3.0-6.0 Glacial acetic acid Liters 4 100 % Purity Sodium Hydro Oxide Kg 200 100 % Purity Commercial Grade Hydrogen per Oxide Liters 200 100 % Purity Commercial Grade

Lot Title : Different Type of 09 Equipment

Item: Miscellaneous 8 Laboratory Equipments

UNSPSC: Miscellaneous

Specifications / Requirements:

Item: Digital Hot Plate with Magnetic Stirrer

UNSPSC: Miscellaneous

Specifications / Requirements:

Digital Hot Plate with Magnetic Stirrer (QTY=3)		__EMPTY
Sr. No.	Parameters	Range/ Capacity
1	Mode	Digital + Heating + Stirring
2	Speed Range	200 rpm to 2000 rpm
3	Plate Size	190 ×190 mm to 210 × 210 mm

Digital Hot Plate with Magnetic Stirrer (QTY=3)		EMPTY
4	Maximum Volume	500 mL to 750 mL
5	Temperature Range (oC)	Room temperature to 350 oC
6	Minimum Revolution	200 rpm
7	Heating Plate	SS with Ceramic Coating
8	Driving Mode	Motor
9	Stir Bar	PTFE
10	Setting Mode	Digital
11	Setting Display Mode	Digital
12	Timer	Yes (0 - 9999 minutes)
13	Operation Function	Yes
14	Voltage	220 V 60 Hz
15	Exterior Dimensions (W × L × H)	320 × 190 × 125 mm
16	Packing Dimensions (W × L × H)	390 × 240 × 230 mm
17	Net Weight	5 kg
18	Gross Weight	6 Kg

Lot Title : Different Type of 33 CRMs

Item: Multielement Heavy Metal Crm 1000 ppm

UNSPSC: Miscellaneous

Specifications / Requirements:

Items Cas Number Purity Specifications Unit Qty Multielement Heavy Metal Crm 1000 ppm 27 Mix 1000 ppm 1000ppm Certified Reference Materials/NIST Traceable/Comply ISO 17034 ML 100 MG = milligram ML=milliliter GRM=Gram Note: "1- Complete Specifications will be accepted for Technical Evaluation including Purity ,Packing Size, Lot number Tracability of Standards i.e(ISO 17034:2016) 2-Packing size of each item must be as per NTU Specifications. 3-Shelf Life of CRM must be greater tha 30 months from date of supplies delivered to END USER"

Item: Different Type of 32 CRMs

UNSPSC: Miscellaneous

Specifications / Requirements:

__EMPTY	__EMPTY_1	__EMPTY_2	__EMPTY_3	__EMPTY_4	__EMPTY_5	__EMPTY_6
Specifications of Certified Reference Materials 33 items						
2	Nonylphenol	84852-15-3	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100

1	4-n-Octylphen
---	---------------

EMPTY	EMPTY_1	EMPTY_2	EMPTY_3	EMPTY_4	EMPTY_5	EMPTY_6
3	4-tert-Octylphenol	140-66-9	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
4	4-n- Nonylphenol	104-40-5	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
5	Octylphenoethoxylates	9002-93-1	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
6	Nonylphenoethoxylates	68412-54-4	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
7	Benzyl 2-ethylhexyl phthalate	27215-22-1	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100

EMPTY	EMPTY_1	EMPTY_2	EMPTY_3	EMPTY_4	EMPTY_5	EMPTY_6
8	Benzyl Benzoate	120-51-4	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
9	Anthracene-d10	1719-06-8	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
10	Naphthalene-d8	1146-65-2	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
11	Sodium Tetraethyle borate	15523-24-7	98%	Derivitizing Agent for the Detection of Organotin, -lead, and -mercury, Molecular Farmula= $\text{NaB}(\text{C}_2\text{H}_5)_4$, STREM or Equivalent	GRM	1
12	Tetra-n-ethyltin	597-64-8	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	10

EMPTY	EMPTY_1	EMPTY_2	EMPTY_3	EMPTY_4	EMPTY_5	EMPTY_6
13	Trimethyltin chloride	1066-45-1	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
14	Tri-n-pentyltin chloride	3342-67-4	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
15	Diphenyltin dichloride	1135-99-5	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
16	Di-n-propyltin dichloride	867-36-7	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
17	Dimethyltin dichloride	753-73-1	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100

EMPTY	EMPTY_1	EMPTY_2	EMPTY_3	EMPTY_4	EMPTY_5	EMPTY_6
18	Phenyltin trichloride	1124-19-2	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
19	Methyltin trichloride	993-16-8	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
20	Monobutyltin trichloride	1118-46-3	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
21	Dibutyltin dichloride	683-18-1	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
22	Tributyltin chloride	1461-22-9	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100

EMPTY	EMPTY_1	EMPTY_2	EMPTY_3	EMPTY_4	EMPTY_5	EMPTY_6
23	Tetrabutyltin	1461-25-2	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
24	Monooctyltin trichloride	3091-25-6	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
25	Diocetyl tin dichloride	3542-36-7	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
26	Triocetyl tin chloride	2587-76-0	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
27	Tripropyltin chloride	2279-76-7	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100

EMPTY	EMPTY_1	EMPTY_2	EMPTY_3	EMPTY_4	EMPTY_5	EMPTY_6
28	Triphenyltin chloride	639-58-7	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
29	Tricyclohexyltin chloride	3091-32-5	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
30	Monoheptyltin trichloride	59344-47-7	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
31	Diheptyltin dichloride	74340-12-8	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	10
32	Tetra-n-propyltin	2176-98-9	99%	Certified Reference Materials/NIST Traceable/Comply ISO 17034	MG	100
	MG = milligram					
	ML=mililiter					

__EMPTY	__EMPTY_1	__EMPTY_2	__EMPTY_3	__EMPTY_4	__EMPTY_5	__EMPTY_6
	GRM=Gram					
	Note:					
	<p>1- Complete Specifications will be accepted for Technical Evaluation including Purity ,Packing Size, Lot number Tracability of Standards i.e(ISO 17034:2016) 2-Packing size of each item must be as per NTU Specifications. 3-Shelf Life of CRM must be greater tha 30 months from date of supplies delivered to END USER</p>					

Lot Title : Different Type of 20 Chemicals and 05 consumable Items for DTT

Item: Different Type of 20 Chemicals for DTT

UNSPSC: Laboratory chemicals

Specifications / Requirements:

Sr.#	Chemical Name (write molecular weight where applicable)	CAS #	Packing size	Quantity required	Grade/ Purity / Any Other Specs./ Special Instructions*
1.	4-carboxyphenylboronic acid	14047-29-1	Gram	10	Sigma Aldrich
2.	N-hydroxysuccinimide	6066-82-6	Gram	100	Purity=98.0% Sigma Aldrich
3.	1-ethyl-(3-dimethylaminopropyl) - carbodiimide hydrochloride	25952-53-8	Gram	5	Sigma Aldrich
4.	Poly Vinyl Alcohol	9002-89-5	KG	0.5	Grade/ Purity = 99% hydrolyzed Specifications = Mw:85000-124000. Sigma Aldrich
6.	MES Hydrate	1266615-59-1	Gram	100	Sigma Aldrich
7.	Sodium Hydroxide	1310-73-2	Gram	500	Specification = Mw 40 g/mol , Grade = ACS, 97%, Flake, Sigma Aldrich
8.	Hydrochloric Acid	7647-01-0	Ltr	0.5	Sigma Aldrich
9.	Casein protein (C7078)		KG	0.5	Granule Powder, Technical grade, Sigma Aldrich
10.	Bis(triethoxysilyl)ethane (BTEOSE)		ML	50	Reagent grade
11.	n-Octadecyl trimethoxysilane		ML	25	Reagent grade
1.	Citric Acid		Kg	2	MW=192.12, Pure 99.5%

Sr.#	Chemical Name (write molecular weight where applicable)	CAS #	Packing size	Quantity required	Grade/ Purity / Any Other Specs./ Special Instructions*
2.	Sodium Hydroxide (NaOH)	1310-73-2	Kg	1	Lab Grade MW=40, 98% Pure
3.	Starch		Kg	1	Corn Starch [7661-1400], CP, Daejung
4.	Ethanol	64-17-5	Ltr	1	Lab Grade (Certificate of Analysis), 70-75% Extra Pure
5.	Hydrogen Peroxide	7722-84-1	Ltr	6	H2O2, MW=34.01, 29-32% Pure
6.	Calcium Chloride	10043-52-4	Kg	1	Molecular Weight: 110.98
7.	Isopropanol	67-63-0	Ltr	2.5	2.5 Liter Packing (1 Packing) 85%
8.	Butanetetra Carboxylic Acid		Gram	500	Lab grade
9.	Sodium Alginate	9005-38-3	Kg	0.5	High Molecular Weight, Lab Grade
10.	Chitosan	9012-76-4	Gram	100	High Molecular Weight, Lab grade

Item: Different Type of 05 consumable Items for DTT

UNSPSC: Laboratory consumables and chemicals

Specifications / Requirements:

Sr.#	Chemical Name (write molecular weight where applicable)	CAS #	Packing size	Quantity required	Grade/ Purity / Any Other Specs./ Special Instructions*
1	Wool Fibre		Kg	10	Local Pakistani, Wool

Sr.#	Chemical Name (write molecular weight where applicable)	CAS #	Packing size	Quantity required	Grade/ Purity / Any Other Specs./ Special Instructions*
2	Viscose Fiber	6/1/65	Kg	5	38mm length
3	Woven Fabric Plain		Mtr	50	As Per Sample
4	Denim Fabric		Mtr	10	Lycra/ Elastane, As per sample
5	Dialysis Tubing		Ft	100	Sigma Aldrich, SKU D9777-100FT

Lot Title : Different Type of 09 Furniture Items

Item: Chairs (Chairs Revolving Executive and chairs wooden with Arms for visitors)

UNSPSC: Miscellaneous

Specifications / Requirements:

Specifications of Furniture Items for FBS Chair Revolving Executive (QTY = 06 Nos.) • 360° swivel rotation for mobility and interaction. • Height adjustment via gas lift. • Tilt mechanism with adjustable tension + lock positions. • Lumbar support (prefer adjustable or contoured design). • Armrests Ergonomic lumbar support to reduce lower back strain. • Waterfall seat edge to reduce leg pressure. • High backrest with head/upper-back support (especially for senior faculty). • Optional adjustable headrest on premium models. Chair Wooden W/A For Visitors (QTY = 18 Nos.) • Solid wood (e.g., Sheesham/Mahogany/Oak/Hardwood) with polished or lacquered finish for durability and classy appearance. • Joinery using dowels or tenon C mortise for strength. • Natural wood polish or stain enhances wood grain and resists wear. • Optional protective lacquer for scratch and moisture resistance. • Cushioned seat and backrest with sufficient depth for short-term comfort. • Slight backrest contouring to support natural posture during meetings or waiting. • Upholstery abrasion resistance: Preferably Martindale cycles (industry standard) for durability

Item: Lab and Office Furniture

UNSPSC: Miscellaneous**Specifications / Requirements:**

S/No.	Item Name / Description	Specification	Qty	Unit
1	Visitor Chair (Wooden with Arms)	Solid Sheesham wood frame with dark walnut polish, fully assembled. Fixed wooden armrests with black PU leather (rexine) cushioned seat and back. Dimensions: • Seat Height: 18-19 inches • Total Height: 34 inches • Width: 23-24 inches • Depth: 22-23 inches High-density foam cushion: • Seat: 3-4 inches • Back: 2-3 inches Termite-proof seasoned wood. Load capacity: 120-150 kg. Suitable for office / reception / computer lab use.	6	No
2	Computer Lab Chair	Backrest: Breathable mesh backrest with ergonomic lumbar support. Armrests: Fixed padded armrests. Seat Cushion: High-density foam seat with durable upholstery. Height Adjustment: Hydraulic height adjustment system. Reclining Feature: Lockable tilt mechanism allowing multiple reclining angles. Swivel: 360-degree revolving chair. Base: Robust 5-star base for stability. Casters: Dual-wheel smooth rolling casters suitable for hard floors and carpets. Weight Capacity: Up to 120 kg. Warranty: Minimum 1 year.	45	No
3	Executive Chair	Backrest: High-density foam back with durable upholstery. Armrests: Fixed padded armrests. Seat Cushion: High-density foam seat with durable upholstery. Height Adjustment: Hydraulic height adjustment system. Reclining Feature: Lockable tilt mechanism with multiple reclining angles. Swivel: 360-degree revolving chair. Base: Robust 5-star base for stability and durability. Casters: Dual-wheel smooth rolling casters for mobility. Weight Capacity: Up to 120 kg. Warranty: Minimum 1 year.	8	No

S/No.	Item Name / Description	Specification	Qty	Unit
4	Stainless Steel Bench (Three Seater)	Made from top quality stainless steel after precise pressing. 1.5 mm thickness perforated stainless steel board. Arms/legs made from 1.5 mm stainless steel. Minimum dimensions: 1800 mm × 680 mm × 800 mm.	10	No
5	Office Table with Standard Drawer	Material: Main body made of Laminated MDF. Laminated surfaces must be smooth, uniform in color, and scratch resistant. Dimensions: • Side panels: Length 30 inches, Height 27 inches • Front panel: Length 51 inches, Width 24 inches • Panel vertical thickness: 38.10 mm (finished) Tabletop: Tempered glass top with 12 mm thickness. Finished table height 30 inches. Glass fixed on steel hinges on side panels with polished safe edges. Edging: Exposed edges covered with wood strips (Width 40 mm, Thickness 5 mm). Finish: Surfaces polished to prevent wear, scratches, and moisture damage. Assembly: Table must be sturdy and properly aligned. Glass top securely fixed without wobbling.	3	No
6	Side Table	Material: Main body made of Laminated MDF with smooth, uniform, scratch resistant laminated surfaces. Dimensions: Length 39 inches, Width 18 inches. Tabletop: Tempered glass top (12 mm thickness) with polished safe edges. Finished height: 30 inches including glass. Edging: Wood strips (Width 40 mm, Thickness 5 mm). Finish: Laminated surfaces and wooden edges polished to prevent wear, scratches, and moisture damage. Assembly: Table must be sturdy with reinforced joints and glass top securely fixed without wobbling.	3	No

S/No.	Item Name / Description	Specification	Qty	Unit
7	Computer Lab Tables	Specifications Dimensions (Per Table): • Length: 4.5 feet • Width (Depth): 2.0 feet • Height: 2 feet 6 inches Material • Tabletop made of minimum 18 mm thick laminated board / MDF / particle board with scratch-resistant laminate finish. • Supporting structure/frame made of durable material (metal or wood) suitable for computer lab use. Alignment & Placement Condition • Two (02) tables shall be designed and manufactured such that when placed adjacent to each other, they shall form a continuous 9-feet-long table. • There shall be no height variation, visible gap, or misalignment at the joint. Color & Finish • Color, texture, and finish shall be aligned with the existing computer lab tables installed at the University. Reference & Site Visit The existing computer lab table may be examined at the IT Centre, National Textile University, which shall be treated as the reference sample for dimensions, color, and final finish.	45	No
Note to View the sample, the vendors requested to kindly visit the campus				

Price Schedule

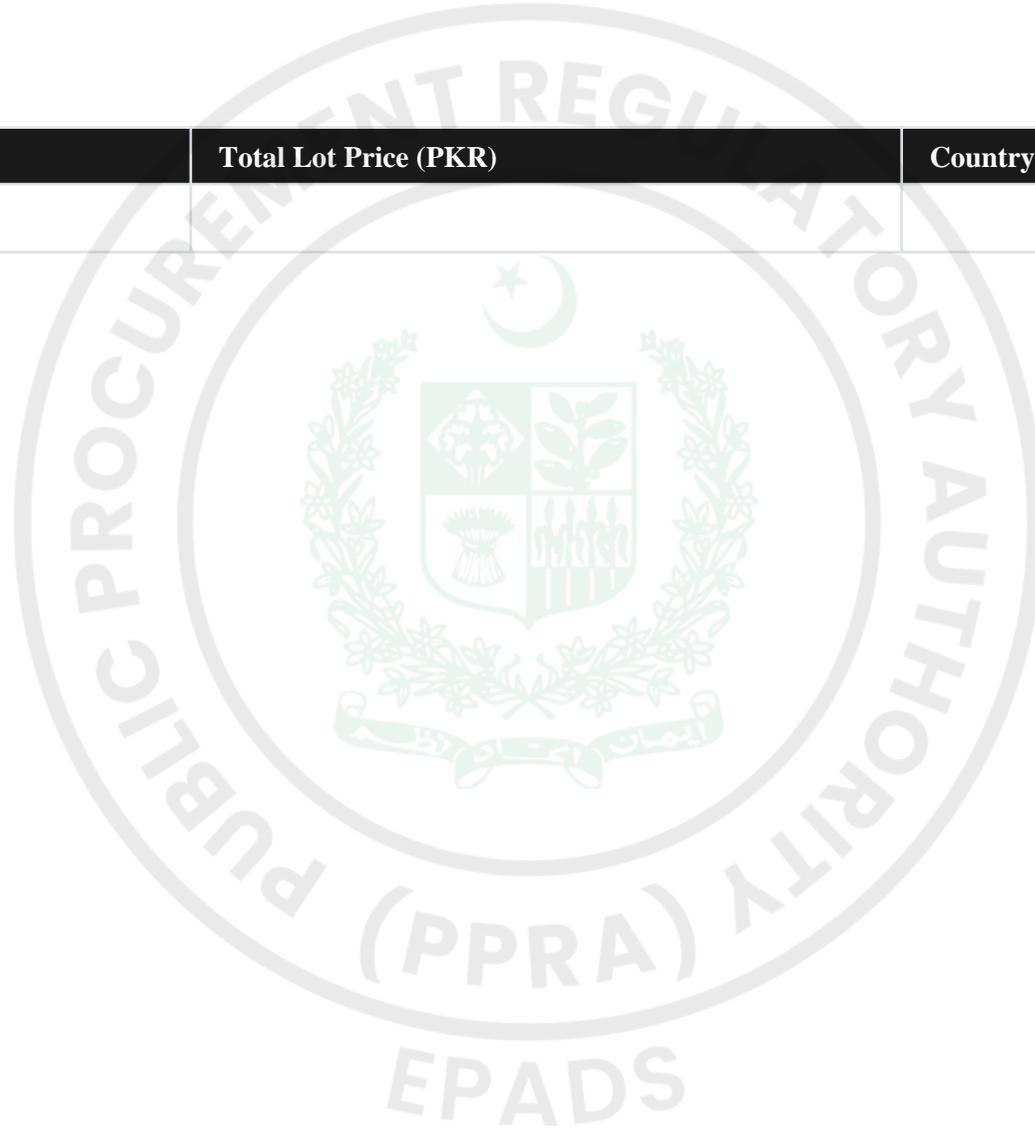
For Individual Items

#	Item Title	Quantity	Unit Price (PKR)	Total Price (PKR)	Delivery Location	Delivery Period / Year	Country of Origin
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1							
2							

For Lots

#	Lot Title	Total Lot Price (PKR)	Country of Origin
1	[Lot 1 Title]		







General Conditions of Contract

A. General

1. Definitions

1.1 Unless the context otherwise requires, the following terms whenever used in this Contract shall have the same meaning and shall be interpreted as indicated

1. "Applicable Law" means the laws and any other instruments having the force of law in the Government's Country, or in such other country as may be specified in the Special Conditions of the Contract (SC), as they may be issued and in force from time to time;
2. "Procuring Agency" means:-
 - 2.1. any Ministry, Division, Department or any Office of the Government;
 - 2.2. any authority, corporation, body or organization established by or under a Law or which is owned or controlled by the Government;
3. "The Contract" means an agreement enforceable by law;
4. "The Contract Price" means the price payable to the Bidder under the Contract for the full and proper performance of its contractual obligations;
5. "Ancillary Services" means those services ancillary to the provision of Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, and other such obligations of the Bidder covered under the Contract;
6. "GCC" means the General Conditions of Contract contained in this section;
7. "SCC" means the Special Conditions of Contract by which the GCC may be amended or supplemented;
8. "Day" means calendar day unless indicated otherwise.
9. "Effective Date" means the date on which this Contract comes into force and effect.
10. "The Bidder" means the individual or corporate body whose Bids to provide the Goods has been accepted by the Procuring Agency;
11. "The Project Site," where applicable, means the place or places named in Bids Data Sheet and technical Specifications;
12. "Government" means the Government of Pakistan;
13. "Subcontractor" means any entity to which the Bidder subcontracts any part of the Goods.
14. "Service" means any object of procurement other than goods or works;
15. "Party" means the Procuring Agency or the Bidder, as the case may be, and "Parties" means both of them;
16. "Foreign Currency" means any currency other than the currency of the country of the Procuring Agency;

17. "Completion Date" means the date of completion of the contract by the Bidder as certified by the Procuring Agency;

18. "In Writing" means communicated in written form with proof of receipt;

19. "Local Currency" means the currency of Pakistan;

2. Application and Interpretation

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

2.2 In interpreting these Conditions of Contract headings and marginal notes are used for convenience only and shall not affect their interpretations unless specifically stated; references to singular include the plural and vice versa; and masculine include the feminine. Words have their ordinary meaning under the language of the Contract unless specifically defined.

3. Applicable Law

3.1 The contract shall be governed and interpreted in accordance with the laws of Pakistan, unless otherwise specified in SCC.

4. Governing Language

4.1 The Contract as well as all correspondence and documents relating to the Contract exchanged between the Bidder and the Procuring Agency, shall be written in the **English language** unless otherwise stated in the **SCC**. Supporting documents and printed literature that are part of the Contract may be in another language provided these are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, this translation shall govern.

5. Notices

5.1 Any notice, request, or consent made pursuant to this Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, telex, telegram, or facsimile to such Party at the address specified in the **SCC**.

6. Delivery/Location

6.1 The Goods shall be delivered to such locations as the Procuring Agency may approve and as specified in **SCC**.

7. Authorized Representatives / Authority of Member in charge

7.1 Any action required or permitted to be taken, and any document required or permitted to be executed, under this Contract by the Procuring Agency or the Bidder may be taken or executed by the officials specified in the **SCC**.

B. Commencement, Completion, Modification, and Termination of Contract

8. Effectiveness of Contract

8.1 This Contract shall come into effect on the date the Contract is signed by both parties and such other later date as may be stated in the SCC.

9. Commencement of Services

9.1 The Bidder shall confirm availability of Key Experts and begin carrying out the Services not later than the number of days after the Effective Date specified in the SCC.

10. Program

10.1 Before commencement of the Services, the Bidder shall submit to the Procuring Agency for approval a Program showing the general methods, arrangements, order and timing for all activities. The Services shall be carried out in accordance with the approved Program as updated.

11. Starting Date/Expiration Date

11.1 The Bidder shall start carrying out the Services Five (05) days after the date the Contract becomes effective, or at such other date as may be specified in the SCC.

11.2 Unless terminated earlier pursuant to Clause **GCC 15** hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SCC.

12. Entire Agreement

12.1 This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

13. Modification

13.1 Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any Bids for modification or variation made by the other Party.

13.2 In cases of any modifications or variations, the prior written consent of the Procuring Agency is required.

14. Force Majeure

14.1 Definition

For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party and which makes a Party's performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

14.2 No Breach of Contract

The failure of a Party to fulfill any of its obligations under the contract shall not be considered to be a breach of, or default under, this Contract in so far as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

14.3 Extension of Time

Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

14.4 Payments

During the period of their inability to perform the Services as a result of an event of Force Majeure, the Bidder shall be entitled to continue to be paid under the terms of this Contract, as well as to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Service after the end of such period.

15. Termination

15.1 By the Procuring Agency

The Procuring Agency may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (e) of this Clause. In such an occurrence the Procuring Agency shall give at least thirty (30) calendar days' written notice of termination to the Bidder in case of the events referred to in (a) through (d); at least sixty (60) calendar days' written notice in case of the event referred to in (e);

1. If the Bidder fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension;
2. If the Bidder becomes (or, if the Bidder consists of more than one entity, if any of its members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;
3. If the Bidder fails to comply with any final decision reached as a result of arbitration proceedings;
4. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;
5. If the Procuring Agency, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;

15.2 By the Bidder

The Bidder may terminate this Contract, by not less than thirty (30) calendar days' written notice to the Procuring Agency, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause.

1. If the Procuring Agency fails to pay any money due to the Bidder pursuant to this Contract and not subject to dispute within forty-five (45) calendar days after receiving written notice from the Bidder that such payment is overdue.
2. If, as the result of Force Majeure, the Bidder is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days.
3. If the Procuring Agency fails to comply with any final decision reached as a result of arbitration.
4. If the Procuring Agency is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Bidder may have subsequently approved in writing) following the receipt by the Procuring Agency of the Bidder's notice specifying such breach.

C. Obligations of the Bidder

16. General

16.1 Standard of Performance

1. The Bidder shall deliver the product and carry out the Services with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Bidder shall always act, in respect of any matter relating to this Contract or to the Services, as a faithful adviser to the Procuring Agency, and shall at all times support and safeguard the Procuring Agency's legitimate interests in any dealings with the third parties.

16.2 Law Applicable to Goods

The Bidder shall deliver the goods in accordance with the Contract and in accordance with the Law of Pakistan and shall take all practicable steps to ensure that any of its Experts and Sub-Bidders, comply with the Applicable Law.

17. Conflict of Interests

17.1 Bidder Not to Benefit from Commissions and Discounts.

The remuneration of the Bidder shall constitute the Bidder's sole remuneration in connection with this Contract or the Services, and the Bidder shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Bidder shall use their best efforts to ensure that the Personnel, any Subcontractors, and agents of either of them similarly shall not receive any such additional remuneration.

17.2 Bidder and Affiliates Not to be Otherwise Interested in Project

The Bidder agree that, during the term of this Contract and after its termination, the Bidder and its affiliates, as well as any Subcontractor and any of its affiliates, shall be disqualified from providing Goods for any project resulting from or closely related to the Services.

17.3 Prohibition of Conflicting Activities

Neither the Bidder nor its Subcontractors nor the Personnel shall engage, either directly or indirectly, in any of the following activities:

1. during the term of this Contract, any business or professional activities in the Government's country which would conflict with the activities assigned to them under this Contract;
2. during the term of this Contract, neither the Bidder nor their Subcontractors shall hire public employees in active duty or on any type of leave, to perform any activity under this Contract;

18. Confidentiality

18.1 Except with the prior written consent of the Procuring Agency, the Bidder and the Experts shall not at any time communicate to any person or entity any confidential information acquired in the course of the contract.

19. Insurance to be Taken Out by the Bidder

19.1 The Bidder(a) shall take out and maintain, and shall cause any Subcontractors to take out and maintain, at its (or the Subcontractors', as the case may be) own cost but on terms and conditions approved by the Procuring Agency, insurance against the risks, loss or damage, and for the coverage, as shall be specified in the SCC; and (b) at the Procuring Agency's request, shall provide evidence to the Procuring Agency showing that such insurance has been taken out and maintained and that the current premiums have been paid.

20. Bidder's Actions Requiring Procuring Agency's Prior Approval

20.1 The Bidder shall obtain the Procuring Agency's prior approval in writing before taking any of the following actions:

- (a) appointing such members of the Personnel not provided by the Bidder;
- (b) changing the Program of activities; and
- (c) any other action that may be specified in the SCC.

21. Reporting Obligations

21.1 The Bidder shall submit to the Procuring Agency the reports and documents in the numbers, and within the periods as prescribed by the Procuring Agency.

22. Liquidated Damages

22.1 If the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Procuring Agency shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the performance security (or guarantee) specified in SCC. Once the said maximum is reached, the Procuring Agency may consider termination of the Contract pursuant to **GCC Clause 14**.

22.2 Correction for Over-payment

If the Intended Completion Date is extended after liquidated damages have been paid, the Procuring Agency shall correct any overpayment of liquidated damages by the Bidder by adjusting the next payment certificate. The Bidder shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in SCC.

22.3 Lack of performance penalty

If the Bidder has not corrected a Defect within the time specified in the Procuring Agency's notice, a penalty for Lack of performance will be paid by the Bidder. The amount to be paid will be calculated as a percentage of the cost of having the Defect corrected, assessed as specified in the SCC.

23. Performance Guarantee

23.1 Within Seven (07) days from the issuance of acceptance letter from the Procuring Agency, the successful Bidder shall furnish the Performance Guarantee in shape of ----- at the discretion of the PA in the amount **specified in SCC**. In case the amount of Bids security is equal or greater than

23.2 The proceeds of the Performance Guarantee shall be payable to the Procuring agency as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

23.3 The Performance Guarantee shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to the Procuring agency and shall be in the acceptable form as specified in SCC.

24.3 The Performance Guarantee will be discharged by the Procuring agency and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless otherwise **specified in SCC**.

24. Fraud and Corruption

24.1 The Procuring Agency requires the Supplier to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the Bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

25. Sustainable Procurement

25.1 The Bidder shall conform to the sustainable procurement contractual provisions, if and as specified in the SCC.

D. Bidder's Personnel

26. Description of Personnel

26.1 The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Bidder's Key Personnel. The Key Personnel listed by title as well as by name are hereby approved by the Procuring Agency.

27. Removal and/or Replacement of Personnel

27.1 Except as the Procuring Agency may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Bidder, it becomes necessary to replace any of the Key Personnel, the Bidder shall provide as a replacement a person of equivalent or better qualifications.

27.2 If the Procuring Agency finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Bidder shall, at the Procuring Agency's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Procuring Agency.

27.3 The Bidder shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

E. Obligations of the Procuring Agency

28. Assistance and Exemptions

28.1 The Procuring Agency shall use its best efforts to ensure that the Government shall provide the Bidder such assistance and exemptions as specified in the SCC.

29. Change in the Applicable Law

29.1 If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost of the related Services rendered by the Bidder, then the remuneration and reimbursable expenses otherwise payable to the Bidder under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made to the amounts referred in the SCC.

30. Services and Facilities

30.1 The Procuring Agency shall make available to the Bidder and the Experts, for the purposes of the Services and free of any charge, the services, facilities and property described, at the times and in the manner specified in the SCC or terms of reference.

30.2 In case that such services, facilities and property shall not be made available to the Bidder, the Parties shall agree on (i) any time extension that it may be appropriate to grant to the Bidder for the performance of the Services, (ii) the manner in which the Bidder shall procure any such services, facilities and property from other sources, and (iii) the additional payments, if any, to be made to the Bidder as a result thereof.

F. Payments to the Bidder

31. Contract Price

31.1 The price payable shall be in Pakistani Rupees unless otherwise specified in the SCC. Prices charged by the Supplier for Goods delivered under the Contract shall not vary from the prices quoted by the Supplier in its Bid.

32. Terms and Conditions of Payment

32.1 Payments will be made to the Bidder according to the payment schedule stated in the SCC and as per actual invoice submitted by the Bidder.

32.2 Unless otherwise stated in the SCC, the advance payment shall be made against the provision by the Bidder of a bank guarantee for the same amount, and shall be valid for the period stated in the SCC. Any other payment shall be made after the conditions listed in the SCC for such payment have been met, and the Bidder have submitted an invoice to the Procuring Agency specifying the amount due.

33. Currency of Payment

33.1 Any payment under this Contract shall be made in the currency(ies) specified in the SCC.

G. Quality Control

34. Identifying Defects

34.1 The principle and modalities of Inspection of the Goods by the Procuring Agency shall be as indicated in the SCC. The Procuring Agency shall check the Bidder's performance and notify him of any Defects that are found. Such checking shall not affect the Bidder's responsibilities. The Procuring Agency may instruct the Bidder to search for a Defect and to uncover and test any service that the Procuring Agency considers may have a Defect. Defect Liability Period is as defined in the SCC.

35. Correction of Defects, and

Lack of Performance Penalty

35.1 The Procuring Agency shall give notice to the Bidder of any Defects before the end of the Contract. The Defects liability period shall be extended for as long as Defects remain to be corrected.

35.2 Every time notice a Defect is given, the Bidder shall correct the notified Defect within the length of time specified by the Procuring Agency's notice.

35.3 If the Bidder has not corrected a Defect within the time specified in the Procuring Agency's notice, the Procuring Agency will assess the cost of having the Defect corrected, the Bidder will pay this amount, and a Penalty for Lack of Performance.

36. Taxes and Duties

36.1 A Supplier shall be entirely responsible for all taxes, duties, fees, etc., incurred until delivery of the contracted Goods to the Procuring Agency.

H. Settlement of Disputes

37. Alternate Dispute Resolution

37.1 The disputes between the parties to the contract may be settled in accordance with Rule 66 of the Public Procurement Rules, 2025.

37.2 The procuring agency shall refer the matter to the Chief Justice Islamabad High Court or Managing Director PPRA or the Secretary Ministry of Law & Justice for appointment of Arbitrator.

37.3 The fee for the Arbitrator shall be specified in Pak Rupees as determined by the appointing authority which shall be borne and shared equally by the contracting parties.





Special Conditions of Contract

SECTION VIII. SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the Conditions of Contract. The corresponding clause number of the GCC is indicated in parentheses.

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
	<p>Definitions</p> <p>The Procuring Agency is: National Textile University (ORIC), Assistant Professor 203/RB Manawala, Sheikhpura Road,</p> <p>The Supplier is:</p> <p>The title of the subject procurement is: Tender Notice # GH-26/03-01</p>
GCC 2	<p>Applicable/Governing Law:</p> <p>The Contract shall be interpreted in accordance with the laws of Islamic Republic of Pakistan</p>
GCC 3	<p>Language:</p> <p>The language of the Contract, all correspondence and communications to be given, and all other documentation to be prepared and supplied under the Contract shall be in English.</p>

<p>GCC 5</p>	<p>Notices:</p> <p>The addresses for the notices are:</p> <p>Procuring Agency:</p> <p>National Textile University (ORIC),Assistant Professor 203/RB Manawala, Sheikhpura Road, +92-033-367-8284 ahsan@ntu.edu.pk</p> <p>Contractor/ Bidder:</p> <p>[Name, address and telephone number].</p> <p>The Contractor/ Bidder’s Representative(s)</p> <p>[Name, address, telephone number and e-mail address]</p>
<p>GCC 6.1</p>	<p>The Authorized Representatives are:</p> <p>For the Procuring Agency:</p> <p>National Textile University (ORIC),Assistant Professor 203/RB Manawala, Sheikhpura Road, +92-033-367-8284 ahsan@ntu.edu.pk</p> <p>For the Bidder:</p> <p>Name:</p> <p>Designation:</p> <p>Address:</p>
<p>GCC 7</p>	<p>Effectiveness of the contract</p>
<p>GCC 8</p>	<p>Commencement of Contract:</p>
<p>GCC 10.2</p>	<p>Expiration of Contract:</p>

<p>GCC 15</p>	<p>Termination</p> <p>In the event of termination of the contract due to any reason as already defined in the General Conditions of Contract, the Bidder shall be responsible for providing to the Authority the Goods till the time of alternate arrangements.</p>
<p>GCC 17</p>	<p>Conflict of Interest:</p> <p>The Procuring Agency reserves the right to determine on a case-by-case basis whether the Bidder should be disqualified from providing goods or services due to a conflict of a nature described in Clause GCC 17.</p>
<p>GCC 23</p>	<p>Liquidated Damages</p> <p>If the Bidder fails to provide services as required under the contract or in case of any data loss/data breach or any incident compromising the data security or other such failures related to any services, the Bidder shall pay to the Procuring Agency as Liquidated Damages at a rate of 0.01% to 0.25% of the Contract value, in accordance with the extent of performance failure & the cost of investigating such incidents as judged by the Authority.</p>
<p>GCC 24</p>	<p>Performance Guarantee:</p> <p>The amount of performance guarantee shall be 6.00% of the contract price in acceptable form of Pay Order, Call at Deposit, Bank Guarantee, Demand Draft</p>
<p>GCC 35</p>	<p>Payment terms:</p> <p>Payment will be made to the Bidder against the procured Goods and services according to the actual invoice or running bills submitted by the Bidder against the services provided within the time given in the conditions of the contract.</p>
<p>GCC 38</p>	<p>Currency of Payment:</p> <p>All the payment to be released to the contractor/Bidder shall be in Pakistani Rupees.</p>

Identifying Defects:

The Authority reserves the right at any time to inspect the premises of the provider to inspect the goods and monitor the goods being provided.

Inspections & Tests Requirements

For being Brand New, bearing relevant reference numbers of the equipment (Certificate from supplier)

For Physical Fitness having No Damages (Certificate from supplier)

For the Country of Origin as quoted by the Supplier (Certificate from manufacturer)

For successful operation at site after complete installation, testing and commissioning of the equipment (Installation, Testing and Commissioning Report by Procurement Committee / Inspection Team)

Delivery & Documents

Copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;

Copies of the packing list identifying contents of each package;

Manufacturer's or Supplier's Valid Warranty Certificate;

Only and only: existing Machine / Equipment/ Item / part / accessory which is indicated on the Manufacturer's web/catalogue /brochure with model number /catalogue number will be accepted where applicable.

a) Any Special prepared model of Machine / Equipment / Item or its part / accessory to meet the requirement of NTU shall not be accepted where the machine / equipment /Item or its part / accessory is available generally by the registered manufacturing brands.b) Any Special prepared model of Machine / Equipment / Item or its part / accessory shall be accepted if it is specifically asked / indicated / mentioned in technical specification(s).

a) Any type of alteration / modification to meet the requirement of NTU (in general) in any existing model of Machine / Equipment / Item or any part / accessory generally manufactured by registered manufacturers shall not be accepted.

b) Any type of alteration or modification to existing models of machines, equipment, items, or any of their parts or accessories, aimed at meeting the specific requirements of NTU (in the context of R&D projects), shall only be accepted under the condition: Such alterations or modifications must be explicitly specified, requested, indicated, or mentioned in the technical specifications or tender documents related to the particular item or project.

The catalogue or brochure for the quoted model must be available on the official website of the principal manufacturer or parent company. This is to ensure authenticity and transparency in the procurement process. Catalogues or brochures that are self-prepared, altered, or fabricated by the bidder will be treated as misrepresentation or fraudulent practice.

Following is the guidance for Dispute Resolution

1. If any dispute of any kind whatsoever shall arise between the Authority and the Bidder in connection with or arising out of the Contract, including without prejudice to the generality of foregoing, any question regarding its existence, validity, termination and the execution of the Contract – whether during developing phase or after their completion and whether before or after the termination, abandonment or breach of the Contract – the parties shall seek to resolve any such dispute or difference by mutual diligent negotiations in good faith within 14 (fourteen) days following a notice sent by one Party to the other Party in this regard.
2. At future of negotiation the dispute shall be resolved through mediation and mediator shall be appointed with the mutual consent of the both parties.
3. At the event of failure of mediation to resolve the dispute relating to this contract such dispute shall finally be resolved through binding Arbitration by sole arbitrator in accordance with Arbitration Act 1940. The arbitrator shall be appointed by mutual consent of the both parties. The Arbitration shall take place in Islamabad, Pakistan and proceedings will be conducted in English language.
4. The cost of the mediation and arbitration shall be shared by the parties in equal proportion however the both parties shall bear their own costs and lawyer's fees regarding their own participation in the mediation and arbitration. However, the Arbitrator may make an award of costs upon the conclusion of the arbitration making any party to the dispute liable to pay the costs of another party to the dispute.
5. Arbitration proceedings as mentioned in the above clause regarding resolution of disputes may be commenced prior to, during or after completion of the contract.

Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree that the Authority shall pay the Bidder any monies due to the Bidder.

Rules of procedure for arbitration proceedings:

Any dispute between the Authority and a Bidder who is a national of the Islamic Republic of Pakistan arising in connection with the present Contract shall be referred to adjudication or arbitration in accordance with the laws of the Islamic Republic of Pakistan including Arbitration Act 1940, however above provision shall prevail in referring the case to the Arbitrator.

Place of Arbitration and Award:

The arbitration shall be conducted in English language and place of arbitration shall be at Islamabad. The award of the arbitrator shall be final and shall be binding on the parties.



Bid Securing Declaration

Form 9: Bid Securing Declaration

Date: *[insert date (as day, month and year)]*

Bid No.: **PI2089**

To: **National Textile University (ORIC), Assistant Professor 203/RB Manawala, Sheikhpura Road,**

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

1. have withdrawn or modified our Bid during the period of Bid Validity specified in the Form of Bid;
2. Disagreement to arithmetical correction made to the Bid price; or
3. having been notified of the acceptance of our Bid by the Procuring Agency during the period of Bid Validity, (i) failure to sign the contract if required by Procuring Agency to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the Bidding Documents.

We understand this Bid Securing Declaration shall expire if we are not the successful

Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight (28) days after the expiration of our Bid.



Contract Form

SECTION IX: CONTRACT FORMS

THIS AGREEMENT made the _____ day of _____ 20____ between **National Textile University (ORIC), Assistant Professor 203/RB Manawala, Sheikhpura Road,**

(hereinafter called “the Procuring Agency”) of the one part and *[name of Bidder]* of *[city and country of Bidder]* (hereinafter called “the Bidder”) of the other part:

WHEREAS the Procuring Agency invited Bids for provision of goods, viz., **Tender Notice # GH-26/03-01 (PI2089)** and has accepted a Bids by the Bidder for the provision of Goods in the sum of *[contract price in words and figures]* (hereinafter called “the Contract Price”).

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 Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Contract, In the event of any ambiguity or conflict between the Contract Documents listed below, the order of precedence shall be the order in which the Contract Documents are listed below:-

1. This form of Contract;
2. the Form of Bids and the Price Schedule submitted by the Bidder;
3. the Schedule of Requirements;
4. the Technical Specifications;
5. the Special Conditions of Contract;
6. the General Conditions of the Contract;
7. the Procuring Agency’s Letter of Acceptance; and
8. *[add here: any other documents]*

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

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

IN WITNESS whereof the parties hereto have caused this Contract to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

Witness to the signatures of the Procuring Agency:

.....

Signed, sealed, delivered by _____ the _____ (for the Procuring Agency)

Witness to the signatures of the Bidder:





Integrity Pact

Integrity Pact

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC. PAYABLE BY THE SUPPLIERS OF GOODS, SERVICES & WORKS IN CONTRACTS WORTH RS.10.00 MILLION OR MORE

Contract Number: Contract Value: Contract Title:

Dated:

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

Without limiting the generality of the foregoing [Name of Supplier] represents and warrants that it has fully declared the brokerage, commission, fee 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 consultations 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 GoP, except that which has been expressly declared pursuant hereto.

[Name of Supplier] 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 GoP and has not taken any action or will not take any action to circumvent the above declaration, representative or warranty.

[Name of Supplier] accepts full responsibility and strict liability for making and false declaration, not making full disclosure, misrepresenting fact 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 GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard, [Name of Supplier] agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by [Name of 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 GoP.



Performance Guarantee Form

Performance Guarantee Form

To: **National Textile University (ORIC),Assistant Professor203/RB Manawala, Sheikhpura Road,**

WHEREAS *[name of Bidder]* (hereinafter called “the Bidder”) has undertaken, in pursuance of Contract No. *[reference number of the contract]* dated *[insert date]* for provision of Goods(hereinafter called “the Contract”).

AND WHEREAS it has been stipulated by you in the said Contract that the Bidder shall furnish you with a Bank Guarantee by a reputable bank for the sum specified therein as security for compliance with the Bidder’s performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Bidders guarantee:

THEREFORE, WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Bidder, 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 Bidder 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.

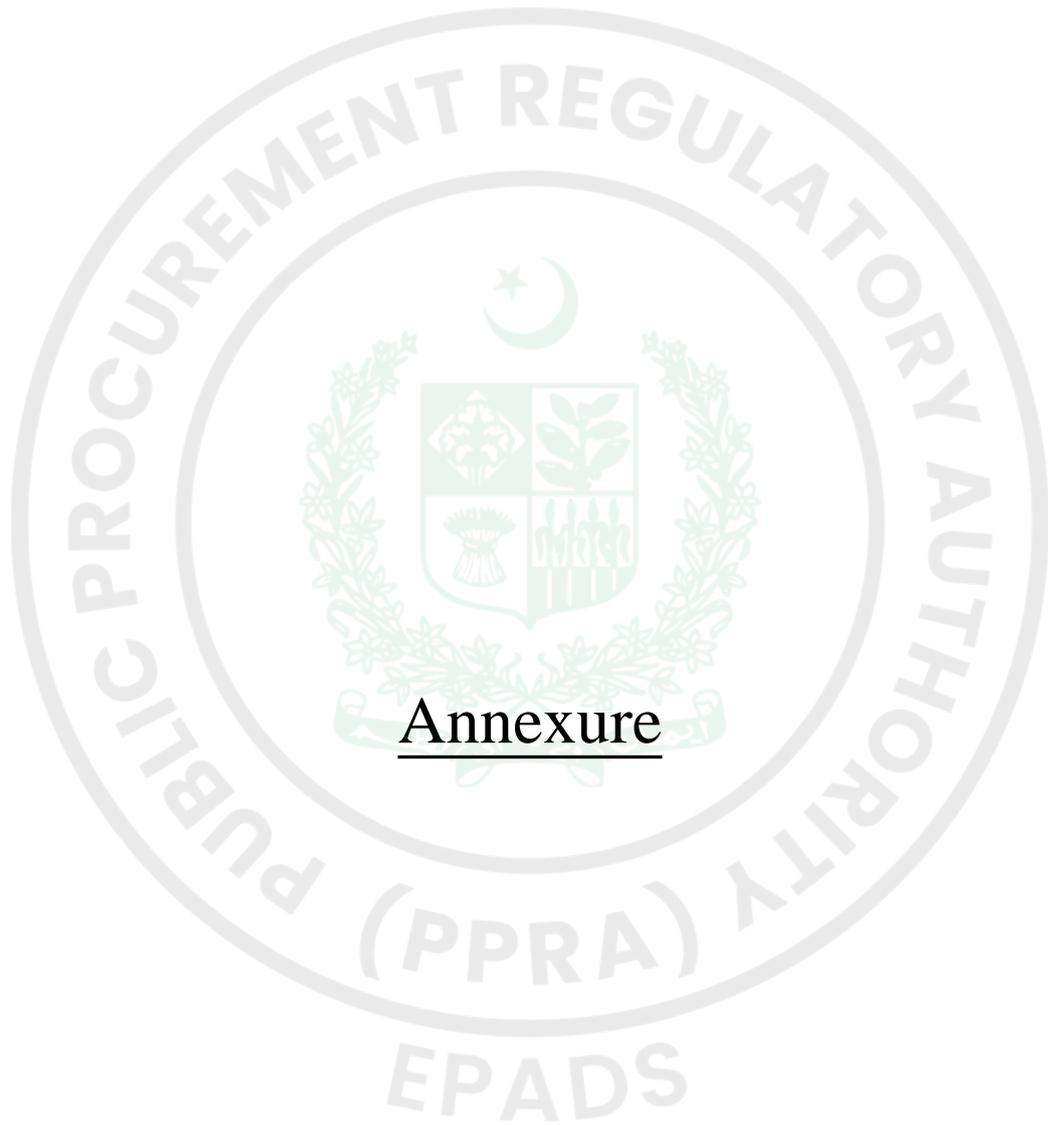
This guarantee is valid until the: *[insert date]*

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]



Annexure

No Annexure Defined.





Procurement Forms

Past Experience and Completed Contracts

See Form Under Additional Forms and Documents: **Past Experience and Completed Contracts** (page number: 162)

Historical Contract Non-Performance, and Pending Litigation and Litigation History

See Form Under Additional Forms and Documents: **Historical Contract Non-Performance, and Pending Litigation and Litigation History** (page number: 163)

Current Contracts and Their Progress

See Form Under Additional Forms and Documents: **Current Contracts and Their Progress** (page number: 165)

Financial Capacity and Net Worth Evaluation Form

See Form Under Additional Forms and Documents: **Financial Capacity and Net Worth Evaluation Form** (page number: 166)

Average Annual Turnover

See Form Under Additional Forms and Documents: **Average Annual Turnover** (page number: 168)



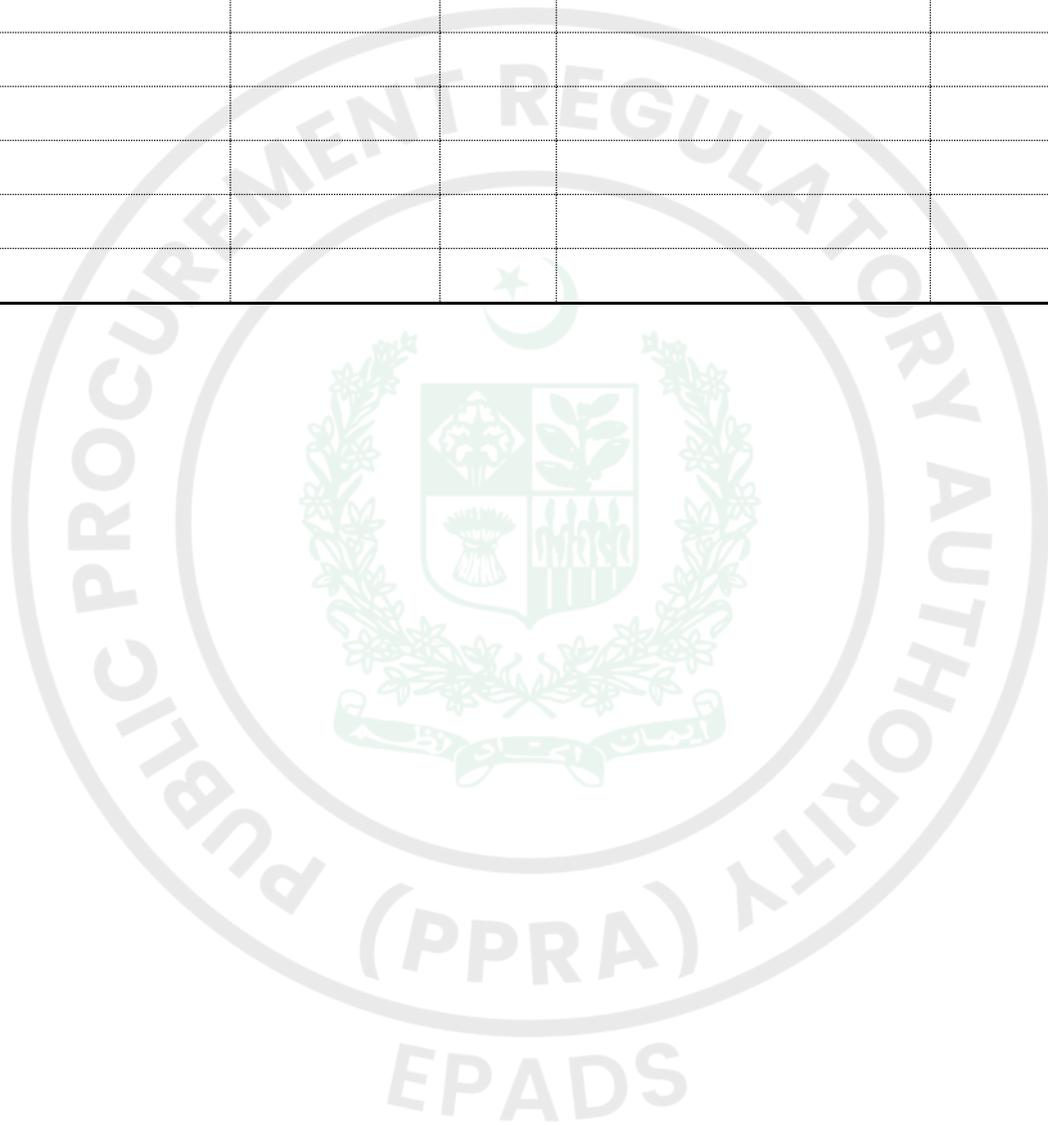


Additional Forms and Documents

Past Experience / Contracts

Contracts over *[insert amount]* during the last three years:

Procuring Agency	Value	Year	Goods/Services Supplied	Country of Destination



Historical Contract Non-Performance, and Pending Litigation and Litigation History

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

<input type="checkbox"/> Not debarred due to deviation from commitment of Bid Securing Declaration- <input type="checkbox"/> Not debarred due to non-performance			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and PKR equivalent)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Reason(s) for nonperformance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
<input type="checkbox"/> Pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3 as indicated below.			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), US\$ PKR Equivalent (exchange rate)

<i>[insert year]</i>	<i>[insert amount]</i>	<p>Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Status of dispute: <i>[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]</i></p>	<i>[insert amount]</i>
<input type="checkbox"/> No consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4. <input type="checkbox"/> Consistent history of court/arbitral award decisions in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.4 as indicated below.			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), PKR Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert percentage]</i>	<p>Contract Identification: [indicate complete contract name, number, and any other identification] Name of Procuring Agency: <i>[insert full name]</i> Address of Procuring Agency: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Agency" or "Supplier"]</i> Court/ arbitral award decision: <i>[Indicate if the award decision was against the Applicant or any member of a joint venture.]y]</i></p>	<i>[insert amount]</i>

Current Contract Commitments / Contracts in Progress Form

1. Name of Contract(s)
2. Procuring Agency Contact Information [insert address, telephone, fax, e-mail address]
3. Value of outstanding contracts [current PKR equivalent]
4. Estimated Delivery Date
5. Average monthly invoices over the last six months (PKR/mon.)

Financial Situation and Performance

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

1. Financial data

Type of Financial information in (currency)	Historic information for previous <i>[insert number]</i> years, <i>[insert in words]</i> (amount in currency, currency, exchange rate*, PKR equivalent)				
	Year 1	Year 2	Year 3		
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

* Refer ITA 14 for the exchange rate

3. Financial documents

The Applicant and in case of JV, members of JV shall provide copies of financial statements for *[number]* years pursuant Section III, Qualifications Criteria and Requirements. The financial statements shall:

- (a) reflect the financial situation of the Applicant or in case of JV member, and not an affiliated entity (such as parent company or group member).
 - (b) be independently audited or certified in accordance with local legislation.
 - (c) be complete, including all notes to the financial statements.
 - (d) correspond to accounting periods already completed and audited.
- Attached are copies of financial statements¹ for the *[number]* years required above; and complying with the requirements.

¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of Application, the reason for this should be justified.

Average Annual Turnover (Annual Sales Value)

[The following table shall be filled in for the Applicant and for each member of a Joint Venture]

Applicant's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member Name: *[insert full name]*

IFP No. and title: *[insert IFP number and title]*

Page *[insert page number]* of *[insert total number]* pages

Annual Turnover Data			
Year	Amount Currency	Exchange rate* (If applicable)	PKR equivalent
<i>[indicate calendar year]</i>	<i>[insert amount and indicate currency]</i>		
		Average Annual Turnover **	

* Refer ITA for date and source of exchange rate.

** Total PKR equivalent for all years divided by the total number of years. See Section III, Qualification Criteria and Requirements, ITA.