

# TENDER DOCUMENTS

For

**Establishment of Computer Networking and  
Automation System including Supply,  
Installation, Commissioning and Operations**



Directorate of IT Services  
University of Turbat

## SUMMARY OF CONTENTS

### A) Technical Proposal

- i) Invitation for Bids
- ii) Instructions to Bidders
- iii) Form of Bid & Schedules to Bid
- iv) Preamble to Conditions of Contract
- v) General Conditions of Contract
- vi) Particular Conditions of Contract
- vii) Standard Forms
- viii) Specifications-Special Provisions
- ix) Specifications-Technical Provisions
- x) Drawings
- xi) List of PEC Contract Documents

### B) Financial Proposals (Schedule of Prices)

- i) Preamble to Schedule of Prices
- ii) Summary of Bid Prices
- iii) Establishment of Data Center/Server Room Networking & Fiber Optic and Ethernet Cable Laying with Allied Accessories
- iv) Server Machine & Network Equipment

### C) Technical Specifications

- a. Establishment of Data Center/Server Room Networking & Fiber Optic and Ethernet Cable Laying with Allied Accessories
- b. Server Machine & Network Equipment
- c. Operation and Maintenance

**INVITATION  
FOR BIDS**

## INVITATION FOR BIDS

1. The University of Turbat(UoT) (the “Employer”) has received a development grant from the HEC/Government of Pakistan as a component of UoT project towards the cost of Establishment of *Computer Networking and Automation System in UoT, including Supply, Installation, Commissioning & Operations of the System* in UoT main campus and it is intended that the funds will be applied to eligible payments under the Contract for the Project. Bidding is open to all eligible Bidders.
2. Bidders may obtain further information, inspect the site and acquire the Bidding Documents from the Office of the Employer, at I.T Directorate, Main Campus of UoT, University Town, Ginnah, Turbat
3. Bidders may obtain further information inspect at and acquire the Bidding Documents from the Office of the Employer, at Department of Computer Science, Main Campus of UoT, University Town, Ginnah, Turbat.
4. A complete set of Bidding Documents may be purchased by an interested bidder on the submission of a written application to the above office and upon payment of a non-refundable fee of Rs. 3,000/- (Three Thousand Only) through a pay order or banker’s cheque in the name of the University of Turbat.
5. The interested firms/companies (The bidders) applying for Tender should submit their bids as per clause 36(b) of PPRA rule i.e one stage two envelopes. The two envelopes should be clearly marked as “Technical Proposal” and “Financial Proposal” in bold and legible letters. Initially the envelop marked as “Technical Proposal” shall be opened. The envelop marked “Financial Proposal” shall be retained and opened after shortlisting of the firms technically. Sufficient time would be given to the technically qualified firms for witnessing the “Financial Proposals” while the proposals of technically rejected participants shall be returned unopened.
6. The bid must be accompanied by a Bid Security in the amount equal to 2% of the bid amount or an equivalent amount in a freely convertible currency in the form of bank guarantee on bid security form or in the form of deposit at call or from a foreign bank duly counter guaranteed by a scheduled bank of Pakistan. The Bid Security must be submitted in a separate envelop which should be clearly marked as such.
7. The last date for submission of bids at University of Turbat, Main Campus Ginnah Turbat is 28<sup>th</sup> December 2021 up-to 12:00 P.M. The Technical Proposals will be opened at 12:30 PM on the same day, in the presence of bidders’ representatives who choose to attend at the same address, while the Financial Proposals shall be dealt with as mentioned at para 5.
8. Bids submitted through Fax, email are not acceptable.
9. For any information or clarification, the In-charge IT Directorate can be contacted at Phone # 0852400503 during office hours.

**In-charge I.T Directorate**  
**University of Turbat Kech (Balochistan)**  
**M-8 University Town, Ginnah, Turbat**

Phone # 0852400503

Email : csit@uot.edu.pk

**INSTRUCTIONS  
TO  
BIDDERS**

## TABLE OF CONTENTS

<i>Clause No.</i>	<i>Description</i>
<b>A. GENERAL</b>	
IB.1	Scope of Bid and Source of Funds
IB.2	Eligible Bidders
IB.3	Eligible Goods and Services
IB.4	Cost of Bidding
<b>B. BIDDING DOCUMENTS</b>	
IB.5	Contents of Bidding Documents
IB.6	Clarification of Bidding Documents
IB.7	Amendment of Bidding Documents
<b>C. PREPARATION OF BIDS</b>	
IB.8	Language of Bid
IB.9	Documents Comprising the Bid
IB.10	Form of Bid and Schedules
IB.11	Bid Prices
IB.12	Currencies of Bid
IB.13	Documents Establishing Bidder's Eligibility and Qualification
IB.14	Documents Establishing Good's Eligibility and Conformity to Bidding Documents
IB.15	Bid Security
IB.16	Validity of Bids
IB.17	Format and Signing of Bid
<b>D. SUBMISSION OF BIDS</b>	
IB.18	Sealing and Marking of Bids
IB.19	Deadline for Submission of Bids
IB.20	Late Bids
IB.21	Modification, Substitution and Withdrawal of Bids
<b>E. BID OPENING AND EVALUATION</b>	
IB.22	Bid Opening
IB.23	Clarification of Bids
IB.24	Preliminary Examination & Determination of Responsiveness of Bids
IB.25	Conversion to Single Currency
IB.26	Detailed Evaluation of Bids
IB.27	Domestic Preference
IB.28	Process to be Confidential

<i>Clause No.</i>	<i>Description</i>
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### **F. AWARD OF CONTRACT**

IB.29	Post-Qualification
IB.30	Award Criteria
IB.31	Employer's Right to Vary Quantities
IB.32	Employer's Right to Accept any Bid and to Reject any or all Bids
IB.33	Notification of Award
IB.34	Performance Security
IB.35	Signing of Contract Agreement

### **G. ADDITIONAL INSTRUCTIONS**

IB.36	Instructions not Part of Contract
IB.37	Contract Documents
IB.38	Sufficiency of Bid
IB.39	One Bid per Bidder
IB.40	Bidder to Inform Himself
IB.41	Alternate Proposals by Bidder
IB.42	Local Conditions
IB.43	Integrity Pact

### **H. APPENDICES**

- Appendix A to Instructions to Bidders:  
Name of Eligible Countries
- Appendix B to Instructions to Bidders:  
Evidence of Bidder's Capability
- Appendix C to Instructions to Bidders:  
Domestic Goods (value added in Pakistan)

## INSTRUCTIONS TO BIDDERS

### A. GENERAL

#### IB.1 Scope of Bid and Source of Funds

##### 1.1 Scope of Bid

University of Turbat (hereinafter called “the Employer”) wishes to receive bids for the following scope of work:

**Establishment of Computer Networking and Automation System including Installation, Commissioning and Operation in the main Campus of University of Turbat (UoT).**

**Package- 1: Establishment of Data Center/Server Room Networking & Fiber Optic and Ethernet Cable Laying with Allied Accessories**

**Page- 2: Server Machine & Network Equipment**

The Works to be executed under this Contract comprise Designing, Supplying, Installing, Configuring, Integrating, Testing, Commissioning and Operations.

Selected Bidder must ensure that the supplied equipment is operational, new, perform properly, and meet RFP’s Technical Specification and it is not going to be EOL & End of support for next five years. And equipment parts remain available with the vendor for said period.

At the time of installation and commissioning, Selected Bidder must provide comprehensive documentation of Configuration and Manuals etc.

The selected bidder shall be responsible for the provisioning of extended warranties and services.

The successful Bidder will be expected to complete the Works within the stipulated period of 120 days as specified in these Bidding Documents.

Bidders must quote for the complete scope of work. Any bid covering partial scope of work will be rejected as non-responsive, pursuant to Clause IB.24.

##### 1.2 Source of Funds

The Employer has received funds from the HEC/Government of Pakistan and it is intended that part of the proceeds of the funds will be applied to eligible payments under the Contract for which these Bidding Documents are issued.

#### IB.2 Eligible Bidders

##### 2.1 Bidding is open to all firms and persons meeting the following requirements:



- a) Registered with Sales Tax Department and having valid GST Number.
  - b) Registered with Income Tax department/Revenue Authority having valid NTN and must be active taxpayer. The firm/company must indicate whether it is a filer or non-filer and should give evidence for the same.
  - c) Should be an authorized Managed Service Provider(MSP) / Gold partner of the OEM (Evidence to be provided).
  - d) Bidder must have 4 highest level of quoted principal certified engineers(CCIE for Cisco , HCIE for Huawei etc)
  - e) Have completed projects of same nature in public sector organization.
  - f) Should not be blacklisted from any Federal or Provincial Government
- f) Foreign Bidders must be from eligible countries as per Appendix ‘A’ to Instructions to Bidders.

### **IB.3 Eligible Goods and Services**

- 3.1 All Goods and ancillary Services to be supplied under this Contract shall have their origin in eligible countries listed in Appendix ‘A’ to Instructions to Bidders and all expenditures made under the Contract will be limited to such Goods and Services.
- 3.2 For purpose of this Clause, “origin” means the place where the Goods are mined, grown or produced or from where the ancillary services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.
- 3.3 The origin of Goods and Services is distinct from the nationality of the Bidder.

### **IB.4 Cost of Bidding**

- 4.1 The bidder shall bear all costs associated with the preparation and submission of its bid and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

## **B. BIDDING DOCUMENTS**

### **IB.5 Contents of Bidding Documents**

- 5.1 In addition to Invitations for Bids, the Bidding Documents are those stated below, and should be read in conjunction with any Addendum issued in accordance with Clause IB.7.

- 1. Instructions to Bidders with Appendices
- 2. Form of Bid & Schedules to Bid

Schedules to Bid are the following:

- (i) Schedule A: Specific Works Data
- (ii) Schedule B: Work to be Performed by Subcontractors
- (iii) Schedule C: Proposed Programme of Works
- (iv) Schedule D: Deviations from Technical Provisions

- (v) Schedule E: Deviations from Contractual Conditions
  - (vi) Schedule F: Method of Performing Works
  - (vii) Schedule G: Proposed Organisation
  - (viii) Schedule H: Integrity Pact
3. Schedule of Prices
  4. Preamble to Conditions of Contract
  5. General Conditions of Contract
  6. Particular Conditions of Contract
  7. Standard Forms
    - Forms include the following:
    - (i) Form of Bid Security
    - (ii) Form of Contract Agreement
    - (iii) Form of Performance Security
    - (iv) Form of Bank Guarantee/Bond for Advance Payment
  8. Specifications - Special Provisions
  9. Specifications - Technical Provisions
  10. Drawings

5.2 The bidders are expected to examine carefully the contents of all the above documents. Failure to comply with the requirements of bid submission will be at the bidders own risk. Pursuant to Clause IB.24, bids which are not substantially responsive to the requirements of the Bidding Documents will be rejected.

#### **IB.6 Clarification of Bidding Documents**

6.1 A prospective bidder requiring any clarification(s) in respect of the Bidding Documents may notify the Employer with a copy to the Project Manager in writing or by telex or fax at the address as provided under Sub-Clause 49.2 of GCC. Employer will examine the request for clarification of the Bidding Documents which it receives not later than twenty eight (28) days prior to the deadline for the submission of bids and if needed will issue the clarification/amendment of the Bidding Documents at least fourteen (14) days before the date of submission of Bids (without identifying the source of enquiry) to all prospective bidders who have purchased the Bidding Documents.

#### **IB.7 Amendment of Bidding Documents**

7.1 At any time prior to the deadline for submission of bids, the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective bidder, modify the Bidding Documents by issuing addendum.

7.2 Any addendum thus issued shall be part of the Bidding Documents pursuant to Sub-Clause 7.1 hereof, and shall be communicated in writing to all purchasers of the Bidding Documents. Prospective bidders shall acknowledge receipt of each addendum in writing to the Employer. The bidder shall also confirm in the Form of Bid that the information contained in such addenda have been considered in preparing his bid.

7.3 To afford prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may at its discretion extend the deadline for submission of bids in accordance with Clause IB.19.

## **C. PREPARATION OF BIDS**

### **IB.8 Language of Bid**

8.1 The Bid prepared by the Bidder and all correspondence and documents relating to the Bid, exchanged by the Bidder and the Engineer shall be written in the English language, provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent passages in which case, for purposes of interpretation of the Bid, the English translation shall govern.

### **IB.9 Documents Comprising the Bid**

9.1 The bid prepared by the bidder shall comprise the following components:

- (a) Covering Letter
- (b) Form of Bid duly filled, signed and sealed, in accordance with Clause IB.17.
- (c) Schedules (A to H) to Bid duly filled and signed, in accordance with the instructions contained therein.
- (d) Schedule of Prices completed in accordance with Clauses IB.11 and 12.
- (e) Bid Security furnished in accordance with Clause IB.15.
- (f) Power of Attorney in accordance with Clause IB 17.5.
- (g) Joint Venture Agreement (if applicable).
- (h) Documentary evidence established in accordance with Clause IB.13 that the bidder is eligible to bid and is qualified to perform the contract if its bid is accepted.
- (i) Documentary evidence established in accordance with Clause IB.14 that the Goods and ancillary Services to be supplied by the bidder are eligible Goods and Services and conform to the Bidding Documents.
- (j) Bidders applying for eligibility for domestic preference in bid evaluation shall supply all information & evidence to establish the claim for domestic preference required to satisfy the criteria for eligibility as described in Clause IB.27. The particulars for domestic Goods prescribed in Appendix C to these Instructions shall also be filled in to substantiate claim for domestic preference.
- (k) Any other documents prescribed in Particular Conditions of Contract or Technical Provisions to be submitted with the bid.

### **IB.10 Form of Bid and Schedules**

10.1 The bidder shall complete, sign and seal the Form of Bid, Schedules (A to H), or as

modified) to Bid and Schedule of Prices furnished in the Bidding Documents and shall also enclose other information as detailed in Clause IB.9.

10.2 For the purpose of granting a margin of domestic preference pursuant to Clause IB.27, the Employer/Engineer will classify the bids, when submitted in one of three groups as follows:

- (a) **Group ‘A’ Bid.** (i) For Goods for which labour, raw materials and components from within Pakistan account for at least 20% of the ex-factory bid price of the products offered (ii) For Goods for which labour, raw materials and components from within Pakistan account for over 20% and up to 30% of the ex-factory bid price of the products offered (iii) For Goods for which labour, raw materials and components from within Pakistan account for over 30% of the ex-factory bid price of the products offered.
- (b) **Group ‘B’ Bid.** For Goods manufactured in Pakistan for which the domestic value added in the manufacturing cost is less than 20% of the ex-factory bid price; and
- (c) **Group ‘C’ Bid.** For Goods of foreign origin.

In preparing their bids, the bidders, whether local or foreign, shall enter in the Schedule of Prices ex-factory price for indigenously manufactured products and CIF price as well as customs duty and sales tax and other import charges for products to be imported from outside Pakistan.

#### **IB.11 Bid Prices**

- 11.1 The bidder shall fill up the Schedule of Prices in the Financial Proposal indicating the unit rates and prices of the Works to be performed under the Contract. Prices on the Schedule of Prices shall be entered keeping in view the instructions contained in the Preamble to the Schedule of Prices.
- 11.2 The bidder shall fill in rates and prices for all items of the Works described in the Schedule of Prices. Items against which no rate or price is entered by a bidder will not be paid for by the Employer when executed and shall be deemed covered by rates and prices for other items in the Schedule of Prices.
- 11.3 The bidder’s separation of price components in accordance with Sub-Clause 11.1 above, will be solely for the purpose of facilitating the comparison of bids by the Employer/Engineer and will not in any way limit its right to contract on any of the terms offered.
- 11.4 Unless otherwise stipulated in the Conditions of Contract, prices quoted by the bidder shall remain fixed during the bidder’s performance of the Contract and not subject to variation on any account. When the bidders are required to quote only fixed price(s) a bid submitted with an adjustable price quotation will be treated as non-responsive and rejected, pursuant to Clause IB.24.
- 11.5 Any discount offered shall be valid for at least the period of validity of the bid. A

discount valid for lesser period shall be considered null and void.

## **IB.12 Currencies of Bid**

- 12.1 Prices shall be quoted in Pak Rupees
- 12.2 The currencies of payment shall be as stated in Particular Conditions of Contract. However, provisions in Sub-Clauses 12.1 above, shall not in any way constitute a contractual or legal binding on the Employer for the payment in the currencies required by the Contractor.

## **IB.13 Documents Establishing Bidder's Eligibility And Qualifications**

- 13.1 Pursuant to Clause IB.9, the bidder shall furnish, as part of its bid, documents establishing the bidder's eligibility to bid and its qualifications to perform the Contract if its bid is accepted.
- 13.2 The documentary evidence of the bidder's eligibility to bid shall establish to the Employer's satisfaction that the bidder, at the time of submission of its bid is from an eligible source country as defined under Clause IB.2.
- 13.3 The documentary evidence of the bidder's qualification to perform the Contract if its bid is accepted, shall establish to the Employer's satisfaction:
- (a) that, in the case of a bidder offering to supply Goods under the Contract which the bidder did not manufacture or otherwise produce, the bidder has been duly authorized by the Goods manufacturer or producer to supply the Goods to Pakistan;
  - (b) that the Bidder/Manufacturer has the financial, technical and production capability necessary to perform the Contract; and
  - (c) that, in the case of a bidder not doing business within Pakistan the bidder is or will be (if successful) represented by an agent in Pakistan equipped and able to carry out the Supplier's maintenance, repair and spare parts stocking obligations prescribed by the Conditions of Contract and/or Technical Provisions.
- 13.4 (a) Bidder must possess and provide evidence to assess its Technical capability as per criteria given in a later section.
- 13.5 Joint Venture

In order for a Joint Venture to qualify:

- (a) All firms comprising the joint venture shall be legally constituted and shall meet the eligibility requirement of Sub-Clause 2.1 hereof.
- (b) All partners of the joint venture shall at all times and under all circumstances be liable jointly and severally to Employer for the execution of the entire Contract in accordance with the Contract terms and conditions and a statement to this effect shall be included in the authorization mentioned under para (f) below as

well as in the Form of Bid and Form of Contract Agreement (in case of a successful bidder).

- (c) The Form of Bid, and in the case of successful bidder, the Form of Contract Agreement, shall be signed so as to be legally binding on all partners.
- (d) One of the joint venture partners shall be nominated as being in-charge and this authorisation shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the joint venture partners.
- (e) The partner-in-charge shall be authorized to incur liabilities, receive payments and receive instructions for and on behalf of any or all partners of the joint venture.
- (f) A copy of the agreement entered into by the joint venture partners shall be submitted with the bid stating the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it and which persons will be directly responsible for due performance of the Contract and can give valid receipts on behalf of the joint venture, the proportionate participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. No amendments / modifications whatsoever in the joint venture agreement shall be agreed to between the joint venture partner without prior written consent of the Employer.

13.6 The Bidder shall propose, in order of his priority; plant, equipment or goods of not more than three Manufacturers. Employer at his own jurisdiction will evaluate the plant, equipment or goods of only one of such Manufacturers.

#### **IB.14 Documents Establishing Goods' Eligibility and Conformity to Bidding Documents**

14.1 Pursuant to Clause IB.9, the bidder shall furnish, as part of its bid, documents establishing the eligibility and conformity to the Bidding Documents of all Goods and Services which the bidder proposes to perform under the Contract.

14.2 The documentary evidence of the Goods and Services eligibility shall establish to the Employer's satisfaction that they will have their origin in an eligible source country as defined under Clause IB.3. A certificate of origin issued at the time of shipment will satisfy the requirements of the said Clause.

14.3 The documentary evidence of the Goods and Services' conformity to the Bidding Documents may be in the form of literature, drawings and data and shall furnish:

- (a) A detailed description of the Goods, essential technical and performance characteristics.
- (b) Complete set of technical information, description data, literature and drawings as required in accordance with Schedule A to Bid, Specific Works Data. This will include but not be limited to the following:
  - (i) A sufficient number of drawings, photographs, catalogues, illustrations and such other information as is necessary to illustrate clearly the significant characteristics such as general construction dimensions and

- other relevant information about the Goods to be furnished.
    - (ii) Details of equipment and machinery with capacity.
    - (iii) Any other information which is required for evaluation purposes.
  - (c) A clause-by-clause commentary on Technical Provisions, provided with the Bidding Documents, demonstrating the Goods' and Services' substantial responsiveness to those Specifications or a statement of deviations and exceptions to the provisions of the Technical Provisions as required in Schedule D to Bid.
- 14.4 For purpose of the commentary to be furnished pursuant to Sub-Clause 14.3(c) above, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers, designated by the Engineer in the Technical Provisions are intended to be descriptive only and not restrictive. The bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Engineer's satisfaction that the substitutions are substantially equivalent or superior to those designated in the Technical Provisions. Copies of the standards proposed by the bidder other than those specified in the Bidding Documents shall be furnished.

#### **IB.15 Bid Security**

- 15.1 Each bidder shall furnish, as part of his bid, a Bid Security in the amount equal to 2% of bid amount.
- 15.2 The Bid Security shall be, at the option of the bidder, in the form of Deposit at Call or a Bank Guarantee issued by a Scheduled Bank in Pakistan or from a foreign bank duly counter-guaranteed by a Scheduled Bank in Pakistan in favour of the Employer valid for a period of twenty eight (28) days beyond the bid validity date.
- 15.3 The Bid Security is required to protect the Employer against the risk of bidder's conduct which would warrant the security's forfeiture, pursuant to Sub-Clause 15.7 hereof.
- 15.4 Any bid not accompanied by an acceptable Bid Security shall be rejected by the Employer as non-responsive, pursuant to Clause IB.24.
- 15.5 The bid securities of unsuccessful bidders will be returned upon award of contract to the successful bidder or on the expiry of validity of Bid Security which ever is earlier.
- 15.6 The Bid Security of the successful bidder will be returned when the bidder has furnished the required Performance Security, pursuant to Clause IB.34 and signed the Contract Agreement, pursuant to Clause IB.35.
- 15.7 The Bid Security may be forfeited:
  - (a) if a bidder withdraws his bid during the period of bid validity; or
  - (b) if a bidder does not accept the correction of his Bid Price, pursuant to Sub-Clause 24.2 hereof; or
  - (c) in the case of a successful bidder, if he fails to:
    - (i) furnish the required Performance Security in accordance with Clause IB.34, or
    - (ii) sign the Contract Agreement, in accordance with Clause IB.35.

## **IB.16 Validity of Bids**

- 16.1 Bids shall remain valid for 90 days after the date of Bid opening as prescribed in Clause IB.19.
- 16.2 In exceptional circumstances prior to expiry of original bid validity period, the Employer may request the bidders to extend the period of validity for a specified additional period which shall in no case be more than the original bid validity period. The request and the responses thereto shall be made in writing. A bidder may refuse the request without forfeiture of his Bid Security. A bidder agreeing to the request will be required to extend the validity of his Bid Security for the period of the extension, and in compliance with Clause IB.15 in all respects in which case, the Employer will be obligated to compensate the bidders, upon substantiation for their increase in costs (if it is a fixed price bid).

## **IB.17 Format and Signing of Bid**

- 17.1 Bidders are particularly directed that the amount entered on the Form of Bid shall be for performing the Contract strictly in accordance with the Bidding Documents.
- 17.2 All Schedules to Bid are to be properly completed and signed.
- 17.3 No alteration is to be made in the Form of Bid nor in the Schedules thereto except in filling up the blanks as directed. If any alteration be made or if these instructions be not fully complied with, the bid may be rejected.
- 17.4 Each bidder shall prepare one (1) Original and One copy of the documents comprising the bid as described in Clause IB.9 and clearly mark them "ORIGINAL" and "COPY" as appropriate. In the event of discrepancy between them, the original shall prevail.
- 17.5 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign (in the case of copies, Photostats are also acceptable). This shall be indicated by submitting a written Power of Attorney authorising the signatory of the bidder to act for and on behalf of the bidder. All pages of the bid shall be initialed and stamped by the person or persons signing the bid.
- 17.6 The bid shall contain no alterations, omissions or additions, except to comply with instructions issued by the Employer, or as are necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.
- 17.7 Bidders shall indicate in the space provided in the Form of Bid their full and proper addresses at which notices may be legally served on them and to which all correspondence in connection with their bids and the Contract is to be sent.
- 17.8 Bidders should retain a copy of the Bidding Documents as their file copy.

## **D. SUBMISSION OF BIDS**



## **IB.18 Sealing and Marking of Bids**

- 18.1 The inner and outer envelopes shall be submitted as under;
- (a) The Technical Proposal be submitted in a separate envelop duly sealed and marked as such.
  - (b) The Financial Proposal (original and one copy) shall be submitted in a separate envelop duly sealed and marked as such.
  - (c) The instrument of the security bid shall be submitted in a separate envelop and sealed and marked as such.
  - (d) All the three envelops shall be part in one envelop and also sealed. The name of the work and the name of the Firm shall be clearly written on the main envelop.
- 18.2 The Bid shall be delivered in person or sent by registered mail at the address to Employer as given in Sub-Clause 6.1 heretofore.
- 18.3 In addition to the identification required in Sub-Clause 18.2 hereof, the inner envelope shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared "late" pursuant to Clause IB.20.
- 18.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

## **IB.19 Deadline for Submission of Bids**

- 19.1
- (a) Bids must be received by the Employer at the address specified in Sub-Clause 6.1 hereof not later than the time and date stipulated in the Invitation for Bids.
  - (b) Bids with charges payable will not be accepted, nor will arrangements be undertaken to collect the bids from any delivery point other than that specified above. Bidders shall bear all expenses incurred in the preparation and delivery of bids.
  - (c) Where delivery of a bid is by mail and the bidder wishes to receive an acknowledgment of receipt of such bid, he shall make a request for such acknowledgment in a separate letter attached to but not included in the sealed bid package.
  - (d) Upon request, acknowledgment of receipt of bids will be provided to those making delivery in person or by messenger.
- 19.2 Bids submitted through telegraph, telex, fax or e-mail shall not be considered.
- 19.3 The Employer may, at his discretion, extend the deadline for submission of bids by issuing an addendum in accordance with Clause IB.7, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

## **IB.20 Late Bids**

- 20.1
- (a) Any bid received by the Employer after the deadline for submission of bids

prescribed in Clause IB.19 will be returned unopened to such bidder.

- (b) Delays in the mail, delays of person in transit, or delivery of a bid to the wrong office shall not be accepted as an excuse for failure to deliver a bid at the proper place and time. It shall be the bidder's responsibility to determine the manner in which timely delivery of his bid will be accomplished either in person, by messenger or by mail.

#### **IB.21 Modification, Substitution and Withdrawal of Bids**

- 21.1 Any bidder may modify, substitute or withdraw his bid after bid submission provided that modification, substitution or written notice of the withdrawal is received by the Employer prior to the deadline for submission of bids.
- 21.2 The modification, substitution or notice for withdrawal of any bid shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause IB.18 with the outer and inner envelopes additionally marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL", as appropriate.
- 21.3 Withdrawal of a bid during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in the Form of Bid may result in forfeiture of the Bid Security pursuant to Clause IB.15.

### **E. BID OPENING AND EVALUATION**

#### **IB.22 Bid Opening**

- 22.1 A committee consisting of nominated members by the Employer will open the Technical and Financial bids, including withdrawals, substitution and modifications made pursuant to Clause IB.21, in the presence of bidders' representatives who choose to attend, at the time, date and location stipulated in the Invitation for Bids.

The bidders' representatives who are present shall sign in a register evidencing their attendance.

- 22.2 Envelopes marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL" shall be opened and read out first and the name of the Bidder shall be read out. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause IB.21 shall not be opened.
- 22.3 The bidder's name, Bid Prices, unit rates, any discount and price of any Alternate Proposal(s), bid modifications, substitutions and withdrawals, the presence or absence of Bid Security, and such other details as the Employer at its discretion may consider appropriate, will be announced by the Employer at the time of opening of Financial bid. The Employer will record minutes of bid opening.  
  
Any Bid Price or discount which is not read out and recorded at bid opening will not be taken into account in the evaluation of bid.
- 22.4 Discounts offered for lesser period than the bid validity shall not be considered in evaluation.

### **IB.23 Clarification of Bids**

23.1 To assist in the examination, evaluation and comparison of Bids the Engineer/Project Manager may, at its discretion, ask the Bidder for a clarification of its Bid. The request for clarification and the response shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted.

### **IB.24 Preliminary Examination & Determination of Responsiveness of Bids**

24.1 Prior to the detailed evaluation of bids, pursuant to Clause IB.26,

(a) the Project Manager will examine the Bids to determine whether;

- (i) the Bid is complete and does not deviate from the scope,
- (ii) any computational errors have been made,
- (iii) required sureties have been furnished,
- (iv) the documents have been properly signed,
- (v) the Bid is valid till required period,
- (vi) the Bid prices are firm during currency of contract if it is a fixed price bid,
- (vii) completion period offered is within specified limits,
- (viii) the Bidder/Manufacturer is eligible to Bid and possesses the requisite experience,
- (ix) the Bid does not deviate from basic technical requirements and
- (x) the Bids are generally in order.

(b) A bid is likely not to be considered, if;

- (i) it is unsigned,
- (ii) its validity is less than specified,
- (iii) it is submitted for incomplete scope of work,
- (iv) it indicates completion period later than specified,
- (v) it indicates that Works and materials to be supplied do not meet eligibility requirements,
- (vi) it indicates that Bid prices do not include the amount of income tax,

(c) A bid will not be considered, if;

- (i) it is not accompanied with bid security,
- (ii) it is submitted by a bidder who has participated in more than one bid,
- (iii) it is received after the deadline for submission of bids,
- (iv) it is submitted through fax, telex, telegram or email,
- (v) it indicates that prices quoted are not firm during currency of the contract whereas the bidders are required to quote fixed price(s),
- (vi) the bidder refuses to accept arithmetic correction,
- (vii) it is materially and substantially different from the Conditions/Specifications of the Bidding Documents.

24.2 Arithmetical errors will be rectified on the following basis:

If there is a discrepancy between the unit price and total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between the words and figures the amount in words shall prevail. If there is a discrepancy between the total Bid price entered in Form of Bid and the total shown in Schedule of Prices Summary, the amount stated in the Form of Bid will be corrected by the Employer/Engineer in accordance with the Corrected Schedule of Prices.

If the Bidder does not accept the corrected amount of Bid, his Bid will be rejected and his Bid Security forfeited.

- 24.3 Prior to the detailed evaluation, pursuant to Clause IB.26 the Employer/Engineer will determine the substantial responsiveness of each Bid to the Bidding Documents. For purpose of these Clauses, a substantially responsive Bid is one which conforms to all the terms and conditions of the Bidding Documents without material deviations.

A material deviation or reservation is one

- (i) which affects in any substantial way the scope, quality or performance of the Works.
- (ii) which limits in any substantial way, inconsistent with the Bidding Documents, the Employer's rights or the bidder's obligations under the Contract; or
- (iii) whose rectification/adoption would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

The Employer's/Engineer's determination of a Bid's responsiveness will be based on the contents of the Bid itself without recourse to extrinsic evidence.

- 24.4 A Bid determined as substantially non-responsive will be rejected and will not subsequently be made responsive by the Bidder by correction of the non-conformity.
- 24.5 Any minor informality or non-conformity or irregularity in a Bid which does not constitute a material deviation may be waived by Employer, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

## **IB.25 Conversion to Single Currency**

- 25.1 To facilitate evaluation and comparison, the Employer/Engineer will convert, all Bid Prices expressed in the amount in various currencies in which Bid Price is payable, to Pak. Rupees at the Telegraphic Transfer and Over Draft (TT&OD) composite (selling) exchange rates published/authorised by State Bank of Pakistan and applicable to similar transactions, on the date of the opening of Bids.

## **IB.26 Detailed Evaluation of Bids**

- 26.1 The Employer/Engineer/Project Manager will evaluate and compare only the bids previously determined to be substantially responsive pursuant to Clause IB.24 as per requirements given hereunder.
- 26.2 Evaluation and Comparison of Bids

- (a) Bids will be evaluated for each item and/or complete scope of work.
- (b) **Basis of Price Comparison**  
The prices will be compared on the basis of the Evaluated Bid Price pursuant to Para (e) herein below.
- (c) **Technical Evaluation**  
It will be examined in detail whether the Goods offered by the bidder comply with the Technical Provisions of the Bidding Documents. For this purpose, the bidder's data submitted with the bid will be compared with the specific work data prescribed by the Employer and technical features/criteria of the Goods detailed in the Technical Provisions. Other technical information submitted with the bid regarding the Scope of Work will also be reviewed.
- (d) **Commercial Evaluation**  
It will be examined in detail whether the bids comply with the commercial/contractual conditions of the Bidding Documents. It is expected that no major deviation/stipulation shall be taken by the bidders.
- (e) **Evaluated Bid Price**  
In evaluating the bids, the Employer will determine for each bid in addition to the Bid Price, the following factors (adjustments) in the manner and to the extent indicated below to determine the Evaluated Bid Price:
  - (i) making any correction for errors pursuant to Sub-Clause 24.2 hereof.
  - (ii) excluding Provisional Sums, if any, but including priced Daywork.
  - (iii) making an appropriate adjustment for any other acceptable variation or deviation.

### 26.3 Evaluation Methods

Pursuant to Sub-Clause 26.2, Para (e)(iii) following evaluation methods for price adjustments will be followed:

- (a) Price Adjustment for Completeness in Scope of Work
  - (b) Price Adjustment for Technical Compliance
  - (c) Price Adjustment for Commercial Compliance
  - (d) Price Adjustment for Deviations in Terms of Payment
  - (e) Price Adjustment for completion Schedule
- (i) **Price Adjustment for Completeness in Scope of Work**  
In case of omission in the scope of work of a quoted item no price adjustment for the omitted item(s) shall be applied provided that the Bidder has mentioned in his bid that the same is covered in any other item.  
  
The price adjustment shall not justify any additional payment by the Employer. The price(s) of omitted item(s) shall be deemed covered by other prices of the Schedule of Prices.
  - (ii) **Price Adjustment for Technical Compliance**

The cost of making good any deficiency resulting from technical non compliance will be added to the Corrected Total Bid Price for comparison purposes only. The adjustments will be applied taking the highest price quoted by other Bidders being evaluated in detail in their original Bids for corresponding item. In case of non availability of price from other Bidders, the price will be estimated by the Engineer.

(iii) Price Adjustment for Commercial Compliance

The cost of making good any deficiency resulting from any quantifiable variations and deviations from the Bid Schedules and Conditions of Contract, as determined by the Engineer will be added to the Corrected Total Bid Price for comparison purpose only. Adjustment for commercial compliance will be based on Corrected Total Bid Prices.

(iv) Price Adjustment for Deviation in Terms of Payment

If a bid deviates from the terms of payment/payment conditions as specified in the Conditions of Contract and if such deviation is considered acceptable to the Employer, mark-up earned for any earlier payments involved in the terms outlined in the Bid as compared to those stipulated in the Conditions of Contract shall be calculated at the mark-up rate of 12% per annum and shall be added to the Corrected Total Bid Price for comparison purposes only.

(v) Price Adjustment for Completion Schedule

Bids indicating completion in advance of the dates stated in Preamble to Conditions of Contract, no credit will be given in this evaluation.

Bids indicating completion period later than the period set out in Preamble to Conditions of Contract shall be adjusted in the evaluation by adding a factor of 0.05% of the Corrected Total Bid Price for each calendar day of completion later than specified period of the completion.

Bids indicating completion beyond 60 days later

than the dates set out in Preamble to Conditions of Contract, shall not be considered and rejected as non responsive.

26.4 If the bid of the successful bidder is seriously unbalanced in relation to the Employer's estimate of the cost of work to be performed under the Contract, the Employer may require the bidder to produce detailed price analyses for any or all items of the Schedule of Prices to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in Clause IB.34 be increased at the expense of the successful bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful bidder under the Contract.

**IB.27. Domestic Preference**

27.1 In the comparison of evaluated Bids, the Goods manufactured in Pakistan, will be

granted a margin of preference in accordance with the following procedures, provided the bidder shall have established to the satisfaction of Employer that the manufacturing cost of such Goods includes a domestic value addition equal to at least 20% of the ex-factory Bid price of such Goods. Bidders applying for domestic preference shall fill in Appendix C to these Instructions to substantiate their claim.

- 27.2 The Employer/Engineer will first review the Bids to determine, the Bid group classification in accordance with Sub-Clause 10.2 hereof.
- 27.3 The comparison shall be Ex-factory price of the Goods to be offered from within Pakistan (such prices to include all costs as well as custom duties and taxes paid or payable on raw materials and components incorporated or to be incorporated in the Goods) and the DDP (CIF + Customs duty, sales tax and other import charges) Pakistan seaport price of the Goods to be offered from outside Pakistan.
- 27.4 The lowest evaluated bid of each Group shall first be determined by comparing all evaluated bids in each Group among themselves taking into account:
- (a) In the case of Goods manufactured in Pakistan, sales tax, local body charges and other similar taxes which will be payable on the furnished Goods in Pakistan.
  - (b) In the case of Goods of foreign origin offered from abroad, customs duties, sales tax and other import charges which will be payable on furnished Goods in Pakistan.
  - (c) In the case of Goods of foreign origin already located in Pakistan, customs duty, sales tax and import charges on CIF price as applicable for Sub-Clause 27.4(b) here above.
- 27.5 The price preference to Group A bids will be:
- (i) 15% of the ex-factory bid price, if the value addition through indigenous manufacturing is at least 20%;
  - (ii) 20% of the ex-factory bid price, if the value addition through indigenous manufacturing is over 20% and up to 30%; and
  - (iii) 25% of the ex-factory bid price, if the value addition through indigenous manufacturing is over 30%.
- 27.6 The applicable price preference i.e., as per Sub-Clause 27.5 here above will be applied to Group A Bid by reducing the ex-factory bid price.

## **IB.28 Process to be Confidential**

- 28.1 Subject to Clause 23 heretofore, no Bidder shall contact Employer and/or Engineer on any matter relating to its Bid from the time of the Bid opening to the time the bid evaluation result is announced by the Employer. The evaluation result shall be

announced at least ten (10) days prior to award of Contract. The announcement to all bidders will include table(s) comprising read out prices, discounted prices, price adjustments made, final evaluated prices and recommendations against all the bids evaluated.

- 28.2 Any effort by a Bidder to influence Employer and/or Engineer in the Bid evaluation, Bid comparison or Contract Award decisions may result in the rejection of his Bid. Whereas any bidder feeling aggrieved may lodge a written complaint not later than fifteen (15) days after the announcement of the bid evaluation result; however, mere fact of lodging a complaint shall not warrant suspension of the procurement process.

## **F. AWARD OF CONTRACT**

### **IB.29. Post-Qualification**

- 29.1 The Employer, at any stage of the bid evaluation, having credible reasons for or *prima facie* evidence of any defect in supplier's or contractor's capacities, may require the suppliers or contractors to provide information concerning their professional, technical, financial, legal or managerial competence whether already pre-qualified or not:

Provided that such qualification shall only be laid down after recording reasons therefor in writing. They shall form part of the records of that bid evaluation report.

- 29.2 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 qualification submitted under Appendix B to Instructions to Bidders "Evidence of Bidder's Capability" by the bidder pursuant to Clause IB.13, as well as such other information as required under the Bidding Documents.
- 29.3 An affirmative determination will be a pre-requisite for award of the Contract to the lowest evaluated bidder. A negative determination will result in rejection of that bidder's bid in which event, Employer will proceed to undertake a similar determination of the next lowest evaluated bidder's capabilities to perform the Contract satisfactorily.

### **IB.30 Award Criteria**

- 30.1 Subject to Clause IB.32, the Employer will award the Contract to the bidder whose bid has been determined to be substantially responsive to the Bidding Documents and who has offered the lowest evaluated Bid Price (package wise), provided that such bidder has been determined to be qualified to satisfactorily perform the Contract in accordance with the provisions of Clause IB.29.



### **IB.31 Employer's Right to Vary Quantities**

- 31.1 Employer reserves the right at the time of award of Contract to increase or decrease by up-to 15% the quantity of goods and services specified in the Schedule of Prices without any change in the unit price or other terms and conditions.

### **IB.32 Employer's Right to Accept any Bid and to Reject any or all Bids**

- 32.1 Notwithstanding Clause IB.30, the Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidders or any obligation to inform the affected bidders of the grounds for the Employer's action except that the grounds for its rejection shall upon request be communicated, to any bidder who submitted a bid, without justification of grounds. Rejection of all bids shall be notified to all bidders promptly.
- 32.2 No negotiations with the bidder having been evaluated as lowest responsive or any other bidder shall be permitted. However, the Employer may have clarification meeting(s) to get clarify any item(s) in the bid evaluation report.

### **IB.33 Notification of Award**

- 33.1 Prior to expiration of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidder in writing ("Letter of Acceptance") that his bid has been accepted. This letter shall name the sum which the Employer will pay the Contractor in consideration of the execution and completion of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called the "Contract Price").
- 33.2 The Letter of Acceptance and its acceptance by the bidder will constitute the formation of the Contract, binding the Employer and the Bidder till signing of the formal Contract Agreement.
- 33.3 Upon furnishing by the successful bidder of a Performance Security, the Employer will promptly notify the other bidders that their bids have been unsuccessful and return their bid securities.

### **IB.34 Performance Security**

- 34.1 The successful bidder shall furnish to the Employer a Performance Security in the form and the amount stipulated in the Conditions of Contract within a period of twenty eight (28) days after the receipt of Letter of Acceptance.
- 34.2 Failure of the successful bidder to comply with the requirements of Sub-Clause IB.34.1 or Clause IB.35 or Clause IB.43 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security.

### **IB.35 Signing of Contract Agreement**

- 35.1 Within fourteen (14) days from the date of furnishing of acceptable Performance Security under the Conditions of Contract, the Employer will send to the successful bidder the Form of Contract Agreement provided in the Bidding Documents, duly filled in and incorporating all agreements between the parties for signing and return it to the Employer.
- 35.2 The formal Agreement between the Employer and the successful bidder shall be executed within fourteen (14) days of the receipt of such Form of Contract Agreement by the successful bidder from the Employer.

## **G. ADDITIONAL INSTRUCTIONS**

### **IB.36 Instructions not Part of Contract**

- 36.1 Bids shall be prepared and submitted in accordance with these Instructions which are provided to assist bidders in preparing their bids, and do not constitute part of the Bid or the Contract Documents.

### **IB.37 Contract Documents**

- 37.1 The Documents which will be included in the Contract are listed in the Form of Contract Agreement set out in these Bidding Documents.

### **IB.38 Sufficiency of Bid**

- 38.1 Each bidder shall satisfy himself before Bidding as to the correctness and sufficiency of his Bid and of the rates and prices entered in the Schedule of Prices. Except insofar as it is otherwise expressly provided in the Contract, the rates and prices entered in the Schedule of Prices shall cover all his obligations under the Contract and all matters and things necessary for the proper completion of the Works.

### **IB.39 One Bid per Bidder**

- 39.1 Each bidder shall submit only one bid either by himself, or as a partner in a joint venture. A bidder who submits or participates in more than one bid (other than alternatives pursuant to Clause IB.41) will be disqualified and bids submitted by him shall not be considered for evaluation and award.

### **IB.40 Bidder to Inform Himself**

- 40.1 The bidder is advised to obtain for himself at his own cost and responsibility all information that may be necessary for preparing the bid and entering into a Contract for execution of the Works. This shall include but not be limited to the following:
- (a) inquiries on Pakistani Income Tax/Sales Tax to the Commissioner of the Income Tax and Sales Tax Pakistan.
  - (b) inquiries on customs duties and other import taxes, to the concerned authorities of Customs and Excise Department.

- (c) information regarding port clearance facilities, loading and unloading facilities, storage facilities, transportation facilities and congestion at Pakistan seaports.
- (d) investigations regarding transport conditions and the probable conditions which will exist at the time the Goods will be actually transported.

#### **IB.41 Alternate Proposals by Bidder**

- 41.1 Should any bidder consider that he can offer any advantage to the Employer by a modification to the designs, specifications or other conditions, he may, in addition to his bid to be submitted in strict compliance with the Bidding Documents, submit any Alternate Proposal(s) containing (a) relevant design calculations; (b) technical specifications; (c) proposed construction methodology; and (d) any other relevant details / conditions, provided always that the total sum entered on the Form of Bid shall be that which represents complete compliance with the Bidding Documents.
- 41.2 Alternate Proposal(s), if any, of the lowest evaluated responsive bidder only may be considered by the Employer as the basis for the award of Contract to such bidder.

#### **IB.42 Site Visit and Local Conditions**

- 42.1 Bidder must verify and supplement by his own investigations the information about site and local conditions. However, Employer will assist the Bidder wherever practicable and possible.
- 42.2 All Bidders are required to visit the site at their own expense to review the areas allocated for the project and the interfacing facilities, if any. Bidders may also wish to study local conditions, available facilities, communications, craft wages, roads and other transport facilities. Bidders shall also acquaint themselves with the relevant laws, rules, and regulations of Pakistan.
- 42.3 The Bidders and any of their personnel or agents will be granted permission by the Employer to enter upon his premises and lands for the purpose of such inspection, but only upon the express condition that the Bidders, their personnel and agents, will release and indemnify the Employer, his personnel and agents from and against all liability in respect thereof and will be responsible for death or personal injury, loss of or damage to property and any other loss, damage, costs and expenses incurred as a result of such inspection.

#### **IB.43 Pre-Bid Meeting**

- 43.1 The Employer may, at his own or at the request of any prospective Bidder(s), hold a Pre-Bid meeting to clarify issues and to answer any questions on matters related to the Bidding Documents. The date, time and venue of Pre-Bid meeting, if convened, shall be intimated through letter for invitation.

#### **IB.44 Integrity Pact**

The Bidder shall sign and stamp the Integrity Pact provided at Schedule-H to Bid in the Bidding Document for all Federal Government procurement contracts exceeding Rupees ten million. Failure to provide such Integrity Pact shall make the bid non-responsive.

#### **IB.45 General Performance of the Bidders**

- 45.1 The Employer reserves the right to obtain information regarding performance of the Bidders on their previously awarded contracts/works (Schedule-I to bid). The Employer may in case of consistent poor performance of any Bidder as reported by the employers of the

previously awarded contracts, interalia, reject his bid and/or refer to the case to the Pakistan Engineering Council. Upon such reference, PEC in accordance with its rules, procedures and relevant laws of the land take such action as may be deemed appropriate under the circumstances of the case including black listing of such Bidder and debarring him from participation un future bidding for similar works.

#### (H) APPENDICES

The Appendices to ITB are as given below:-

- Appendix-A: Name of Eligible Countries
- Appendix-B; Evidence of Bidder's Capabilities
- Appendix-C: Domestic Goods (value added in Pakistan)

Appendices are given here below:-

#### **Appendix A to Instructions to Bidders**

#### **NAME OF ELIGIBLE COUNTRIES**

All countries of the World with whom Islamic Republic of Pakistan has commercial relations.

**Appendix B to  
Instructions to Bidders**

**EVIDENCE OF BIDDER'S CAPABILITY (Eligibility Criteria)**

Part I (General Information)

Sr.No.	Information to be Supplied	Bid References
1.	Name of bidder, business address and country of incorporation.	
2.	Type of firm whether individually owned, partnership, corporation or joint venture and the names of its owners or partners.	
3.	The annual reports or qualification statements giving general description of the firm, sort of business carried out, balance sheets, profit and loss statements, turn over and business done by the firm, duly authenticated, for the last two (2) years. Audited Balance Sheets for the preceding 2 years and projected assets and liabilities for the next 2 years shall be provided.	
4.	The time since the manufacturer has been in this business and the time since he has been doing work of similar nature.	
10.	Banking reference, names of banks and addresses may be given to whom reference regarding financial capability of the bidder may be made, with authority to make inquiries from the bidder's bankers and clients regarding any financial and technical aspects (for each partner, in case of a joint venture).	
12.	Information on any litigation or arbitration resulting from contracts completed or under execution by the bidder over the last ten (10) years. The information shall indicate the parties concerned, the matter of dispute, the disputed amounts and the result thereof (for each partner, in case of a joint venture).	

Part II

1. **Evaluation Criteria for Technical Eligibility**

<b>(A) Organizational Capabilities</b>	(Total Marks = 15)
<b>a. Date of Establishment</b>	(5 Marks)
10 years or more	5
More than 5 years and less than 10 years	4
More than 2 years and less than 5 years	3
Less than 2 years	0
<b>b. Type of organization</b>	(5 Marks)
Public limited Co.	5
Partnership	3
Proprietorship	2
<b>c. Coverage</b>	(5 Marks)
Head office and branches in at least three cities of Pakistan	3
Branch in Balochistan	2
<b>(B) Technical Capabilities</b>	(Total Marks = 60)
<b>a. Experience</b>	(Total Marks = 30)
Completed IT networking (Servers, Switches, Fiber optic, wireless, software customization) projects in a Government/ Semi Government or reputed private sector organization/ educational Institution during last 5 years.	
2 projects of Rs. 30 (M) or more.	30
2 projects of less than 20 (M) but more than 10 (M)	20
One project of Rs. 20 (M) or more	15
One project of over Rs. 10 (M) but less than Rs. 20 (M)	10
<b>b. Technical Staff</b>	(Total Marks = 20)
Five certified engineers with at least 5 years experience in Designing/ Hardware/ Networking/ Electrical engineering	15
5 certified Network professional (CCIE for Cisco , HCIE for Huawei etc)	5
<b>c. Technical Certification</b>	(Total Marks = 10)
ISO certification 9000 or above	4
Authorization certificate from OEM as Tier1/ VAP/ Gold partner	6
Authorization certificate from OEM as Tier2/ authorized partner	3
<b>(C) Financial Capability</b>	(Total Marks = 15)
Audited accounts for last 2 years to check financial strength.	5
Bank statement for 2 years to check liquidity.	5
Whether firm/co has any line of credit agreement with any bank/ financial institution.	5
<b>(D) Work Executions Methodology</b>	(Total Marks = 10)
Plan and layout scheduling of work along with time management.	6
Training and development plan of Employer staff.	2
Quality control, safety measures to be applied.	2

**2) Minimum Score for Eligibility**

The minimum score for being eligible in evaluation of Technical Proposal is 70%.

**Appendix C to  
Instructions to Bidders**

**Domestic Goods (Value added in Pakistan)**

[Bidders claiming eligibility for domestic preference should fill in for supply items only, all columns hereunder and provide necessary documentation to substantiate their claim]

Sr. No.	Description of Indigenous Goods	Unit	Qty	Total Price of Goods Ex-Factory (Pak Rs.)	Domestic value added in the manufacturing cost as percentage of Ex-Factory Price	Amount of value addition (Pak Rs.)
1	2	3	4	5	6	7
Total in columns 5 & 7						

**Computations:**

- |  |              |
|--|--------------|
| A. Total amount of Value Addition (from Col.7)             | Rs _____     |
| B. Total Ex-Factory Price of Indigenous Goods (from Col.5) | Rs _____     |
| C. Total DDP Price of imported supply items                | Eqv.Rs _____ |
| D. Total Price of supply items [B+C]                       | Eqv.Rs _____ |
| E. % of value addition = [(A/D)x100]                       | _____ %      |
| F. Domestic Preference =(15,20 or 25)% of B                | Rs _____     |

**FORM OF BID AND SCHEDULES TO BID**



**FORM OF BID**  
**(LETTER OF OFFER)**

Bid Reference No. \_\_\_\_\_

**Establishment of Computer Networking and Automation System in UoT, including Supply, Installation, Commissioning & Operations**

To:

University of Turbat  
M-8, University Road Turbat District Kech

Gentlemen,

1. Having examined the Bidding Documents including Instructions to Bidders, Conditions of Contract, Specifications, Drawings, Schedule of Prices and Addenda Nos. \_\_\_\_\_ for the execution of the above-named Works, we, the undersigned, being a company doing business under the name of and address \_\_\_\_\_  
\_\_\_\_\_ and being duly incorporated under the laws of \_\_\_\_\_ hereby offer to execute and complete such Works and remedy any defects therein in conformity with the said Documents including Addenda thereto for a total bid price as given in the Financial Proposal.
2. We understand that all the Schedules attached hereto form part of this Bid.
3. As security for due performance of the undertakings and obligations of this Bid, we submit herewith a Bid Security in the amount of \_\_\_\_\_ drawn in your favour or made payable to you and valid for a period twenty eight (28) days beyond the period of validity of Bid.
4. We undertake, if our Bid is accepted, to commence the Works and to deliver and complete the whole of the Works comprised in the Contract within the time(s) stated in Preamble to the Conditions of Contract.
5. We agree to abide by this Bid for the period of \_\_\_\_\_ days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
6. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
7. We undertake, if our Bid is accepted, to execute the Performance Security referred to in Clause 10 of Conditions of Contract for the due performance of the Contract.
8. We understand that you are not bound to accept the lowest or any Bid you may receive.
9. We do hereby declare that the Bid is made without any collusion, comparison of figures or arrangement with any other person or persons making a Bid for the Works.

10. We confirm, if our Bid is accepted, that all partners of the joint venture shall be liable jointly and severally for the execution of the Contract and the composition or the constitution of the joint venture shall not be altered without the prior consent of the Employer. (Please delete in case of Bid from a single firm).

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_ duly

authorized to sign bids for and on behalf of \_\_\_\_\_  
(Name of Bidder in Block Capitals)  
(Seal)

Address

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Witness:

(Signature) \_\_\_\_\_

(Name) \_\_\_\_\_

Address: \_\_\_\_\_

Occupation \_\_\_\_\_

**SCHEDULES TO BID INCLUDE THE FOLLOWING:**

- Schedule A to Bid: Specific Works Data
- Schedule B to Bid: Work to be Performed by Subcontractors
- Schedule C to Bid: Proposed Programme of Works
- Schedule D to Bid: Deviations from Technical Provisions
- Schedule E to Bid: Deviations from Contractual Conditions
- Schedule F to Bid: Method of Performing Works
- Schedule G to Bid: Proposed Organization
- Schedule H to Bid: Integrity Pact

**SCHEDULE – A TO BID**

**SPECIFIC WORKS DATA**

The main technical data is prescribed in the relevant sections of the Technical Provisions. However, the Bidder may supplement the main technical data by providing hereunder other salient parameters including main plant make, capacity and suitability for the works under consideration to enable the Employer/Project Manager/Engineer to assess technical conformance of the proposed process and the means available with the contractor to do it.

Initials of Signatory to Bid.....

## SCHEDULE – B TO BID

### WORK TO BE PERFORMED BY SUBCONTRACTORS

The bidder will do the work with his own forces except the work listed below which he intends to sub-contract.

<u>Items of Work to be Sub-Contracted</u>	<u>Name and address of Sub-Contractor</u>	<u>Statement of similar works previously executed (attach evidence)</u>
---	---	---

**Note:**

1. No change of Sub-Contractor shall be made by the bidder without prior approval of the Employer.
2. The truthfulness and accuracy of the statement as to the experience of Sub-Contractors is guaranteed by the bidder. The Employer's judgment shall be final as to the evaluation of the experience of Sub-Contractors submitted by the bidder.
3. Statement of similar works shall include description, location & value of work, year completed and name & address of the clients.

## **SCHEDULE – C TO BID**

### **PROPOSED PROGRAMME OF WORKS**

Bidder shall provide a programme in a bar-chart/CPM/PERT form showing the sequence of work items by which he proposes to complete the work of the entire Contract. The programme should indicate the sequence of work items and the period of time during which he proposes to complete the Works including the activities like designing, schedule of submittal of drawings, ordering and procurement of materials, manufacturing, delivering, construction of civil works, erection, testing and commissioning of Works to be supplied under the Contract.

**SCHEDULE – D TO BID**

**DEVIATIONS  
FROM  
TECHNICAL PROVISIONS**

It is presumed that the bidder shall not take any deviation. However, if he intends to take deviations to the specified terms, those must be listed in the space provided below:

Sr. No.	Clause No. / Section No.	Deviations/Clarifications
---------	--------------------------	---------------------------

[Note: Attach additional sheets, if necessary]

**SCHEDULE – E TO BID**

**DEVIATIONS  
FROM  
CONTRACTUAL CONDITIONS**

It is presumed that the bidder shall not take any deviation. However, if he intends to take deviations to the specified Contractual/Commercial Conditions, those must be listed in the space provided below:

Sr. No.	Clause No. / Section No.	Deviations/Clarifications
---------	--------------------------	---------------------------

[Note: Attach additional sheets, if necessary]



**METHOD OF PERFORMING WORKS**

The bidder is required to submit a narrative outlining the method of performing the Works. The narrative should indicate in detail and include but not be limited to:

- The sequence and methods in which he proposes to carry out the Works, including the number of shifts per day and hours per shift, he expects to work.
- A list of all major items of constructional and erection plant, tools and vehicles proposed to be used in carrying out the Works at Site, including number of each kind, make, type, capacity of all equipment, working condition, which shall be deployed by him for Civil Work and Erection, Testing and Commissioning of the Works, in sufficient detail to demonstrate fully that the equipment will meet all the requirements of the Technical Provisions.
- The procedure for installation of equipment and transportation of equipment and materials to the site.
- Details regarding mobilisation in Pakistan, the type of facilities including personnel accommodation, office accommodation, provision for maintenance and for storage, communications, security and other services to be used.
- Organisation chart indicating head office & field office personnel involved in management, supervision and engineering of the Works to be done under the Contract.



**SCHEDULE – H TO BID**

**(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 No. \_\_\_\_\_ Dated \_\_\_\_\_

Contract Value: \_\_\_\_\_

Contract Title: \_\_\_\_\_

..... [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 (GoP) or any administrative subdivision or agency thereof or any other entity owned or controlled by 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, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from 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, representation or warranty.

[name of Supplier] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other rights 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.

Name of Buyer: .....

Name of Seller/Supplier: .....

Signature: .....

Signature: .....

[Seal]

[Seal]

**PREAMBLE  
TO  
CONDITIONS OF CONTRACT**

## PREAMBLE TO CONDITIONS OF CONTRACT

[This Preamble must be completed before issuance of Bidding Documents and shall contain essential requirements of General Conditions of Contract & Particular Conditions of Contract.]

<b>Commencement Date</b>	Sub-Clause 1.1.1.(i) The date for commencement of the Works is the date of issuance of which shall be issued within 14 days of signing of Contract Agreement.
<b>Defect Liability Period</b>	Sub-Clause 1.1.11 The Defect Liability Period is 365 days after the date certified under clause 30.4. The defects at site considering structured stability, physical appearance, Employer's Representative.
<b>The Employer</b>	Sub-Clause 1.1.12. The Employer is University of Turbat
<b>The Engineer</b>	Sub-Clause 1.1.15. The Engineer is <u>Mukhtar Hussain, in-charge IT Directorate UoT</u>
<b>Time for Completion</b>	Sub-Clause 1.1.35. The Time for Completion is 120 days from the Commencement Date.
<b>Warranty Period</b>	Sub-Clause 1.1.40. The Warranty Period is as specifically mentioned against each equipment.
<b>Engineer's Duties &amp; Authorities</b>	Sub-Clause 2.1 Amount of Variation Order in emergency is Rs 100,000/-
<b>Confirmation in Writing</b>	Sub-Clause 2.6 (i) If the Contractor shall require the confirmation it shall be notified to the Engineer/Project Manager within 07 days. (ii) Engineer/Project Manger shall confirm the decision/instruction within 10 days.
<b>Ruling Language</b>	Sub-Clause 5.1. The version in English language (ruling language) shall prevail.
<b>Day to Day Communications</b>	Sub-Clause 5.2. The language for day to day communications is English/Urdu.
<b>As-Built Drawings</b>	Sub-Clause 6.10 As-Built drawings shall be provided to the Engineer within 15 days from the date of issue of Taking Over Certificate.
<b>Programme to be Furnished</b>	Sub-Clause 12.1. The Programme must be submitted in the form of Best Possible.
<b>Electricity Water, Gas and Other Services</b>	Sub-Clause 14.3. Supplies on the Site are: a) Electricity: Yes b) Water: Yes
<b>Employer's Equipment</b>	Sub-Clause 14.4. The following Employer's equipment is available for use by the Contractor under the Employer's operation: NIL

<b>Working Hours</b>	Sub-Clause 18.3. The normal working hours are: 8:00 A.M to 7:00 P.M
<b>Time for Completion</b>	Sub-Clause 25.1 (i) Place of the Project: Main Campus UoT (ii) Period: 120 days
<b>Earlier Completion</b>	Sub-Clause 26.3 (i) Amount of Bonus per day: N.A (ii) Max. Amount of Bonus: N.A
<b>Delay in Completion</b>	Sub-Clause 27.1. Failure to meet the Time for Completion entitles the Employer to reduction in Contract Price as follows: Percentage per day _____ % Maximum _____ %
<b>Prolonged Delay</b>	Sub-Clause 27.2. Maximum amount recoverable from the Contractor by the Employer 10% of the delayed works.
<b>Terms of Payment</b>	Sub-Clause 33.1. In addition to the provisions under Clause 33, the terms of payment shall be as stated in Particular Conditions of Contract.
<b>Payment</b>	Sub-Clause 33.5 (i) Period of Payment by Employer to Contractor: 30 days (ii) Period of Final Certificate of Payment: 45 days
<b>Payment in Foreign Currencies</b>	Sub-Clause 35.1. Payment in foreign currencies shall be arranged as follows: : N/A
<b>Insurance of Works</b>	Sub-Clause 43.1. The deductible limits in the insurance cover of the Works shall not exceed _____ Sub-Clause 43.1.(a) The additional risks to be insured are: _____
<b>Third Party Liability</b>	Sub-Clause 43.3. The amount of insurance against third party liability taken out by the Contractor shall not be less than:Rs 1 Million
<b>Payment on Termination for Employer's Default</b>	Sub-Clause 46.3. The additional amount payable by the Employer on termination shall not exceed:N/A _____
<b>Labour, Materials and Transport</b>	Sub-Clause 47.1. The method of calculating adjustments for changes in costs shall be: (The user may extract the formula from Clause 70.1 PCC of the PEC Civil Works documents and with reference to PEC documents "Standard Guidelines and Formula for Price Adjustment") : As per Standard Clauses
<b>Notices to Employer and Engineer</b>	Sub-Clause 49.2. The address of the Employer for notices is: Department of Computer Science, Main Campus, University of

Turbat, University Town, Ginnah, Turbat.  
The address of the Engineer for notices is:  
In-charge IT Directorate, Department of Computer Science Main  
Campus UoT

<b>Disputes &amp; Arbitration</b>	Sub-Clause 50.4 Venue of Arbitration Turbat Pakistan.
<b>Applicable Law</b>	Sub-Clause 51.1. The applicable law is Arbitration law.
<b>Procedural Law for Arbitration</b>	Sub-Clause 51.2. The procedural law for arbitration is per Arbitration Act prevailing in the country.
<b>Language and Place of Arbitration</b>	Sub-Clause 51.3. The language of arbitration is English language. The place of arbitration is Turbat

## **Mandatory/essential Terms and Conditions.**

The following mandatory/essential Terms and Conditions which may have been incorporated in relevant sections are produced below which need to be fulfilled in addition to standard terms & Conditions given in the documents.

- I. The firm/company must be registered/incorporated with relevant business experience.
- II. The firm/company must be registered with income tax department and should have a valid NTN.
- III. The firm/company must have a valid general sales tax registration and its status should be active.
- IV. The firm/company must have authorization of the principal / manufacturer, where required.
- V. The firm should submit an undertaking on legal stamp paper confirming that they are not blacklisted and are not involved in litigation with any federal or provincial government department, agency or autonomous body anywhere in Pakistan. In case of any previous litigation which has been settled, the proof of dispute resolution may be submitted.
- VI. The firm will need to submit performance guarantee on the format given in these documents equal to 10% of the total bid value in the shape of Bank guarantee, or insurance guarantee from top a ranking company, strictly as per PEC rules.
- VII. The income tax will be deducted from all bills as per prevailing Government rates.
- VIII. The Balochistan Revenue Authority taxes will be deducted as per prevailing provincial government rules.
- IX. The firm/company must submit evidence of paying GST as per GST rules of FBR.
- X. The bidder will be required to submit manufacturer's/OEM's certificate to the effect that all equipment and machineries supplied by them are brand new and not refurbished or obtained from any unauthorized channel.



## **GENERAL CONDITIONS OF CONTRACT**

## Notes on the Conditions of Contract

The Conditions of Contract comprise two parts:

- (a) **General Conditions of Contract**
- (b) **Particular Conditions of Contract**

Over the years, a number of “model” General Conditions of Contract have evolved. The one used in these Standard Bidding Documents was prepared by the International Federation of Consulting Engineers (Federation Internationale des Ingenieurs-Conseils, or FIDIC), and is commonly known as the FIDIC Conditions of Contract. (The used version is the 1987 edition, reprinted in 1988 with editorial amendments.)

The FIDIC Conditions of Contract have been prepared for an ad measurement (unit price or unit rate) type of contract, and cannot be used without major modifications for other types of contract, such as lump sum, turnkey, or target cost contracts.

The standard text of the General Conditions of Contract chosen must be retained intact to facilitate its reading and interpretation by bidders and its review by the Employer. Any amendments and additions to the General Conditions, specific to the contract in hand, should be introduced in the Particular Conditions of Contract.

The use of standard conditions of contract for all electrical/mechanical Works will ensure comprehensiveness of coverage, better balance of rights or obligations between Employer and Contractor, general acceptability of its provisions, and savings in time and cost for bid preparation and review, leading to more economic prices.

The FIDIC Conditions of Contract are copyrighted and may not be copied, faxed, or reproduced. Without taking any responsibility of its being accurate, Pakistan Engineering Council with prior consent of FIDIC Secretariat, has reproduced herein the FIDIC General Conditions of Contract for reference purpose only which cannot be used by the users for preparing their bidding documents. The bidding document may include a purchased copy, the cost of which can be retrieved as part of the selling price of the bidding document. Alternatively, the FIDIC Conditions of Contract can be referred to in the bidding documents, and the bidders are advised to obtain copies directly from FIDIC.\*

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\* Add the following text if the bidding documents, as issued, do not include a copy:

“Copies of the FIDIC Conditions of Contract can be obtained from:

FIDIC Secretariat

P.O. Box 86

1000 Lausanne 12

Switzerland

[fidic.pub@fidic.org](mailto:fidic.pub@fidic.org) – [FIDIC.org/bookshop](http://FIDIC.org/bookshop)]

## **CONTENTS**

### **PART I: GENERAL CONDITIONS**

#### **Definitions and Interpretations**

- 1.1 Definitions
- 1.2 Headings and Titles
- 1.3 Interpretation
- 1.4 Written Communications
- 1.5 Notice, Consents and Approvals
- 1.6 Cost, Overhead Charges and Profit
- 1.7 Periods

#### **Engineer and Engineer's Representative**

- 2.1 Engineer's Duties
- 2.2 Engineer's Representative
- 2.3 Engineer's Power to Delegate
- 2.4 Engineer to Act Impartially
- 2.5 Engineer's Decisions and Instructions
- 2.6 Confirmation in Writing
- 2.7 Disputing Engineer's Decisions and Instructions
- 2.8 Replacement of Engineer

#### **Assignment and Subcontracting**

- 3.1 Assignment
- 4.1 Subcontracting

#### **Contract Documents**

- 5.1 Ruling Language
- 5.2 Day to Day Communications
- 5.3 Priority of Contract Documents
- 5.4 Documents Mutually Explanatory
- 6.1 Contractor's Drawings
- 6.2 Consequences of Disapproval of Contractor's Drawings
- 6.3 Approved Contractor's Drawings
- 6.4 Inspection of Contractor's Drawings
- 6.5 Installation Information
- 6.6 Operation and Maintenance Manuals
- 6.7 Employer's Use of Contractor's Drawings
- 6.8 Contractor's Use of Employer's Drawings
- 6.9 Manufacturing Drawings
- 7.1 Errors in Contractor's Drawings
- 7.2 Errors by Employer or Engineer

#### **Obligations of the Contractor**

8.1	General Obligations
8.2	Setting Out
9.1	Contract Agreement

- 10.1 Performance Security
- 10.2 Period of Validity
- 10.3 Claims under Performance Security
- 11.1 Site Data
- 11.2 Sufficiency of Contract Price
- 11.3 Physical Obstructions and Conditions
- 12.1 Programme to be Furnished
- 12.2 Alternation to Programme
- 12.3 Revision of Programme
- 13.1 Contractor's Representative
- 13.2 Objection to Contractor's Employees
- 14.1 Contractor's Equipment
- 14.2 Safety Precautions
- 14.3 Electricity, Water and Gas
- 14.4 Employer's Equipment
- 14.5 Clearance of Site
- 14.6 Opportunities for Other Contractors
- 14.7 Authority for Access
- 14.8 Information for Import Permits and Licences
- 15.1 Compliance with Statutes, Regulations
- 15.2 Compliance with Laws
- 16.1 Patent Rights
- 16.2 Claims in respect of Patent Rights
- 16.3 Employer's Warranty of Patent Rights

### **Obligations of the Employer**

- 17.1 Access to and Possession of the Site
- 17.2 Assistance with Local Regulations
- 17.3 Civil Works on Site
- 17.4 Consents and Wayleaves
- 17.5 Import Permits and Licences

### **Laborur**

- 18.1 Engagement of Labour
- 18.2 Returns of Labour
- 18.3 Working Hours
- 18.4 Restriction of Working Hours

### **Workmanship and Materials**

- 19.1 Manner of Execution
- 19.2 Covering up Work
- 19.3 Uncovering Work
- 20.1 Independent Inspection
- 20.2 Inspection and Testing During Manufacture
- 20.3 Dates for Inspection and Testing
- 20.4 Facilities for Testing
- 20.5 Certificate of Testing
- 21.1 Rejection

22.1 Permission to Deliver

### **Suspension of Works, Delivery or Erection**

23.1 Order to Suspend  
24.1 Cost of Suspension  
24.2 Payment in Event of Suspension  
24.3 Prolonged Suspension  
24.4 Resumption of Work

### **Completion**

25.1 Time for Completion  
26.1 Extension of Time for Completion  
26.2 Delays by Subcontractors  
26.3 Earlier Completion  
27.1 Delay in Completion  
27.2 Prolonged Delay

### **Tests on Completion**

28.1 Notice of Tests  
28.2 Time for Tests  
28.3 Delayed Tests  
28.4 Facilities for Tests on Completion  
28.5 Retesting  
28.6 Disagreement as to Result of Tests  
28.7 Consequences of Failure to Pass Tests on Completion  
28.8 Use by the Employer  
28.9 Test Certificate

### **Taking Over**

29.1 Taking-Over  
29.2 Taking-Over Certificate  
29.3 Use before Taking-Over  
29.4 Interference with Tests on Completion

### **Defects after Taking Over**

30.1 Defects Liability Period  
30.2 Making Good Defects  
30.3 Notice of Defects  
30.4 Extension of Defects Liability Period  
30.5 Failure to Remedy Defects  
30.6 Removal of Defective Work  
30.7 Further Tests on Completion  
30.8 Right of Access  
30.9 Defects in Employer's and Engineer's Designs  
30.10 Contractor to Search  
30.11 Defects Liability Certificate  
30.12 Exclusive Remedies

## **Variations**

- 31.1 Engineer's Right to Vary
- 31.2 Variation Order Procedure
- 31.3 Disagreement on Adjustment of the Contract Price
- 31.4 Contractor to Proceed
- 31.5 Record of Costs

## **Ownership of Plant**

- 32.1 Ownership of Plant

## **Certificates and Payment**

- 33.1 Terms of Payment
- 33.2 Method of Application
- 33.3 Issue of Certificate of Payment
- 33.4 Corrections to Certificates of Payment
- 33.5 Payment
- 33.6 Delayed Payment
- 33.7 Remedies on Failure to Certify or Make Payment
- 33.8 Payment by Measurement
- 33.9 Application for Final Certificate of Payment
- 33.10 Issue of Final Certificate of Payment
- 33.11 Final Certificate of Payment Conclusive

## **Claims**

- 34.1 Procedure
- 34.2 Assessment

## **Foreign Currency and Rates of Exchange**

- 35.1 Payment in Foreign Currencies
- 35.2 Currency Restrictions
- 35.3 Rates of Exchange

## **Provisional Sums**

- 36.1 Use of Provisional Sums
- 36.2 Ordering Work against Provisional Sums
- 36.3 Invoices and Receipts
- 36.4 Payment against Provisional Sums

## **Risks and Responsibility**

- 37.1 Allocation of Risks and Responsibility
- 37.2 Employer's Risks
- 37.3 Contractor's Risks

## **Care of the Works and Passing of Risk**

- 38.1 Contractor's Responsibility for the Care of the Works
- 38.2 Risk Transfer Date
- 39.1 Passing of Risk of Loss or of Damage to the Works
- 39.2 Loss or Damage Before Risk Transfer Date
- 39.3 Loss or Damage After Risk Transfer Date

## **Damage to Property and Injury to Persons**

- 40.1 Contractor's Liability
- 40.2 Employer's Liability
- 41.1 Accidents

## **Limitations of Liability**

- 42.1 Liability for Indirect or Consequential Damage
- 42.2 Maximum Liability
- 42.3 Liability after Expiration of Defects Liability Period
- 42.4 Exclusive Remedies
- 42.5 Mitigation of Loss or Damage
- 42.6 Foreseen Damage

## **Insurance**

- 43.1 The Works
- 43.2 Contractor's Equipment
- 43.3 Third Party Liability
- 43.4 Employees
- 43.5 General Requirements of Insurance Policies
- 43.6 Permitted Exclusions from Insurance Policies
- 43.7 Remedies on the Contractor's Failure to Insure
- 43.8 Amounts not Recovered

## **Force Majeure**

- 44.1 Definition of Force Majeure
- 44.2 Effect of Force Majeure
- 44.3 Notice of Occurrence
- 44.4 Performance to Continue
- 44.5 Additional Costs caused by Force Majeure
- 44.6 Damage caused by Force Majeure
- 44.7 Termination in Consequence of Force Majeure
- 44.8 Payment on Termination for Force Majeure
- 44.9 Release from Performance
- 44.10 Force Majeure Affecting Engineer's Duties

## **Default**

- 45.1 Notice of Default
- 45.2 Contractor's Default



- 45.3 Valuation at Date of Termination
- 45.4 Payment after Termination
- 45.5 Effect on Liability for Delay
- 46.1 Employer's Default
- 46.2 Removal of Contractor's Equipment
- 46.3 Payment on Termination for Employer's Default

### **Changes in Cost and Legislation**

- 47.1 Labour, Materials and Transport
- 47.2 Statutory and Other Regulations

### **Customs**

- 48.1 Customs and Import Duties
- 48.2 Clearance through Customs

### **Notices**

- 49.1 Notice to Contractor
- 49.2 Notice to Employer and Engineer
- 49.3 Minutes of Meetings

### **Disputes and Arbitration**

- 50.1 Disputes concerning Engineer's Decisions
- 50.2 Arbitration
- 50.3 Works to Continue
- 50.4 Time Limit for Arbitration

### **Law and Procedure**

- 51.1 Applicable Law
- 51.2 Procedural Law
- 51.3 Language

## **INDEX**

## **PART-I: GENERAL CONDITIONS OF CONTRACT**

### **Definitions and Interpretations**

#### **1.1 Definitions**

In the Contract (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them:

**1.1.1** "Commencement Date" means whichever the latest is of:

- i) the date specified in the Preamble as the date for commencement of the Works or the date when the Contractor receives,
- ii) such payment in advance of the commencement of the Works as may be specified in the terms of payment, or
- iii) notice of the issue of any import license necessary for commencing performance of the Contract, or
- iv) notice that any legal requirements necessary for the Contract to enter into force have been fulfilled, or
- v) notice that any necessary financial or administrative requirements specified in Part II as conditions precedent to commencement have been fulfilled.

**1.1.2** "Conditions" means the Preamble to and these Conditions of Contract, Parts I and II.

**1.1.3** "Contract" means the agreement between the Employer and the Contractor for the execution of the Works incorporating the Conditions, Specification, Employer's Drawings and Contractor's Drawings, priced and completed Schedules, Tender, Letter of Acceptance and such further documents as may be expressly incorporated by the Letter of Acceptance.

**1.1.4** "Contract Agreement" means the documents recording the terms of the Contract between the Employer and the Contractor.

**1.1.5** "Contract Price" means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution of the Works.

**1.1.6** "Contractor" means the person whose tender has been accepted by the Employer and the legal successors in title to the Contractor but not (except with the consent of the Employer) any assignee of the Contractor.

**1.1.7** "Contractor's Drawings" means all drawings, samples, patterns, models and operation and maintenance manuals to be submitted by the Contractor in accordance with Clause 6.

**1.1.8** "Contractor's Equipment" means all appliances or things of whatsoever nature required for the purposes of the Works but does not include Plant.

**1.1.9** "Contractor's Risks" means the risks defined in Sub-Clause 37.3.

- 1.1.10** "Defects Liability Certificate" means the certificate to be issued by the Engineer to the Contractor in accordance with Sub-Clause 30.11.
- 1.1.11** "Defects Liability Period" means one year or the period stated in Part II following taking over, during which the Contractor is responsible for making good defects and damage in accordance with Clause 30.
- 1.1.12** "Employer" means the person named as such in the Preamble and the legal successors in title to the Employer but not (except with the consent of the Contractor) any assignee of the Employer.
- 1.1.13** "Employer's Drawings" means all the drawings and information provided by the Employer or the Engineer to the Contractor under the Contract.
- 1.1.14** "Employer's Risks" means those risks defined in Sub-Clause 37.2.
- 1.1.15** "Engineer" means the person appointed by the Employer to act as Engineer for the purposes of the Contract and designated as such in the Preamble.
- 1.1.16** "Engineer's Representative" means any representative of the Engineer appointed from time to time by the Engineer under Sub-Clause 2.2.
- 1.1.17** "Final Certificate of Payment", means the certificate to be issued by the Engineer to the Employer in accordance with Sub-Clause 33.10.
- 1.1.18** "Force Majeure" has the meaning assigned to it under Sub-Clause 44.1.
- 1.1.19** "Foreign Currency" means a currency of a country other than that in which Plant is to be installed.
- 1.1.20** "Gross Misconduct" means any act or omission of the Contractor in violation of the most elementary rules of diligence which a conscientious contractor in the same position and under the same circumstances would have followed.
- 1.1.21** "Letter of Acceptance" means the formal acceptance by the Employer of the Tender incorporating any adjustments or variations to the Tender agreed between the Employer and the Contractor.
- 1.1.22** "Performance Security" means the security to be provided by the Contractor in accordance with Sub-clause 10.1. for the due performance of the Contract.
- 1.1.23** "Plant" means machinery, apparatus, materials and all things to be provided under the Contract for incorporation in the Works.
- 1.1.24** "Programme" means the Programme to be submitted by the Contractor in accordance with Sub-Clause 12.1 and any approved revision thereto.
- 1.1.25** "Provisional Sum" means a sum, described as such for the execution of work or for the supply of goods or services, to be used in accordance with Sub-Clause 36.1.
- 1.1.26** "Risks Transfer Date" means the date when the risk of loss of or damage to the Works passes from the Contractor to the Employer in accordance with Sub-Clause 39.1.

- 1.1.27** "Schedule of Prices" means the completed and priced Schedule of Prices, or any part or individual schedule thereof, submitted by the Contractor with his Tender and forming a part of the Contract documents.
- 1.1.28** "Section" means a part of the Works specifically identified as such as in the Contract.
- 1.1.29** "Site" means the place or places, provided or made available by the Employer where work is to be done by the Contractor or to which Plant is to be delivered, together with so much of the area surrounding the same as the Contractor shall with the consent of the Employer use in connection with the Works otherwise than merely for the purposes of access.
- 1.1.30** "Specification" means the specification of the Works included in the Contract and any modification thereof made in accordance with Clause 31.
- 1.1.31** "Subcontractor" means any person (other than the Contractor) named in the Contract for any part of the Works, or any person to whom any part of the Contract has been subcontracted with the consent of the Engineer, and the Subcontractor's legal successors in title but not any assignee of the Subcontractor.
- 1.1.32** "Taking-Over Certificate" means the certificate to be given by the Engineer to the Contractor in accordance with Clause 29.
- 1.1.33** "Tender" means the Contractor's priced offer to the Employer for the Execution of the Works.
- 1.1.34** "Tests on Completion" means the tests specified in the Contract or otherwise agreed by the Engineer and the Contractor to be performed before the Works are taken over by the Employer.
- 1.1.35** "Time for Completion" means the time stated in the Preamble for completing the Works or any Section thereof and passing the Tests on Completion calculated from the Commencement Date unless extended in accordance with Clause 26.
- 1.1.36** "Variation Order" means any written order, identified as such, issued to the Contractor by the Engineer under Sub-Clause 31.1.
- 1.1.37** "Works" means all Plant to be provided and work to be done by the Contractor under the Contract.

## **1.2 Headings and Titles**

The headings and titles in these Conditions shall not be deemed part thereof or be taken into consideration in the interpretation or construction of the Contract.

## **1.3 Interpretation**

Words importing persons or parties shall include firms and corporations and any organisation having legal capacity.

Words importing the singular only also include the plural and vice versa where the context requires.

#### **1.4 Written Communications**

Wherever in the contract provision is made for a communication to be "written" or "in writing" this means any hand-written, type-written or printed communication, including telex, cable and facsimile transmission.

#### **1.5 Notices, Consents and Approvals**

Wherever in the Contract provision is made for the giving of notice, consent or approval by any person, such consent or approval shall not be unreasonably withheld. Unless otherwise specified, such notice, consent or approval shall be in writing and the word "notify" shall be construed accordingly.

#### **1.6 Costs, Overhead Charges and Profit**

Whenever by these Conditions the Contractor is entitled to be paid cost, such cost shall be properly incurred and shall include any overhead charges properly allocable thereto but not profit unless so stated. Any profit entitlement shall be added to cost at the percentage stated in the Preamble.

#### **1.7 Periods**

In these Conditions "days" means calendar day and "year" means 365

days. **Engineer and Engineer's Representative**

#### **2.1 Engineer's Duties**

The Engineer shall carry out the duties specified in the Contract.

If the Engineer is required, under the terms of his appointment by the Employer, to obtain the specific approval of the Employer before carrying out any of these duties, full particulars of such requirements shall be set out in Part II.

Except as expressly stated in the Contract the Engineer shall have no authority to relieve the Contractor of any of his obligations under the Contract.

#### **2.2 Engineer's Representative**

The Engineer's Representative shall be appointed by and be responsible to the Engineer and shall only carry out such duties and exercise such authority as may be delegated to him by the Engineer under Sub-Clause 2.3.

#### **2.3 Engineer's Power to Delegate**

The Engineer may from time to time delegate to the Engineer's Representative any of the duties vested in the Engineer and may at any time revoke such delegation.

Any such delegation or revocation shall be in writing and shall not take effect until a copy thereof has been delivered to the Contractor and the Employer.

Any decision, instruction or approval given by the Engineer's Representative to the Contractor in accordance with such delegation shall have the same effect as though it had been given by the Engineer. However:

- (a) any failure of the Engineer's Representative to disapprove any Plant or workmanship shall not prejudice the right of the Engineer to disapprove such Plant or workmanship and to give instructions for the rectification thereof.
- (b) if the Contractor questions any decision or instruction of the Engineer's Representative he may refer the matter to the Engineer who shall confirm, reverse or vary such decision or instruction.

#### **2.4 Engineer to Act Impartially**

Wherever under the Contract the Engineer is required to exercise his discretion by:

- (a) giving his decision, opinion or consent, or
- (b) expressing his satisfaction or approval, or
- (c) determining value, or
- (d) otherwise taking action which may affect the rights and obligations of the Employer or the Contractor,

he shall exercise such discretion impartially within the terms of the Contract and having regard to all the circumstances.

#### **2.5 Engineer's Decisions and Instructions**

The Contractor shall proceed with the decisions and instructions given by the Engineer in accordance with these Conditions.

#### **2.6 Confirmation in Writing**

The Contractor may require the Engineer to confirm in writing any decision or instruction of the Engineer which is not in writing. The Contractor shall notify the Engineer of such requirement without undue delay. Such a decision or instruction shall not be effective until written confirmation thereof has been received by the Contractor.

#### **2.7 Disputing Engineer's Decisions and Instructions**

If the Contractor disputes or questions any decision or instruction under Sub-Clause 2.5 or a written confirmation under Sub-Clause 2.6, he shall give notice to the Engineer within twenty eight (28) days after receipt thereof, giving his reasons.

The Engineer shall within a further period of twenty eight (28) days by notice to the Contractor and the Employer with reasons, confirm, reverse or vary such decision or instruction.

If either party disagrees with the action taken by the Engineer, or if the Engineer fails to reply to the Contractor's notice within the stipulated twenty eight (28) days, and the

matter cannot be settled amicably that party shall be at liberty, subject to Sub-Clause 50.1, to refer the matter to arbitration in accordance with the Contract.

## **2.8 Replacement of Engineer**

The Employer shall not appoint any person to act in replacement of the Engineer without the consent of the Contractor.

## **Assignment and Subcontracting**

### **3.1 Assignment**

The Contractor shall not assign the Contract or any part of his obligations under the Contract. A charge in favour of the Contractor's bankers of any monies due under the Contract shall not be considered an assignment.

### **4.1 Subcontracting**

The Contractor shall not subcontract the whole of the Works.

Except where otherwise provided by the Contract, the Contractor shall not subcontract any part of the Works without the prior consent of the Engineer.

The Contractor shall however, not require such consent for purchases of materials or to place contracts for minor details or for any part of the Works of which the manufacturer or supplier is named in the Contract.

The Contractor shall be responsible for the acts, defaults and neglects of any Subcontractor, his agents or employees as fully as if they were the acts, defaults or neglects of the Contractor, his agents or employees.

## **Contract Documents**

### **5.1 Ruling Language**

Where versions of the Contract are prepared in different languages, the version which is to prevail shall be specified in the Preamble. The language of such version is referred to as the ruling language.

### **5.2 Day to Day Communications**

The language for day to day communications is stated in the Preamble.

### **5.3 Priority of Contract Documents**

Unless otherwise provided in the Contract, the priority of the Contract documents shall be as follows:

1. The Letter of Acceptance
2. The Preamble
3. The Conditions of Contract, Part II

4. The Conditions of Contract, Part I
5. Any other documents forming part of the Contract.

#### **5.4 Documents Mutually Explanatory**

Subject to Sub-Clause 5.3. the Contract documents shall be taken as mutually explanatory. Any ambiguities or discrepancies shall be resolved by the Engineer, who shall then instruct the Contractor thereon.

If the Contractor considers that compliance with such instructions will result in any cost which the Contractor could not reasonably have anticipated, he shall forthwith inform the Engineer with full supporting details. The Engineer shall then, if he approves, certify such costs as may be reasonable, together with profit where appropriate, which shall be added to the Contract Price.

If on the other hand compliance with such instructions results in lower costs for the Contractor then he had reason to anticipate, the Engineer shall certify a deduction from the Contract Price allowing for profit where appropriate.

#### **6.1 Contractor's Drawings**

The Contractor shall submit to the Engineer for approval:

(a) within the time given in the Contract or in the Programme such drawings, samples, models or information as may be called for therein, and in the numbers therein required, and

(b) during the progress of the Works, such drawings of the general arrangement and details of the Works as specified in the Contract or as the Engineer may require.

The Engineer shall signify his approval or disapproval thereof. If he fails to do so within the time given in the Contract or the Programme or if no time limit is specified, within twenty eight (28) days of receipt, they shall be deemed to be approved.

Approved drawings, samples and models shall be signed or otherwise identified by the Engineer.

The Contractor shall supply additional copies of approved drawings in the form and numbers stated in the Contract.

#### **6.2 Consequences of Disapproval of Contractor's Drawings**

Any Contractor's Drawings which the Engineer disapprove shall be forthwith modified to meet the requirements of the Engineer and shall be re-submitted.

#### **6.3 Approved Contractor's Drawings**

Approved Contractor's Drawings shall not be departed from except as provided in Clause 31.



#### **6.4 Inspection of Contractor's Drawings**

The Engineer shall have the right at all reasonable times to inspect, at Contractor's premises, all Contractor's Drawings of any part of the Works.

#### **6.5 Erection Information**

The Contractor shall provide, within the times stated in the Contract or in the Programme, drawings showing how the Plant is to be affixed and any other information required for:

- (a) preparing suitable foundations or other means of support;
- (b) providing suitable access on the Site for the Plant and any necessary equipment to the place where the Plant is to be erected; and
- (c) making necessary connections to the Plant.

#### **6.6 Operation and Maintenance Manuals**

Before the Works are taken over in accordance with Clause 29 the Contractor shall supply operation and maintenance manuals together with drawings of the Works as built. These shall be in such detail as will enable the Employer to operate, maintain, adjust and repair all parts of the Works.

Unless otherwise stated in Part II the manuals and drawings shall be in the ruling language, and in such form and numbers as stated in the Contract.

Unless otherwise agreed, the Works shall not be considered to be completed for the purposes of taking over until such manuals and drawings have been supplied to the Employer.

#### **6.7 Employer's Use of Contractor's Drawings**

Contractor's Drawings may be used by the Employer for no other purpose than completing, operating, maintaining, adjusting and repairing the Works.

#### **6.8 Contractor's Use of Employer's Drawings**

The Employer's Drawings, Specification and other information submitted by the Employer or the Engineer to the Contractor shall remain the property of the Employer. These shall not, without the consent of the Employer, be used, copied or communicated to a third party by the Contractor unless necessary for the purposes of the Contract.

#### **6.9 Manufacturing Drawings**

Unless otherwise specified in Part II, the Contractor shall not be required to disclose to the Employer or the Engineer the Contractor's confidential manufacturing drawings, designs, know-how or manufacturing practices, processes or operations.

#### **7.1 Errors in Contractor's Drawings**

The Contractor shall be responsible for any errors or omissions in the Contractor's Drawings unless they are due to incorrect Employer's Drawings or other written information supplied by the Employer or the Engineer. Approval by the Engineer of the Contractor's Drawings shall not relieve the Contractor from any responsibility under this Sub-Clause.

The Contractor shall bear any costs he may incur as a result of delay in providing Contractor's Drawings and other information or as a result of errors or omissions therein, for which the Contractor is responsible.

The Contractor shall at his own cost carry out any alterations or remedial work necessitated by such errors or omissions for which he is responsible and modify the Contractor's Drawings and such other information accordingly.

The performance of his obligations under this Clause shall be in full satisfaction of the Contractor's liability under this Clause but shall not relieve him of his liability under Sub-Clause 27.1.

## **7.2 Errors by Employer or Engineer**

The Employer shall be responsible for the Employer's Drawings and for other written information supplied by the Employer or the Engineer and for the details of special work specified by either of them. If such Employer's Drawings, information or details are incorrect and necessitate alterations of the work, the Employer shall pay the Contractor the cost of the alterations together with profit as certified by the Engineer.

## **Obligations of the Contractor**

### **8.1 General Obligations**

The Contractor shall, in accordance with the Contract, with due care and diligence, design, manufacture, deliver to Site, erect, test and commission the Plant and carry out the Works within the Time for Completion. The Contractor shall also provide all necessary Contractor's Equipment, superintendence, labour and, except as stated in Part II, all necessary facilities therefor.

### **8.2 Setting Out**

The Contractor shall set out the Works in relation to original points, lines and levels of reference given by the Engineer in writing and provide all necessary instruments, appliances and labour for such purposes.

If, at any time during the execution of the Works, any error appears in the positions, levels, dimensions or alignment of the Works, the Contractor shall rectify the error.

The Contractor shall bear the cost of rectifying the error, unless the error results from incorrect information supplied in writing by the Employer, the Engineer or from default by another contractor, in which case the cost together with profit shall be borne by the Employer.

The checking of any setting-out by the Engineer shall not relieve the Contractor of his responsibility for the accuracy thereof.

## **9.1 Contract Agreement**

The Contractor shall, if called upon so to do, execute a Contract Agreement recording all the terms of the Contract, to be prepared by and completed at the cost of the Employer in the form annexed hereto.

## **10.1 Performance Security**

If Part II requires the Contractor to obtain a Performance Security, he shall obtain the same in the sum required, within twenty eight (28) days after the receipt of the Letter of Acceptance. The Performance Security shall be provided by a person and in a form approved by the Employer. The cost of complying with the requirements of this Clause shall be borne by the Contractor.

## **10.2 Period of Validity**

The Performance Security shall be valid until the Contractor has executed, completed and remedied defects in the Works in accordance with the Contract. No claim shall be made against the Performance Security after the issue of the Defects Liability Certificate and the Performance Security shall be returned to the Contractor within fourteen (14) days of the issue of the Defects Liability Certificate.

## **10.3 Claims under Performance Security**

Whether or not the Performance Security is stated by its terms to be payable on the demand of the Employer the Employer shall not make a claim under the Performance Security unless one of the following conditions is satisfied:

(a) the Contractor is in breach of the Contract and fails to remedy the breach within forty two (42) days after receiving written notice from the Employer requiring him so to do. The notice shall state the intention to claim under the Performance Security, the amount claimed and the breach relied upon, or

(b) the Employer and the Contractor have agreed in writing that the amount demanded is payable to the Employer, and the amount has not been paid within forty two (42) days thereafter, or

(c) the Employer has obtained an award in arbitration under Clause 50 and the amount awarded has not been paid within forty two (42) days after the award, or

(d) the Contractor has gone into liquidation or is bankrupt.

In every case the Employer shall, when making the claim, send a copy to the Contractor.

## **11.1 Site Data**

The Tender shall be deemed to have been based on such data on climatic, hydrological and general conditions on the Site and for the operation of the Works as the Employer

or the Engineer has made available to the Contractor for the purposes of the Tender. The Contractor shall be responsible for his own interpretation of such data.

## **11.2 Sufficiency of Contract Price**

The Contractor shall be deemed to have satisfied himself on and taken account of in his Tender:

- (a) all the conditions and circumstances affecting the Contract Price,
- (b) the possibility of carrying out the Works as described in the Contract,
- (c) the general circumstances at the Site (if access has been made available to him) and
- (d) the general labour position at the Site.

The Contractor shall not be responsible for the accuracy of information given in writing by the Employer or the Engineer but shall be responsible for his interpretation of information received from whatever source.

## **11.3 Physical Obstructions and Conditions**

If during the execution of the Works on Site the Contractor encounters physical obstructions or conditions of the kind stipulated in Sub-Clause 26.1.c) the Contractor shall be entitled to recover the additional cost incurred in consequence.

The Engineer shall certify and there shall be added to the Contract Price the additional cost of:

- (a) complying with any instruction which the Engineer, after due consultation with the Employer and the Contractor, issues to the Contractor in connection therewith, and
- (b) any necessary measures which the Contractor may take in the absence of specific instructions from the Engineer.

## **12.1 Programme to be Furnished**

The Contractor shall submit to the Engineer for his approval the Programme which shall contain the following:

- (a) the order in which the Contractor proposes to carry out the Works (including design, manufacture, delivery to Site, erection, testing and commissioning),
- (b) the times when submission and approval of the Contractor's Drawing are required,
- (c) the times by which the Contractor requires the Employer:
  - (i) to furnish any Employer's Drawings,
  - (ii) to provide access to the Site,

- (iii) to have completed the necessary civil engineering work (including foundations for the Plant) and
- (iv) to have obtained any import licences, consents, wayleaves and approvals necessary for the purpose of the Works.

The Contractor shall submit the Programme in the form stated in the Preamble within twenty eight (28) days after the Commencement Date.

The approval by the Engineer of the Programme shall not relieve the Contractor or the Employer from any obligation under the Contract.

## **12.2 Alteration to Programme**

No material alteration to the Programme shall be made without the approval of the Engineer.

## **12.3 Revision of Programme**

If the progress of the Works does not conform to the Programme, the Engineer may instruct the Contractor to revise the Programme.

If such modifications are required for reasons for which the Contractor is not responsible, the cost of preparing the revised Programme shall be certified by the Engineer and added to the Contract Price.

## **13.1 Contractor's Representative**

The Contractor shall employ one or more competent representatives to superintend the carrying out of the Works on Site. They shall be fluent in the language for day to day communications. Their names shall be communicated in writing to the Engineer before work on Site begins.

Any instruction or notice which the Engineer gives to the Contractor's representative shall be deemed to have been given to the Contractor.

## **13.2 Objection to Contractor's Employees**

The Contractor shall, upon the Engineer's written instruction, remove from the Works any person employed by him in the execution of the Works, who misconducts himself or is incompetent or negligent.

## **14.1 Contractor's Equipment**

Except to the extent specified in Part II, the Contractor shall provide all Contractor's Equipment necessary to complete the Works.

All Contractor's Equipment shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any such equipment, except:

- (a) when it is no longer required for the completion of the Works, or

(b) when the Engineer has given his consent.

## **14.2 Safety Precautions**

The Contractor shall observe all applicable regulations regarding safety on the Site.

Unless otherwise agreed, the Contractor shall, from the commencement of work on Site until taking over provide:

(a) fencing, lighting, guarding and watching of the Works, and

(b) temporary roadways, footways, guards and fences which may be necessary for the accommodation and protection of owners and occupiers of adjacent property, the public and others.

## **14.3 Electricity Water and Gas**

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details are given in the Preamble. The Contractor shall pay the Employer a fair price for such use. The Contractor shall at his own cost provide any apparatus necessary for such use.

## **14.4 Employer's Equipment**

The Employer shall, if the Contractor so requests for the execution of the Works, operate any available equipment of which details are given in the Preamble. The Contractor shall pay the Employer a fair price for such use.

The Employer shall during such operation retain control of and be responsible for the safe working of the equipment.

## **14.5 Clearance of Site**

The Contractor shall from time to time during the progress of the Works clear away and remove all surplus materials and rubbish. On completion of the Works the Contractor shall remove all Contractor's Equipment and leave the whole of the Site and the Works clean and in a workmanlike condition, to the satisfaction of the Engineer.

## **14.6 Opportunities for Other Contractors**

The Contractor shall, in accordance with the Engineer's instructions, afford to other contractors engaged by the Employer to work on the Site and persons lawfully upon the Site all reasonable opportunities for carrying out their work provided that the same shall not obstruct or disturb the progress of the Works. The Contractor shall also afford such opportunities to the employees of the Employer.

If the Contractor, on the written request of the Engineer, makes available any Contractor's Equipment or provides any other service, the Employer shall pay the

Contractor accordingly. The amount to be paid shall be certified by the Engineer and added to the Contract Price.

#### **14.7 Authority for Access**

No persons other than the employees of the Contractor and his Subcontractors shall be allowed on the Site except with the consent of the Engineer.

Facilities to inspect the Works shall at all times be afforded by the Contractor to the Engineer and his representative, the Employer's representatives, authorities and officials.

#### **14.8 Information for Import Permits and Licenses**

The Contractor shall submit to the Employer in good time such details of all Plant and Contractor's Equipment as will enable the Employer to obtain all necessary import permits or licenses.

#### **15.1 Compliance with Statutes, Regulations**

The Contractor shall, in all matters arising in the performance of the Contract, comply in all respects with, give all notices and pay all fees required by the provisions of any national or state statute, ordinance or other law or any regulation or bye-law of any duly constituted authority.

#### **15.2 Compliance with Laws**

The Contractor shall comply with the laws of the country of manufacture concerning the manufacture of the Plant, and the laws of the country where the Plant is to be erected so far as such laws concern the manufacture, erection and operation of the Works.

#### **16.1 Patent Rights**

The Contractor shall indemnify the Employer against all claims of infringement of any patent, registered design, copyright, trade mark or trade name or other intellectual property right provided that all of following conditions are satisfied:

- (a) The claim or proceedings arise out of the design, construction, manufacture or use of Works or any Plant supplied by the Contractor.
- (b) The right was protected at the date of the Contract in the Contractor's country or the country in which the Plant is to be manufactured or erected.
- (c) The infringement or allegation of infringement was not caused by any use of the Works otherwise than for purpose indicated by or reasonably to be inferred from date Specification.
- (d) The infringement or allegation of infringement was not caused by the use of any Plant in association or combination with any plant not supplied by the

Contractor, unless such association or combination was disclosed to the Contractor prior to the due of the Tender.

- (e) The infringement of or allegation of infringement was not caused by the Contractor following the design or instructions of the Employer or the Engineer.

## **16.2 Claims in respect of Patent Right**

The Contractor shall be promptly notified of any claim under this Clause made against the Employer. The Contractor may at his own cost conduct negotiations for the settlement of such claim, and any litigation that may arise there from.

The Employer shall not make any admission which might be prejudicial to the Contractor unless the Contractor has failed to take over the conduct of the negotiations or litigation within a reasonable time after having been so requested.

The Contractor may not, however, conduct such negotiations or litigation before he has given the Employer such reasonable security as the Employer may require. The security shall be for an amount which is an assessment of the compensation, damages, expenses and costs for which the Employer may become liable and which are the subject of the indemnity under Sub-Clause 16.1.

The Employer shall, at the request of the Contractor, provide all available assistance for the purpose of contesting any such claim or action, and shall be repaid all reasonable costs incurred in so doing.

## **16.3 Employer's Warranty for Patent Rights**

If any matter for which the Contractor is not liable to indemnify the Employer under Sub-Clause 16.1 causes the infringement or allegation of infringement by the Contractor of any patent, registered design, trade mark, copyright or other intellectual property right, the Employer shall indemnify the Contractor against all claims damages, expenses and costs which the Contractor may incur in relation thereto. The provisions of Sub-Clause 16.2 shall apply mutatis mutandis.

## **Obligations of the Employer**

### **17.1 Access to and Possession of the Site**

The Employer shall in reasonable time grant the Contractor access to and possession of the Site, which may, however, not be exclusive to the Contractor.

The Employer shall to the extent stated in the Specification provide means of access for the delivery of all Plant and Contractor's Equipment to the Site.

### **17.2 Assistance with Local Regulations**

The Employer shall assist the Contractor in ascertaining the nature and extent of any laws, regulations, orders or bye-laws, and customs in the country where the Plant is to be erected, which may affect the Contractor in the performance of his obligations under the Contract. The Employer shall if so requested procure for the Contractor copies thereof and information relating thereto at the Contractor's cost.



### **17.3 Civil Works on Site**

Any building, structure, foundation or means of access on the Site to be provided by the Employer shall be in a condition suitable for the reception, movement, installation and maintenance of the Works within the time or times indicated in the Programme.

### **17.4 Consents and Wayleaves**

The Employer shall in due time obtain or grant all consents including permits-to-work, wayleaves and approvals required for the Works.

### **17.5 Import Permits and Licences**

The Employer shall obtain all import permits or licences required for any part of the Plant or Works in reasonable time having regard to the time for delivery of the Plant and completion of the Works.

### **Labour**

#### **18.1 Engagement of Labour**

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all labour and for their payment, housing feeding and transport.

#### **18.2 Returns of Labour**

The Contractor shall submit detailed returns showing the supervisory staff and the numbers of the several classes of labour from time to time employed by the Contractor and Subcontractors on the Site. The returns shall be submitted in such form and at such intervals as the Engineer may prescribe.

#### **18.3 Working Hours**

On the Site, the Contractor shall observe the normal working hours stated in the Preamble. The Employer shall allow the Contractor to carry out work on the Site continuously during such working hours.

The Engineer may after consulting the Employer and the Contractor, direct that work shall be done at other times. The extra cost, together with profit, shall be added to the Contract Price unless it has become necessary for the completion of the Works within the Time for Completion, and this is due to the default of the Contractor.

#### **18.4 Restriction on Working Hours**

No work shall be carried out on the Site outside normal working hours or on the locally recognised days of rest, unless:

- (a) the Contract so provides, or
- (b) the work is unavoidable or necessary for the saving of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer, or

(c) the Engineer gives his consent.

## **Workmanship and Materials**

### **19.1 Manner of Execution**

All Plant to be supplied shall be manufactured and all work to be done shall be executed in the manner set out in the Contract.

Where the manner of manufacture and execution is not set out in the Contract, the work shall be executed in a proper and workmanlike manner in accordance with recognised good practice.

### **19.2 Covering up Work**

The Contractor shall give the Engineer full opportunity to examine, measure and test any work on Site which is about to be covered up or put out of view.

The Contractor shall give due notice to the Engineer whenever such work is ready for examination, measurement or testing.

The Engineer shall then, unless he notifies the Contractor that he considers it unnecessary, without unreasonable delay carry out the examination, measurement or testing.

### **19.3 Uncovering Work**

If so instructed by the Engineer, the Contractor shall expose any parts of the Works. The Contractor shall reinstate and make good such parts to the Engineer's satisfaction.

If any parts of the Works have been covered up or put out of view by the Contractor after complying with Sub-Clause 19.2 and are found to be in accordance with the Contract the cost incurred by the Contractor in complying with the Engineer's instructions including profit shall be certified by the Engineer and added to the Contract Price.

### **20.1 Independent Inspection**

The Engineer may, if so provided in the Contract or with the Contractor's consent, delegate inspection and testing of Plant to an independent inspector. Any such delegation shall be effected in the manner required by Sub-Clause 2.3 and for this purpose such independent inspector shall be considered as an Engineer's Representative. Notice of such appointment (being not less than 14 days) shall be given by the Engineer to the Contractor.

### **20.2 Inspection and Testing During Manufacture**

The Engineer shall be entitled during manufacture to inspect, examine and test the materials and workmanship and check the progress of manufacture of all Plant to be

supplied under the Contract. This shall take place on the Contractor's premises during working hours. If Plant is being manufactured on other premises, the Contractor shall obtain permission for the Engineer to carry out such inspection, examination and testing on those premises.

No such inspection, examination or testing shall release the Contractor from any obligation under the Contract.

### **20.3 Dates for Inspection and Testing**

The Contractor shall agree with the Engineer the time and place for the testing of any Plant as provided in the Contract. The Engineer shall give the Contractor 24 hours notice of his intention to attend the tests.

If the Engineer does not attend on the date agreed, the Contractor may, unless the Engineer instructs the Contractor not to do so, proceed with the tests, which shall be deemed to have been made in the Engineer's presence.

The Contractor shall forthwith forward to the Engineer duly certified copies of the test results. If the Engineer has not attended the test, he shall accept the validity of the test readings.

### **20.4 Facilities for Testing**

Where the Contract provides for tests on the premises of the Contractor or of any Sub-Contractor, the Contractor shall provide such assistance, labour materials, electricity, fuel, stores, apparatus and instruments as may be necessary to carry out the test efficiently.

### **20.5 Certificate of Testing**

When Plant has passed the tests referred to in this Clause, the Engineer shall furnish to the Contractor a certificate or endorse the Contractor's test certificate to that effect.

### **21.1 Rejection**

If, as a result of the inspection, examination or testing referred to in Clause 20, the Engineer decides that any Plant is defective or otherwise not in accordance with the Contract, he may reject such Plant and shall notify the Contractor thereof immediately. The notice shall state the Engineer's objections with reasons. The Engineer shall not reject any Plant for minor defects which do not affect the commercial operation of such Plant.

The Contractor shall then with all speed make good the defect or ensure that any rejected Plant complies with the Contract.

If the Engineer requires such Plant to be retested, the tests shall be repeated under the same terms and conditions. All costs incurred by the Employer by the repetition of the tests shall be deducted from the Contract Price.

### **22.1 Permission to Deliver**

The Contractor shall apply in writing to the Engineer for permission to deliver any Plant or Contractor's equipment to the Site. No Plant or Contractor's Equipment may be delivered to the Site without the Engineer's written permission.

The Contractor shall be responsible for the reception on Site of the Plant and Contractor's Equipment.

### **Suspension of Works, Delivery or Erection**

#### **23.1 Order to Suspend**

The Engineer may at any time instruct the Contractor to:

- (a) suspend progress of the Works, or
- (b) suspend delivery of Plant or Contractor's Equipment which is ready for delivery to the Site at the time for delivery specified in the Programme, or if no time is specified, at the time appropriate for it to be delivered, or
- (c) suspend the erection of Plant which has been delivered to the Site.

When the Contractor is prevented from delivering or erecting Plant in accordance with the Programme the Engineer shall be deemed to have instructed a suspension except when such prevention is caused by the Contractor's default.

The Contractor shall during suspension protect and secure the Works or Plant affected at the Contractor's works or elsewhere or at the Site, as the case may be, against any deterioration, loss or damage.

#### **24.1 Cost of Suspension**

The additional cost incurred by the Contractor in protection, securing and insuring the Works or Plant and in following the Engineer's instructions under Sub-Clause 23.1 and in resumption of the work, shall be added to the Contract Price.

The Contractor shall not be entitled to be paid any additional costs if such suspension is necessary by reason of a default on the part of the Contractor.

The Contractor shall not be entitled to additional costs unless he notifies the Engineer of his intention to make such claim, within twenty eight (28) days after receipt of the order to suspend progress or delivery or of the date of deemed suspension under Sub-Clause 23.1.

#### **24.2 Payment in Event of Suspension**

The Contractor shall be entitled to payment for Plant which has not been delivered to Site if the work on Plant or delivery of Plant has been suspended for more than twenty eight (28) days. After twenty eight (28) days of suspension, the Contractor shall be entitled to payment of the value of such Plant as at the date of suspension.

A certificate of payment shall be issued on condition that:

- (a) the Contractor has marked the Plant as the Employer's property in accordance with the Engineer's instructions, and
- (b) the suspension is not due to the Contractor's default.

### **24.3 Prolonged Suspension**

If suspension under Sub-Clause 23.1. has continued for more than eighty four (84) days, and the suspension is not due to the Contractor's default, the Contractor may by notice to the Engineer require permission to proceed within twenty eight (28) days.

If permission is not granted within that time, the Contractor may treat the suspension as an omission under Clause 31 of the Section it affects, or if the suspension affects the whole of the Works, terminate the Contract and the provisions of Clause 46 shall apply.

### **24.4 Resumption of Work**

If the Contractor chooses not to treat prolonged suspension as an omission or termination under Sub-Clause 24.3, the Employer shall upon the request of the Contractor, take over the responsibility for protection, storage, security and insurance of the suspended Works and the risk of loss or damage thereto shall thereupon pass to the Employer.

After receipt of permission or an order to proceed, the Contractor, shall after due notice to the Engineer, examine the Works and the Plant affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant that may have occurred during the suspension. Cost properly incurred by the Contractor which would not have been incurred but for the suspension shall be added to the Contract Price together with profit.

The Contractor shall not be entitled to payment for costs incurred in making good any deterioration, defect or loss caused by faulty workmanship or materials or by the Contractor's failure to take the measures specified in Sub-Clause 23.1.

If the Employer has taken over risk and responsibility for the suspended Works under this Sub-Clause, risk and responsibility shall revert to the Contractor fourteen (14) days after receipt of the permission or order to proceed.

## **Completion**

### **25.1 Time for Completion**

The Works shall be completed and shall have passed the Tests on Completion within the Time for Completion

### **26.1 Extension of Time for Completion**

The Contractor may claim an extension of the Time for Completion if he is or will be delayed in completing the Works by any of the following causes:

- (a) extra or additional work ordered in writing under Clause 31,

- (b) exceptional adverse weather conditions,
- (c) physical obstructions or conditions which could not reasonably have been foreseen by the Contractor,
- (d) Employer's or Engineer's instructions, otherwise than by reason of the Contractor's default,
- (e) the failure of the Employer to fulfil any of his obligations under the Contract,
- (f) delay by any other contractor engaged by the Employer,
- (g) any suspension of the Works under Clause 23, except when due to the Contractor's default,
- (h) any industrial dispute,
- (i) the Employer's Risks, or
- (j) Force Majeure.

The Contractor shall give to the Engineer notice of his intention to make a claim for an extension of time within fourteen (14) days of the circumstances for such a claim becoming known to the Contractor. The notice shall be followed as soon as possible by the claim with full supporting details.

The Engineer shall, after due consultation with the Employer and the Contractor, grant the Contractor from time to time, either prospectively or retrospectively, such extension of Time for Completions as may be justified. The Engineer shall notify the Employer and the Contractor accordingly.

The Contractor shall be entitled to such extension whether the delay occurs before or after the Time for Completion.

## **26.2 Delays by Subcontractors**

The Contractor shall be entitled to claim an extension of time if delay on the part of a Subcontractor is due to a cause mentioned in Clause 26.1 and such delay prevents the Contractor from meeting the Time for Completion.

## **26.3 Earlier Completion**

The Employer may require completion of the Works or part thereof earlier than the Time for Completion, on the following conditions:

- (a) The Employer and the Contractor shall first agree the extra sum to be paid for each day by which the Contractor completes the Works or part thereof earlier than the Time for Completion.
- (b) The Contractor shall not become liable under Sub-Clause 27.1 for any failure to complete the Works or the part thereof by the earlier time.

## **27.1 Delay in Completion**

If the Contractor fails to complete the Works within the Time for Completion, the Employer shall be entitled to a reduction in the Contract Price unless it can be reasonably concluded from circumstance that the Employer will suffer no loss.

The Employer shall within a reasonable time give the Contractor notice of his intention to claim a reduction.

The reduction shall be the percentage per day stated in the Preamble of that part of the Contract Price which is attributable to such part of the Works as cannot in consequence of the failure be put to the intended use. The reduction shall be computed for each day between the Time for Completion and the actual date of completion.

The reduction shall in no case exceed the maximum percentage of the Contract Price of such part stated in the Preamble.

Except as provided in Sub-Clause 27.2, such reduction shall be to the exclusion of any other remedy of the Employer in respect of the Contractor's failure to complete within the Time for Completion.

## **27.2 Prolonged Delay**

If the Employer has become entitled to the maximum reduction under Sub-Clause 27.1 for any part of the Works, he may by notice require the Contractor to complete. Such notice shall fix a final time for completion which shall be reasonable.

If the Contractor fails to complete within such time, and this is not due to a cause for which the Employer or some other contractor employed by him is responsible, the Employer may by further notice to the Contractor either:

- (a) require the Contractor to complete, or
- (b) may himself complete at the Contractor's cost provided that he does so in a reasonable manner, or
- (c) terminate the Contract.

If the Employer terminates the Contract, he shall be entitled to recover from the Contractor any loss he has suffered up to the maximum amount stated in the Preamble. If no maximum amount is stated, the Employer shall not be entitled to recover more than that part of the Contract Price which is attributable to that part of the Works which cannot by reason of the Contractor's failure be put to the intended use.

The Employer shall give credit for the value of any part of the Works which he

retains. **Tests on Completion**

## **28.1 Notice of Tests**

The Employer shall give to the Engineer twenty one (21) day's notice of the date after which he will be ready to make the Tests on Completion (the Tests). Unless otherwise agreed, the Tests shall take place within fourteen (14) days after the said date on such day or days as the Engineer shall notify the Contractor.

## **28.2 Time for Tests**

If the Engineer fails to appoint a time after having been asked to do so, or does not attend at the time and place appointed, the Contractor shall be entitled to proceed with the Test in his absence. The Tests shall then be deemed to have been made in the presence of the Engineer and the results of the Tests shall be accepted as accurate.

## **28.3 Delayed Tests**

If the Tests are being unduly delayed by the Contractor the Engineer may by notice require the Contractor to make the Tests within twenty one (21) days after the receipt of such notice. The Contractor shall make the Tests on such days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to make the Tests within twenty one (21) days the Engineer may himself proceed with the Tests. All Tests so made by the Engineer shall be at the risk and cost of the Contractor and the cost thereof shall be deducted from the Contract Price. The tests shall then be deemed to have been made in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

## **28.4 Facilities for Tests on Completion**

Except where otherwise specified, the Employer shall provide free of charge such labour, materials, electricity, fuel, water, stores, apparatus and feedstock as may be reasonably required by the Contractor to carry out the Tests.

## **28.5 Retesting**

If the Works or any Section fails to pass the Tests, the Engineer or the Contractor may require such Tests to be repeated on the same terms and conditions. All costs to which the Employer may be put by the repetition of the Tests under this Sub-Clause or under Sub-Clause 30.7 shall be deducted from the Contract Price.

## **28.6 Disagreement as to Result of Tests**

If the Engineer and the Contractor disagree on the interpretation of the Test results, each shall give a statement of his views to the other within fourteen (14) days after such disagreement arises. The statement shall be accompanied by all relevant evidence.

## **28.7 Consequences of Failure to Pass Tests on Completion**

If the Works or any Section fails to pass the Tests on the repetition thereof under Sub-Clause 28.5, the Engineer, after due consultation with the Employer and the Contractor, shall be entitled to:

- (a) order one further repetition of the Tests under the conditions of Sub-Clause 28.5, or
- (b) reject the Works or Section in which event the Employer shall have the same remedies against the Contractor as are provided under Sub-Clause 30.5 (c), or



- (c) issue a Taking-Over Certificate, if the Employer so wishes, notwithstanding that the Works are not complete. The Contract Price shall then be reduced by such amount as may be agreed by the Employer and the Contractor or, failing agreement, as may be determined by arbitration.

## **28.8 Use by the Employer**

In considering the results of Tests carried out under Sub-Clauses 29.3, 29.4 and 30.7, the Engineer shall make allowances for the effect of any use of the Works by the Employer on the Certificate to the performance or other characteristics of the Works.

## **28.9 Test Certificate**

As soon as the Works or any Section thereof has passed the Tests, the Engineer shall issue a Certificate to the Contractor and the Employer to that effect.

## **Taking Over**

### **29.1 Taking Over**

The Works shall be taken over by the Employer when they have been completed in accordance with the Contract, except in minor respects that do not affect the use of the Works for their intended purpose, have passed the Tests on Completion and a Taking-Over Certificate has been issued or deemed to have been issued in accordance with Sub-Clause 29.2.

### **29.2 Taking-Over Certificate**

The Contractor may apply by notice to the Engineer for a Taking-Over Certificate not earlier than fourteen (14) days before the Works will in the Contractor's opinion be complete and ready for taking over under Sub-Clause 29.1.

The Engineer shall within twenty eight (28) days after the receipt of the Contractor's application either:

- (a) issue the Taking-Over Certificate to the Contractor with a copy to the Employer stating the date on which the Works were complete and ready for taking over, or
- (b) reject the application giving his reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued.

If the Engineer fails either to issue the Taking- Over Certificate or to reject the Contractor's application within the period of twenty eight (28) days he shall be deemed to have issued the Taking-Over Certificate on the last day of that period.

If the Works are divided by the Contract into Sections the Contractor shall be entitled to apply for separate Taking-Over Certificate for each such Section

### **29.3 Use before Taking Over**

The Employer shall not use any part of the Works unless a Taking-Over Certificate has been issued in respect thereof.

If nevertheless the Employer uses any part of the Works, that part which is used shall be deemed to have been taken over at the date of such use. The Engineer shall on request of the Contractor issue a Taking-Over Certificate accordingly. If the Employer uses any part of the Works before taking over the Contractor shall be given the earliest opportunity of taking such steps as may be necessary to carry out the Tests on Completion.

The provisions of Sub-Clause 27.1 shall not apply to any part of the Works while being so used by the Employer. Clause 30 shall apply as if the part had been taken over on the date it was taken into use.

#### **29.4 Interference With Tests on Completion**

If the Contractor is prevented from carrying out the Tests on Completion by a cause for which the Employer or the Engineer or other contractors employed by the Employer are responsible, the Employer shall be deemed to have taken over the Works on the date when the Tests on Completion would have been completed but for such prevention. The Engineer shall issue a Taking-Over Certificate accordingly.

The Works shall not be deemed to have been taken over if they are not substantially in accordance with the Contract.

If the Works are taken over under this Clause the Contractor shall nevertheless carry out the Tests on Completion during the Defects Liability Period. The Engineer shall require the Tests on Completion to be carried out by fourteen (14) days notice and in accordance with the relevant provisions of Clause 28.

Any additional costs to which the Contractor may be put in making the Tests on Completion during the Defects Liability Period, shall be added to the Contract Price.

#### **Defects after Taking Over**

##### **30.1 Defects Liability Period**

Where any part of the Works is taken over separately from the Works the Defects Liability Period for that part shall commence on the date it was taken over.

##### **30.2 Making Good Defects**

The Contractor shall, subject to Sub-Clause 30.9, be responsible of making good any defect in or damage to any part of the Works which may appear or occur during the Defects Liability Period and which arises from, either:

- (a) any defective materials, workmanship or design, or
- (b) any act or omission of the Contractor during the Defects Liability Period.

The Contractor shall make good the Defects or damage as soon as practicable and at his own cost.

##### **30.3 Notice of Defects**

If any such defect appears or damage occurs, the Employer or the Engineer shall forthwith notify the Contractor thereof.

#### **30.4 Extension of Defects Liability Period**

The provision of this Clause shall apply to all replacements or renewals carried out by the Contractor as if the replacements and renewals had been taken over on the date they were completed.

The Defects Liability Period for the Works shall be extended by a period equal to the period during which the Works cannot be used by reason of a defect or damage. If only part of the Works cannot be used by reason of a defect, the Defect Liability Period shall be extended only for that part.

In neither case shall the Defects Liability Period be extended by more than one year.

When erection or delivery of Plant has been suspended under Sub-Clause 23.1, the Contractor's obligations under this Clause shall not apply to any defects occurring more than three years after it would have been delivered but for the suspension or such period as may be stated in Part II.

#### **30.5 Failure to Remedy Defects**

If the Contractor fails to remedy a defect or damage within a reasonable time, the Employer may fix a final time for remedying the defect or damage.

If the Contractor fails to do so, the Employer may:

- (a) carry out the work himself or by others at the Contractor's risk and cost, provided that he does so in a reasonable manner. The costs properly incurred by the Employer in remedying the defect or damage shall be deducted from the Contract Price, but the Contractor shall have no responsibility for such work, or
- (b) require the Contractor to grant the Employer a reasonable reduction in the Contract Price to be agreed or fixed by arbitration under Clause 50, or
- (c) if the defect or damage is such that the Employer has been deprived of substantially the whole of the benefit of the Works or a part thereof, he may terminate the Contract in respect of such parts of the Works as cannot be put to the intended use. The Employer shall to the exclusion of any remedy under Clause 45 be entitled to recover all sums paid in respect of such parts of the Works together with the cost of dismantling the same, clearing the Site and returning Plant to the Contractor or otherwise disposing of it in accordance with the Contractor's instructions.

#### **30.6 Removal of Defective Work**

If the defect or damage is such that repairs cannot be expeditiously carried out on the Site, the Contractor may with the consent of the Engineer or the Employer remove from the Site for the purposes of repair any part of the Works which is defective or damaged.

### **30.7 Further Tests on Completion**

If the replacements or renewals are such that they may affect the performance of the Works the Employer may request that Tests on Completion be repeated to the extent necessary. The request shall be made by notice within twenty eight (28) days after the replacement or renewal. The Tests shall be carried out in accordance with Clause 28.

### **30.8 Right of Access**

Until the Final Certificate of Payment has been issued, the Contractor shall have the right of access to all parts of the Works and to records of the working and performance of the Works.

Such right of access shall be during the Employer's normal working hours at the Contractor's risk and cost. Access shall also be granted to any duly authorised representative of the Contractor whose name has been communicated in writing to the Engineer.

Subject to the Engineer's approval, the Contractor may also at his own risk and cost make any tests which he considers desirable.

### **30.9 Defects in Employer's and Engineer's Designs**

The Contractor shall not be liable for any defects resulting from designs furnished or specified by the Employer or the Engineer.

### **30.10 Contractor to Search**

The Contractor shall, if required by the Engineer in writing, search for the cause of any defect, under the direction of the Engineer. Unless the defect is one for which the Contractor is liable under this Clause, the cost of the work carried out by the Contractor in searching for the cause of the defect shall be added to the Contract Price.

### **30.11 Defects Liability Certificate**

When the Defects Liability Period for the Works or any part thereof has expired and the Contractor has fulfilled all his obligations under the Contract for defects in the Works or that part, the Engineer shall issue within twenty eight (28) days to the Employer and the Contractor a Defects Liability Certificate to that effect.

### **30.12 Exclusive Remedies**

Except in the case of Gross Misconduct, the Employer's remedies under this Clause shall be in place of and to the exclusion of any other remedy in relation to defects whatsoever.

## **Variations**

### **31.1 Engineer's Right to Vary**

The Engineer may by Variation Order to the Contractor at any time before the Works are taken over, instruct the Contractor to alter, amend, omit, add to or otherwise vary any part of the Works.

The Contractor shall not vary or alter any of the Works, except in accordance with a Variation Order from the Engineer. The Contractor may, however, at any time propose variations of the Works to the Engineer.

### **31.2 Variation Order Procedure**

Prior to any Variation Order under Sub-Clause 31.1 the Engineer shall notify the Contractor of the nature and form of such variation.

As soon as possible after having received such notice, the Contractor shall submit to the Engineer:

- (a) a description of work, if any, to be performed and a programme for its execution, and
- (b) the Contractor's proposals for any necessary modifications to the Programme according to Sub-Clause 26.1 or to any of the Contractor's obligations under the Contract, and
- (c) the Contractor's proposals for adjustment to the Contract Price.

Following the receipt of the Contractor's submission the Engineer shall, after due consultation with the Employer and the Contractor, decide as soon as possible whether or not the variation shall be carried out.

If the Engineer decides that the variation shall be carried out, he shall issue a Variation Order clearly identified as such in accordance with the Contractor's submission or as modified by agreement. If the Engineer and the Contractor are unable to agree the adjustment of the Contract Price, the provisions of Sub-Clause 31.3 shall apply.

### **31.3 Disagreement on Adjustment of the Contract Price**

If the Contractor and the Engineer are unable to agree on the adjustment of the Contract Price, the adjustment shall be determined in accordance with the rates specified in the Schedule of Prices.

If the rates contained in the Schedule of Price are not directly applicable to the specific work in question, suitable rates shall be established by the Engineer reflecting the level of pricing in the Schedule of Prices.

Where rates are not contained in the said Schedule, the amount shall be such as is in all the circumstances reasonable. Due account shall be taken of any over-or under-recovery of overheads by the Contractor in consequence of the variation.

The Contractor shall also be entitled to be paid:

- (a) the cost of any partial execution of the Works rendered useless by any such variation,

- (b) the cost of making necessary alterations to Plant already manufactured or in the course of manufacture or of any work done that has to be altered in consequence of such a variation,
- (c) any additional costs incurred by the Contractor by the disruption of the progress of the Works as detailed in the Programme, and
- (d) the net effect of the Contractor's finance costs, including interest, caused by the variation.

The Engineer shall on this basis determine the rates or prices to enable on-account payment to be included in certificates of payment.

#### **31.4 Contractor to Proceed**

On receipt of a Variation Order, the Contractor shall forthwith proceed to carry out the variation and be bound to these Conditions in so doing as if such variation was stated in the Contract.

The work shall not be delayed pending the granting of an extension of the Time for Completion or an adjustment to the Contract Price under Sub-Clause 31.3.

#### **31.5 Records of Costs**

In any case where the Contractor is instructed to proceed with variation prior to the determination of the adjustment to the Contract Price in respect thereof the Contractor shall keep records of the cost of undertaking the variation and of time expended thereon. Such records shall be open to inspection by the Engineer at all reasonable times.

#### **32. Ownership of Plant**

Plant to be supplied pursuant to the Contract shall become the property of the Employer.

#### **Certificates and Payment**

##### **33.1 Terms of Payment**

The terms of payment shall be as stated in particular conditions of the contract.

##### **33.2 Method of Application**

Unless otherwise specified in Part II applications by the Contractor for payment shall be made to the Engineer as follows:

- a) in respect of the progress of the Work accompanied by such evidence of the value of the work done as the Engineer may require, and
- b) in respect of the plant shipped and en rout to the Site identifying the Plant concerned and accompanied by such evidence of shipment and of payment of freight and insurance and by such other documents as the Engineer may require, and
- c) for additional payment in accordance with clause 34

### **33.3 Issue of Certificate of Payment**

Within fourteen (14) days after receiving an application for payment which the Contractor was entitled to make the Engineer shall issue a Certificate of Payment to the Employer showing the amount due, with a copy to the Contractor.

A certificate of payment, other than the Final Certificate of Payment, shall not be withheld on account of:

- (a) defects of a minor character which are not such as to affect the use of the Works,  
or
- (b) any part of the payment applied for being disputed. In such case a certificate of payment for the undisputed amount shall be issued.

### **33.4 Corrections to Certificates of Payment**

The Engineer may in any certificate of payment make any correction or modification that should properly be made in respect of any previous certificate.

### **33.5 Payment**

Unless otherwise specified in Part II, the Employer shall pay the amount certified within twenty eight (28) days from the date of issue of each certificate of payment to the Contractor at his principal place of business.

### **33.6 Delayed Payment**

If payment of any sum payable under Sub-Clause 33.5 is delayed, the Contractor shall be entitled to receive interest on the amount unpaid during the period of delay. Unless otherwise stated in Part II the interest shall be at the annual rate three percentage points above the discount rate of the central bank in the Contractor's country. The Contractor shall be entitled to such payment without formal notice and without prejudice to any other right or remedy.

### **33.7 Remedies on Failure to Certify or Make Payment**

The Contractor shall be entitled to stop the Works by giving fourteen (14) days notice to the Engineer and the Employer, if either:

- (a) the Engineer fails to issue a certificate of payment upon proper application by the Contractor, or
- (b) the Employer fails to make any payment as provided in this Clause.

The cost to the Contractor together with profit occasioned by the stoppage and the subsequent resumption of work, shall be added to the Contract Price.

The Contractor shall also be entitled to terminate the Contract by giving twenty eight (28) days notice to the Engineer and the Employer in any case where the Engineer has failed to issue a certificate of payment upon proper application by the Contractor.

### **33.8 Payment by Measurement**

For any part of the Works which is to be paid according to quantity supplied or work done, the provisions for measurement shall be stated in Part II.

### **33.9 Application for Final Certificate of Payment**

The Contractor shall make application to the Engineer for the Final Certificate of Payment within twenty eight (28) days after the issue of the Defect Liability Certificate, or if more than one, the last Defect Liability Certificate.

The application for the Final Certificate of Payment shall be accompanied by a final account prepared by the Contractor. The final account shall give full details of the value of all Plant supplied and work done under the Contract together with:

- (a) such additions to or deductions from the Contract Price as have been agreed, and
- (b) all claims for additional payment to which the Contractor may consider himself entitled.

### **33.10 Issue of Final Certificate of Payment**

The Engineer shall issue to the Employer with a copy to the Contractor, the Final Certificate of Payment within 28 days after receiving an application in accordance with Sub-Clause 33.9.

If the Contractor has not applied for a Final Certificate of Payment within the time specified in Sub-Clause 33.9 the Engineer shall request the Contractor to do so within a further period of 28 days. If the Contractor fails to make such an application, the Engineer shall issue the Final Certificate of Payment for such amount as he deems correct.

### **33.11 Final Certificate of Payment Conclusive**

A Final Certificate of Payment shall be conclusive evidence of the value of the Works, that the Works are in accordance with the Contract and that the Contractor has performed all his obligations under the Contract.

Payment of the amount certified in the Final Certificate of Payment shall be conclusive evidence that the Employer has performed all his obligations under the Contract.



A Final Certificate of Payment or payment shall not be conclusive:

- (a) to the extent that fraud or dishonesty relates to or affects any matter dealt with in the certificate, or
- (b) if any arbitration or court proceedings under the Contract have been commenced by either party before the expiry of 84 days after the issue of the Final Certificate of Payment.

## **Claims**

### **34.1 Procedure**

In any case where under these Conditions there are circumstances which the Contractor considers entitle him to claim additional payment, the Contractor shall:

- (a) if he intends to make any claim for additional payment give to the Engineer notice of his intention to make such claim within twenty eight (28) days after the said circumstances became known to the Contractor stating the reasons for his claim, and
- (b) as soon as reasonably practical after the date of such notice submit to the Engineer full and detailed particulars of his claim but not later than one hundred and eighty two (182) days after such notice unless otherwise agreed by the Engineer. In any event such particulars shall be submitted no later than the application for the Final Certificate of Payment. The Contractor shall thereafter promptly submit such further particulars as the Engineer may reasonably require to assess the validity of the claim.

### **34.2 Assessment**

When the Engineer has received full and detailed particulars of the Contractor's claim in accordance with Sub-Clause 34.1 and such further particulars as he may reasonably have required he shall after due consultation with the Employer and the Contractor determine whether the Contractor is entitled to additional payment and notify the parties accordingly.

The Engineer may reject any claim for additional payment which does not comply with the requirements of Sub-Clause 34.1.

## **Foreign Currency and Rates of Exchange**

### **35.1 Payment in Foreign Currencies**

Arrangements for payment in foreign currencies shall be as stated in the Preamble.

### **35.2 Currency Restrictions**

The Employer shall reimburse the Contractor for any loss arising from:

- (a) currency restrictions, and
- (b) restrictions on the transfer of currency in which the Contractor is to be paid which are imposed by the government or authorized agency of the government of the country from which any payments under the Contract are to be made.

This Sub-Clause only applies to restrictions imposed after the date 28 days prior to the latest date for submission of tenders for the Works.

### **35.3 Rates of Exchange**

Where the Contract provides for payment in Foreign Currency the rates of exchange between the currencies shall be fixed for the purpose of the Contract and shall be as stated in the Preamble.

If such rates of exchange are not stated in the Preamble the rates to be used shall be those quoted by the central bank of the country whose currency is to be sold 28 days or the nearest day thereto prior to the latest date for submission of tenders for the Works.

## **Provisional Sums**

### **36.1 Use of Provisional Sums**

A Provisional Sum shall only be used, in whole or in part in accordance with the Engineer's instructions.

The total sum paid to the Contractor shall include only such amounts in respect of work, supplies or services to which such Provisional Sums relate as the Engineer shall have instructed.

### **36.2 Ordering Work against Provisional Sums**

In respect of every Provisional Sum the Engineer may after due consultation with the Employer and the Contractor order:

- (a) work to be executed, including goods, materials or services to be supplied by the Contractor. The value of such work executed, determined in accordance with Clause 31, shall be paid to the Contractor in accordance with Clause 33, and
- (b) goods and materials to be purchased by the Contractor, for which payment will be made in accordance with Sub-Clause 36.4.

### **36.3 Invoices and Receipts**

The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in connection with expenditure in respect of Provisional Sums.

#### **36.4 Payment against Provisional Sums**

For all work executed or goods, materials or services supplied or purchased by the Contractor under Sub-Clause 36.2(b), there shall be included in the sums paid to the Contractor:

- (a) the actual price paid or due to be paid by the Contractor, and
- (b) in respect of all other charges and profit, a percentage of the actual price paid or due to be paid. Such percentage shall be as stated in the Preamble.

### **Risk and Responsibility**

#### **37.1 Allocation of Risk and Responsibility**

The Risks of loss of or damage to physical property and of death and personal injury which arise in consequence of the performance of the Contract shall be allocated between the Employer and the Contractor as follows:

- (a) the Employer: the Employer's Risks as specified in Sub-Clause 37.2
- (b) the Contractor: the Contractor's Risks as specified in Sub-Clause 37.3.

#### **37.2 Employer's Risks**

The Employer's Risks are:

- (a) war and hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (b) rebellion, revolution, insurrection, military or usurped power or civil war insofar as it relates to the country in which the Works are located or countries through which plant must be transported,
- (c) ionising radiation or contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosives or other hazardous properties of any explosive nuclear assembly or nuclear components thereof,
- (d) pressure waves caused by aircraft travelling at sonic or supersonic speed,
- (e) riot, commotion or disorder, unless solely restricted to the employees of the Contractor or of his Subcontractors,
- (f) use or occupation of the Works or any part thereof by the Employer,
- (g) fault, error, defect or omission in the design of any part of the Works by the Engineer, Employer or those for whom the Employer is responsible,

- (h) the use or occupation of the Site by the Works or any part thereof, or for the purposes of the Contract; or interference, whether temporary or permanent with any right of way, light, air or water or with any easement, wayleaves or right of a similar nature which is the inevitable result of the construction of the Works in accordance with the Contract,
- (i) the right of the Employer to construct the Works or any part thereof on, over, under, in or through any land,
- (j) damage (other than that resulting from the Contractor's method of construction) which is the inevitable result of the construction of the Works in accordance with the Contract,
- (k) the act, neglect or omission or breach of contract or of statutory duty of the Engineer, the Employer or other contractors engaged by the Employer or of their respective employees or agents,

and all risks which an experienced contractor could not have foreseen or, if foreseeable, against which measures to prevent loss, damage or injury from occurring could not reasonably have been taken by such contractor.

### **37.3 Contractor's Risks**

The Contractor's Risks are all risks other than those identified as the Employer's Risks.

## **Care of the Works and Passing of Risk**

### **38.1 Contractor's Responsibility for the Care of the Works**

The Contractor shall be responsible for the care of the Works or any Section thereof from the Commencement until the Risk Transfer Date applicable thereto under Sub-Clause 38.2.

The Contractor shall also be responsible for the care of any part of the Works upon which any outstanding work is being performed by the Contractor during the Defects Liability Period until completion of such outstanding work.

### **38.2 Risk Transfer Date**

The Risk Transfer Date in relation to the Works or a Section thereof is the earliest of either:

- (a) the date of issue of the Taking-Over Certificate, or
- (b) the date when the Engineer is deemed to have issued the Taking Certificate or the Works are deemed to have been taken over in accordance with Clause 29, or
- (c) the date of expiry of the notice of termination when the Contract is terminated by the Employer or the Contractor in accordance with these Conditions.

### **39.1 Passing of Risk of Loss of or Damage to the Works**

The risk of loss of or damage to the Works or any Section thereof shall pass from the Contractor to the Employer on the Risk Transfer Date applicable thereto.

### **39.2 Loss or Damage Before Risk Transfer Date**

Loss of or damage to the Works or any Section thereof occurring before the Risk Transfer Date shall:

- (a) to the extent caused by any of the Contractor's Risks, be made good forthwith by the Contractor at his own cost, and
- (b) to the extent caused by any of the Employer's Risks, be made good by the Contractor at the Employer's expense if so required by the Engineer within twenty eight (28) days after the occurrence of the loss or damage. The price for making good such loss and damage shall be in all circumstances reasonable and shall be agreed by the Employer and the Contractor, or in the absence of agreement, shall be fixed by arbitration under Clause 50.

### **39.3 Loss or Damage After Risk Transfer Date**

After the Risk Transfer Date, the Contractor's liability in respect of loss of or damage to any part of the Works shall, except in the case of Gross Misconduct, be limited:

- (a) to the fulfillment of the Contractor's obligations under Clause 30 in respect of defects therein, and
- (b) to making good forthwith loss or damage caused by the Contractor during the Defects Liability Period.

## **Damage to Property and Injury to Persons**

### **40.1 Contractor's Liability**

Except as provided under Sub-Clause 41.1, the Contractor shall be liable for and shall indemnify the Employer against all losses, expenses and claims in respect of any loss of or damage to physical property (other than the Works), death or personal injury occurring before the issue of the last Defects Liability Certificate to the extent caused by:

- (a) defective design, material or workmanship of the Contractor, or
- (b) negligence or breach of statutory duty of the Contractor, his Subcontractors or their respective employees and agents.

### **40.2 Employer's Liability**

The Employer shall be liable for and shall indemnify the Contractor against all losses, expenses or claims in respect of loss of or damage to any physical property or of death or personal injury whenever occurring, to the extent caused by any of the Employer's Risks.

### **41.1 Accidents**

The Contractor shall be liable for and shall indemnify the Employer against all losses, expenses or claims arising in connection with the death of or injury to any person employed by the Contractor or his Subcontractors for the purposes of the Works, unless caused by any acts or defaults of the Engineer, the Employer, or other contractors engaged by the Employer or by their respective employees or agents. In the latter cases the Employer shall be liable for and shall indemnify the Contractor against all losses, expenses and claims arising in connection therewith.

## **Limitations of Liability**

### **42.1 Liability for Indirect or Consequential Damage**

Neither party shall be liable to the other for any loss of profit, loss of use, loss of production, loss of contracts or for any other indirect or consequential damage that may be suffered by the other, except:

- (a) as expressly provided in Clause 27, and
- (b) those provisions of these Conditions whereby the Contractor is expressly entitled to receive profit.

### **42.2 Maximum Liability**

The liability of the Contractor to the Employer under these Conditions shall in no case exceed the sum stated in the Preamble or, if no such sum is stated, the Contract Price.

### **42.3 Liability after Expiration of Defects Liability Period**

The Contractor shall have no liability to the Employer for any loss of or damage to the Employer's physical property which occurs after the expiration of the Defects Liability Period unless caused by Gross Misconduct of the Contractor.

### **42.4 Exclusive Remedies**

The Employer and the Contractor intend that their respective rights, obligations and liabilities as provided for in these Conditions shall alone govern their rights under the Contract and in relation to the Works.

Accordingly, the remedies provided under the contract in respect of or in consequence of:

- (a) any breach of contract, or
- (b) any negligent act or omission, or
- (c) death or personal injury, or
- (d) loss or damage to any property

are, save in the case of Gross Misconduct, to be to the exclusion of any other remedy that either may have against the other under the law governing the Contract or otherwise.

#### **42.5 Mitigation of Loss of Damage**

In all cases the party claiming a breach of Contract or a right to be indemnified in accordance with the Contract shall be obliged to take all reasonable measures to mitigate loss or damage which has occurred or may occur.

#### **42.6 Foreseen Damage**

Where either the Employer or the Contractor is liable in damages to the other these shall not exceed the damage which the party in default could reasonably have foreseen at the date of the Contract.

### **Insurance**

#### **43.1 The Works**

The Contractor shall insure the Works in the joint names of the Contractor and the Employer to their full replacement value with deductible limits not exceeding those stated in the Preamble.

- (a) from the Commencement Date until the Risk Transfer Date against any loss or damage caused by any of the Contractor's Risks and any other risks specified in the Preamble, and
- (b) during the Defects Liability period against any loss or damage which is caused either:
  - (i) by the Contractor in completing any outstanding work or complying with his obligations under Clause 30, or
  - (ii) by any of the Contractor's Risks which occurred prior to the Risks Transfer Date.

#### **43.2 Contractor's Equipment**

The Contractor shall insure Contractor's Equipment for its full replacement value whilst in transit to the Site, from commencement of loading until completion of unloading at the Site and while on the Site against all loss or damage caused by any of the Contractor's Risks.

#### **43.3 Third Party Liability**

The Contractor shall insure against liability to third parties for any death or personal injury and loss of or damage to any physical property arising out of the performance of the Contract and occurring before the issue of the last Defects Liability Certificate.

Such insurance shall be effected before the Contractor begins any work on the Site. The insurance shall be for not less than the amount specified in the Preamble.

#### **43.4 Employees**

The Contractor shall insure and maintain insurance against his liability under Sub-Clause 41.1.

#### **43.5 General Requirements of Insurance Policies**

The Contractor shall:

- (a) whenever required by the Employer produce the policies or certificates of any insurance which he is required to effect under the Contract together with receipts for the premiums,
- (b) effect all insurances for which he is responsible with an insurer and in terms approved by the Employer,
- (c) make no material alterations to the terms of any insurance without the Employer's approval. If an insurer makes any material alteration to the terms the Contractor shall forthwith notify the Employer, and
- (d) in all respect comply with any conditions stipulated in the insurance policies which he is required to place under the Contract.

#### **43.6 Permitted Exclusions from Insurance Policies**

The insurance cover affected by the Contractor may exclude any of the following:

- (a) the cost of making good any part of the Works which is defective or otherwise does not comply with the Contract provided that it does not exclude the cost of making good any loss or damage to any other part of the Works attributable to such defect or non-compliance,
- (b) indirect or consequential loss of damage including any reductions in the Contract Price for delay,
- (c) wear and tear, shortages and theft, or
- (d) risks relating to vehicles for which third party or other insurance is required by law.

#### **43.7 Remedies on the Contractor's Failure to Insure**

If the Contractor fails to produce evidence of insurance cover as stated in Sub-Clause 43.5 (a) then the Employer may effect and keep in force such insurance. Premiums paid by the Employer for this purpose shall be deducted from the Contract Price.

#### **43.8 Amounts not Recovered**

Any amounts not recovered from the insurers shall be borne by the Employer or Contractor in accordance with their responsibilities under Clause 37.



## **Force Majeure**

### **44.1 Definition of Force Majeure**

Force Majeure means any circumstances beyond the control of the parties, including but not limited to:

- (a) war and other hostilities, (whether war be declared or not), invasion, act of foreign enemies, mobilisation, requisition or embargo,
- (b) ionising radiation or contamination by radio-activity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosives, or other hazardous properties of any explosive nuclear assembly or nuclear components thereof,
- (c) rebellion, revolution, insurrection, military or usurped power and civil war,
- (d) riot, commotion or disorder, except where solely restricted to employees of the Contractor.

### **44.2 Effect of Force Majeure**

Neither party shall be considered to be in default or in breach of his obligations under the Contract to the extent that performance of such obligations is prevented by any circumstances of Force Majeure which arise after the date of the Letter of Acceptance or the date when the Contract becomes effective, whichever is the earlier.

### **44.3 Notice of Occurrence**

If either party considers that any circumstances of Force Majeure have occurred which may affect performance of his obligations he shall promptly notify the other party and the Engineer thereof.

### **44.4 Performance to Continue**

Upon the occurrence of any circumstances of Force Majeure the Contractor shall endeavour to continue to perform his obligations under the Contract so far as reasonably practicable. The Contractor shall notify the Engineer of the steps he proposes to take including any reasonable alternative means for performance which is not prevented by Force Majeure. The Contractor shall not take any such steps unless directed so to do by the Engineer.

### **44.5 Additional Costs caused by Force Majeure**

If the Contractor incurs additional costs in complying with the Engineer's directions under Sub-Clause 44.4, the amount thereof shall be certified by the Engineer and added to the Contract Price.

### **44.6 Damage Caused by Force Majeure**

If in consequence of Force Majeure the Works shall suffer loss or damage the Contractor shall be entitled to have the value of the work done, without regard to the loss or damage that has occurred, included in a Certificate of Payment.

#### **44.7 Termination in Consequence of Force Majeure**

If circumstances of Force Majeure have occurred and shall continue for a period of one hundred and eighty two (182) days then, notwithstanding that the Contractor may by reason thereof have been granted an extension of Time for Completion of the Works, either party shall be entitled to serve upon the other twenty eight (28) days' notice to terminate the Contract. If at the expiry of the period of twenty eight (28) days Force Majeure shall still continue the Contract shall terminate.

#### **44.8 Payment on Termination for Force Majeure**

If the Contract is terminated under Sub-Clause 44.7 the Contractor shall be paid the value of the work done.

The contractor shall also be entitled to receive:

- (a) the amounts payable in respect of any preliminary items so far as the work or service comprised therein has been carried out and a proper proportion of any such item in which the work or service comprised has only been partially carried out,
- (b) the cost of materials or goods ordered for the Works or for use in connection with the Works which have been delivered to the Contractor or of which the Contractor is legally liable to accept delivery. Such materials or goods shall become the property of and be at the risk of the Employer when paid for by the Employer and the Contractor shall place the same at the Employer's disposal,
- (c) the amount of any other expenditure which in the circumstances was reasonably incurred by the Contractor in the expectation of completing the whole of the Works,
- (d) the reasonable cost of removal of Contractor's Equipment from the Site and the return thereof to the Contractor's works in his country or to any other destination at no greater cost, and
- (e) the reasonable cost of repatriation of the Contractor's staff and workmen employed wholly in connection with the Works at the date of such termination.

#### **44.9 Release from Performance**

If circumstances of Force Majeure occur and in consequence thereof under the law governing the Contract the parties are released from further performance of the Contract, the sum payable by the Employer to the Contractor shall be the same as that which would have been payable under Sub-Clause 44.8 if the Contract had been terminated under Sub-Clause 44.7.

#### **44.10 Force Majeure Affecting Engineer's Duties**

The provisions of Clause 44 shall also apply in circumstances where the Engineer is prevented from performing any of his duties under the Contract by reason of Force Majeure.

#### **Default**

##### **45.1 Notice of Default**

If the Contractor is not executing the Works in accordance with the Contract or is neglecting to perform his obligations thereunder so as seriously to affect the carrying out of the Works, the Engineer may give notice to the Contractor requiring him to make good such failure or neglect.

##### **45.2 Contractor's Default**

If the Contractor:

- (a) has failed to comply within a reasonable time with a notice under Sub-Clause 45.1, or
- (b) assigns the Contract or subcontracts the whole of the Works without the Employer's written consent, or
- (c) becomes bankrupt or insolvent, has a receiving order made against him or compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors or goes into liquidation.

The Employer may, after having given seven (7) days notice to the Contractor, terminate the Contract and expel the Contractor from the Site.

Any such expulsion and termination shall be without prejudice to any other rights or powers of the Employer, the Engineer or the Contractor under the Contract.

The Employer may upon such termination complete the Works himself or by any other contractor.

##### **45.3 Valuation at Date of Termination**

The Engineer shall, as soon as possible after such termination, certify the value of the Works and all sums then due to the Contractor as at the date of termination in accordance with Clause 33.

##### **45.4 Payment after Termination**

The Employer shall not be liable to make any further payments to the Contractor until the Works have been completed. When the Works are so complete, the Employers shall be entitled to recover from the Contractor the extra costs, if any, of completing the Works after allowing for any sum due to the Contractor under Sub-Clause 45.3. If there is no such extra cost the Employer shall pay any balance due to the Contractor.

##### **45.5 Effect on Liability for Delay**

The Contractor's liability under Clause 27 shall immediately cease when the Employer expels him from the Site without prejudice to any liability thereunder that may have already occurred.

#### **46.1 Employer's Default**

The Contractor may, by giving fourteen (14) days notice to the Employer and the Engineer, terminate the Contract if the Employer:

- (a) fails to pay the Contractor the amount due under any certificate of the Engineer within twenty eight (28) days after the amount became payable, or
- (b) interferes with or obstructs the issue of any certificate of the Engineer, or
- (c) becomes bankrupt or insolvent, has a receiving order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors or goes into liquidation, or goes into liquidation, or
- (d) consistently fails to meet his contractual obligations, or
- (e) appoints, a person to act with or in replacement of the Engineer without the Contractor's consent.

Any such termination shall be without prejudice to any other rights of the Contractor under the Contract.

#### **46.2 Removal of Contractor's Equipment**

On such termination, the Contractor shall be entitled to remove immediately all Contractor's Equipment which is on the Site.

#### **46.3 Payment on Termination for Employer's Default**

In the event of such termination the Employer shall pay the Contractor an amount calculated in accordance with Sub-Clause 44.8.

The Employer shall pay in addition the amount of any loss or damage, including loss of profit which the Contractor may have suffered in consequence of termination. The additional amount shall, however, not exceed the limit specified in the Preamble.

### **Change in Cost and Legislation**

#### **47.1 Labour, Materials and Transport**

Where the Contract Price is to be adjusted for changes in the cost of labour, materials, transport or other costs of execution of the Works, the method for calculating such adjustment shall be specified in the Preamble.

When calculating the adjustment no account shall be taken of any increased cost which results from the Contractor's default or negligence.

#### **47.2 Statutory and Other Regulations**

The Contract Price shall be adjusted to take account of any increase or decrease in cost resulting from changes in legislation of the country where the Site is located or in its generally accepted interpretation.

Legislation means any law, order, regulation or bye-law having the force of law, which affects the Contractor in the performance of his obligations under the Contract, made after the date 28 days prior to the latest date for submission of tenders for the Works.

The Engineer shall certify the amount of the resulting increase or decrease in cost, which shall be added to or deducted from the Contract Price.

## **Customs**

### **48.1 Customs and Import Duties**

The contractor shall be wholly and solely responsible for payment of all customs duties, import duties and taxes for import of equipment and other items required for the works and all those costs are considered to be included in the bid.

### **48.2 Port Charges and Port Congestion**

The Contractor shall be deemed to have obtained all the information regarding facilities and charges, in respect of port clearance, loading and unloading, storage, transportation, congestion and confirmed the requirements thereof at his own responsibility and all such costs and charges are deemed to be included in the rates and prices of the Schedule of Prices.

## **Notices**

### **49.1 Notices to Contractor**

All certificates, notices or written orders to be given to the Contractor by the Employer or the Engineer under these Conditions shall be sent by airmail post, cable, telex or facsimile transmission to or left at the Contractor's principal place of business or such other address as the Contractor shall nominate for that purpose, or may be handed over to the Contractor's representative.

### **49.2 Notice to Employer and Engineer**

Any notice to be given to the Employer or to the Engineer under these Conditions shall be sent by airmail post, cable, telex or facsimile transmission to or left at the respective addresses nominated for that purpose in the Preamble, or handed over to the Engineer's or the Employer's representative authorised to receive it.

### **49.3 Minutes of Meetings**

Instructions or notices to the Contractor and notices from the Contractor to the Engineer or the Employer recorded in a minute or protocol signed by the authorized representatives of the giver and recipient of such notice or instruction shall be valid notice or instruction for the purposes of the Contract.

## **Disputes and Arbitration**

### **50.1 Disputes concerning Engineer's Decisions**

If either party is dissatisfied with a decision or instruction of the Engineer as confirmed, reversed or varied in accordance with Clause 2 he may refer the matter to arbitration pursuant to Sub-Clause 50.2.

Unless the dissatisfied party has notified the other party and the Engineer within fifty six (56) days of such decision or instruction of his intention to refer the matter to arbitration, he shall be deemed to have accepted the decision as final.

Reference to arbitration shall not relieve the Contractor of his obligation to proceed with the Works in accordance with the Engineer's decision or instruction, nor relieve the Employer of any of his obligations under the Contract.

The Contractor shall in any such arbitration be at liberty to rely on reasons additional to the reasons stated in the notice given under Sub-Clause 2.7.

### **50.2 Arbitration**

If at any time any question, dispute or difference shall arise between the Employer and the Contractor in connection with or arising out of the Contract or the carrying out of the Works either party shall be entitled to refer the matter to be finally settled by arbitration in accordance with the Rules of Conciliation and Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with those Rules, or by arbitration in accordance with such other rules as are specified in Part II.

The Arbitrator(s) shall have full power to open up, review and revise:

- (a) any decision or instruction of the Engineer referred to arbitration pursuant to Sub-Clause 50.1, and
- (b) any certificate of the Engineer related to the dispute.

### **50.3 Works to Continue**

Performance of the Contract shall continue during arbitration proceedings unless the Employer shall order suspension. If any such suspension is ordered the reasonable costs incurred by the Contractor and occasioned thereby shall be added to the Contract Price.

No payments due or payable by the Employer shall be withheld on account of pending reference to arbitration.

### **50.4 Time Limit for Arbitration**

Formal notice of arbitration must be given to the other party, and where required to the appropriate arbitration body, no later than eighty four (84) days after the issue of the Final Certificate of Payment

## **Law and Procedure**

**51.1 Applicable Law**

The law which is to apply to the Contract and under which the Contract is to be construed is stated in the Preamble.

**51.2 Procedural Law**

The law governing the procedure and administration of any arbitration instituted pursuant to Clause 50 is stated in the Preamble.

**51.3 Language**

The language and place of the arbitration are stated in the Preamble.

## **PART-II: PARTICULAR CONDITIONS OF CONTRACT**

### **Contents**

- 1.1 Definitions
- 1.6 Cost, Overhead Charges and Profit
- 2.1 Engineer's Duties
- 2.6 Confirmation in Writing
- 2.7 Disputing Engineer's Decisions and Instructions
- 2.8 Replacement of Engineer
- 2.9 Engineer Not Liable
- 4.2 No Contractual Relation between Sub contractor and the Employer
- 5.3 Priority of Contract Documents
- 5.4 Documents Mutually Explanatory
- 6.2 Consequences of Dis-approval of Contractor's Drawings
- 6.6 Operation and Maintenance Manuals
- 6.9 Manufacturing Drawings
- 6.10 "As Built" Drawings
- 8.1 General Obligations
- 10.1 Performance Security
- 10.3 Claims under Performance Security
- 10.4 Performance Security Binding on Variations and Changes
- 12.1 Programme to be Furnished
- 12.4 Monthly Progress Report
- 12.5 Daily Job Record
- 13.1 Contractor's Representative
- 13.3 Language Ability of Superintending Staff of Contractor
- 13.4 Employment of Local Personnel
- 14.1 Contractor's Equipment
- 14.2 Safety Precautions
- 14.3 Electricity, Water and Gas
- 14.4 Employer's Equipment
- 14.8 Information for Import Permits and Licences
- 15.2 Compliance with Laws
- 16.4 Photographs of Works and Advertisement Prohibited
- 16.5 Training of Employer's Staff
- 17.4 Consents and Way Leaves
- 17.5 Import Permits and Licences
  
- 18.1 Engagement of Labour
- 18.5 Employment of Persons in the Service of Others
- 18.6 Alcoholic Liquor or Drugs



- 18.7 Arms and Ammunition
- 18.8 Festivals and Religious Customs
- 18.9 Disorderly Conduct
- 18.10 Records of Safety and Health
- 18.11 Reporting of Accidents
- 18.12 Compliance by Sub-Contractors
- 19.1 Manner of Execution
- 19.3 Uncovering Work
- 19.4 Use of Pakistani Materials
- 24.1 Cost of Suspension
- 24.4 Resumption of Work
- 25.1 Time for Completion
- 26.1 Extension of Time for Completion
- 26.3 Earlier Completion
- 26.4 Rate of Progress
- 27.1 Delay in Completion
- 28.7 Consequences of Failure to pass the Tests on Completion
- 30.4 Extension of Defects Liability Period
- 30.5 Failure to Remedy Defects
- 30.13 Unfulfilled Obligations
- 31.1 Engineer's Right to Vary
- 31.5 Record of Costs
- 31.6 Daywork under Variation Order
- 31.7 Value Engineering
- 33.1 Terms of Payment
  - 33.1.1 Retention of Payment
  - 33.1.2 Payment Where Taking Over Certificate Issued for Section or Portion of Works
- 33.3 Method of Application
- 33.5 Payment
- 33.6 Delayed Payment
- 33.8 Payment by Measurement
- 33.12 Withholding of Payment
- 35.1 Payment in Foreign Currencies
- 35.2 Currency Restrictions
- 35.3 Rates of Exchange
- 36.4 Payment Against Provisional Sums
- 37.2 Employer's Risks
- 39.2 Loss or Damage Before Risk Transfer Date
- 39.4 Duty to Minimize Delay
- 40.2 Employer's Liability

- 42.2 Maximum Liability
- 42.6 Foreseen Damage
- 43.1 The Works (Insurance)
- 43.2 Contractor's Equipment
- 43.3 Third Party Liability (Insurance)
- 43.7 Remedies on the Contractor's Failure to Insure
- 43.9 Currency of Insurance
- 43.10 Contractor to Notify
- 43.11 Procurement of Insurance Policies
- 44.6 Damage Caused by Force Majeure
- 44.8 Payment on Termination for Force Majeure
- 44.10 Force Majeure Affecting Engineer's Duties
- 45.2 Contractor's Default
- 45.6 Integrity Pact
- 46.1 Employer's Default
- 46.3 Payment on Termination for Employer's Default
- 47.1 Labour, Materials and Transport
- 48.1 Customs and Import Duties
- 48.3 Port Charges and Port Congestion
- 49.1 Notice to Contractor
- 50. Disputes & Arbitration

## **PART-II: PARTICULAR CONDITIONS OF CONTRACT**

### **1.1 Definitions**

The text of Sub-Clause 1.1.1 is deleted and substituted by the following:

“Commencement Date” means the date specified in the Preamble to Conditions of Contract.

The text of Sub-Clause 1.1.2 is deleted and substituted by the following:

“Conditions” means the Preamble to Conditions of Contract, General Conditions of Contract and Particular Conditions of Contract.

### **Sub-Clause 1.1.3**

At the end of Sub-Clause the following is added:

“Any subsequent document mutually agreed and signed by the Employer and the Contractor, shall be the part of the Contract.”

The text of Sub-Clause 1.1.5 is deleted and substituted by the following:

“Contract Price” means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution and completion of the Works subject to such additions thereto or deductions therefrom as may be made under the provisions hereinafter contained and remedying of any defects therein in accordance with the provisions of the Contract.”

### **Sub-Clause 1.1.11**

The Defects Liability Period is the period mentioned in the Preamble to Conditions of Contract.

### **Sub-Clause 1.1.15**

The following is added at the end of Sub-Clause:

“or any other competent person appointed by the Employer as his replacement.”

### **Sub-Clause 1.1.23**

The following paragraph is added:

The word “Goods” is synonymous with “Plant.”

The text of Sub-Clause 1.1.27 is deleted and substituted by the following:

“Schedule of Prices” means the completed and priced Schedule of Prices, or any part or individual schedule thereof, submitted by the Contractor with his Bid or revised and mutually agreed and forming a part of the Contract documents.

### **Sub-Clause 1.1.33**

The word “Tender” is synonymous with the word “Bid” and the word “Tender Documents” with the word “Bidding Documents”.

The following Sub-Clauses are added:

“1.1.38 “Month” means calendar month according to Gregorian calendar.

1.1.39 “Operation and Maintenance Manuals” has the meaning described in Sub-Clause 6.6.

1.1.40 “Warranty Certificate” means the certificate against specified goods/equipment, for the period mentioned in the Preamble to Conditions of Contract, to be issued by the Contractor that the goods/equipment supplied under the Contract are new, unused and incorporate all recent improvements in design and materials unless provided otherwise in the Contract and that the Contractor will be responsible for making good or replacing any defective goods/equipment during the Warranty Period specified in the Preamble to Conditions of Contract which should commence after expiry of Defect Liability Period.

Sub-Clause 1.1.41

The word “Part II” stated in FIDIC Conditions of Contract is synonymous with the word “Particular Conditions of Contract”.

Sub-Clause 1.6 Cost, Overhead Charges and Profit

The last sentence “Any profit \_\_\_\_\_ stated in the Preamble” is deleted and substituted by the following:

“Any profit entitlement shall be added to cost at the percentage stated in the Bid and agreed in the Contract Agreement.”

Sub-Clause 2.1 Engineer’s Duties

The text of Sub-Clause 2.1 is deleted and substituted by the following:

“The Engineer shall carry out the duties specified in the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. The Engineer is required to obtain the specific approval of the Employer before carrying out his duties in accordance with the following Clauses of General Conditions of Contract:

- (a) approval of Subcontractor under Sub-Clause 4.1,
- (b) certifying additional sums under Sub-Clause 5.4,
- (c) certifying additional costs under Sub-Clauses 11.3 & 12.3,
- (d) certifying any cost under Sub-Clause 14.6,
- (e) approval of extension of time under Clause 26,
- (f) issuing a Taking-Over Certificate under Sub-Clause 29,
- (g) issuing a Defects Liability Certificate under Sub-Clause 30.11,
- (h) issuing a Variation Order under Clause 31,
- (i) fixing rates or prices under Clauses 31 and 34,
- (j) certifying additional costs under Sub-Clause 44.5 and
- (k) certifying additional costs under Sub-Clause 47.2;

Except for such variations pursuant to Sub-Clause 31.1 of the GCC which may be necessary in an emergency affecting safety of life, the works or of adjoining property.”

Except as expressly stated in the Contract the Engineer shall have no authority to relieve the Contractor of any of his obligations under this Contract.”

#### Sub-Clause 2.6 Confirmation in Writing

- (i) In line 3 after the words “undue delay” the following is added:  
“but not after the number of days mentioned in the Preamble to Conditions of Contract from the instruction or decision.”
- (ii) At the end of Sub-Clause 2.6, the following is added:  
“The Engineer shall confirm or otherwise within the period mentioned in the Preamble to Conditions of Contract from the receipt of requirement(s) from the Contractor.”

#### Sub-Clause 2.7 Disputing Engineer’s Decisions and Instructions

The following text is deleted:

“If either party ..... in accordance with the Contract.”

#### Sub-Clause 2.8 Replacement of Engineer

The text of Sub-Clause 2.8 is deleted and substituted by the following:

“If the Employer intends to replace the Engineer, the Employer shall, not less than 14 days before the intended date of replacement, give notice to the Contractor, of the name, address and relevant experience of the intended replacement Engineer. The Employer shall not replace the Engineer with a person against whom the Contractor raises reasonable objection by notice to the Employer, with supporting particulars.”

#### Sub-Clause 2.9 Engineer Not Liable

Sub-Clause 2.9 is added as follows:

“Approval, reviews and inspection by the Engineer of any part of the Works does not relieve the Contractor from his sole responsibility and liability for the supply of remaining materials and equipment for the Works and parts thereof and complete the remaining erection works and testing and commissioning in accordance with the Contract and neither the Engineer's authority to act nor any decision made by him in good faith as provided for under this Contract whether to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any of their representatives or employees or any other person performing any of the works. However the Contractor shall be compensated if any loss/damage is occurred due to the decision of the Engineer.”

#### Sub-Clause 4.2 No Contractual Relation between Subcontractor and the Employer

Sub-Clause 4.2 is added as follows:

Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the Employer.

#### Sub-Clause 5.3 Priority of Contract Documents

Sub-Clause 5.3 is deleted and substituted by the following:

“Unless otherwise provided in the Contract the priority of the Contract Documents shall be as follows:

1. The Contract Agreement (if completed)
2. The Letter of Acceptance
3. The completed Form of Bid
4. Preamble to Conditions of Contract
5. The Particular Conditions of Contract
6. The General Conditions of Contract
7. The priced Schedule of Prices
8. The completed Schedules to Bid
9. The Specifications
10. The Drawings
11. ....(Any other document)

In case of discrepancies between drawings, those of larger scale shall govern unless they are superseded by drawing(s) of a later date regardless of scale. All drawings and specifications shall be interpreted in conformity with the Contract Agreement and these conditions.”

#### Sub-Clause 5.4 Documents Mutually Explanatory

The text appearing in the last line after the words “the Contract Price” is deleted.

#### Sub-Clause 6.2 Consequences of Disapproval of Contractor's Drawings

Full stop is deleted and the following words are added at the end of Sub-Clause:  
“for the approval of the Engineer. However, the Contractor shall not be entitled for time extension on this account.”

#### Sub-Clause 6.6. Operation and Maintenance Manuals

Paras 2&3 are deleted and the following text is added at the end of Para 1 of Sub-Clause:

“The Operation and Maintenance Manuals shall include full instructions for the operation, servicing and maintenance of the Plant, not only during the period of the Contractor's liability but more particularly during its operating life.

The directions shall be set out simply, clearly and systematically. This may be divided into two volumes if desirable, one for operation and the second for servicing and maintenance (in sub-volumes for major items of Plant).

The operational data shall include a complete physical and functional description of the Plant (in sub-volumes for major items of Plant) and step-by-step procedures for inspection, checking and adjustments for proper operation of the Plant.

The maintenance data shall include complete instructions for routine checks, servicing, maintenance and repair of all parts and for dismantling, handling and re-assembly of all equipment, sub-assemblies and all separate components. The maintenance data shall also include where possible parts catalogues The lists shall provide all necessary

information for identifying the parts and for re-ordering the parts including name of part, part number and catalogue references where applicable, name of manufacturer, size, capacity and other characteristics .

General arrangements, single line diagrams and detailed drawings shall be provided for ready reference in the operation and maintenance instructions.

The manuals shall be printed on ISO paper size A4 (210x297 mm) with offset or equivalent printing strongly bound in a durable stiff cover bearing the title in approved legend. Drawings shall be folded or reduced to 297 mm height. All volumes shall bear on the spine an approved shortened version of the title.

The Contractor shall submit three draft copies for approval of the Engineer prior to producing finished volumes.

The Contractor shall provide ten (10) copies of the approved Operation and Maintenance Manuals prior to Taking Over by the Employer. Supplementary Operation and Maintenance Manual shall be provided by the Contractor, if required, to incorporate changes resulting from experience during the operation and maintenance period. The work shall not be considered to be completed for the purpose of taking over until such manual and drawings have been supplied to the Employer.”

#### Sub-Clause 6.9 Manufacturing Drawings

The words “Unless otherwise specified in Part-II” are deleted and the following is added at the end of Sub-Clause:

“However, the Contractor is required to disclose to the Engineer or the Employer any confidential information necessary to justify the reliability, the efficiency and the operation and maintenance of the Plant supplied by him.”

#### Sub-Clause 6.10 “As-Built” Drawings

The following new Sub-Clause is added:

The Contractor shall furnish to the Engineer six (6) copies and one (1) reproducible of approved quality of all “As-Built” drawings within the period mentioned in the Preamble to Conditions of Contract.

#### Sub-Clause 8.1 General Obligations

The text of Sub-Clause 8.1 is deleted and substituted by the following:

- “(a) The Contractor shall commence the work on the date specified in the Preamble to Conditions of Contract and shall proceed with the same with due expedition and without delay.
- “(b) The Contractor shall, in accordance with the Contract, with due care and diligence, complete the Works and test and commission the Plant and carry out the Works within the Time for Completion. The Contractor shall also provide all necessary Contractor's Equipment, superintendence, labour and except as stated hereinbelow, all necessary facilities therefor.

The Employer will permit use of the Erection, Testing Equipment and Maintenance Tools as stated in the Preamble to Conditions of Contract.

The above facilities shall be provided at no cost to the Contractor but he shall procure at his cost all required consumable materials and any other items necessary for the proper execution of the Works. These shall be properly used and maintained by the Contractor and returned to the Employer upon handing over of the Works in good condition, fair wear and tear excepted. In case of any damage, loss or theft, the items shall be replaced by the Contractor at his own cost.”

#### Sub-Clause 10.1 Performance Security

Sub-Clause 10.1 is deleted and substituted by the following:

“The Contractor shall provide a Performance Security in the prescribed Form annexed to these Documents. The said Security shall be furnished by the Contractor within 28 days after the receipt of Letter of Acceptance. The Performance Security shall be of an amount equal to 10 percent of the Contract Price in the currency (ies) of the Contract at the option of the bidder, in the form of Bank Guarantee from any Scheduled Bank in Pakistan or from a bank located outside Pakistan duly counter-guaranteed by a Scheduled Bank in Pakistan or an insurance company having atleast AA rating from PACRA/JCR.”

The cost of complying with the requirements of this Sub-Clause shall be borne by the Contractor.”

#### Sub-Clause 10.3 Claims under Performance Security

Sub-Clause 10.3 is deleted in its entirety.

The following Sub Clause is added:

#### Sub-Clause 10.4 Performance Security Binding on Variations and Changes

“The Performance Security shall be binding irrespective of variations and changes in the quantities of the Works or extensions in completion time of the Works, which are granted or agreed upon under the provisions of the Contract.”

#### Sub-Clause 12.1 Programme to be Furnished

Sub-Clause 12.1(a) is deleted and substituted by the following:

“(a) the order in which the Contractor proposes to carry out the Works (including preliminaries, required material ordering, delivery to Site, erection and rectifications work, testing, commissioning and taking-over by the Employer). The programme shall also include the following:

- (i) Employment of local and expatriate labour of various categories,
- (ii) Local material procurement,
- (iii) Material imports, if any.”



In Sub-Clause 12.1(c)(iv) the words “any import licenses” are deleted.

#### Sub-Clause 12.4 Monthly Progress Report

The following Sub-Clause 12.4 is added:

“During the period of the Contract, the Contractor shall submit six sets of report to the Engineer not later than the 8th day of each month, including:

- (i) a construction schedule indicating the progress achieved during the preceding month;
- (ii) description of all work carried out since the last report;
- (iii) description of the work planned for the next forty two days sufficiently detailed to enable the Engineer to determine his programme of inspection and testing;
- (iv) summary of daily job record for the preceding month; and
- (v) colour photographs to illustrate progress.

#### Sub-Clause 12.5 Daily Job Record

The following Sub Clause 12.5 is added:

“During the period of the Contract, the Contractor shall keep a daily record of the work progress, which shall be made available to the Engineer as and when requested.

The daily record shall include particulars of weather conditions, number of men working, in different categories, deliveries of materials, quantity, location and assignment of equipment.”

#### Sub-Clause 13.1 Contractor's Representative

At the end of the Sub-Clause the following is added:

“The Contractor's Representative shall be a competent and skilled person approved by the Engineer (which approval may at any time be withdrawn) and who shall be present on the Site during all working hours. He shall be fluent in the English language. He shall not be transferred from the Site without the consent of the Engineer. The Contractor's Representative shall be a Registered/Professional engineer as defined in the Pakistan Engineering Council Act 1975 (V of 1976).”

#### Sub-Clause 13.3 Language Ability of Superintending Staff of Contractor

The following Sub-Clause 13.3 is added:

“A reasonable proportion of the Contractor's superintending staff shall have a working

knowledge of the English language.”

#### Sub-Clause 13.4 Employment of Local Personnel

The following Sub-Clause 13.4 is added:

“The Contractor shall, to the extent practicable and reasonable, employ staff and labour from sources within Pakistan.”

#### Sub-Clause 14.1 Contractor's Equipment

Replace the word “or” at the end of Sub-paragraph (a) by the word “and” and insert the following at the end of Sub-paragraph(b):  
“which shall not be unreasonably withheld.”

#### Sub-Clause 14.2 Safety Precautions

At the end of the Sub-Clause the following is added:

“In order to provide for the safety, health and welfare of persons, and for prevention of damage of any kind, all operations for the purposes of or in connection with the Contract shall be carried out in compliance with the safety requirements of the Government of Pakistan with such modifications thereto as the Engineer may authorise or direct and the Contractor shall take or cause to be taken such further measures and comply with such further requirements as the Engineer may determine to be reasonably necessary for such purpose.

The Contractor shall make, maintain, and submit reports to the Engineer concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.”

#### Sub-Clause 14.3 Electricity Water and Gas

The text of Sub-Clause 14.3 is deleted and substituted by the following:

“The Contractor shall be responsible for making his own arrangements for the adequate supply of electricity, water and gas required for the effective performance of his obligations under the Contract. Subject to the aforesaid, the Contractor shall be entitled to use for the purposes of the Works such supplies and services as may be available on the Site. The Contractor shall, before the commencement of the work at Site, seek the approval of the Engineer as to his detailed requirements of electricity, water and gas for the entire Contract period. The Contractor shall pay the Employer at the rates/cost incurred by the Employer. The Contractor shall at his own cost provide any apparatus necessary for such use.”

#### Sub-Clause 14.4 Employer’s Equipment

The text of Sub-Clause 14.4 is deleted and substituted by the following:

“The Employer shall, if the Contractor so requests for the execution of the works, operate any available equipment of which details are given in the Preamble to

Conditions of Contract. The Contractor shall pay the Employer a mutually agreed price for such use.

The Employer shall during such operation retain control of and be responsible for the safe working of the equipment.

#### Sub-Clause 14.8 Information for Import Permits & Licences

The text of Sub-Clause 14.8 is deleted and substituted by the following:

“The Contractor shall submit to the Employer in good time such details of all Plant and Contractor's Equipment as is to be imported into Pakistan and identify as to what assistance of the Employer is required for obtaining by the Contractor of all necessary import permits or licences.”

#### Sub-Clause 15.2 Compliance with Laws

The Sub-Clause 15.2 is deleted and substituted by the following:

“The Contractor shall comply with the Laws of country of manufacture and the Laws of Pakistan where the Plant is to be erected.”

#### Sub-Clause 16.4 Photographs of Works and Advertisement Prohibited

Sub-Clause 16.4 is added:

“Except with the prior written authorisation of the Employer the Contractor shall not exhibit or permit to be exhibited any photographs or advertisement on the Works. Any authorized exhibition shall be immediately removed if the Employer so requires.”

#### Sub-Clause 16.5 Training of Employer's Staff

Sub-Clause 16.5 is added:

“The Contractor shall provide such facilities for the training of such numbers of Pakistani engineers, engineering students, apprentices and trade apprentices on such sections of the Works at the Site or on the Contractor's premises or Contractor selected plant manufacturer's premises and factories, or wherever else work is in hand, as specified or directed by the Engineer. The Employer shall direct what sums by way of wages and allowances are to be paid by the Contractor to such persons and shall reimburse the Contractor for such sums as are so directed to be paid and are paid. The Contractor shall also provide medical expenses or medical insurance and travelling expenses for trainees if required by the Employer which shall be reimbursed by the Employer.

The language of training at the above stated premises shall be English and Urdu.”

#### Sub-Clause 17.4 Consents and Way Leaves

The Sub-Clause 17.4 is deleted and substituted by the following:

The Employer shall issue permissions, letters, certificates and provide such other assistance to the Contractor for his obtaining permits-to-work, way leaves and approvals from any other department/authority and right of way from private owners, if required. The Contractor will bear the cost of logistics, fees, etc. for such activities. The Employer, will reimburse the Contractor only the payments made by him in respect of any land compensation for obtaining such way leaves, required for the Works.

#### Sub-Clause 17.5 – Import Permits and Licences

The word “Employer” is deleted and substituted by the word “Contractor” and the following is added at the end of Sub-Clause 17.5:  
“the Employer will provide assistance for this purpose.”

#### Sub-Clause 18.1 – Engagement of Labour

At the end of the Clause the following is added:  
“in accordance with the regulations, orders and requirements of the Govt. of Pakistan.”

Sub-Clauses 18.5 to 18.12 are added:

#### “Sub-Clause 18.5 Employment of Persons in the Service of Others

The Contractor shall not recruit or attempt to recruit staff and labour from amongst the persons in the service of the Employer or the Engineer and vice-versa, unless mutually agreed between the Employer/Engineer and the Contractor

#### Sub-Clause 18.6 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances and Government Regulations or Orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or suffer any such importation, sale, gift, barter or disposal by his Subcontractors, agents, employees or labour.

#### Sub-Clause 18.7 Arms and Ammunition

The Contractor shall not give, barter or otherwise dispose of to any person or persons, any arms or ammunition of any kind or permit or suffer the same as aforesaid.

#### Sub-Clause 18.8 Festivals and Religious Customs

The Contractor shall in all dealings with his staff and labour have due regard to all recognised festivals, days of rest and religious or other customs.

#### Sub-Clause 18.9 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful riotous or disorderly conduct by or amongst his staff and labour and for the preservation of peace and protection of persons and property in the neighbourhood of the Works.

#### Sub-Clause 18.10 Records of Safety and Health

The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Employer/Engineer may from time to time prescribe.

#### Sub-Clause 18.11 Reporting of Accidents

The Contractor shall report to the Employer/Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition to appropriate action required under the law, notify the Engineer immediately by the quickest available means.

#### Sub-Clause 18.12 Compliance by Subcontractors

The Contractor shall be responsible for compliance by his Subcontractors of the foregoing provisions.”

#### Sub-Clause 19.1 Manner of Execution

The following is added at the end of Sub-Clause:

“The Contractor shall submit for approval of the Engineer, his detailed method statement(s) for the execution of such items of work as may be desired by the Engineer. Approval of such method statement(s) shall neither relieve the Contractor of his responsibilities under the Contract nor form any basis for claiming additional costs.”

#### Sub-Clause 19.3 Uncovering Work

The following is added at the end of second paragraph of Sub-Clause 19.3:

“In any other case, all costs shall be borne by the Contractor.”

#### Sub-Clause 19.4 Use of Pakistani Materials

The following Sub-Clause 19.4 is added:

“The Contractor shall so far as may be consistent with the Contract make the maximum use of materials, supplies and equipment indigenous to or produced in Pakistan and services available in Pakistan or operated in Pakistan provided such materials, supplies, equipment and services shall be of required standard.”

#### Sub-Clause 24.1 Cost of Suspension

At the end of the second paragraph after the word “Contractor” the following is added:

“or for the proper execution or for the safety of the Works or Plant unless such necessity results from any act or default of the Engineer or the Employer or in consequence of any of the Employer's Risks under Sub-Clause 37.2.”

#### Sub-Clause 24.4 Resumption of Work

First paragraph of Sub-Clause 24.4 is deleted and substituted by the following:

“If the Contractor chooses not to treat prolonged suspension as an omission or termination under Sub-Clause 24.3, the Employer shall, upon the request of the Contractor, take over the responsibility for protection, storage, security and insurance of the suspended Works and of the Plant which has been delivered to the Site and which is affected by suspension and the risk of loss or damage thereto shall thereupon pass to the Employer.”

#### Sub-Clause 25.1 Time for Completion

The text of Sub-Clause 25.1 is deleted and substituted by the following:

“The Works at the place of the project mentioned in the Preamble to Conditions of Contract shall be completed tested and commissioned within the period mentioned in the Preamble to Conditions of Contract.”

#### Sub-Clause 26.1 Extension of Time for Completion

Sub-Clause 26.1(h) is deleted.

#### Sub-Clause 26.3 Earlier Completion

- (i) At the end of Sub-Clause 26.3(a) the following text is added and Clause is re-designated as 26.3.

“The extra sum to be paid to the Contractor for Completion of Works prior to the date of Completion established under Sub-Clause 25.1 shall be computed on the basis of the sums mentioned in the Preamble to Conditions of Contract.”

- (ii) Sub-Clause 26.3 (b) is deleted.

#### “Sub-Clause 26.4 Rate of Progress

Sub-Clause 26.4 is added:

“If for any reason, which does not entitle the Contractor to an extension of time, the rate of progress of the Works or any Section is at any time, in the opinion of the Engineer, too slow to comply with the Time for Completion, the Engineer shall so notify the Contractor who shall thereupon take such steps as are necessary, subject to the consent of the Engineer, to expedite progress so as to comply with the Time for Completion. The Contractor shall not be entitled to any additional payment for taking such steps. If, as a result of any notice given by the Engineer under this Clause, the Contractor considers that it is necessary to do any work at night or on locally recognised days of rest, he shall be entitled to seek the consent of the Engineer so to do. Provided that if any steps, taken by the Contractor in meeting his obligations under this Sub-Clause, involve the Employer in additional supervision costs, such costs shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any moneys due or to become due to the Contractor and the Engineer shall notify the Contractor accordingly, with a copy to the Employer.”

#### Sub-Clause 27.1 Delay in Completion

Sub-Clause 27.1 is deleted and substituted by the following:

“If the Contractor fails to deliver the Works, or any part thereof, within the time stated in Sub-Clause 25.1, or fails to complete the whole of the Work, or, if applicable, any Section within the relevant time prescribed by Sub-Clause 25.1, then the Contractor shall pay to the Employer the relevant sum stated hereinbelow as liquidated damages for such default (which sum shall be the only moneys due from the Contractor for such default) for every day or part of a day which shall elapse between the relevant time for Delivery or Time for Completion and the actual date of delivery at site or the date stated in a Taking-Over Certificate of the whole of the Works or the relevant Section, as the case may be, subject to the applicable limit stated hereinbelow.

The Employer may deduct the amount of such damages from any monies due or to become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works, or from any other of his obligations & liabilities under the Contract.”

The liquidated damages for each day of delay and the maximum amount of liquidated damages shall be the amounts mentioned in the Preamble to Conditions of Contract.

#### Sub-Clause 28.7 Consequences of Failure to Pass Tests on Completion

The words “by arbitration” appearing at the end of the Sub-Clause 28.7(c) are deleted and substituted by the words “by the Engineer”.

#### Sub-Clause 30.4 Extension of Defects Liability Period

At the end of 4th paragraph of Sub-Clause the following is added:  
“or a mutually agreed period.”

#### Sub-Clause 30.5 Failure to Remedy Defects

In first line after the words “reasonable time” the following is added:  
“fixed by the Engineer”.

#### Sub-Clause 30.13 Unfulfilled Obligations

New Sub-Clause 30.13 is added as herein below:

“After the Defects Liability Certificate has been issued, the Contractor and the Employer shall remain liable for the fulfillment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of any such obligation, the Contract shall be deemed to remain in force.”

#### Sub-Clause 31.1 Engineer's Right to Vary

The following is added at the end of second paragraph:

“No such variation shall in any way vitiate or invalidate the Contract, but the effect, if any, of all such variations shall be valued in accordance with Clause 31. Provided that where the issue of an instruction to vary the Works is necessitated by some default of or breach of Contract by the Contractor or for which he is responsible, any additional cost attributable to such default shall be borne by the Contractor.”

#### Sub-Clause 31.5 Record of Costs

The word “Engineer” in 4th line of Sub-Clause is deleted and substituted by “Engineer/Employer”.

#### Sub-Clause 31.6 Daywork under Variation Order

New Sub-Clause 31.6 is added as given below:

“A Variation Order may provide that work done pursuant thereto shall be executed as Daywork. In such case the Contractor shall be paid for such work under the conditions and the rates and prices set out in the Day Work Schedule.”

#### Sub-Clause 31.7 Value Engineering

New Sub-Clause 31.7 is added as given below:

The Contractor may, at any time, submit to the Engineer a written proposal which in the Contractor’s opinion will reduce the cost of constructing, maintaining or operating the works, or improve the efficiency or value to the Employer of the completed Works or otherwise be of benefit to the Employer. Any such proposal shall be prepared at the



cost of the Contractor. However Employer is not bound to accept such proposal.

#### Sub-Clause 33.1 Terms of Payment

The payment of the interim bills shall be made on the basis of works executed or supplies made after certification made by the Project Manager; however, amounts equal to 10% of the bill may be retained which will be released after the completion and operationalization of the Project.

The following Sub-Clauses are added:

#### Sub-Clause 33.1.1 Retention of Payment

If at any time any payment would fall due for Works or part of Works and, if there shall be any defect in part of such Works in respect of which such payment is proposed, the Employer may retain the whole or any part of such payment. Any sum retained by the Employer pursuant to the provisions of this Clause shall be paid to the Contractor after the said defect is removed.

#### Sub-Clause 33.1.2 Payment Where Taking-Over Certificate Issued for Section or part of Works

If any section or part of the Works shall be taken-over separately under Clause 29 (Taking-Over) hereof, the payments herein provided for on or after Taking-Over shall be made in respect of the section or part taken-over and reference to the price shall mean such part of the price as shall, in the absence of agreement, be apportioned thereto by the Engineer.

#### Sub-Clause 33.2 Method of Application

The Sub-Clause 33.2 is deleted. The payment method has already been given in the Sub-Clause 33.1 above.

#### Sub-Clause 33.5 Payment

Sub-Clause 33.5 is deleted and substituted by the following:

The amount due to the Contractor under any Interim Payment Certificate issued by the Engineer pursuant to this Clause, or to any other term of the Contract, shall, subject to Clause 27, be paid by the Employer to the Contractor within 30 days after such Interim Payment Certificate has been jointly verified by Employer and Contractor, or, in the case of the Final Certificate referred to in Sub-Clause 33.10 within 60 days after such Final Payment Certificate has been jointly verified by Employer and Contractor; Provided that the Interim Payment shall be caused in 42 days and Final Payment in 60 days in case of foreign funded project.

Deduction shall be made from the net amounts payable to the Contractor of any sum(s) in accordance with the prevalent Federal and/or Provincial laws, provided that no such deduction shall be made from those payments in respect of which the Contractor has

obtained exemption under the Law.”

#### Sub-Clause 33.6 Delayed Payment

The text of Sub-Clause 33.6 is deleted and substituted by the following:

“In the event of the failure of the Employer to make payment within the times stated in Sub-Clause 33.5, the Employer shall pay to the Contractor compensation at the rate of KIBOR+2% for local currency and LIBOR+1% for foreign currency per annum, upon all local currency sums unpaid from the date by which the same should have been paid. The provisions of this Sub-Clause are without prejudice to Contractor's entitlement under Sub-Clause 46.1.”

#### Sub-Clause 33.8 Payment by Measurement

The work shall be measured for the units mentioned in the Schedule of Prices according to the Contract as determined by the Engineer from approved drawings, Specifications and Contract Documents.

#### Sub-Clause 33.12 Withholding of Payment

New Sub-Clause 33.12 is added as given below:

If the Works or any part thereof are not being carried out to the Engineer's satisfaction and in order to protect the Employer from loss on account of:

- (a) defective work not rectified
- (b) guarantees not met
- (c) claims filed against the Contractor
- (d) failure of the Contractor to make payments due for Plant procured or labour employed by him.
- (e) damage to any other contractor employed by the Employer.
- (f) Contractor's non-compliance with the Contract
- (g) any Government dues recoverable from the Contractor if notified by the Government

The Engineer may notify withholding of such payments or part thereof as may, in his opinion, be related to the aforesaid reasons/grounds. When the reasons/grounds for withholding the payment are removed by the Contractor, the Engineer shall upon being satisfied to that effect issue Certificate of Payment in respect of withheld amounts.

#### Sub-Clause 35.1 Payment in Foreign Currencies

No payment in foreign currency shall be made. All payments will be made in local currency.

#### Sub-Clause 35.2 Currency Restrictions

The text of Sub-Clause 35.2 is deleted and substituted by the following:

“Any required foreign currency transactions shall be met by the Employer/Contractor at his cost from his own resources.”

#### Sub-Clause 35.3 Rates of Exchange

The words “as stated in the Preamble” appearing in 3rd line of Sub-Clause are deleted and substituted by the words “as published or authorized by State Bank of Pakistan”.

#### Sub-Clause 36.4 Payment against Provisional Sums

Sub-Clause 36.4 is deleted and substituted by the following:

“Provisional Sum if any will be expended on the direction of the Engineer through Variation Orders which would be valued in accordance with the provisions of Clause 31 Conditions of Contract.”

#### Sub-Clause 37.2 Employer's Risks

The text of Sub-Clause 37.2 is deleted and substituted by the following:

“The Employer's Risks are:

- (a) (Insofar as they relate to Pakistan) war and hostilities (whether war be declared or not), invasion, act of foreign enemies
- (b) (Insofar as they relate to Pakistan) rebellion, revolution, insurrection, military or usurped power or civil war
- (c) ionizing radiation or contamination by radioactivity from any nuclear fuel, radio-active toxic explosives or other hazardous properties of any explosive nuclear assembly or nuclear components thereof
- (d) pressure waves caused by aircraft travelling at sonic or supersonic speed
- (e) (Insofar as they relate to Pakistan) riot, commotion or disorder, unless solely restricted to the employees of the Contractor or of his Subcontractors
- (f) use or occupation of the Work or any part thereof by the Employer
- (g) fault, error, defect or omission in the design of any part of the Works by the Engineer, Employer or those for whom the Employer is responsible for which the Contractor has disclaimed responsibility in writing within a reasonable time after the receipt of such design
- (h) the use or occupation of the Site by the Works or any part thereof, or for the purposes of the Contract: or interference, whether temporary or

permanent with any right of way, light, air or water or with any easement, way leaves or right of a similar nature which is the inevitable result of the construction of the Works in accordance with the Contract

- (i) the right of the Employer to construct the Works or any part thereof on, over, under, in or through any land
- (j) damage (other than that resulting from the Contractor's method of construction) which is the inevitable result of the construction of the Works in accordance with the Contract
- (k) the act, neglect or omission or breach of contract or of statutory duty of the Engineer, the Employer or other contractors engaged by the Employer or of their respective employees or agents.”

#### Sub-Clause 39.2 Loss or Damage Before Risk Transfer Date

The words “by arbitration under Clause 50” are deleted and substituted by the words “by the Engineer”.

#### Sub-Clause 39.4 Duty to Minimize Delay

New Sub-Clause 39.4 is added as given below:

Each Party shall at all times use all reasonable endeavours to minimize any delay in the Performance of the Contract as a result of Risks.

The Contractor shall give notice to the Employer and vice versa the Employer shall give notice to the Contractor in case of foreseeable delay by the Risks.

#### Sub-Clause 40.2 Employer's Liability

The text of Sub-Clause 40.2 from the words “or of death or personal injury” to the end of the Sub-Clause, is deleted and substituted by the following:

“..... (other than the Works) or of death or personal injury to the extent caused by any of the Employer's Risks listed in paragraphs (f), (g), (h), (i), (j), and (k) of Sub-Clause 37.2 but not otherwise.”

#### Sub-Clause 42.2 Maximum Liability

the words “the sum stated in the Preamble to Conditions of Contract or if no such sum is stated” appearing in 2nd line of Sub-Clause are deleted.

#### Sub-Clause 42.6 Foreseen Damage

Sub-Clause 42.6 is deleted in its entirety.

#### Sub-Clause 43.1 The Works (Insurance)

(Employer may vary this Sub-Clause)

Sub-Clause 43.2 Contractor's Equipment

Sub-Clause 43.2 is deleted and substituted by the following:

“The Contractor shall insure the Contractor's Equipment for its full replacement value while on the Site against all loss or damage caused by any of the Contractor's Risks.”

Sub-Clause 43.3 Third Party Liability (Insurance)

(Employer may vary this Sub-Clause)

Sub-Clause 43.7 Remedies on the Contractor's Failure to Insure

In 3rd line after the word, “purpose”, the expressions- “and reasonable costs including the man-hours costs of Employer's Personnel” are added.

Sub-Clause 43.9 Currency of Insurance

New Sub-Clause 43.9 is added as given below:

“All policies of Insurance of the Plant shall provide for payment of indemnity to be made in such amounts as will allow making good of loss of or damage to the whole or any part of the Works.”

Sub-Clause 43.10 Contractor to Notify

New Sub-Clause 43.10 is added as given below:

“It shall be the responsibility of the Contractor to notify the insurance company of any changes in nature and extent of the Works and to ensure the adequacy of the insurance coverage at all times in accordance with the provisions of the Contract.”

Sub-Clause 43.11 Procurement of Insurance Policies

New Sub-Clause 43.11 is added as given below:

“The Contractor shall procure and submit the insurance cover under this Clause within a period of 28 days from the date of receipt of Letter of Acceptance from the Employer.”

Sub-Clause 44.6 Damage Caused by Force Majeure

At the end of the Sub-Clause 44.6 the following is added:

“However the Contractor shall put up his claim to the Employer / Engineer with full details and justification.”

Sub-Clause 44.8 Payment on Termination for Force Majeure

Text in sub-para (c) is deleted and para (d) and (e) are re-numbered as (c) and (d).

#### Sub-Clause 44.10 Force Majeure Affecting Engineer's Duties

Sub-Clause 44.10 is deleted in its entirety.

#### Sub-Clause 45.2 Contractor's Default

The following paragraph is added at the end of Sub-Clause 45.2.

“The Employer or such other contractor may use for such completion any Contractor's Equipment which is upon the Site as he or they may think proper, and the Employer shall pay the Contractor a reasonable compensation for such use”.

Sub-Clause 45.6 is added as follows:

#### Sub-Clause 45.6 Integrity Pact

If the Contractor, or any of his Subcontractors, agents or servants is found to have violated or involved in violation of the Integrity Pact signed by the Contractor as Schedule-H to his Bid, then the Employer shall be entitled to:

- (a) recover from the Contractor an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by the Contractor or any of his Subcontractors, agents or servants;
- (b) terminate the Contract; and
- (c) recover from the Contractor any loss or damage to the Employer as a result of such termination or of any other corrupt business practices of the Contractor or any of his Subcontractors, agents or servants.

The termination under Sub-Para (b) of this Sub-Clause shall proceed in the manner prescribed under Sub-Clauses 45.2 to 45.5 and the payment under Sub-Clause 45.4 shall be made after having deducted the amounts due to the Employer under Sub-Para (a) and (c) of this Sub-Clause.

#### Sub-Clause 46.1 Employer's Default

The comma and the word “or” at the end of paragraph (d) of Sub-Clause 46.1 are deleted and substituted by period (.) Paragraph (e) of Sub-Clause 46.1 is deleted.

#### Sub-Clause 46.3 Payment on Termination for Employer's Default

The words “including loss of profit” in the second paragraph of Sub-Clause 46.3 are deleted.

#### Sub-Clause 47.1 Labour, Materials and Transport

(Employer to modify this Sub-Clause as provided under Clause 70.1 of PCC of PEC Civil Documents and following PEC Procedure and Formula for Price Adjustment)

#### Sub-Clause 48.1 Customs and Import Duties

(Employer may vary this Sub-Clause)

The Sub-Clause 48.3 is added:

Sub-Clause 48.3 Port Charges and Port Congestion

The Contractor shall be deemed to have obtained all the information regarding facilities and charges, in respect of port clearance, loading and unloading, storage, transportation, congestion and confirmed the requirements thereof at his own responsibility and all such costs and charges are deemed to be included in the rates and prices of the Schedule of Prices.

Sub-Clause 49.1 Notice to Contractor

The following is added at the end of Sub-Clause 49.1:

“For the purposes of Sub-Clause 49.1 the Contractor shall, immediately after receipt of Letter of Acceptance, intimate in writing to the Employer and the Engineer by registered post, the address of his principal place of business or any change in such address during the period of the Contract.”

Sub-Clause 50 Disputes & Arbitration

Clause 50 is deleted and in its place the following Sub-Clauses 50.1 to 50.5 are inserted:

“50.1 If a dispute of any kind whatsoever arises between the Employer and the Contractor in connection with, or arising out of, the Contract or the execution of the Works, whether during the execution of the Works or after their completion and whether before or after repudiation or other termination of the Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Engineer, the matter in dispute shall, in the first place, be referred in writing to the Engineer, with a copy to the other party. Such reference shall state that it is made pursuant to this Clause. No later than the fifty sixth (56) day after the day on which he received such reference, the Engineer shall give notice of his decision to the Employer and the Contractor. Such decision shall state that it is made pursuant to this Clause.

Unless the Contract has already been repudiated or terminated, the Contractor shall, in every case, continue to proceed with the Work with all due diligence, and the Contractor and the Employer shall give effect forthwith to every such decision of the Engineer unless and until the same shall be revised, as hereinafter provided in an amicable settlement or in an arbitral award.

In any case where the Conditions of Contract provide that the decision of the Engineer is to be final and conclusive, such decision shall not be referable to arbitration under this Clause nor shall the same be questioned in any other form of proceedings whatsoever.

50.2 If either the Employer or the Contractor be dissatisfied with a decision of the Engineer or if the Engineer fails to give notice of his decision on or before the

fifty sixth (56) day after the day on which he received the reference, then either the Employer or the Contractor may, on or before the twenty eighth (28) day after the day on which the said period of fifty six (56) days expired, as the case may be, give notice to the other party to commence arbitration, as hereinafter provided, as to the matter in dispute. Such notice shall establish the entitlement of the party giving the same to commence arbitration, as hereinafter provided, as to such dispute and, subject to Sub-Clause 50.5, no arbitration in respect thereof may be commenced unless such notice is given.

If the Engineer has given notice of his decision as to a matter in dispute to the Employer and the Contractor and no notification of intention to commence arbitration as to such dispute has been given by either the Employer or the Contractor on or before the twenty eighth (28) day after the day on which the parties received notice as to such decision from the Engineer the said decision shall become final and binding upon the Employer and the Contractor.

50.3 Where notice of intention to commence arbitration as to a dispute has been given in accordance with Sub-Clause 50.2, arbitration of such dispute shall not be commenced unless an attempt has first been made by the parties to settle such dispute amicably through mutual negotiation within ninety (90) days from the date of notification of Engineer's decision.

50.4 Any dispute in respect of which:

- (a) the decision, if any, of the Engineer has not become final and binding pursuant to Sub-Clause 50.1 and
- (b) amicable settlement has not been started/reached within the period stated in Sub-Clause 50.3

shall be finally settled, unless otherwise specified in the Contract, under the Pakistan Arbitration Act, 1940 (Act No. X of 1940) and Rules made thereunder as amended, by one or more arbitrators appointed under such Rules.

The said arbitrator(s) shall have full power to open up, review and revise any decision, opinion, instruction, determination, certificate or valuation of the Engineer for the purpose of obtaining said decision pursuant to Sub-Clause 50.1. No such decision shall disqualify the Engineer from being called as a witness and giving evidence before the arbitrator(s) on any matter whatsoever relevant to the dispute.

The venue of arbitration proceedings shall be the place in Pakistan as mentioned in the Preamble to Conditions of Contract.

50.5 Where neither the Employer nor the Contractor has given notice of intention to commence arbitration of a dispute within the period stated in Sub-Clause 50.1 or 50.2 and the related decision has become final and binding, either party may, if the other party fails to comply with such decision, and without prejudice to any other rights it may have, refer the failure to arbitration in accordance with Sub-Clause 50.4. The provisions of Sub-Clauses 50.1 to 50.2 shall not apply to



any such reference.”

## **STANDARD FORMS**

## STANDARD FORMS

Standard Forms include the following:

- Form of Bid Security  
(Bank Guarantee)
- Form of Contract Agreement
- Form of Performance Security  
(Bank Guarantee)
- Form of Bank Guarantee/Bond for Advance Payment

(Note: Standard Forms provided in this document for securities are to be issued by a bank. In case the bidder chooses to issue a bond for accompanying his bid or performance of contract or receipt of advance, the relevant format shall be tailored accordingly without changing the spirit of the Forms of securities).

**FORM OF BID SECURITY**

(Bank Guarantee)

Guarantee No. \_\_\_\_\_

Executed on \_\_\_\_\_

Expiry date \_\_\_\_\_

[Letter by the Guarantor to the Employer]

Name of Guarantor (Bank) with address: \_\_\_\_\_

Name of Principal (Bidder) with address: \_\_\_\_\_

Penal Sum of Security (express in words and figures): \_\_\_\_\_

Bid Reference No. \_\_\_\_\_ Date of Bid \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bid and at the request of the said Principal, we the Guarantor above-named are held and firmly bound unto the \_\_\_\_\_, (hereinafter called The "Employer") in the sum stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying Bid numbered and dated as above for \_\_\_\_\_ (Particulars of Bid) to the said Employer; and

WHEREAS, the Employer has required as a condition for considering the said Bid that the Principal furnishes a Bid Security in the above said sum to the Employer, conditioned as under:

- (1) that the Bid Security shall remain valid for a period 28 days beyond the period of validity of the Bid;
- (2) that in the event of;
  - (a) the Principal withdraws his Bid during the period of validity of Bid, or
  - (b) the Principal does not accept the correction of his Bid Price, pursuant to Sub-Clause 24.2 of Instructions to Bidders, or
  - (c) failure of the successful bidder to
    - (i) furnish the required Performance Security, in accordance with Clause 34 of Instructions to Bidders, or
    - (ii) sign the proposed Contract Agreement, in accordance with Clause 35 of Instructions to Bidders,

then the entire sum be paid immediately to the said Employer as liquidated damages

and not as penalty for the successful bidder's failure to perform.

NOW THEREFORE, if the successful bidder shall, within the period specified therefor, on the prescribed form presented to him for signature enter into a formal Contract with the said Employer in accordance with his Bid as accepted and furnish within twenty eight (28) days of his being requested to do so, a Performance Security with good and sufficient surety , as may be required, upon the form prescribed by the said Employer for the faithful performance and proper fulfilment of the said Contract or in the event of non-withdrawal of the said Bid within the time specified for its validity then this obligation shall be void and of no effect, but otherwise to remain in full force and effect.

PROVIDED THAT the Guarantor shall forthwith pay to the Employer the said sum stated above upon first written demand of the Employer without cavil or argument and without requiring the Employer to prove or to show grounds or reasons for such demand notice of which shall be sent by the Employer by registered post duly addressed to the Guarantor at its address given above.

PROVIDED ALSO THAT the Employer shall be the sole and final judge for deciding whether the Principal has duly performed his obligations to sign the Contract Agreement and to furnish the requisite Performance Security within the time stated above, or has defaulted in fulfilling said requirements and the Guarantor shall pay without objection the sum stated above upon first written demand from the Employer forthwith and without any reference to the Principal or any other person.

IN WITNESS WHEREOF, the above bounden Guarantor has executed the instrument under its seal on the date indicated above, the name and seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

	_____ Guarantor (Bank)
Witness:	Signature _____
1. _____	Name _____
_____	Title _____
Corporate Secretary (Seal)	
2. _____	_____
_____	_____
(Name, Title & Address)	Corporate Guarantor (Seal)

## FORM OF CONTRACT AGREEMENT

THIS CONTRACT AGREEMENT (hereinafter called the “Agreement”) made on the \_\_\_\_\_ day of \_\_\_\_\_ (month) 20\_\_\_\_ between \_\_\_\_\_ (hereafter called the “Employer”) of the one part and \_\_\_\_\_ (hereafter called the “Contractor”) of the other part.

WHEREAS the Employer is desirous that certain Works, viz \_\_\_\_\_ should be executed by the Contractor and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW this Agreement witnesseth as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents after incorporating addenda, if any except those parts relating to Instructions to Bidders shall be deemed to form and be read and construed as part of this Agreement, viz:
  - (a) The Contract Agreement
  - (b) The Letter of Acceptance
  - (c) The completed Form of Bid
  - (d) The Preamble to Conditions of Contract
  - (e) The Particular Conditions of Contract
  - (f) The General Conditions of Contract
  - (g) The priced Schedule of Prices
  - (h) The completed Schedules to Bid
  - (i) The Specifications
  - (j) The Drawings
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy defects therein in conformity and in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works as per provisions of the Contract, 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 Agreement to be executed on the day, month and year first before written in accordance with their respective laws.

Signature of the Contactor

\_\_\_\_\_  
(Seal)

Signature of the Employer

\_\_\_\_\_  
(Seal)

Signed, Sealed and Delivered in the presence of:

Witness:

\_\_\_\_\_

(Name, Title and Address)

Witness:

\_\_\_\_\_

(Name, Title and Address)

**FORM OF PERFORMANCE SECURITY  
(Bank Guarantee)**

Guarantee No. \_\_\_\_\_  
Executed on \_\_\_\_\_  
Expiry date \_\_\_\_\_

[Letter by the Guarantor to the Employer]

Name of Guarantor (Bank) with address: \_\_\_\_\_

Name of Principal (Contractor) with address: \_\_\_\_\_

Penal Sum of Security (express in words and figures) \_\_\_\_\_

Letter of Acceptance No. \_\_\_\_\_ Dated \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that in pursuance of the terms of the Bidding Documents and above said Letter of Acceptance (hereinafter called the Documents) and at the request of the said Principal we, the Guarantor above named, are held and firmly bound unto the \_\_\_\_\_ (hereinafter called the Employer) in the penal sum of the amount stated above for the payment of which sum well and truly to be made to the said Employer, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has accepted the Employer's above said Letter of Acceptance for \_\_\_\_\_ (Name of Contract) for the \_\_\_\_\_ (Name of Project).

NOW THEREFORE, if the Principal (Contractor) shall well and truly perform and fulfill all the undertakings, covenants, terms and conditions of the said Documents during the original terms of the said Documents and any extensions thereof that may be granted by the Employer, with or without notice to the Guarantor, which notice is, hereby, waived and shall also well and truly perform and fulfill all the undertakings, covenants terms and conditions of the Contract and of any and all modifications of said Documents that may hereafter be made, notice of which modifications to the Guarantor being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue till all requirements of Clause 30, Defects after Taking Over, of Conditions of Contract are fulfilled.

Our total liability under this Guarantee is limited to the sum stated above and it is a condition of any liability attaching to us under this Guarantee that the claim for payment in writing shall be received by us within the validity period of this Guarantee, failing which we shall be discharged of our liability, if any, under this Guarantee.

We, \_\_\_\_\_ (the Guarantor), waiving all objections and defences under the Contract, do hereby irrevocably and independently guarantee to pay to the Employer without delay upon the Employer's first written demand without cavil or arguments and without requiring the Employer to prove or to show grounds or reasons for such demand any sum or sums up to the amount stated above, against the Employer's written declaration that the Principal has refused or failed to perform the obligations under the Contract which



payment will be effected by the Guarantor to Employer's designated Bank & Account Number.

PROVIDED ALSO THAT the Employer shall be the sole and final judge for deciding whether the Principal (Contractor) has duly performed his obligations under the Contract or has defaulted in fulfilling said obligations and the Guarantor shall pay without objection any sum or sums up to the amount stated above upon first written demand from the Employer forthwith and without any reference to the Principal or any other person.

IN WITNESS WHEREOF, the above-bounden Guarantor has executed this Instrument under its seal on the date indicated above, the name and corporate seal of the Guarantor being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

	_____ Guarantor (Bank)
Witness:	
1. _____	Signature _____
_____	Name _____
Corporate Secretary (Seal)	Title _____
2. _____	
_____	_____
Name, Title & Address	Corporate Guarantor (Seal)

**FORM OF BANK GUARANTEE/BOND FOR ADVANCE PAYMENT**

Guarantee No. \_\_\_\_\_  
Executed on \_\_\_\_\_  
Expiry date \_\_\_\_\_

[Letter by the Guarantor to the Employer]

WHEREAS the \_\_\_\_\_ (hereinafter called the Employer) has entered into a Contract for \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (Particulars of Contract), with  
\_\_\_\_\_ (hereinafter called the Contractor).

AND WHEREAS the Employer has agreed to advance to the Contractor, at the Contractor's request, an amount of Rupees \_\_\_\_\_ (Rs. \_\_\_\_\_) which amount shall be advanced to the Contractor as per provisions of the Contract.

AND WHEREAS the Employer has asked the Contractor to furnish Guarantee to secure advance payment for performance of his obligations under the said Contract.

AND WHEREAS \_\_\_\_\_ (Bank) (hereinafter called the Guarantor) at the request of the Contractor and in consideration of the Employer agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.

NOW THEREFORE the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of above mentioned Contract and if he fails, and commits default in fulfillment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the Employer shall be the sole and final judge, as aforesaid, on the part of the Contractor, shall be given by the Employer to the Guarantor, and on such first written demand payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This guarantee shall come into force as soon as the advance payment has been credited to the account of the Contractor.

This guarantee shall expire not later than \_\_\_\_\_ by which date we must have received any claims by registered letter, telegram, telex or telefax.

It is understood that you will return this Guarantee to us on expiry or after settlement of the total amount to be claimed hereunder.

Witness:

1. \_\_\_\_\_

\_\_\_\_\_  
Corporate Secretary (Seal)

2. \_\_\_\_\_

\_\_\_\_\_  
Name, Title & Address

\_\_\_\_\_  
Guarantor (Bank)

Signature \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

\_\_\_\_\_  
Corporate Guarantor (Seal)

## **PART-II**

# **FINANCIAL PROPOSAL**

**B. Financial Proposal (SCHEDULE OF PRICES)**

**Description**

1. Preamble to Schedule of Prices
2. Schedule of Prices
  - (a) Summary of Bid Prices
  - (b) Establishment of Data Centre
  - (c) Server Machine & Networking Equipment

## 1. PREAMBLE TO SCHEDULE OF PRICES

### 1. General

- 1.1 The Schedule of Prices shall be read in conjunction with the Conditions of Contract together with the Specifications and Drawings.
- 1.2 The Contract shall be for the whole of the Works as described in these Bidding Documents. Bids must be for the complete scope of Work.

### 2. Description

- 2.1 The general directions and descriptions of work and materials are not necessarily repeated nor summarized in the Schedule of Prices. References to the relevant sections of the Bidding Documents shall be made before entering prices against each item in the Schedule of Prices.
- 2.2 The quantities shown in the Schedule of Prices are estimated quantities only as an indication of the Scope of Work to enable the bidder to bid for different items of the Works for his estimate of costs. The estimated quantities shall be used for comparing the bids. It is, however, to be noted that in the event of any increase or decrease in the quantity of any item of Works and subject to provisions of the Conditions of Contract herein, the actual quantities executed will be paid.

### 3. Units & Abbreviations

- 3.1 Units of measurement, symbols and abbreviations expressed in the Bidding Documents shall comply with the Systeme Internationaled' Unites (SI Units).

The following abbreviations shall be used in the Schedule of Prices:

	<b><u>Abbreviation</u></b>
Foreign Currency Component	FCC
Local Currency Component	LCC
United States Dollars	US\$
Pakistani Rupees	PKR/Rs
Number	No.
Kilometer	km
Kilogram	Kg
Cubic Meter	Cu. m
Provisional Sum	PS
Percent	%

### 4. Rates and Prices

- 4.1 Except as otherwise expressly provided under the Conditions of Contract, the rates and amounts entered in the Schedule of Prices shall be the rates at which the Contractor shall be paid and shall be the full inclusive value of the work set forth or implied in the Contract; except for the amounts reimbursable to the Contractor under the Contract.

- 4.2 Unless otherwise stipulated in the Conditions of Contract, the rates and prices entered by the bidder shall not be subject to adjustment during the performance of the Contract.
- 4.3 All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as on the date twenty eight (28) days prior to the deadline for submission of bids shall be included in the rates and prices and the total Bid Price submitted by a bidder.

Additional/reduced duties, taxes and levies due to subsequent additions or changes in legislation shall be reimbursed/deducted as per provisions of the Conditions of Contract.

- 4.4 The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Schedule of Prices, and where no items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related items of the Works and no separate payment will be made for those items.

The rates, prices and amounts shall be entered against each item in the Schedule of Prices. Any item against which no rate or price is entered by the bidder will not be paid for by the Employer when executed and shall be deemed covered by the rates and prices for other items in the Schedule of Prices.

- 4.5 The bidder shall be deemed to have obtained all information as to port clearance facilities and charges, loading and unloading facilities and charges, storage facilities and charges, transportation facilities and charges, congestion and/or other conditions to be expected at Karachi Port and or any other seaport of Pakistan and all requirements related thereto.

The Contractor shall be responsible to make complete arrangements for the transportation of the Plant to the Site.

The bidder shall be deemed to have included all clearing, forwarding and other incidental costs in this regard in his bid. The Contractor will have the option to use either Karachi Port or or any other seaport of Pakistan.

- 4.6 The Contractor shall provide for all parts of the Works to be completed in every respect for commercial operation. Notwithstanding that any details, accessories, etc. required for the complete installation and satisfactory operation of the Plant, are not specifically mentioned in the Specifications, such details shall be considered as included in the Contract Price.

## **5. Bid Prices**

- 5.1 Break-up of Bid Prices as given below are considered to have been included in the prices for various components:-  
The contractor shall quote prices of different components of works/equipment as given in detailed schedule of prices. The rates to be quoted shall be inclusive

of all costs and charges including customs duties and other taxes payable to Federal Government and Provincial Government of Balochistan (i.e. Balochistan Revenue Authority) as well as other charges and expenses such as Transportation, packing, shipping, insurance, erection and installation etc.

Special Note:- The contractor shall provide original certificate of manufacturing and or shipping documents to confirm the genuineness of the equipment.

## 5.2 Total Bid Price

The total of bid prices under foreign currency and local currency columns in the Schedule of Prices shall be entered in the Summary of Bid Prices. The unit rates and prices and lump sum amount entered in the Schedule of Prices will be the rates at which the Contractor will be paid, and shall be deemed to be the full inclusive value of the work including all costs of performing the Works such as overheads, income tax, super tax, profits, costs of accepting the general risks, liabilities and obligations set forth or implied in the Contract except for the amounts reimbursable, if any, to the Contractor under the Contract. The rates shall also include Contractor's cost for providing Performance Security and other Bank Guarantees required for performance of the Contract.

## 6. Erection and Testing Equipment and Maintenance Tools

6.1 In the Schedule of Prices, under Erection and Testing Equipment & maintenance tools the Employer has drawn up a list of Erection and Testing Equipment and Maintenance Tools along with estimated quantities. The bidder shall enter the price only in FOB price column for all individual items and shall give the break-up of the prices into FOB Port of Shipment, Shipping to wharf at the port of entry in Pakistan, Insurance to Site and Local Transport in Pakistan against each sub-total. These Erection and Testing Equipment and Maintenance Tools shall be furnished and the cost included in the Bid Price.

The Employer shall have the option of ordering additional quantities of these essential Erection and Testing Equipment and Maintenance Tools, at the unit rates entered in the Schedule of Prices no later than one year after the Commencement Date.

The unit rate for any item shall be computed by dividing the total amount by the quantity of that item.

6.2 The bidder shall also list, in the space provided in the Schedule of Prices, Additional Recommended Erection and Testing Equipment and Maintenance Tools, any Erection and Testing Equipment and Maintenance Tools which he recommends be provided for the Works, in addition to those already specified by the Employer in the Schedule of Prices. The bidder shall enter against each such item, its recommended quantity, and price. The cost of such additional recommended Erection and Testing Equipment and Maintenance Tools will not



be taken into account in the evaluation of bids.

The Additional Recommended Erection and Testing Equipment and Maintenance Tools may be selected by the Engineer/Employer and the Contract Price will be adjusted in accordance with the prices set against those items in the Schedule of Prices.

## **7. Spare Parts**

- 7.1 In the Schedule of Prices, under Spare Parts, the Employer has drawn up a list of spare parts along with estimated quantities. The bidder shall enter the price only in FOB price column for all individual items and shall indicate the break-up of price into FOB Port of Shipment, Shipping to wharf at the port of entry in Pakistan, Insurance to Site and Local Transport in Pakistan against each sub-total. These spare parts shall be furnished and the cost included in the Bid Price.

The successful Bidder shall prepare and at the time of preparation of Letter of Acceptance submit to the Employer the unit rates of all individual items of the spare parts. The unit rates of the spare parts for the required quantities shall give a total cost equal to the amount entered in the Schedule of Price for spare parts.

The Employer shall have the option of ordering additional quantities of these essential spare parts, at the unit rates entered in the Schedule of Prices, no later than one year after the Commencement Date.

The unit rate for any item shall be computed by dividing the total amount by the quantity of that item.

- 7.2 The Bidder shall also list in the space provided in the Schedule of Prices any Spare Parts which he recommends be provided for the Works, in addition to those specified by the Employer in the Schedule of Prices. The Bidder shall enter against each such item, its recommended quantity, rate and price. The cost of such Additional Recommended Spare Parts will not be considered in the evaluation of bids.

The Additional Recommended Spare Parts may be selected by the Engineer/Employer and the Contract Price will be adjusted in accordance with the prices set against those items in the Schedule of Prices.

## **8. Reimbursable Costs**

- 8.1 If provided in the Particular Conditions of Contract, the Contractor shall be reimbursed the actual amounts (without any overhead charges and profits) disbursed by him in respect of non-exempt Pakistani customs, import duties, and taxes, levied upon Plant, Erection Equipment and Spare Parts imported directly by him or his subcontractors into Pakistan for the purpose of this Contract for incorporation in the Works.

8.2 The bidder shall recognize such elements of the costs which he expects to incur in the performance of the Works and which are reimbursable, and he shall not include any such costs in the rates and amounts entered in the Schedule of Prices.

**9. Provisional Sums**

9.1 Provisional Sums included and so designated in the Schedule of Prices if any, shall be expended in whole or in part at the direction and discretion of the Employer/ Engineer. The Contractor will only receive payment in respect of Provisional Sums if he has been instructed by the Employer/Engineer to utilise such sums.

## **DAYWORK SCHEDULE**

### **1. General**

- 1.1 Work shall not be executed on a Daywork basis except by written Order of the Engineer. The rates for Daywork items entered in the Schedule of Prices shall apply to any quantity of Daywork ordered by the Engineer. Nominal quantities have been indicated against each item of Daywork, and the extended total for Daywork shall be carried forward as a provisional sum to the Summary of Bid Prices.

### **2. Daywork - Labour**

- 2.1 In calculating payments due to the Contractor for the execution of Day work, the hours for labour shall be reckoned from the time of arrival of the labour at the job Site to execute the particular item of Day work to the time of departure, but excluding meal breaks and rest periods. Only the times of classes of labour directly doing work ordered by the Engineer and for which they are competent to perform shall be measured.

The time of Plant Erectors or other expatriate supervisory personnel shall not be measured unless their time on Site is extended by Variation Order. The rates entered by the Bidder for these categories shall be daily rates inclusive of all allowances and overheads.

- 2.2 For labour other than Plant Erectors or other expatriate supervisory personnel, the Contractor shall be entitled to payment in respect of the total time that labour is employed on Daywork, calculated at the basic rates entered by him in the Schedule of "Daywork Rates – Labour" together with an additional percentage payments on basic rates representing the Contractor's profit, overheads, etc., as described below:

- a) The basic rates for labour shall cover all direct costs to the Contractor, including (but not limited to) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances and any sums paid to or on behalf of such labour for social benefits in accordance with Pakistan Labour laws. The basic rates will be payable in Pak. Rupees only, and
- b) The additional percentage payment to be quoted by the Bidder and applied to costs shall be deemed to cover the Contractor's overheads, profits, superintendence, liabilities and insurances and allowances to labour, timekeeping and clerical and office work, the use of consumable stores, water, lighting and power; the use and repair of staging, scaffolding, workshops and stores, portable power tools, manual plant and tools; supervision by the Contractor's staff, foremen and other supervisory personnel; and charges incidental to the foregoing. Payments under this item shall be made in foreign currency and local currency at the percentages entered in the Daywork Schedule.

- 2.3 Rates entered in the Daywork Schedule shall apply to labour of trade and qualification as described and to labour of other trades with similar skill and qualification.

### **3. Daywork - Contractor's Equipment**

- 3.1 The Contractor shall be entitled to payments in respect of Contractor's Equipment already on Site and employed on Daywork at the basic rental rates entered by him in the "Schedule of Daywork Rate - Contractor's Equipment". The said rates shall be deemed to include complete allowance for depreciation, interest, indemnity and insurance, repairs, maintenance, supplies, fuel, lubricants and other consumables and all overheads, profit and administrative costs related to the use of such equipment.
- 3.2 In calculating the payment due to the Contractor for Contractor's Equipment employed on Daywork, only the actual number of working hours will be eligible for payment, except that, where applicable and agreed with the Engineer, the travelling time from the part of the Site where the Contractor's Equipment was located when ordered by the Engineer to be employed on Daywork and the time for the return journey thereto shall be included for payment.
- 3.3 The rental rates for Contractor's Equipment employed on Daywork shall be stated in Pakistani Rupees but payments to the Contractor will be made in local and foreign currencies according to the rates entered in the Schedule.

### **4. Daywork-Materials**

- 4.1 The Contractor shall be entitled to the following payments in respect of materials used for Daywork (except for materials for which the cost is included in the percentage addition to labour costs) which are actually incorporated into the Works:
- a) The net cost of such materials delivered to warehouse or workyard area or storage area at the Site. Such cost shall be calculated by the Contractor on the basis of the invoiced price and freight and insurance as certified by the Engineer on the basis of invoices produced.
  - b) Percentage addition, in local and/or foreign currency, of such net cost of materials to cover the Contractor's handling charges, overheads and profits.
- 4.2 Payment of the net cost to the Contractor of Daywork materials shall be made in the same currency as the invoice. Payment of the addition for handling charges, overheads and profit shall be in local and/or foreign currency as entered in the Schedule of Daywork - Materials.

## 2. SCHEDULE OF PRICES – SUMMARY OF BID PRICES

Package	Description	TOTAL PRICE	
		Foreign Currency Component	Local Currency Component
Package - 1	Establishment of Data Center/Server Room Networking & Fiber Optic and Ethernet Cable Laying with Allied Accessories		
Package - 2	Server Machine & Network Equipment		
	<b>Total</b>		
Total Bid Price (The amount to be entered in Paragraph 1 of the Form of Bid) (In Words)			

(Note: Total Price, in each currency, shall be provided in figures as well as in words)

## **Package - 1**

# **Establishment of Data Center/Server Room Networking & Fiber Optic and Ethernet Cable Laying with Allied Accessories**

Sr. No	Description	Unit	Qty
<b>CIVIL MATERIAL</b>			
1	Supply of MS Security Door fire rating 60 min Size (7' X 4') for Data Center along with gasket.	Each	1
2	Supply of 12 mm Frosted Tempered Glass with Door, Locks & Machines for Power Room & DC	SqFt	400
3	Supply & Installation of Block Masonry work with plaster for closure of Windows	Job	1
4	Supply & applying 2 coats of Fire Resistant Paint on walls of DC and power room.	SqFt	880
5	Anti-static flooring for DATA CENTER size (20x14) and Power Room size (10X14)	SqFt	420
6	Mineral fiber false ceiling Ceiling 2 x 2 for Data Center and Power Room only	SqFt	460
<b>ELECTRICAL MATERIAL</b>			
7	DB with Breaker Schneider/ABB or Equivalent smart DC DB * 2 X MCCB 3P ABB/EQ 100 AMP * VOLTMETER TENSE/EQ 500 VAC 96 MM * AMETER TENSE/EQ 150/5 AMP * CURRENT TRANSFORMER FICO/EQ 100/5 AMP * SPD IMPORTED 100 KA 4 POLE * 8 X MCB DP ABB/EQ 32 AMP * CONTROL FUSE IMPORTED & LED indications	Nos	1
9	Earthing/ Grounding Supply & Installation Earth Pits: Boring, Earth Rod with connecting plates, Chemical pouring, Chamber with Pit Cover. Supply of 20mm dia. Loft long coper clad steel rod driven 3 mtr. Deep copper conductor in 50mm dia PVC pipe Class D up to main earth bar complete with all accessories inspection chamber and heavy-duty G.1 cover. Provision of Earthing to provide less than 2.0 Resistance with all necessary earthing arrangements. Earth test points with 300mmx 50mm X 6mm copper bus bar with terminals, Insulators, supports, lugs, bolts, etc. Supply , Laying & Termination of 600 / 1000 V Grade PVC 1 PVC copper conductor single core earth cables (Green) from earth pit to Data Center Bus Bar with Gl. as per Site requirement.	Nos	3
11	Supply Installation, Commissioning & Testing of Main incoming Panel having ATS with Genset & main Electric line with MOR system for complete switching mechanism I.T. Panel/ ATS/ MOR/ Distribution DB's * 2 X M. CONTACTOR ABB/EQ 60 AMP 4 POLE AF38-40 * 1 X MECHANICAL INTERLOCK ABB/EQ VM 5-1 * 2 X MANUAL CHANGE OVER SWITCH IMPORTED 60 AMP * 1 X VOLTMETER TENSE/EQ 500 VAC 96 MM * 1 X AMETER TENSE/EQ 60/5 AMP 96 MM * 3 X CURRENT TRANSFORMER FICO/EQ 60/5 AMP ELC * 3 X TIMER WITH BASE NUX/EQ 220 VAC 8 PIN * 2 X CONTROL RELAY WITH BASE FUJI/EQ 220 VAC 8 PIN * 1 X SYSTEM ON/OFF SWITCH CAMSCO/EQ 6 AMP CV * 5 X PHASE INDICATION TELE 415 V * 6 X CONTROL FUSE IMPORTED 6 AMP	Nos	1

12	15 Amp socket outlet with wiring Clipsal/Fast Cables.	Nos	10
13	LED Lights for Data Center, Power Room Philips 2 X 2 with wiring of fast cables.	No's	20
14	3 Pin 13 Amp Switch Socket with wiring Clipsal/Fast Cables.	Nos	50
15	3 Pin 16 Amp Industrial Sockets.	Nos	10
16	5 Pin 32 Amp industrial Sockets (Clipsal)	Nos	4
17	Complete concealed wiring 2.5mm conductor including PVC I PVC concealed piping for Data Center and NOC ( Adamjee Dura Duct)	Job	1
<b>CABLING</b>			
18	1 x 4C x 16mm PVC Cable from main Grid & Genset (Fast Cables)	Mtr	280
19	1 x 1C x 16mm PVC Cable on Cable Tray from Earth Pit (Fast Cables)	Mtr	280
20	1 x 1C x 16mm PVC /PVC Flexible Cable on Cable Tray for smart DC(Fast Cables)	Mtr	250
22	1 x 3C x 6mm PVC /PVC Cable on Cable Tray for Rack (Fast Cables)	Mtr	300
23	Supply of 3/0.29 cabling for Lights circuit / Access Control / Fire Suppression & Tech (Fast Cables)	Points	40
24	Technology Box with 1 Raw, 1 UPS and 1 Data.	No's	24
25	Switch sockets for Split AC (Clipsal)	No's	6
26	Ethernet Cabling for technology Box. D-Link/Fast Cables	No's	24

<b>DATA &amp; ELECTRICAL CABLE RACEWAY SYSTEM</b>			
27	Cable tray with cover powder coated 18 swg sheet for data & Power cabling 4" X 8".	Rft	400
28	Cable ladder powder coated 18 swg sheet 1.5'.	Rft	180
29	Installation and fixing of cable tray.	Job	1
<b>ACCESS CONTROL SYSTEM</b>			
30	The smart Data center must be provided with 9 inches LCD touch screen with option of facial recognition , to access racks	No's	1
	Finger print +card reader +Pin Code Reader - Access Control System - for 2000 users - Reading time 1 seconds - TCP/IP Based System - USB connectivity LCD Screen- AMT	No	1
31	Electromagnetic Lock/Bolt Lock. AMT	No's	1
32	Infrared / pushbutton	No's	1
34	Power supply.	No's	1
35	LAN/Power Cabling	No's	1
<b>20KVA UPS</b>			
36	20KVA/18KW UPS Long Backup including SIC Card for SNMP / Web Management & Parallel Communication Cable Kit for 20kVA APC with 30 minutes backup time. Input voltage range=138V AC~485V AC	No's	2



37	650 VA UPS pure sign wave with 30 minutes backup time. APC	No's	35
38	Installation, Testing & Commissioning	Job	1
<b>COOLING SOLUTION</b>			
39	13KW precision in rack(rack mounted) cooling unit with humidity and heating control. N+1 redundancy, DC invertor. And wet film humidifier, 6 EC Fans, The air conditioner must be designed for non-condensation at low loads to maintain the humidity below 80% at low loads (10% load at least) in a high-humidity environment. The air conditioner features 6 kV surge protection design, providing high surge protection reliability. System supply voltage: 208V AC~240V AC 50Hz/60Hz 1PH+N+PE/2Ph+PE Voltage range: 187V AC~264V AC The out door temperature range= -10C - +55C Air volume =>2600 m3/h Heating capacity=> 3kW Humidified=1000g/h Cooling unit must be of same OEM as of racks and UPS.	No's	2
40	1.5 Ton Split Air Conditioner for Power Room including accessories Gree.	No's	2
41	Installation, piping, Testing & Commissioning	Job	1
<b>RACK SOLUTION</b>			
42	Rack 42U 600 X 1350 19" mounting angles Front glass door with lock and handle, Rear metal to ensure return air Both the door can be mounted to be opening from either side Lock on the front door with handle and rear door with duplicate keys Removeable side cold aisle containment to be provided of 250mm deep with in rack depth, to ensure cooling availability for racks Static load=1500Kg Dynamic load=1000KG	No's	5
43	Cable Manager D-Link	No's	42
<b>RACK POWER DISTRIBUTION UNIT (PDU)</b>			
44	Power distribution type: UPS input and output, and indicator module Installation mode: Rack installation The height of Power distribution Unit up to 9U The height of Indicator module: upto 1U Power distribution Unit: Includes UPS input, UPS output, UPS maintenance bypass switch, and surge protection switch	No's	1
44	monitored 32A PDU: IEC-C13, C14 & C19 24 outlets.(20*C13; 4*C14)	No's	10
45	Basic PDU: IEC-C13, C14 & C19 6 outlets.	No's	35
<b>ENVIRONMENTAL MONITORING SYSTEM</b>			
46	Environment Monitoring System for Data Center with UPS and prescesion cooling units. Environmental monitoring system can	No's	1

	<p>report on web portal, and mobile APP. All EMS system must be of same OEM as of UPS and cooling units.</p> <p>Each micro-module should provide a general environment and power monitoring interface to constantly monitor equipment such as the power supply and distribution devices, UPS, air conditioners, temperature and humidity sensors, water sensors, smoke detectors, video surveillance devices, and access control devices inside the module. If a component fault or parameter error is detected, alarms are generated in diverse modes such as color, email, SMS, and audio. Historical data and alarm events are recorded. All monitoring information is reported to the management platform through a standard northbound SNMP interface. Users can query device information in real time using the pad APP or mobile phone APP, enabling mobile operation and maintenance. To ensure unified planning, management, and commissioning of the micro-module, make ensure that the micro-module monitoring system is of the same brand as the micro-module.</p> <p>Generates a 2.5D layout view that matches the actual layout of the smart module, including the power distribution module, smart cooling product, IT cabinet, and temperature and humidity sensor. Alarm notifications can be sent by email and SMS.</p> <p>A maximum of 500 concurrent active alarms are supported.</p> <p>The controller pad (9 inches at least) supports wireless access to the data center facility management system. The APP can be used to monitor the data center equipment and environment parameters in real time. The pad for the micro-module uses a capacitive screen and supports multi-touch control</p>		
47	Temperature/Humidity combination sensor	No's	3
48	Water Leak: Detect Sensor	No's	2
49	Installation, Testing & Commissioning	Job	1

<b>FIRE SUPPRESSION SYSTEM</b>			
50	Addressable Gas Fire extinguishing control panel. Zitkon UK	Each	1
51	Addressable Multi Point Detector with base. Zitkon UK	Each	6
52	24V red Vantage-Combi fire sounder/beacon. Zitkon UK	Each	2
53	Fire Alarm Bell 6. Zitkon UK	Each	2
54	Addressable input / output module. Zitkon UK	Each	8
55	Auto / Manual Switch. Zitkon UK	Each	2
56	Emergency Start / Abort Button. Zitkon UK	Each	2

57	Pipe Network SCH-40. Zitkon UK	Each	2
58	Modular Cylinder System NOVEC 1230 (24bar) / FM200 Modular cylinder manufactured according to the European standard CE and portable pressure equipment with bracket actuator (For Power Room) SEVO USA/Hygod UK	Each	1
59	Modular Cylinder System NOVEC 1230 (24bar) / FM200 Modular cylinder manufactured according to the European standard CE and portable pressure equipment with bracket actuator (For Data Center) SEVO USA/Hygod UK	Each	1
60	Installation, Testing & Commissioning	Job	1

### IP SURVEILLANCE AND MONITORING SOLUTIONS

61	Fixed 4 megapixel resolution CMOS ICR Infrared Network Bullet Camera Hikvision/Dahua	Each	16
62	8-Port Fast Ethernet PoE Desktop Switch. D-Link	Each	1
63	16 Port NVR Basic for Camera only	Each	1
64	3-TB SATA HDD for recording	Each	2
65	LED TV 46" with HDMI cabling & complete fitting Sony KDL-46EX650.	Each	1
66	Wiring for IP-Camera including cable duct complete in all respect.	JOB	1

### RACK CONNECTIVITY PASSIVE SOLUTION

67	CAT-6 UTP 24 Port Patch panel loaded with CAT-6 I/Os. D-Link	Each	6
68	Cable Manager. D-Link	Each	6
69	Category 6 (CAT6) 24 AWG solid bare copper, 4 pair UTP cable, 305m Box. D-Link	Box	2
70	CAT 6 RJ45 to RJ 45 Patch Cable, UTP, PVC 1m D-Link	Each	20
71	CAT 6 RJ45 to RJ 45 Patch Cable, UTP, PVC 3m D-Link	Each	20
72	Labeling, Testing and other Accessories	JOB	1

### FIBER OPTIC/ETHERNET WORKS

73	Outdoor single mode Armored fiber cable 24 core thick HDPE. Contech/Belden	Meter	1800
74	Outdoor single mode Armored fiber cable 4 core thick HDPE. Contech/Belden	Meter	7000
75	High Density Polyethylene Pipe 1".	Meter	4200
76	Rack mount ODF 48 Port Contech/Belden	Each	4
77	4 port rack mount ODF loaded. Contech/Belden	Each	30
78	Joint Enclosure 24 core	Each	50
79	Digging 2.5 Feet depth with back filling laying of HDPE Pipe , Fiber pulling, laying of warning tape	Meter	2800
80	Splicing	No's	440
81	Route Marker	Each	45
82	Manhole 2' x 2'	Each	30
83	Ducting & Piping for Networking of Rooms and Wireless Access Points. Adamjee	Rft	26000

84	Socket Power cabling for energizing wall mount cabinets. Clipsal/Fast cables for UPS input	No's	35
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85	12U Network Rack with Fan.	Each	35
86	Fiber Patch Cable, 3m/5m Contech/Belden	Each	192
87	CAT-6 UTP 24 Port Patch panel loaded with CAT-6 I/Os. D-Link	Each	48
88	Cat 6 Ethernet Cable Roll , 23AWG , 4 Pair D-Link	Roll	180
89	Single Face plate , I/O and Back Box D-Link	Each	600
90	CAT 6 RJ45 to RJ 45 Patch Cable, UTP, PVC 1m D-Link	Each	1000
91	CAT 6 RJ45 to RJ 45 Patch Cable, UTP, PVC 3m D-Link	Each	600
<b>OTHER CIVIL WORK/SERVICES</b>			
92	Civil work including grouting, cutting of floors, walls for wiring and refilling with proper material.	Job	1
<b>Switches, AP's &amp; Cabinet Mounting Installation/SERVICES</b>			
93	Mounting installation of Switches, Ap's & Data cabinets in server room & each floor along with fluke testing of each point with Fluke DTX 1800 .	Job	1
94	Fluke testing of each LAN point with Fluke DTX 1800 along with print result .	Job	1
<b>3 years Support/Maintenance/Warranty including R.E for LAN/Fiber</b>			
95	3 years maintenance/support of whole network including all quoted material except UPS/Air conditioners. Per year	Job	3
96	3 years maintenance/support of UPS/Air conditioners. Per year	Job	3
	The Smart DC integration and commissioning must be done by OEM Engineer	Job	1
<b>Automatic Voltage Regulator</b>			
97	100kva AVR with installation, Integration and 3 years warranty . Power:100 kVA . Phase: 3 Phases , Input: 280V – 460V Frequency: 50/60Hz , Dual Output , 380/400/200 (Phase to Phase) -/+ 3% (Regulated), Power Factor: 0.9 Control: Servo Motor , Short Circuit Protection Required Overloading Protection Required, Bypass Manual Switching, Surge Protection Required, Standard CE Certified or equivalent	each	2
<b>SUMMARY OF SERVICES &amp; INSTALLATION</b>			
1	Civil Material	JOB	1
2	Electrical Works	JOB	1
3	Cabling	JOB	1
4	Data & Electrical Cable Raceway System	JOB	1
5	Access Control Systems	JOB	1
6	20KVA UPS	JOB	1
7	Cooling Systems	JOB	1
8	Servers & Communications Rack	JOB	1

9	PDU & LTS	JOB	1
10	Environment Monitoring System	JOB	1
11	Fire Suppression System NOVEC	JOB	1
12	IP Surveillance and Monitoring Solution	JOB	1
13	Rack Connectivity Passive Solutions	JOB	1
14	Fiber Optics Works	JOB	1
15	Other Civil work & Services	JOB	1
16	Switches, AP's & Cabinet Mounting Installation/SERVICES	JOB	1
17	3 years Support/Maintenance/Warranty including Resident Engineer	Job	1
17	Automatic Voltage Regulator	Job	1

### Scope of Work (Package-1)

1. Fiber optic connectivity should be extended from proposed data center location (Admin building) to all buildings of the university campus including hostels and residence blocks.
2. Main Campus should be covered by dual fiber connectivity using different paths.
3. Vendor can conduct survey of the university campus to accurately design the solution .
4. Vendor bears full responsibility for an end to end working solution and (as per his design ) should include any missing components in the given BOQ for flawless execution.
5. Copper cabling is required for 400 Access points and 600 workstation nodes.
6. Vendor should also work closely with designated third party responsible for deployment of switching and WIFI infrastructure.
7. Installation of racks , mounting of switches and indoor / outdoor access points is part of the scope. (Active devices quantity 75, Access points quantity 400)
8. In case of conflict between the two parties over scope and responsibility of work , university of Turbat's decision should be considered final.
9. OTDR for fiber cables must be submitted after completion of job. Final acceptance should be subject to successful test results.
10. fluke testing results for all network nodes must be submitted after job completion. Final acceptance should be subject to successful test results.
11. Only internationally recognized cabling brands should be considered.
12. Vendors should be direct partner of principal and provide Manufacturer Authorization Form
13. All required cables should be laid up to the rack level in the Data Centre.
14. Dedicated raceways / cable-trays should be used for laying LAN.
15. All the cable raceways shall be adequately grounded and fully Concealed with covers.

16. The cables should be appropriately marked and labelled.
17. There should be enough space between data and power cabling and there should not be any cross wiring of the two, in order to avoid any interference, or corruption of data.
18. Three years onsite maintenance, warranty, support, and services are required, vendor should share proof of three-year support contract with principal where applicable.
19. Three years operations and maintenance contract is required with onsite Resident Engineer who is capable to troubleshoot day to day Fiber , copper and data center issues.
20. All devices should be registered with principal against University of Turbat as customer. This is to ensure genuine first-hand products are quoted using legal channels.
21. Data center construction includes but not limited to all civil, electrical wiring, LAN cabling, cooling systems, server racks, PDUs, UPS, Lighting, Fire suppression system and control system, environmental monitoring system ,Access Control System etc.
22. Vendors should share unit price of each component. University of Turbat reserves the right to increase , decrease or remove the quantity of quoted component on as per actual basis.
23. Technical solution should include unpriced BOQ which must include all the items mentioned in the RFP and other items as per vendor solution.
24. All equipment of Smart DC(rack mounted cooling units and UPS, rack, EMS, PDU unit for UPS output) must be of same OEM  
The Qouted Smart DC solution must have 5 install base references in Pakistan with in last 5 years.
25. Smart DC OEM must have own 3 warehouse in major cities of Pakistan (karachi, Lahore, Islamabad)  
The OEM must be present in Pakistan from last 5 years

**Package - 2**

**Server Machine & Network Equipment**

### Item List

S#	ITEM	QTY.	MOU
1	24 Ports Full POE/POE+ Switch	11	Each
2	24 Ports Partial POE/POE+ Switch	38	Each
3	48 Ports Full POE/POE+ Switch	2	Each
4	48 Ports Partial POE/POE+ Switch	12	Each
5	Indoor Mid-End AP	300	Each
6	Indoor High-End AP	20	Each
7	Outdoor AP	19	Each
8	WLAN AC Controller	2	Each
9	Core Switch	2	Each
10	Network Firewalls	2	Each
11	Access Router	2	Each
12	NMS & NAC Controller with Principal Implementation services	1	Each
13	Server Machine	2	Each
14	KMV Switch	1	Each
15	Professional Training for University of Turbat Officials	2	Each
16	Technical Resident Engineer (Active Network Infrastructure) onsite for Three years	1	Each

### Scope of Work (Package - 2 )

1. Vendor should design the solution keeping in consideration Network design best practices.
2. Vendor should make sure end to end working solution is quoted with all the required components , if some required items are missing , those must be included as per solution.
3. Onsite Support , services and principal replacement services are required for a period of three years, All license should at least be for three years duration.
4. Principal professional services are required for NAC deployment.
5. Technical Resident Engineer is required onsite for a period of three years.
6. Vendor Implementation and deployment services should be as per best practices.
7. Professional training is required for two designated officials.
8. Single Mode SFPs are required to uplink each access switch to campus core.
9. Compliance sheet must be included with references supporting the compliance.

### Detail Specifications of the items

S#	ITEM	COMPLIED(Y/N)	REF/COMMENT
1	24 Ports Full POE/POE+ Switch		
	1. 24 x 10/100/1000Base-T ports, 4 x 10GE/GE SFP+/SFP ports (POE/POE+ Power from all		



	<p>downlink ports)</p> <ol style="list-style-type: none"> <li>2. Dual AC power supply</li> <li>3. RAM≥4GB</li> <li>4. Flash≥1GB</li> <li>5. Switching capacity: 120 Gbps or more</li> <li>6. Forwarding performance: 90 Mpps or more</li> <li>7. Available 720W POE power supply</li> <li>8. 4K VLAN</li> <li>9. 64K MAC Address</li> <li>10. QinQ, LACP, STP, RSTP, MSTP, RRPP, ERPS, LLDP, Jumbo Frames</li> <li>11. Static Routing, RIP, RIPng, OSPF, OSPFv3, IS-IS, IS-IS for IPv6, BGP, BGP4+, ipv6 routes, PBR, DHCP Server/Client/Relay</li> <li>12. 16K ARP entries</li> <li>13. 16K IPv4 routes</li> <li>14. Support IGMP v1/v2/v3, IGMP v1/v2/v3 snooping, PIM-DM, PIM-SM and MSDP</li> <li>15. IPv4 multicast routes 1K, IPv6 multicast routes 1K</li> <li>16. Stacking support up to 8 switches</li> <li>17. VRRP, DLDP, Smart link, Monitor link, EFM and CFM</li> <li>18. Support mac authentication and 802.1x authentication</li> <li>19. Defense against UDP flood, TCP SYN flood, ICMP flood and packet fragment attacks, ARP packet rate limiting</li> <li>20. CLI and Web interface (HTTPS), Telnet, SSH v2, SNMP v1, v2, and v3, eMDI</li> <li>21. Support VxLAN, BGP-EVPN</li> <li>22. Support Automation with SDN Controller, NETCONF and YANG</li> <li>23. Support ITU-T G.8032, ITU-Y.1731, IEEE 802.1D, 802.1P, 802.1Q, 802.1ad, 802.3ab, 802.3ad, 802.3ah, 802.1ab, RFC792, RFC 959, RFC 1305, RFC 1981 and RFC2131.</li> <li>24. In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</li> <li>25. Warranty: 3 years NBD replacement</li> <li>26. All required SFPs , Stack cables, fiber/copper patch cords and necessary accessories should be part of the solution</li> </ol>		
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2	24 Ports Partial POE/POE+ Switch	COMPLIED(Y/N)	REF/COMMENT
1.	24 x 10/100/1000Base-T ports, 4 x 10GE/GE		

	<p>SFP+/SFP ports (POE/POE+ Power from all downlink ports)</p> <ol style="list-style-type: none"> <li>2. RAM≥512MB</li> <li>3. Flash≥512MB</li> <li>4. Switching capacity: 120 Gbps or more</li> <li>5. Forwarding performance: 90 Mpps or more</li> <li>6. Available 360W POE power supply or more</li> <li>7. 4K VLAN</li> <li>8. 32K MAC Address</li> <li>9. QinQ, LACP, STP, RSTP, MSTP, RRPP, ERPS, LLDP, Jumbo Frames</li> <li>10. Static Routing, RIP, RIPng, OSPF, OSPFv3, ipv6 routes, PBR, DHCP Server/Client/Relay</li> <li>11. 4K ARP entries</li> <li>12. 4K IPv4 routes</li> <li>13. Support IGMP v1/v2/v3, IGMP v1/v2/v3 snooping, PIM-DM, PIM-SM and MSDP</li> <li>14. IPv4 multicast routes 1K, IPv6 multicast routes 1K</li> <li>15. Stacking support up to 8 switches</li> <li>16. VRRP, DLDP, Smart link, Monitor link, EFM and CFM</li> <li>17. Support mac authentication and 802.1x authentication</li> <li>18. Defense against UDP flood, TCP SYN flood, ICMP flood and packet fragment attacks, ARP packet rate limiting</li> <li>19. CLI and Web interface (HTTPS), Telnet, SSH v2, SNMP v1, v2, and v3, eMDI</li> <li>20. Support Automation with SDN Controller, NETCONF and YANG</li> <li>21. Support ITU-T G.8032, ITU-Y.1731, IEEE 802.1D, 802.1P, 802.1Q, 802.1ad, 802.3ab, 802.3ad, 802.3ah, 802.1ab, RFC792, RFC 959, RFC 1305, RFC 1981 and RFC2131.</li> <li>22. In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</li> <li>23. Warranty: 3 years NBD replacement</li> <li>24. All required SFPs , Stack cables, fiber/copper patch cords and necessary accessories should be part of the solution</li> </ol>		
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3	48 Ports Full POE/POE+ Switch	COMPLIED(Y/N)	REF/COMMENT
	<ol style="list-style-type: none"> <li>1. 48 x 10/100/1000Base-T ports, 4 x 10GE/GE SFP+/SFP ports (POE/POE+ Power from all downlink ports)</li> <li>2. Dual AC power supply</li> <li>3. RAM≥4GB</li> <li>4. Flash≥1GB</li> <li>5. Switching capacity: 168 Gbps or more</li> <li>6. Forwarding performance: 120 Mpps or more</li> <li>7. Available 1330W POE power supply</li> <li>8. 4K VLAN</li> <li>9. 64K MAC Address</li> <li>10. QinQ, LACP, STP, RSTP, MSTP, RRPP, ERPS, LLDP, Jumbo Frames</li> <li>11. Static Routing, RIP, RIPng, OSPF, OSPFv3, IS-IS, IS-IS for IPv6, BGP, BGP4+, ipv6 routes, PBR, DHCP Server/Client/Relay</li> <li>12. 16K ARP entries</li> <li>13. 16K IPv4 routes</li> <li>14. Support IGMP v1/v2/v3, IGMP v1/v2/v3 snooping, PIM-DM, PIM-SM and MSDP</li> <li>15. IPv4 multicast routes 1K, IPv6 multicast routes 1K</li> <li>16. Stacking support up to 8 switches</li> <li>17. VRRP, DLDP, Smart link, Monitor link, EFM and CFM</li> <li>18. Support mac authentication and 802.1x authentication</li> <li>19. Defense against UDP flood, TCP SYN flood, ICMP flood and packet fragment attacks, ARP packet rate limiting</li> <li>20. CLI and Web interface (HTTPS), Telnet, SSH v2, SNMP v1, v2, and v3, eMDI</li> <li>21. Support VxLAN, BGP-EVPN</li> <li>22. Support Automation with SDN Controller, NETCONF and YANG</li> <li>23. Support ITU-T G.8032, ITU-Y.1731, IEEE 802.1D, 802.1P, 802.1Q, 802.1ad, 802.3ab, 802.3ad, 802.3ah, 802.1ab, RFC792, RFC 959, RFC 1305, RFC 1981 and RFC2131.</li> <li>24. In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</li> <li>25. Warranty: 3 years NBD replacement</li> <li>26. All required SFPs , Stack cables, fiber/copper patch cords and necessary accessories should</li> </ol>		

	be part of the solution		
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4	48 Ports Partial POE/POE+ Switch	COMPLIED(Y/N)	REF/COMMENT
	<ol style="list-style-type: none"> <li>1. 48 x 10/100/1000Base-T ports, 4 x 10GE/GE SFP+/SFP ports (POE/POE+ Power from all downlink ports)</li> <li>2. RAM≥512MB</li> <li>3. Flash≥512MB</li> <li>4. Switching capacity: 170 Gbps or more</li> <li>5. Forwarding performance: 130 Mpps or more</li> <li>6. Available 360W POE power supply or more</li> <li>7. 4K VLAN</li> <li>8. 32K MAC Address</li> <li>9. QinQ, LACP, STP, RSTP, MSTP, RRPP, ERPS, LLDP, Jumbo Frames</li> <li>10. Static Routing, RIP, RIPng, OSPF, OSPFv3, ipv6 routes, PBR, DHCP Server/Client/Relay</li> <li>11. 4K ARP entries</li> <li>12. 4K IPv4 routes</li> <li>13. Support IGMP v1/v2/v3, IGMP v1/v2/v3 snooping, PIM-DM, PIM-SM and MSDP</li> <li>14. IPv4 multicast routes 1K, IPv6 multicast routes 1K</li> <li>15. Stacking support up to 8 switches</li> <li>16. VRRP, DLDP, Smart link, Monitor link, EFM and CFM</li> <li>17. Support mac authentication and 802.1x authentication</li> <li>18. Defense against UDP flood, TCP SYN flood, ICMP flood and packet fragment attacks, ARP packet rate limiting</li> <li>19. CLI and Web interface (HTTPS), Telnet, SSH v2, SNMP v1, v2, and v3, eMDI</li> <li>20. Support Automation with SDN Controller, NETCONF and YANG</li> <li>21. Support ITU-T G.8032, ITU-Y.1731, IEEE 802.1D, 802.1P, 802.1Q, 802.1ad, 802.3ab, 802.3ad, 802.3ah, 802.1ab, RFC792, RFC 959, RFC 1305, RFC 1981 and RFC2131.</li> <li>22. The vender should be In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</li> <li>23. Warranty: 3 years NBD replacement</li> <li>24. All required SFPs , Stack cables, fiber/copper patch cords and necessary accessories should be part of the solution</li> </ol>		

5	Indoor Mid-End AP	COMPLIED(Y/N)	REF/COMMENT
	<ol style="list-style-type: none"> <li>1. Radio Protocols = 802.11a/b/g/n/ac/ac Wave 2/ax(Wifi6)</li> <li>2. Compliance with IEEE 802.11ax and IEEE 802.11 a/b/g/n/ac/ac Wave 2</li> <li>3. Provides service simultaneously on both the 2.4 GHz and 5 GHz bands, at a rate of at least 570Mbps at 2.4 GHz, at least 4.6 Gbps at 5 GHz, and at least 5.2 Gbps for the device</li> <li>4. Support 6 spatial streams, 2 spatial streams at 2.4GHz 802.11ax 2x2 MIMO and 4 spatial streams at 5GHz 802.11ax 4x4 MIMO</li> <li>5. Must have 2xGE Port</li> <li>6. Support transmit power 2.4GHz is 25dBm and 5GHz is 28dBm</li> <li>7. Support DL/UL MU-MIMO</li> <li>8. Support 1024QAM</li> <li>9. Support UL/DL OFDMA</li> <li>10. Built-in smart antennas</li> <li>11. Support short guard interval (GI) in 20 MHz, 40 MHz, 80 MHz and 160 MHz modes</li> <li>12. Support service set identifier (SSID) hiding</li> <li>13. Support Control and provisioning of Wireless Access Points (CAPWAP) in Fit AP mode</li> <li>14. Number of SSIDs for each radio is 15 or more</li> <li>15. Number of access users are more than 1000</li> <li>16. Support 802.11k and 802.11v smart roaming</li> <li>17. PoE power supply: In compliance with 802.3at/af</li> <li>18. Compliance with IEEE 802.3ab, 802.1q</li> <li>19. Support SSID-based VLAN assignment</li> <li>20. Support DHCP client, obtaining IP addresses through DHCP</li> <li>21. Support VLAN trunk on uplink Ethernet ports</li> <li>22. Support Unified authentication on the AC in Fit AP mode</li> <li>23. Support air interface HQoS scheduling, user-based bandwidth limiting, priority mapping for upstream packets and flow-based mapping for downstream packets, queue mapping and scheduling</li> <li>24. Open system authentication, support Automation with SDN Controller, WPA2-PSK authentication and encryption, WPA2-802.1X authentication and encryption, support WPA3-802.1X authentication and encryption</li> <li>25. Support 802.1x authentication, MAC address</li> </ol>		

	<p>authentication, and Portal authentication</p> <p>26. Support Telnet, STelnet, SFTP, NTP</p> <p>27. Support Automation with SDN Controller</p> <p>28. In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</p> <p>29. Warranty: 3 years NBD replacement</p>		
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6	Indoor High-End AP	COMPLIED(Y/N)	REF/COMMENT
	<ol style="list-style-type: none"> <li>1. Radio Protocols = 802.11a/b/g/n/ac/ac Wave 2/ax(Wifi6)</li> <li>2. Compliance with IEEE 802.11ax and IEEE 802.11 a/b/g/n/ac/ac Wave 2</li> <li>3. Provides service simultaneously on both the 2.4 GHz and 5 GHz bands, at a rate of at least 1 Gbps at 2.4 GHz, at least 7 Gbps at 5 GHz, and at least 8 Gbps for the device</li> <li>4. Support 10 spatial streams, 4 spatial streams at 2.4GHz 802.11ax 4x4 MIMO and 6 spatial streams at 5GHz 802.11ax 6x6 MIMO</li> <li>5. Must have 1 x GE/2.5GE/5GE/10GE, 1 x GE, and 1 x 10GE SFP+</li> <li>6. Support transmit power 2.4GHz is 26dBm and 5GHz is 29dBm</li> <li>7. Support DL/UL MU-MIMO</li> <li>8. Support 1024QAM</li> <li>9. Support UL/DL OFDMA</li> <li>10. Built-in smart antennas</li> <li>11. Support short guard interval (GI) in 20 MHz, 40 MHz, 80 MHz and 160 MHz modes</li> <li>12. Support service set identifier (SSID) hiding</li> <li>13. Support Control and provisioning of Wireless Access Points (CAPWAP) in Fit AP mode</li> <li>14. Number of SSIDs for each radio is 15 or more</li> <li>15. Number of access users are more than 1000</li> <li>16. Support 802.11k and 802.11v smart roaming</li> <li>17. PoE power supply: In compliance with 802.3at/bt, provide the POE++ injector</li> <li>18. Compliance with IEEE 802.3ab, 802.1q</li> <li>19. Support SSID-based VLAN assignment</li> <li>20. Support DHCP client, obtaining IP addresses through DHCP</li> <li>21. Support VLAN trunk on uplink Ethernet ports</li> <li>22. Support Unified authentication on the AC in Fit AP mode</li> <li>23. Support air interface HQoS scheduling, user-based bandwidth limiting, priority mapping for</li> </ol>		

	<p>upstream packets and flow-based mapping for downstream packets, queue mapping and scheduling</p> <p>24. Open system authentication, support Automation with SDN Controller, WPA2-PSK authentication and encryption, WPA2-802.1X authentication and encryption, support WPA3-802.1X authentication and encryption</p> <p>25. Support 802.1x authentication, MAC address authentication, and Portal authentication</p> <p>26. Support Telnet, STelnet, SFTP, NTP</p> <p>27. Support Automation with SDN Controller</p> <p>28. In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</p> <p>29. Warranty: 3 years NBD replacement</p>		
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7	Outdoor AP	COMPLIED(Y/N)	REF/COMMENT
	<ol style="list-style-type: none"> <li>1. Radio Protocols = 802.11a/b/g/n/ac/ac Wave 2/ax(Wifi6)</li> <li>2. Compliance with IEEE 802.11ax and IEEE 802.11 a/b/g/n/ac/ac Wave 2</li> <li>3. Provides service simultaneously on both the 2.4 GHz and 5 GHz bands, at a rate of at least 1 Gbps at 2.4 GHz, at least 4.6 Gbps at 5 GHz, and at least 5.6 Gbps for the device</li> <li>4. Support 8 spatial streams, 4 spatial streams at 2.4GHz 802.11ax 4x4 MIMO and 4 spatial streams at 5GHz 802.11ax 4x4 MIMO</li> <li>5. 1 x GE/2.5GE/5GE electrical, 1 x GE electrical, and 1 x 10GE SFP+</li> <li>6. Operating temperature is -40°C to +65°C</li> <li>7. Storage temperature is -40°C to +85°C</li> <li>8. Dustproof and waterproof grade is IP68</li> <li>9. 6 KA/6 KV surge protection for Ethernet ports</li> <li>10. Support transmit power 2.4GHz is 30dBm and 5GHz is 30dBm</li> <li>11. Support DL/UL MU-MIMO</li> <li>12. Support 1024QAM</li> <li>13. Support UL/DL OFDMA</li> <li>14. Support external antenna, provide 360deg omni-directional antenna which is used in square &amp; park scenario</li> <li>15. Support short guard interval (GI) in 20 MHz, 40 MHz, 80 MHz and 160 MHz modes</li> <li>16. Support service set identifier (SSID) hiding</li> </ol>		

	<ul style="list-style-type: none"> <li>17. Support Control and provisioning of Wireless Access Points (CAPWAP) in Fit AP mode</li> <li>18. Number of SSIDs for each radio is 15 or more</li> <li>19. Number of access users are more than 1000</li> <li>20. Support 802.11k and 802.11v smart roaming</li> <li>21. PoE power supply: In compliance with 802.3at/bt, provide the POE++ injector</li> <li>22. Compliance with IEEE 802.3ab, 802.1q</li> <li>23. Support SSID-based VLAN assignment</li> <li>24. Support DHCP client, obtaining IP addresses through DHCP</li> <li>25. Support VLAN trunk on uplink Ethernet ports</li> <li>26. Support Unified authentication on the AC in Fit AP mode</li> <li>27. Support air interface HQoS scheduling, user-based bandwidth limiting, priority mapping for upstream packets and flow-based mapping for downstream packets, queue mapping and scheduling</li> <li>28. Open system authentication, support Automation with SDN Controller, WPA2-PSK authentication and encryption, WPA2-802.1X authentication and encryption, support WPA3-802.1X authentication and encryption</li> <li>29. Support 802.1x authentication, MAC address authentication, and Portal authentication</li> <li>30. Support Telnet, STelnet, SFTP, NTP</li> <li>31. Support Automation with SDN Controller</li> <li>32. In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</li> <li>33. Warranty: 3 years NBD replacement</li> </ul>		
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8	WLAN AC Controller	COMPLIED(Y/N)	REF/COMMENT
	<ul style="list-style-type: none"> <li>1. 2 x 40GE optical, 10 x 10GE optical and 10 x GE electrical interfaces, dual AC power supply</li> <li>2. Compatible with 802.11n, 802.11ac and 802.11ax(Wifi6) APs</li> <li>3. Support manage 2K APs</li> <li>4. Support manage at least 32K users</li> <li>5. Support 64K MAC address</li> </ul>		



<ol style="list-style-type: none"> <li>6. Support 4K vlans</li> <li>7. Support 16K IPv4 routing entries and 4K IPv6 routing entries</li> <li>8. Support 64K ARP entries</li> <li>9. Support 32K ACLs</li> <li>10. Static routing, RIP, OSPF, BGP, IS-IS, routing policy and PBR</li> <li>11. Support MAC address authentication, 802.1X authentication (EAP-PAP, EAP-MD5, EAP-PEAP, EAP-TLS, and EAP-TTLS), Portal authentication, MAC + Portal authentication, and WAPI authentication</li> <li>12. WPA, WEP (WEP64/WEP128), TKIP, and CCMP for encryption</li> <li>13. Built-in Portal/AAA server for Portal/802.1X authentication</li> <li>14. PPSK authentication (A WAC can independently allocate different PSKs to different clients connected to the same SSID)</li> <li>15. Smart roaming based on 802.11k and 802.11v is supported, allowing clients with low roaming sensitivity to roam to the optimal AP</li> <li>16. VIP users can be identified and preferentially scheduled, not controlled by any rate-limiting policy. In addition, packets of VIP users can be preferentially scheduled on air interfaces.</li> <li>17. URL filtering is supported to permit or deny users' access to some web page resources</li> <li>18. Support antivirus function</li> <li>19. Intrusion prevention is supported to detect and terminate intrusion behaviors, including buffer overflow attacks, Trojan horses, and worms</li> <li>20. APs supporting dual 5G radios automatically negotiate with each other to switch 2.4 GHz radios to the 5 GHz radios, reducing 2.4 GHz co-channel interference and increasing system capacity.</li> <li>21. Support 1+1 or N+1 backup of ACs for future expansion, support configuration synchronization between active and standby WACs</li> <li>22. WAN authentication escape is supported. If a CAPWAP tunnel fault occurs, users who are originally MAC address or 802.1X authenticated are now authenticated locally</li> <li>23. The WAC and APs are upgraded separately. In</li> </ol>		
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	<p>addition, services are not interrupted during the upgrade in dual-WAC redundancy mode.</p> <p>24. Support CLI, web system, SSH and SNMPv1/v2/v3</p> <p>25. Network-wide wireless performance monitoring for WACs, APs, radios, and STAs</p> <p>26. In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</p> <p>27. 3 year NBD Replacement.</p> <p>28. All required SFPs , Stack cables, fiber/copper patch cords and necessary accessories should be part of the solution</p>		
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9	Core Switch	COMPLIED(Y/N)	REF/COMMENT
	<ol style="list-style-type: none"> <li>1. 48 x 10G/GE SFP+/SFP ports, 6 x 40GE QSFP+ ports, the 40G ports can support upgrade to 100G ports through license for future expansion</li> <li>2. Dual AC power supply</li> <li>3. RAM≥4GB</li> <li>4. Flash≥2GB</li> <li>5. Switching capacity: 2 Tbps or more</li> <li>6. 4K VLAN</li> <li>7. 256K MAC Address</li> <li>8. QinQ, LACP, STP, RSTP, MSTP, RRPP, ERPS, LLDP, Jumbo Frames</li> <li>9. Static Routing, RIP, RIPng, OSPF, OSPFv3, IS-IS, IS-IS for IPv6, BGP, BGP4+, ipv6 routes, PBR, DHCP Server</li> <li>10. 128K ARP entries</li> <li>11. 128K IPv4 routes</li> <li>12. Support IGMP v1/v2/v3, IGMP v1/v2/v3 snooping, PIM-DM, PIM-SM and MSDP</li> <li>13. IPv4 multicast routes 16K, IPv6 multicast routes 2K</li> <li>14. Stacking support up to 8 switches</li> <li>15. VRRP, DLDP, Smart link, Monitor link, EFM, MFF and CFM</li> <li>16. Support mac authentication and 802.1x authentication</li> <li>17. Defense against UDP flood, TCP SYN flood, ICMP flood and packet fragment attacks, ARP packet rate limiting</li> <li>18. CLI and Web interface (HTTPS), Telnet, SSH v2, SNMP v1, v2, and v3, eMDI</li> <li>19. Support VxLAN, BGP-EVPN</li> </ol>		

	<ul style="list-style-type: none"> <li>20. Support Automation with SDN Controller, NETCONF and YANG</li> <li>21. Support ITU-T G.8032, ITU-Y.1731, IEEE 802.1D, 802.1P, 802.1Q, 802.1ad, 802.3ab, 802.3ad, 802.3ah, 802.1ab, RFC792, RFC 959, RFC 1305, RFC 1981 and RFC2131.</li> <li>22. In leader or visionaries or challenger position of 2020 wired and wireless LAN Access Gartner Report</li> <li>23. Warranty: 3 years NBD replacement</li> <li>24. All required SFPs , Stack cables, fiber/copper patch cords and necessary accessories should be part of the solution</li> </ul>		
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10	Network Firewalls	COMPLIED(Y/N)	REF/COMMENT
	<ul style="list-style-type: none"> <li>1. 2×10GE SFP+ and 6×GE Combo ports</li> <li>2. Firewall Throughput is 3.5Gbps or more</li> <li>3. FW + SA + IPS + AV throughput is 2Gbps or more</li> <li>4. Concurrent Sessions is 3.5M or more</li> <li>5. New sessions per second is 75K or more</li> <li>6. Support at least 3,500 IPSec VPN tunnels</li> <li>7. IPSec VPN throughput is 3.5Gbps or more</li> <li>8. SSL Inspection throughput is 400Mbps or more</li> <li>9. Integrated Protection: Integrates firewall, VPN, intrusion prevention, antivirus, data leak prevention, bandwidth management, and URL filtering functions, and provides a global configuration view and integrated policy management</li> <li>10. Application Identification and Control: Identifies common applications, supports application-specific access control, and combines application identification with intrusion prevention, antivirus, and data filtering to improve detection performance and accuracy</li> <li>11. Intrusion Prevention and Web Protection: Obtains the latest threat information in a timely manner for accurate detection and prevention of vulnerability exploits and web attacks, such as cross-site scripting and SQL injection attacks</li> <li>12. Data Leak Prevention: Inspects files to identify the file type, such as WORD, EXCEL, POWERPOINT, and PDF, based on file</li> </ul>		

	<p>contents, and filters sensitive content</p> <p>13. Bandwidth Management: Manages per-user and per-IP bandwidth in addition to identifying service applications to prioritize mission-critical services and users through methods such as peak bandwidth and committed bandwidth, policy-based routing (PBR), and application forwarding priority adjustment</p> <p>14. URL Filtering: Can access a URL category database of over 120 million URLs to manage access by URL category, such as blocking malicious URLs and accelerating access to specified categories. Supports DNS filtering, in which accessed web pages are filtered based on domain names. Supports the SafeSearch function to filter resources of search engines, such as Google, to guarantee access to only healthy network resources.</p> <p>15. Behavior and Content Audit: Audits and traces the sources of URL access based on the user IP address and requested content.</p> <p>16. Intelligent Uplink Selection: Supports service-specific PBR and intelligent uplink selection based on multiple load balancing algorithms (for example, based on bandwidth ratio and link health status) in multi-homing scenarios</p> <p>17. VPN Encryption: Supports multiple highly reliable VPN features, such as IPsec VPN, SSL VPN, L2TP VPN, IPsec over GRE, GRE over IPsec, DSVPN, and GRE. Provides a VPN client for remote user access through SSL VPN, L2TP VPN, and L2TP over IPsec VPN. Supports IPsec intelligent link selection and dynamic IPsec tunnel switchover to improve link availability</p> <p>18. SSL Encrypted Traffic Detection: Serves as a proxy to detect and defend against threats in SSL-encrypted traffic using application-layer protection methods such as intrusion prevention, antivirus, data filtering, and URL filtering. Support the HTTPS, POP3S, SMTPS, IMAPS SSL-encrypted traffic detect</p> <p>19. Device Management Capability: Built-in Web UI: Provides abundant device management and maintenance functions, including log report, configuration, and troubleshooting</p> <p>20. User Authentication: Supports multiple user</p>		
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	<p>authentication methods, including local, RADIUS, HWTACACS, AD, CA, LDAP, MAC, SSO and authentication exemption</p> <p>21. Security Virtualization: Allows users to create and manage virtual security services, including firewall, intrusion prevention, and antivirus services, on the same physical device</p> <p>22. Policy Management: Provides predefined common-scenario defense templates to facilitate security policy deployment. Automatically evaluates risks in security policies and provides tuning suggestions. Detects redundant and conflicting policies to remove unnecessary and incorrect policies</p> <p>23. Diversified Reports: Provides visualized and multi-dimensional reports by user, application, content, time, traffic, threat, and URL</p> <p>24. Routing: Supports IPv4 static routes, policy-based routing, routing policies, multicast, RIP, OSPF, BGP, and IS-IS. Support IPv6 static routes, policy-based routing, routing policies, RIPng, OSPFv3, BGP4+, and IPv6 IS-IS</p> <p>25. Working Mode: Transparent, routing, and hybrid working modes</p> <p>26. Must quote 3 Years complete security features license (IPS + URL + AV), the license function can't stop working once the license is expired just can't update the database</p> <p>27. The vender should be In leader or visionaries or challenger position of 2020 Network Firewalls Infrastructure Gartner report</p> <p>28. 3 year NBD Replacement</p>		
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11	Access Router	COMPLIED(Y/N)	REF/COMMENT
	<ol style="list-style-type: none"> <li>The router should have at least 1 x 10GE SFP+ WAN ports, 2 x GE Combo WAN ports and 6 x GE cooper LAN ports which also can be configured as WAN ports</li> <li>Router should have at least 2 x interface slots supporting different service line card such as LAN/WAN and support hot swapping for service line card</li> <li>Throughput of the router should be at least 2Gbps routing performance with service(Qos&amp;NAT&amp;ACL) and at least 2Gbps IPsec performance with IMIX packet size</li> </ol>		

	<ol style="list-style-type: none"> <li>4. Minimum 1GB Flash</li> <li>5. Minimum 4GB Memory</li> <li>6. 1U height</li> <li>7. DiffServ mode, MPLS QoS, priority mapping, traffic policing (CAR), traffic shaping, congestion avoidance, congestion management, MQC (traffic classifier, traffic behavior, and traffic policy), hierarchical QoS</li> <li>8. ACL (v4/v6), zoning firewall, AAA authentication, RADIUS authentication, HWTACACS authentication, broadcast storm suppression, ARP security, ICMP attack defense, URPF, CPCAR, blacklist, attack source tracing, URL filtering</li> <li>9. Support Encryption features AES, MD5, SHA</li> <li>10. Support Static routing, RIP, RIPng, OSPF, OSPFv3, BGP, BGP4+, IS-IS, IS-ISv6, PBR, DHCP Server/Relay, NAT/PAT, DNS Proxy</li> <li>11. Support DMVPN/DSVPN, GRE VPN, L2TP VPN</li> <li>12. Support Smart Application Control, URL filtering</li> <li>13. Support MPLS</li> <li>14. Support upgrade to SD-WAN CPE without changing hardware, support NETCONF and YANG</li> <li>15. Should support 5G service line card for future expansion</li> <li>16. The vender should be In leader or visionaries or challenger position of 2020 WAN Edge Infrastructure Gartner report</li> <li>17. 3 year NBD Replacement.</li> </ol>		
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12	<b>NMS &amp; NAC Controller with Principal Implementation services</b>	<b>COMPLIED(Y/N)</b>	<b>REF/COMMENT</b>
	<ol style="list-style-type: none"> <li>1. Platform architecture: Is able to automatically configure network devices using SDN protocols, such as NETCONF, YANG, and SNMP, collect device performance, alarm data, and user data using Telemetry</li> <li>2. Network device management: Manages a variety of campus network devices, such as switches, WLAN ACs, APs, firewalls, and routers</li> <li>3. Device management scale: Is able to manage up to 4K NEs as well as 15K online terminals</li> </ol>		

	<ol style="list-style-type: none"> <li>4. Network planning: Allows administrators to import wireless network planning files and check AP location information</li> <li>5. Zero touch provisioning (ZTP): Supports ZTP for wired and wireless networks and provides an array of plug-and-play technologies, such as DHCP option-based deployment and deployment through barcode scanning via an app to improve the provisioning efficiency of switches and Wi-Fi devices</li> <li>6. Network topology: Allows administrators to import and automatically generate physical topologies. The status of devices, ports, and links is displayed in the topology.</li> <li>7. Networking scenario: Supports underlay network automation for an array of networking solutions</li> <li>8. Scenario-specific network construction: Supports scenario-specific network construction by template. The controller can directly generate network topologies as well as network and service configurations, and replicate the topologies and configurations to other sites</li> <li>9. Network configuration in batches: Is able to automatically configure switches and Wi-Fi devices in batches by templates, such as feature, service, and site templates</li> <li>10. Wired network device stacking : Is able to automatically stack up to 8 switches and display stack members in the physical topology</li> <li>11. Radio configuration : Supports function configuration by radio profile. The functions include planning and automated configuration of 2.4 GHz and 5 GHz radios, Wi-Fi multimedia (WMM), smart roaming, configuring access terminal threshold, and configuring automated radio calibration policy. When a WLAN AP goes online, it can directly obtain configurations and policies from the controller and provides the Wi-Fi service at once.</li> <li>12. WLAN security : Is able to detect rogue</li> </ol>		
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	<p>APs and terminals in WIDS or WIPS mode, force them offline, collect statistics on them, defend against attacks, and suppress wireless storms</p> <p>13. Redundant Hardware should be included to avoid single point of failure.</p> <p>14. Supports air interface-based scheduling to ensure that VIP users can preferentially access the network</p> <p>15. Wireless access: Is able to implement local forwarding and tunnel forwarding for WLAN APs through wired and wireless convergence technology provided by switches</p> <p>16. User management: Supports local creation of departments, accounts, and roles. The department accounts must be the same as the existing ones of the customer. A user can be bound to multiple roles. This facilitates the customization of network admission authentication policies by department, account, and role. Is able to synchronize with multiple AD or LDAP domain name servers, map account attributes to local roles, and perform network admission authorization by role. Provides a built-in CA server to implement enterprise CA O&amp;M, such as issuance, missing claiming, and expiration processing of personal certificates. The personal certificates can be used as the identity sources for network admission authentication. Supports two-factor authentication based on the combinations of multiple identity sources, such as AD + RSA, password + SMS, password + RSA, and SSL VPN. Supports an array of authentication technologies, such as 802.1X authentication, MAC address authentication, Portal authentication based on HTTP/2 (HACA) and Portal 2.0, as well as VPN authentication. The authentication protocols include PAP, CHAP, EAP-MD5, EAP-PEAP-MSCHAPV2, EAP-TLS, EAP-TTLS-PAP, EAP-PEAP-GTC, and HACA. Multiple network attributes for network admission authentication can be</p>		
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	<p>automatically bound to users at the first authentication to restrict users' access behavior. The attributes include the IP or MAC address of a user authentication device, IMSI or ESN of a SIM or USIM card, as well as the IP address, access VLAN ID, and access port number of an access device. Is able to authorize and manage network access policies based on a multitude of network attributes, such as the user, user group, role, access location, device group, access time, and access mode. In addition, the controller can use customized standard RADIUS attributes as authorization parameters, and manage the priorities of multiple authorization policies. Provides network admission control policies based on the terminal compliance status. Is able to use an array of network attributes as network admission authorization results. The attributes include the VLAN, ACL, dynamic ACL, security group, VIP user, redirection URL, uplink and downlink bandwidth, as well as customized RADIUS attributes. Supports one-time Portal authentication, MAC address-prioritized Portal authentication based on Layer 2 links, as well as Boarding tool-based 802.1X authentication. Supports the authentication escape function. That is, when an authentication device cannot detect any response from the authentication server, the device allows users to access the network first.</p> <p>17. TACACS authentication and authorization: When logging in to a device through Telnet or SSH, a user can be forcibly authenticated by the TACACS server. The user group, account, role, access device group, terminal IP address range, and time range can be used as the authentication matching policies. In addition, the command set and command template can be used as authorization results. Authentication and authorization logs as well as user login and logout logs can be recorded. Supports two-factor TACACS</p>		
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	<p>authentication.</p> <p>18. Access terminal identification: Supports a multitude of identification technologies, such as User-Agent, DHCP Option, MAC OUI, mDNS, LLDP, SNMP, and NMAP, to precisely identify the operating systems, vendors, and models of access terminals. In addition, the terminal identification rules can be customized. Is able to automatically or manually group terminals by terminal type or operating system. The terminal groups can be used as network admission authorization conditions. After a terminal accesses the network, the terminal is automatically authenticated and bound to a device type. Supports the access anti-spoofing function. When the type of a terminal that has been bound to a port changes, the system automatically generates an alarm and blocks traffic from unauthorized terminals based on preset policies.</p> <p>19. Guest management: Supports page customization and push, self-service guest registration, guest admission authentication approved by administrators, and E2E guest account management throughout the lifecycle. Allows administrators to perform region-based management. Multiple guest administrators can be configured in the system to approve guest self-registration applications in each region. Supports user name and password authentication, Passcode authentication, SMS authentication, two-factor authentication, anonymous authentication, WeChat authentication, and social media authentication. The guest page has 10 built-in Portal pages and supports the WYSIWYG Portal editor for page customization. Administrators can customize Portal pages by adding or adjusting page controls and authentication controls. The page controls include title, image, text, carousel, dial-up, video, background, language, and Boarding</p>		
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	<p>controls. The authentication controls include user name and password, SMS, WeChat, anonymous, social media, Passcode, two-factor, and public QR code authentication controls. In addition, pages can be customized using HTML scripts. Pages can be customized and resized for different PCs and phones to better display content. Supports four built-in languages: Chinese, English, German, and Spanish. Language templates can be customized. Is able to push different Portal pages based on the push conditions including the device type, SSID, time, and terminal's operating system.</p> <p>20. Online terminal management: In HACA authentication, Portal 2.0 authentication, 802.1X authentication, and MAC address authentication scenarios, the online duration or traffic speed of a terminal can be limited. If the online duration or traffic speed of a terminal reaches the preset threshold, it is forcibly disconnected. Supports intermittent port disconnection and user re-authentication. (In wireless, HACA Portal authentication, as well as Eth-Trunk and policy association scenarios, the intermittent port disconnection and port disablement functions are not supported.) Provides agile reports for terminal identification, displays icons by vendor, operating system, and device type, and notifies administrators of various reports, such as scheduled reports, periodic reports, and real-time reports.</p> <p>21. VIP application experience: Supports HQoS scheduling based on users and applications, guaranteeing experience of mission-critical applications, such as audio and video applications of VIP users.</p> <p>22. Monitoring and O&amp;M: Collects wireless access data of users based on sites of a tenant, and identifies the proportion of passers-by, guests, and access users, user access duration, and repeated access rate of guests. Is able to display information about online users who pass Portal</p>		
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	<p>authentication. The information includes the user name, user group, authentication mode, access policy, access SSID, terminal MAC address, terminal IP address, login time, and site. Online user information can be exported. Provides a default scenario-based dashboard to simplify O&amp;M, and allows customers to flexibly customize dashboards based on their O&amp;M requirements. The controller also supports orchestration of common data sources and correlative data analysis. Analysis reports can be periodically exported in Word, PDF, or CSV format. Monitors the overall health, device status, mesh link status, radio frequency information, and topology of each site, and monitors the sites in real time based on the indoor and outdoor maps. Monitors the network status and displays collected statistics, including the network traffic statistics, traffic rate, top N device traffic, top N SSID traffic, and number of online users. Displays the list of AP radios at a site, collects statistics on the RF channel utilization, RF interference rate, and RF noise, and displays the RF trend in the past 24 hours.</p> <p>23. Product Principal implementation services for this component must be included in the solution</p>		
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13	Rack Server with Vmware Software	COMPLIED(Y/N)	REF/COMMENT
Brand	DELL, HP or Equivalent . Branded (New) Servers verifiable via online tags from OEM's public web site. No refurbish or partially used equipment will be accepted.		
Chasis	2.5" Chassis with up to 16 SAS/SATA Drives, 2 CPU		
Form factor	2RU rack server		
Processors	2 x Intel® Xeon® Gold 6342 2.8G, 24C/48T, 11.2GT/s, 36M Cache, Turbo, HT (230W) DDR4-3200		
Memory	256 GB (4 x 64GB RDIMM, 3200MT/s, Dual Rank)		
Maximum Memory Capacity	Must Support Up to 1.5TB (using 24 DIMM slots): with a combination of 4GB/8GB/16GB/32GB/64GB DDR4 up to 2400MT/s		
Hard Drives	2 X 1.2TB Hard Drive SAS 12Gbps 10k 512n 2.5in Hot-Plug		
Storage Controller	12G Modular RAID Controller with 2GB Cache		
PCIe expansion	6 PCIe 3.0 slots plus 1 dedicated 12-Gbps RAID controller slot and 1 dedicated mLOM slot		
Network Interface Cards	1 x Broadcom 57414 Dual Port 10/25GbE SFP28, OCP NIC 3.0 1 x Broadcom 57412 Dual Port 10GbE SFP+ Adapter, PCIe Full Height		
Trusted Platform Module	Trusted Platform Module 2.0 V3		
Management	Monitor servers for ongoing management, service alerting, reporting and remote management Fully functional GUI		
Embedded Systems Management	DRAC9 Datacenter 15G with OpenManage Enterprise Advanced		
Power supplies	Hot-pluggable, redundant 770W AC (UK/EU)		
Rack options	ball-bearing rail kit with reversible cable management farm		
Warranty	3 Year		

<b>Virtualization Software</b>	VMware vSphere 7 Enterprise Plus for 2 Processor Server License & 3 Year Support & Subscription. VMware vCenter Server Standard for vSphere 7 (Per Instance) License & 3 Year Support & Subscription		
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14	IP BASED KVM SWITCH	COMPLIED(Y/N)	REF/COMMENT
Brand	Cisco, Dell or equivalent foreign renown Brands		
Device Type	8 ports IP KVM console Switches with Integrated LED console KMM solution (Same Brand)		
LED Console Screen	Integrated KMM solution with 18.5 inch LED/LCD, 1 U, Display-Sliding folding		
LED Console Display Type	18.5' TFT LED – LCD module		
LED Foldable Screen	Yes (integrated with IP KVM Switch, KMM solution)		
LED Back Lighting	Yes		
LED Mode Support	Both Legacy Server and Widescreen video modes		
Multiple Windows support	Yes		
Rail mounting support (included)	Ready Rails static rails for toolless 1U mounting in 4-post racks with square or unthreaded round holes or tooled mounting in 4-post threaded and 2-post (Telco) racks		
Operating system Support	Windows, Linux, MAC, Unix etc		
Resolution	1680 X 1050 or above		
Sliding Rail and mounting kit	Yes, for both LED and KVM switch		
KVM remote IP user	1 or above		
Chassis	1 U		
Communication	TCP/IP		
Management	On board Web interface via		

	browser		
Switch access	USB Keyboard/Mouse, VGA Video		
Device access	USB, PS2, SUN		
Video Support	Analog VGA, SVGA, and XGA,16:10 widescreen, up to 1680 x 1050 4:3 standard, up to 1600 x 1200		
Local users	1 via usb, remote 1 authentic remote user using AES encryption		
Authentication	OBWI or DSview or IP over KVM or equivalent		
Upgradable	Upgradable to Digital Switch via Key (Included)		
Security	Ensure multi-factor authentication over USB and Ethernet with CAC support and provide encrypted remote access through the OBWI.		
Warranty	3 years or manufacturer whichever is greater		

15	Professional Training for University of Turbat Officials	COMPLIED(Y/N)	REF/COMMENT
	<ol style="list-style-type: none"> <li>1. Vendor should provide technical training for all the components of the solution including switching , WLAN , routing, firewalling and NAC.</li> <li>2. Training should focus on technologies and protocols being deployed for university of Turbat campus network.</li> <li>3. Training delivery mode can be onsite/ online .</li> <li>4. Operation and monitoring procedures of the system should also be included in the training.</li> <li>5. Training cost for two University of Turbat' officials should be included in the proposal.</li> </ol>		



16	<b>Technical Resident Engineer (Active Network Infrastructure) onsite for Three years</b>	<b>COMPLIED(Y/N)</b>	<b>REF/COMMENT</b>
	<ol style="list-style-type: none"> <li>1. A technical resident engineer matching below criteria should be provided by supplier onsite at University of Turbat campus for three years.</li> <li>2. At least two years of experience in IT networking field</li> <li>3. Strong knowledge and hands-on on Routing Switching and WIFI products</li> <li>4. Cisco/Huawei/equivalent CCNP/HCIP certification</li> <li>5. Day to day Network management and troubleshooting skills.</li> </ol>		

## **Operation and Maintenance**

The selected contractor will ensure smooth operation and maintenance of the I.T System which include, other than already specified, the following.

- a) Provision of maintenance services i.e hardware, software and networking support services to ensure flawless and continuous operation of the system. The hardware maintenance and technical support services includes both preventive and remedial services. Software support services includes on-site and remote troubleshooting, fault management and other technical support to be provided via telephone and online channels as well as installation and basic usability assistance. This also includes updating the system, installation of product update, migration for major releases of software and other types of proactive or reactive on-site services.
- b) The contractor will be responsible to provide the required software products and technologies including Operating Systems, Application Software, licensing and subscription etc.
- c) The contractor will be responsible for operation and maintenance of the power section of the SERVER Room/Data center.
- d) The contractor will be responsible to provide any other service, whether on-site or through remote system, which may be necessary for smooth functioning of the I.T. system as per guidelines to be provided by the Project Manager/ University of Turbat's Technical Team.
- e) The contractor will take all remedial and necessary steps to ensure protection and safety of the system from any type of physical or technical incident which may ensure short run or long run disruption in the work or may reduce the working life or capacity of the system.