



**Government of the People's Republic of Bangladesh**  
**Insurance Development and Regulatory Authority**  
**Bangladesh Insurance Sector Development Project (BISDP)**

**International Competitive Bidding (ICB)**

**Procurement of Goods**  
**For**  
**IT and Supporting Power Infrastructure DR (Active & Passive)**  
**for JBC, SBC, & IDRA**

Package No: G-33

Issue no: 53.03.0000.090.07.040.22-381

Date: 23 June-2022





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# Summary Description

## Summary

### PART 1 – BIDDING PROCEDURES

#### Section I. Instructions to Bidders (ITB)

This Section provides information to help Bidders prepare their bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of Contracts. **Section I contains provisions that are to be used without modification.**

#### Section II. Bid Data Sheet (BDS)

This Section includes provisions that are specific to each procurement and that supplement Section I, Instructions to Bidders.

#### Section III. Evaluation and Qualification Criteria

This Section specifies the criteria to determine the lowest evaluated bid and the qualifications of the Bidder to perform the contract.

#### Section IV. Bidding Forms

This Section includes the forms for the Bid Submission, Price Schedules, Bid Security, and the Manufacturer's Authorization to be submitted completed by the Bidder and submitted as part of his Bid.

#### Section V. Eligible Countries

This Section contains information regarding eligible countries.

#### Section VI. Bank Policy – Corrupt and Fraudulent Practices

This Section provides the Bidders with the reference to the Bank's policy in regard to corrupt and fraudulent practices applicable to this process.

### PART 2 – SUPPLY REQUIREMENTS

#### Section VII. Schedule of Requirements



This Section includes the List of Goods and Related Services, the Delivery and Completion Schedules, the Technical Specifications and the Drawings that describe the Goods and Related Services to be procured.

## **PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS**

### **Section VIII. General Conditions of Contract (GCC)**

This Section includes the general clauses to be applied in all contracts. **The text of the clauses in this Section shall not be modified.**

### **Section IX. Special Conditions of Contract (SCC)**

This Section consists of Contract Data and Specific Provisions which contains clauses specific to each contract. The contents of this Section modify or supplement, but not over-write, the General Conditions and shall be prepared by the Purchaser.

### **Section X. Contract Forms**

This Section contains forms which, once completed, will form part of the Contract. The forms for **Performance Security** and **Advance Payment Security**, when required, shall only be completed by the successful Bidder after contract award.

### **Attachment: Invitation for Bids**

An “Invitation for Bids” form is provided at the end of the Bidding Documents for information.



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## **PART 1 – Bidding Procedures**



# Section I. Instructions to Bidders

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## Section I. Instructions to Bidders

### A. General

1. **Scope of Bid**
  - 1.1 In connection with the Invitation for Bids, **specified in the Bid Data Sheet (BDS)**, the Purchaser, **as specified in the BDS**, issues these Bidding Documents for the supply of Goods and Related Services incidental thereto as specified in Section VII, Schedule of Requirements. The name, identification and number of lots (contracts) of this International Competitive Bidding (ICB) procurement are **specified in the BDS**.
  - 1.2 Throughout these Bidding Documents:
    - (a) the term “in writing” means communicated in written form (e.g. by mail, e-mail, fax, telex) with proof of receipt;
    - (b) if the context so requires, “singular” means “plural” and vice versa; and
    - (c) “day” means calendar day.
2. **Source of Funds**
  - 2.1 The Borrower or Recipient (hereinafter called “Borrower”) **specified in the BDS** has applied for or received financing (hereinafter called “funds”) from the International Bank for Reconstruction and Development or the International Development Association (hereinafter called “the Bank”) in an amount **specified in BDS**, toward the project named **in BDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract for which these Bidding Documents are issued.
  - 2.2 Payment by the Bank will be made only at the request of the Borrower and upon approval by the Bank in accordance with the terms and conditions of the Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the Loan (or other financing) account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan (or other financing) Agreement or have any claim to the proceeds of the Loan (or other financing).
3. **Corrupt and Fraudulent Practices**
  - 3.1 The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Section VI.



- 3.2 In further pursuance of this policy, Bidders shall permit and shall cause its agents (where declared or not), sub-contractors, sub-consultants, service providers or suppliers and to permit the Bank to inspect all accounts, records and other documents relating to the submission of the application, bid submission (in case prequalified), and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

#### 4. Eligible Bidders

- 4.1 A Bidder may be a firm that is a private entity, a government-owned entity—subject to ITB 4.5—or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution. **Unless specified in the BDS**, there is no limit on the number of members in a JV.
- 4.2 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:
- (a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or
  - (b) receives or has received any direct or indirect subsidy from another Bidder; or
  - (c) has the same legal representative as another Bidder; or
  - (d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Purchaser regarding this bidding process; or
  - (e) participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or
  - (f) any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the bid; or



- (g) any of its affiliates has been hired (or is proposed to be hired) by the Purchaser or Borrower for the Contract implementation; or
  - (h) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or
  - (i) has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the procurement process and execution of the contract
- 4.3 ABidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.7. ABidder shall be deemed to have the nationality of a country if the Bidder is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed sub-contractors or sub-consultants for any part of the Contract including related Services.
- 4.4 ABidder that has been sanctioned by the Bank in accordance with the above ITB 3.1, including in accordance with the Bank's Guidelines on Preventing and Combating Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants ("Anti-Corruption Guidelines"), shall be ineligible to be prequalified for, bid for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address **specified in the BDS.**
- 4.5 Bidders that are Government-owned enterprises or institutions in the Purchaser's Country may participate only if they can establish that



they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not dependent agencies of the Purchaser. To be eligible, a government-owned enterprise or institution shall establish to the Bank's satisfaction, through all relevant documents, including its Charter and other information the Bank may request, that it: (i) is a legal entity separate from the government (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to the government, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt; and (iv) is not bidding for a contract to be awarded by the department or agency of the government which under their applicable laws or regulations is the reporting or supervisory authority of the enterprise or has the ability to exercise influence or control over the enterprise or institution.

- 4.6 A Bidder shall not be under suspension from bidding by the Purchaser as the result of the operation of a Bid-Securing Declaration.
- 4.7 Firms and individuals may be ineligible if so indicated in Section V and (a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's country prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.
- 4.8 A Bidder shall provide such evidence of eligibility satisfactory to the Purchaser, as the Purchaser shall reasonably request.

**5. Eligible Goods and Related Services**

- 5.1 All the Goods and Related Services to be supplied under the Contract and financed by the Bank may have their origin in any country in accordance with Section V, Eligible Countries.
- 5.2 For purposes of this Clause, the term "goods" includes commodities, raw material, machinery, equipment, and industrial plants; and "related services" includes services such as insurance, installation, training, and initial maintenance.
- 5.3 The term "origin" means the country where the goods have been mined, grown, cultivated, produced, manufactured or processed; or, through manufacture, processing, or assembly, another





commercially recognized article results that differs substantially in its basic characteristics from its components.

## **B. Contents of Bidding Document**

### **6. Sections of Bidding Document**

- 6.1 The Bidding Documents consist of Parts 1, 2, and 3, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.

#### **PART 1 Bidding Procedures**

- Section I. Instructions to Bidders (ITB)
- Section II. Bidding Data Sheet (BDS)
- Section III. Evaluation and Qualification Criteria
- Section IV. Bidding Forms
- Section V. Eligible Countries
- Section VI. Bank Policy-Corrupt and Fraudulent Practices

#### **PART 2 Supply Requirements**

- Section VII. Schedule of Requirements

#### **PART 3 Contract**

- Section VIII. General Conditions of Contract (GCC)
- Section IX. Special Conditions of Contract (SCC)
- Section X. Contract Forms

- 6.2 The Invitation for Bids issued by the Purchaser is not part of the Bidding Document.
- 6.3 Unless obtained directly from the Purchaser, the Purchaser is not responsible for the completeness of the document, responses to requests for clarification, the Minutes of the pre-Bid meeting (if any), or Addenda to the Bidding Document in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Purchaser shall prevail.
- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its Bid all information or documentation as is required by the Bidding Documents.



- 7. Clarification of Bidding Documents**
- 7.1 A Bidder requiring any clarification of the Bidding Document shall contact the Purchaser in writing at the Purchaser's address **specified in the BDS**. The Purchaser will respond in writing to any request for clarification, provided that such request is received prior to the deadline for submission of bids within a period **specified in the BDS**. The Purchaser shall forward copies of its response to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so **specified in the BDS**, the Purchaser shall also promptly publish its response at the web page **identified in the BDS**. Should the clarification result in changes to the essential elements of the Bidding Documents, the Purchaser shall amend the Bidding Documents following the procedure under ITB 8 and ITB 22.2.
- 8. Amendment of Bidding Document**
- 8.1 At any time prior to the deadline for submission of bids, the Purchaser may amend the Bidding Documents by issuing addenda.
- 8.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents from the Purchaser in accordance with ITB 6.3. The Purchaser shall also promptly publish the addendum on the Purchaser's web page in accordance with ITB 7.1.
- 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 22.2.

### C. Preparation of Bids

- 9. Cost of Bidding**
- 9.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
- 10. Language of Bid**
- 10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in the language **specified in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into the language **specified in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.



## 11. Documents Comprising the Bid

### 11.1 The Bid shall comprise the following:

- (a) Letter of Bid in accordance with ITB 12;
- (b) completed schedules, in accordance with ITB 12 and 14
- (c) Bid Security or Bid-Securing Declaration, in accordance with ITB 19.1;
- (d) alternative bids, if permissible, in accordance with ITB 13;
- (e) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;
- (f) documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the contract if its bid is accepted;
- (g) documentary evidence in accordance with ITB 17 establishing the Bidder's eligibility to bid;
- (h) documentary evidence in accordance with ITB 16, that the Goods and Related Services to be supplied by the Bidder are of eligible origin;
- (i) documentary evidence in accordance with ITB 16 and 30, that the Goods and Related Services conform to the Bidding Documents;
- (j) any other document **required in the BDS.**

11.2 In addition to the requirements under ITB 11.1, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.

11.3 The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

## 12. Letter of Bid and Price Schedules

12.1. The Letter of Bid and Price Schedules shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.2. All blank spaces shall be filled in with the information requested.

## 13. Alternative Bids

13.1. Unless otherwise **specified in the BDS**, alternative bids shall not be considered.



#### 14. Bid Prices and Discounts

- 14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Price Schedules shall conform to the requirements specified below.
- 14.2 All lots (contracts) and items must be listed and priced separately in the Price Schedules.
- 14.3 The price to be quoted in the Letter of Bid in accordance with ITB 12.1 shall be the total price of the bid, excluding any discounts offered.
- 14.4 The Bidder shall quote any discounts and indicate the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.
- 14.5 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account, **unless otherwise specified in the BDS**. A bid submitted with an adjustable price quotation shall be treated as nonresponsive and shall be rejected, pursuant to ITB 29. However, if in accordance with the BDS, prices quoted by the Bidder shall be subject to adjustment during the performance of the Contract, a bid submitted with a fixed price quotation shall not be rejected, but the price adjustment shall be treated as zero.
- 14.6 If so specified in ITB 1.1, bids are being invited for individual lots (contracts) or for any combination of lots (packages). Unless otherwise **specified in the BDS**, prices quoted shall correspond to 100 % of the items specified for each lot and to 100% of the quantities specified for each item of a lot. Bidders wishing to offer discounts for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4 provided the bids for all lots (contracts) are opened at the same time.
- 14.7 The terms EXW, CIP, and other similar terms shall be governed by the rules prescribed in the current edition of Incoterms, published by The International Chamber of Commerce, **as specified in the BDS**.
- 14.8 Prices shall be quoted as specified in each Price Schedule included in Section IV, Bidding Forms. The disaggregation of price components is required solely for the purpose of facilitating the comparison of bids by the Purchaser. This shall not in any way limit the Purchaser's right to contract on any of the terms offered. In quoting prices, the Bidder shall be free to use transportation through carriers registered in any eligible country, in accordance



with Section V, Eligible Countries. Similarly, the Bidder may obtain insurance services from any eligible country in accordance with Section V, Eligible Countries. Prices shall be entered in the following manner:

- (a) For Goods manufactured in the Purchaser's Country:
  - (i) the price of the Goods quoted EXW (ex-works, ex-factory, ex warehouse, ex showroom, or off-the-shelf, as applicable), including all customs duties and sales and other taxes already paid or payable on the components and raw material used in the manufacture or assembly of the Goods;
  - (ii) any Purchaser's Country sales tax and other taxes which will be payable on the Goods if the contract is awarded to the Bidder; and
  - (iii) the price for inland transportation, insurance, and other local services required to convey the Goods to their final destination (Project Site) **specified in theBDS.**
- (b) For Goods manufactured outside the Purchaser's Country, to be imported:
  - (i) the price of the Goods, quoted CIP named place of destination, in the Purchaser's Country, as **specified in theBDS;**
  - (ii) the price for inland transportation, insurance, and other local services required to convey the Goods from the named place of destination to their final destination (Project Site) **specified in theBDS;**
- (c) For Goods manufactured outside the Purchaser's Country, already imported:
  - (i) the price of the Goods, including the original import value of the Goods; plus any mark-up (or rebate); plus any other related local cost, and custom duties and other import taxes already paid or to be paid on the Goods already imported.
  - (ii) the custom duties and other import taxes already paid (need to be supported with documentary evidence) or to be paid on the Goods already imported;





- (iii) the price of the Goods, obtained as the difference between (i) and (ii) above;
  - (iv) any Purchaser's Country sales and other taxes which will be payable on the Goods if the contract is awarded to the Bidder; and
  - (v) the price for inland transportation, insurance, and other local services required to convey the Goods from the named place of destination to their final destination (Project Site) **specified in the BDS.**
- (d) for Related Services, other than inland transportation and other services required to convey the Goods to their final destination, whenever such Related Services are specified in the Schedule of Requirements:
- (i) the price of each item comprising the Related Services (inclusive of any applicable taxes).

**15. Currencies of Bid and Payment**

- 15.1 The currency(ies) of the bid and the currency(ies) of payments shall be **as specified in the BDS.** The Bidder shall quote in the currency of the Purchaser's Country the portion of the bid price that corresponds to expenditures incurred in the currency of the Purchaser's country, unless otherwise **specified in the BDS.**
- 15.2 The Bidder may express the bid price in any currency. If the Bidder wishes to be paid in a combination of amounts in different currencies, it may quote its price accordingly but shall use no more than three foreign currencies in addition to the currency of the Purchaser's Country.

**16. Documents Establishing the Eligibility and Conformity of the Goods and Related Services**

- 16.1 To establish the eligibility of the Goods and Related Services in accordance with ITB 5, Bidders shall complete the country of origin declarations in the Price Schedule Forms, included in Section IV, Bidding Forms.
- 16.2 To establish the conformity of the Goods and Related Services to the Bidding Documents, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods conform to the technical specifications and standards specified in Section VII, Schedule of Requirements.
- 16.3 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods and Related Services, demonstrating substantial responsiveness of the Goods and Related Services to the technical specification, and if applicable, a statement of



deviations and exceptions to the provisions of the Section VII, Schedule of Requirements.

- 16.4 The Bidder shall also furnish a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods during the period **specified in theBDS** following commencement of the use of the goods by the Purchaser.
- 16.5 Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Purchaser in the Schedule of Requirements, are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/or catalogue numbers, provided that it demonstrates, to the Purchaser's satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in the Section VII, Schedule of Requirements.

#### 17. Documents Establishing the Eligibility and Qualifications of the Bidder

- 17.1 To establish Bidder's their eligibility in accordance with ITB 4, Bidders shall complete the Letter of Bid, included in Section IV, Bidding Forms.
- 17.2 The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Purchaser's satisfaction:
  - (a) that, if **required in theBDS**, a Bidder that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization using the form included in Section IV, Bidding Forms to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods in the Purchaser's Country;
  - (b) that, if **required in theBDS**, in case of a Bidder not doing business within the Purchaser's Country, the Bidder is or will be (if awarded the contract) represented by an Agent in the country equipped and able to carry out the Supplier's maintenance, repair and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and
  - (c) that the Bidder meets each of the qualification criterion specified in Section III, Evaluation and Qualification Criteria.

#### 18. Period of Validity of Bids

- 18.1. Bids shall remain valid for the period **specified in theBDS** after the bid submission deadline date prescribed by the Purchaser in



accordance with ITB22.1. A bid valid for a shorter period shall be rejected by the Purchaser as nonresponsive.

- 18.2. In exceptional circumstances, prior to the expiration of the bid validity period, the Purchaser may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB Clause 19, it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its bid, except as provided in ITB 18.3.
- 18.3. If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial bid validity, the Contract price shall be determined as follows:
  - (a) In the case of fixed price contracts, the Contract price shall be the bid price adjusted by the factor **specified in the BDS**.
  - (b) In the case of adjustable price contracts, no adjustment shall be made.
  - (c) In any case, bid evaluation shall be based on the bid price without taking into consideration the applicable correction from those indicated above.

## 19. Bid Security

- 19.1. The Bidder shall furnish as part of its bid, either a Bid-Securing Declaration or a bid security, as **specified in the BDS**, in original form and, in the case of a bid security. In the amount and currency **specified in the BDS**.
- 19.2. A Bid Securing Declaration shall use the form included in Section IV, Bidding Forms.
- 19.3. If a bid security is specified pursuant to ITB 19.1, the bid security shall be a demand guarantee in any of the following forms at the Bidder's option :
  - (a) an unconditional guarantee issued by a bank or financial institution (such as an insurance, bonding or surety company);
  - (b) an irrevocable letter of credit;
  - (c) a cashier's or certified check; or
  - (d) another security **specified in the BDS**,



from a reputable source from an eligible country. If the unconditional guarantee is issued by a financial institution located outside the Purchaser's Country, the issuing financial institution shall have a correspondent financial institution located in the Purchaser's Country to make it enforceable. In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms, or in another substantially similar format approved by the Purchaser prior to bid submission. The bid security shall be valid for twenty-eight (28) days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.

- 19.4. If a Bid Security is specified pursuant to ITB 19.1, any bid not accompanied by a substantially responsive Bid Security shall be rejected by the Purchaser as non-responsive.
- 19.5. If a Bid Security is specified pursuant to ITB 19.1, the Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the contract and furnishing the Performance Security pursuant to ITB 42.
- 19.6. The Bid Security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the contract and furnished the required performance security.
- 19.7. The Bid Security may be forfeited or the Bid Securing Declaration executed:
  - (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or any extension thereto provided by the Bidder ; or
  - (b) if the successful Bidder fails to:
    - (i) sign the Contract in accordance with ITB41; or
    - (ii) furnish a performance security in accordance with ITB 42.
- 19.8. The bid security or Bid- Securing Declaration of a JV must be in the name of the JV that submits the bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the bid security or Bid-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.
- 19.9. If a bid security is **not required in the BDS**, pursuant to ITB 19.1, and



- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or
- (b) if the successful Bidder fails to: sign the Contract in accordance with ITB41; or furnish a performance security in accordance with ITB 42;

the Borrower may, **if provided for in the BDS**, declare the Bidder ineligible to be awarded a contract by the Purchaser for a period of time **as stated in the BDS**.

## 20. Format and Signing of Bid

- 20.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it "ORIGINAL." Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE." In addition, the Bidder shall submit copies of the bid, in the number **specified in the BDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.
- 20.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation **as specified in the BDS** and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid.
- 20.3 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.
- 20.4 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.

## D. Submission and Opening of Bids

## 21. Sealing and Marking of Bids

- 21.1. The Bidder shall enclose the original and all copies of the bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL", "ALTERNATIVE" and "COPY." These envelopes containing the original and the copies shall then be enclosed in one single envelope.
- 21.2. The inner and outer envelopes shall:
  - (a) bear the name and address of the Bidder;





- (b) be addressed to the Purchaser in accordance with ITB 24.1;
- (c) bear the specific identification of this bidding process indicated in ITB1.1; and
- (d) bear a warning not to open before the time and date for bid opening.

21.3. If all envelopes are not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the bid.

## 22. Deadline for Submission of Bids

22.1. Bids must be received by the Purchaser at the address and no later than the date and time **specified in the BDS**. When **sospecified in the BDS**, bidders shall have the option of submitting their bids electronically. Bidders submitting bids electronically shall follow the electronic bid submission procedures **specified in the BDS**.

22.2. The Purchaser may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB 8, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

## 23. Late Bids

23.1. The Purchaser shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Purchaser after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.

## 24. Withdrawal, Substitution, and Modification of Bids

24.1. A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization (the power of attorney) in accordance with ITB 20.2, (except that withdrawal notices do not require copies ). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:

- (a) prepared and submitted in accordance with ITB 20 and 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," or "MODIFICATION;" and
- (b) received by the Purchaser prior to the deadline prescribed for submission of bids, in accordance with ITB 22.

24.2. Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.



- 24.3. No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

## 25. Bid Opening

- 25.1. Except as in the cases specified in ITB 23 and 24, the Purchaser shall publicly open and read out in accordance with ITB25.3 all bids received by the deadline at the date, time and places **specified in the BDS** in the presence of Bidders' designated representatives and anyone who choose to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be as **specified in the BDS**.
- 25.2. First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. If the withdrawal envelope does not contain a copy of the "power of attorney" confirming the signature as a person duly authorized to sign on behalf of the Bidder, the corresponding bid will be opened. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening. Only bids that are opened and read out at Bid opening shall be considered further.
- 25.3. All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the total Bid Prices, per lot (contract) if applicable, including any discounts and alternative bids; the presence or absence of a Bid Security, if required; and any other details as the Purchaser may consider appropriate. Only discounts and alternative bids read out at Bid opening shall be considered for evaluation. The Letter of Bid and the Price Schedules are to be initialed by representatives of the Purchaser attending bid opening in the manner **specified in the BDS**. The Purchaser shall neither discuss the merits of any bid nor reject any bid (except for late bids, in accordance with ITB 25.1).



- 25.4. The Purchaser shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot (contract) if applicable, including any discounts, and alternative bids; and the presence or absence of a Bid Security, if one was required. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

### **E. Evaluation and Comparison of Bids**

- 26. Confidentiality**
- 26.1 Information relating to the evaluation of bids and recommendation of contract award, shall not be disclosed to bidders or any other persons not officially concerned with the bidding process until information on Contract Award is communication to all Bidders in accordance with ITB 40.
- 26.2 Any effort by a Bidder to influence the Purchaser in the evaluation or contract award decisions may result in the rejection of its Bid.
- 26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract Award, if any Bidder wishes to contact the Purchaser on any matter related to the bidding process, it should do so in writing.
- 27. Clarification of Bids**
- 27.1 To assist in the examination, evaluation, comparison of the bids, and qualification of the Bidders, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered. The Purchaser's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the bids, in accordance with ITB 31.
- 27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Purchaser's request for clarification, its bid may be rejected.



**28. Deviations,  
Reservations,  
and Omissions**

- 28.1 During the evaluation of bids, the following definitions apply:
- (a) “Deviation” is a departure from the requirements specified in the Bidding Documents;
  - (b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and
  - (c) “Omission” is the failure to submit part or all of the information or documentation required in the Bidding Documents

**29. Determination  
of  
Responsiveness**

- 29.1 The Purchaser’s determination of a bid’s responsiveness is to be based on the contents of the bid itself, as defined in ITB 11.
- 29.2 A substantially responsive Bid is one that meets the requirements of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:
- (a) if accepted, would
    - (i) affect in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or
    - (ii) limit in any substantial way, inconsistent with the Bidding Documents, the Purchaser’s rights or the Bidder’s obligations under the Contract; or
  - (b) if rectified, would unfairly affect the competitive position of other bidders presenting substantially responsive bids.
- 29.3 The Purchaser shall examine the technical aspects of the bid submitted in accordance with ITB 16 and ITB 17, in particular, to confirm that all requirements of Section VII, Schedule of Requirements have been met without any material deviation or reservation, or omission.
- 29.4 If a bid is not substantially responsive to the requirements of Bidding Documents, it shall be rejected by the Purchaser and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

**30. Nonconformi-  
ties, Errors and  
Omissions**

- 30.1 Provided that a Bid is substantially responsive, the Purchaser may waive any nonconformities in the Bid.
- 30.2 Provided that a bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or



documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

30.3 Provided that a bid is substantially responsive, the Purchaser shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component.

### 31. Correction of Arithmetical Errors

31.1 Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:

- (a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;
- (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- (c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

31.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 31.1, shall result in the rejection of the Bid.

### 32. Conversion to Single Currency

32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted in a single currency as **specified in theBDS.**

### 33. Margin of Preference

33.1 **Unless otherwise specified in theBDS,** a margin of preference shall not apply.

### 34. Evaluation of Bids

34.1 The Purchaser shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

34.2 To evaluate a Bid, the Purchaser shall consider the following:





- (a) evaluation will be done for Items or Lots (contracts), as **specified in the BDS**; and the Bid Price as quoted in accordance with clause 14;
  - (b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;
  - (c) price adjustment due to discounts offered in accordance with ITB 14.3;
  - (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;
  - (e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 30.3;
  - (f) the additional evaluation factors are specified in Section III, Evaluation and Qualification Criteria;
- 34.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.
- 34.4 If these Bidding Documents allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the lot (contract) combinations, including any discounts offered in the Letter of Bid Form, is specified in Section III, Evaluation and Qualification Criteria
- 34.5 The Purchaser's evaluation of a bid will exclude and not take into account:
- (a) in the case of Goods manufactured in the Purchaser's Country, sales and other similar taxes, which will be payable on the goods if a contract is awarded to the Bidder;
  - (b) in the case of Goods manufactured outside the Purchaser's Country, already imported or to be imported, customs duties and other import taxes levied on the imported Good, sales and other similar taxes, which will be payable on the Goods if the contract is awarded to the Bidder;
  - (c) any allowance for price adjustment during the period of execution of the contract, if provided in the bid.
- 34.6 The Purchaser's evaluation of a bid may require the consideration of other factors, in addition to the Bid Price quoted in accordance with ITB 14. These factors may be related to the characteristics, performance, and terms and conditions of purchase of the Goods



and Related Services. The effect of the factors selected, if any, shall be expressed in monetary terms to facilitate comparison of bids, unless otherwise **specified in the BDS** from amongst those set out in Section III, Evaluation and Qualification Criteria. The criteria and methodologies to be used shall be as specified in ITB 34.2 (f).

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|---|--|
| <b>35. Comparison of Bids</b>   | 35.1 The Purchaser shall compare the evaluated prices of all substantially responsive bids established in accordance with ITB 34.2 to determine the lowest evaluated bid. The comparison shall be on the basis of CIP (place of final destination) prices for imported goods and EXW prices, plus cost of inland transportation and insurance to place of destination, for goods manufactured within the Borrower's country, together with prices for any required installation, training, commissioning and other services. The evaluation of prices shall not take into account custom duties and other taxes levied on imported goods quoted CIP and sales and similar taxes levied in connection with the sale or delivery of goods.   |
| <b>36. Qualification of the Bidder</b>  | <p>36.1 The Purchaser shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.</p> <p>36.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.</p> <p>36.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Purchaser shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.</p> |
| <b>37. Purchaser's Right to Accept Any Bid, and to Reject Any or All Bids</b> | 37.1 The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.   |

## F. Award of Contract

- |                           |   |
|---------------------------|---|
| <b>38. Award Criteria</b> | 38.1 Subject to ITB 37.1, the Purchaser shall award the Contract to the Bidder whose bid has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, |
|---------------------------|---|



provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

**39. Purchaser's  
Right to Vary  
Quantities at  
Time of Award**

39.1 At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified in Section VII, Schedule of Requirements, provided this does not exceed the percentages **specified in the BDS**, and without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents.

**40. Notification of  
Award**

40.1 Prior to the expiration of the period of bid validity, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Purchaser will pay the Supplier in consideration of the supply of Goods (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price"). At the same time, the Purchaser shall also notify all other Bidders of the results of the bidding and shall publish in *UNDB online* the results identifying the bid and lot (contract) numbers and the following information:

- (i) name of each Bidder who submitted a Bid;
- (ii) bid prices as read out at Bid Opening;
- (iii) name and evaluated prices of each Bid that was evaluated;
- (iv) name of bidders whose bids were rejected and the reasons for their rejection; and
- (v) name of the successful Bidder, and the Price it offered, as well as the duration and summary scope of the contract awarded.

40.2 Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.

40.3 The Purchaser shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its bid was not selected.

**41. Signing of  
Contract**

41.1 Promptly after notification, the Purchaser shall send the successful Bidder the Contract Agreement.



- 41.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Purchaser.
- 41.3 Notwithstanding ITB 41.2 above, in case signing of the Contract Agreement is prevented by any export restrictions attributable to the Purchaser, to the country of the Purchaser, or to the use of the products/goods, systems or services to be supplied, where such export restrictions arise from trade regulations from a country supplying those products/goods, systems or services, the Bidder shall not be bound by its bid, always provided however, that the Bidder can demonstrate to the satisfaction of the Purchaser and of the Bank that signing of the Contract Agreement has not been prevented by any lack of diligence on the part of the Bidder in completing any formalities, including applying for permits, authorizations and licenses necessary for the export of the products/goods, systems or services under the terms of the Contract.

#### **42. Performance Security**

- 42.1 Within twenty eight (28) days of the receipt of notification of award from the Purchaser, the successful Bidder, if required, shall furnish the Performance Security in accordance with the GCC, subject to ITB 34.5, using for that purpose the Performance Security Form included in Section X, Contract Forms, or another Form acceptable to the Purchaser. If the Performance Security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Purchaser. A foreign institution providing a bond shall have a correspondent financial institution located in the Purchaser's Country.
- 42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event the Purchaser may award the Contract to the next lowest evaluated Bidder, whose bid is substantially responsive and is determined by the Purchaser to be qualified to perform the Contract satisfactorily.



## Section II. Bid Data Sheet (BDS)

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

*[Instructions for completing the Bid Data Sheet are provided, as needed, in the notes in italics mentioned for the relevant ITB Clauses.]*

ITB Clause Reference	A. General
ITB 1.1	The reference number of the Invitation for Bids is :
ITB 1.1	The Purchaser is: Insurance Development and Regulatory Authority, represented by the Project Director, Bangladesh Insurance Sector Development Project.
ITB 1.1	The name of the ICB is: IT and Supporting Power Infrastructure DR (Active & Passive) for JBC, SBC, & IDRA The identification number of the ICB is: G-33 The number and identification of lots (contracts) comprising this ICB is: Single
ITB 2.1	The Borrower is: : <b>Government of The People's Republic of Bangladesh</b>
ITB 2.1	Loan or Financing Agreement amount: <b>US\$ 65.00 million</b>
ITB 2.1	The name of the Project is: <b>Bangladesh Insurance Sector Development Project</b>
ITB 4.1	Maximum number of members in the JV shall be: <b>Three (3)</b>
IITB 4.4	A list of debarred firms and individuals is available on the Bank's external website: <a href="http://www.worldbank.org/debarr">http://www.worldbank.org/debarr</a> .
	B. Contents of Bidding Documents
ITB 7.1	For <b><u>Clarification of bid purposes</u></b> only, the Purchaser's address is:  Attention: <b>Project Director, Bangladesh Insurance Sector Development Project (BISDP)</b> Address: <b>Office of the Project Director, Bangladesh Insurance Sector Development Project, JibanBima Tower Bhaban, 10, Dilkusha C/A, Dhaka-1000.</b> Floor/ Room number: <b>Front Block (5th Floor)</b>



	<p>City:<b>Dhaka</b></p> <p>Post Code:<b>Dhaka -1000</b></p> <p>Country: <b>Bangladesh</b></p> <p>Telephone: +880-02-9514963</p> <p>Facsimile number: N/A</p> <p>Electronic mail address: <b>pd.bisdpproject@gmail.com</b></p> <p>Requests for clarification should be received by the Employer no later than: 14 (Fourteen) days prior to the bid submission deadline.</p>
<b>ITB 7.1</b>	Web page: <a href="http://www.idra.org.bd">www.idra.org.bd</a>
	<b>C. Preparation of Bids</b>
<b>ITB 10.1</b>	<p>The language of the bid is: <b><i>“English”</i></b></p> <p>All correspondence exchange shall be in <b><i>English</i></b> language.</p> <p>Language for translation of supporting documents and printed literature is <b><i>English</i></b></p>
<b>ITB 11.1 (j)</b>	<p>The Bidder shall submit the following additional documents in its bid:</p> <ul style="list-style-type: none"> <li>• Original Brochure/ Catalogue/ Manual and other documents for all equipment's.</li> <li>• ISO 9001:2015 Certification or equivalent.</li> </ul>
<b>ITB 13.1</b>	Alternative Bids <b>shall not be</b> considered
<b>ITB 14.5</b>	The prices quoted by the Bidder <b>shall not</b> be subject to adjustment during the performance of the Contract.
<b>ITB 14.6</b>	Prices quoted shall correspond to 100% of the items specified in the Schedule of Requirement and 100% of the quantities specified for each item.
<b>ITB 14.7</b>	The Incoterms edition is: “Incoterms 2020,”
<b>ITB 14.8 (b) (i) and (c) (v)</b>	Place of Destination: Any port of Bangladesh
<b>ITB 14.8 (a) (iii); (b) (ii) and (c) (v)</b>	<p>“Final destination (Project Site)”:</p> <p>IDRA Head office: SBC Tower (8th floor), 37/A, Dilkusha C/A, Dhaka 1000</p> <p>JBC Head office: Head Office 24, Motijheel C/A, Dhaka-1000.</p>





<b>ITB 15.1</b>	<p>The prices shall be quoted by the bidder in any freely convertible currency up to a maximum of three foreign currencies.</p> <p>The Bidder <i>is</i> required to quote in Bangladesh Taka (BDT) the portion of the bid price that corresponds to expenditures incurred in that currency.</p>																																																
<b>ITB 16.4</b>	<p>Period of time the Goods are expected to be functioning (for the purpose of spare parts): <b>Five Years (05 Years)</b></p>																																																
<b>ITB 17.2 (a)</b>	<p>Manufacturer's authorization is: <b>required</b> for the below items</p> <p>Manufacturer's authorization required for below items:</p> <table border="1"> <thead> <tr> <th>Line Item</th><th>Description of Goods</th></tr> </thead> <tbody> <tr> <td colspan="2">MAF for Networking items for DR Sites</td></tr> <tr><td>A1</td><td>Internet Router</td></tr> <tr><td>A2</td><td>WAN Router</td></tr> <tr><td>A3</td><td>Extranet B2B Router</td></tr> <tr><td>A4</td><td>Internet Switch</td></tr> <tr><td>A5</td><td>Extranet B2B Switch</td></tr> <tr><td>A6</td><td>External Firewall</td></tr> <tr><td>A7</td><td>OOB Management Switch</td></tr> <tr><td>A8</td><td>Spine and DCI Core Switch</td></tr> <tr><td>A9</td><td>Border Leaf Switch</td></tr> <tr><td>A10</td><td>Service Leaf Switch</td></tr> <tr><td>A11</td><td>Compute Leaf Switch</td></tr> <tr><td>A12</td><td>Internal Fabric Firewall</td></tr> <tr><td>A13</td><td>SDN Controller</td></tr> <tr><td>A14</td><td>DC Network Analyzer</td></tr> <tr><td>A15</td><td>Security Controller</td></tr> <tr><td>A16</td><td>Campus Network Manager and Controller</td></tr> <tr><td>A17</td><td>WiFi6 Access Point</td></tr> <tr><td>A18</td><td>Multi-DC SDN Orchestration License</td></tr> <tr><td>A19</td><td>Interactive Whiteboard with Advanced Video Conferencing</td></tr> <tr><td>A20</td><td>Web Application Firewall &amp; Server Load Balancer</td></tr> <tr> <td colspan="2">MAF for Computing and Storage items for DR Sites</td></tr> <tr><td>B1</td><td>Database Server for Production Environment</td></tr> </tbody> </table>	Line Item	Description of Goods	MAF for Networking items for DR Sites		A1	Internet Router	A2	WAN Router	A3	Extranet B2B Router	A4	Internet Switch	A5	Extranet B2B Switch	A6	External Firewall	A7	OOB Management Switch	A8	Spine and DCI Core Switch	A9	Border Leaf Switch	A10	Service Leaf Switch	A11	Compute Leaf Switch	A12	Internal Fabric Firewall	A13	SDN Controller	A14	DC Network Analyzer	A15	Security Controller	A16	Campus Network Manager and Controller	A17	WiFi6 Access Point	A18	Multi-DC SDN Orchestration License	A19	Interactive Whiteboard with Advanced Video Conferencing	A20	Web Application Firewall & Server Load Balancer	MAF for Computing and Storage items for DR Sites		B1	Database Server for Production Environment
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	B2	Application Server for Production Environment
	B3	Business Intelligence Server for Production environment
	B4	DMS Server for Production environment
	B5	Server Virtualization License per Processor
	B6	Backup Server
	B7	Backup Software
	B8	Unified Storage for Production Environment
	B9	Backup Storage
	B10	SAN Switch
	MAF for IT & Supporting Power Infrastructures	
	C7	True online Uninterruptable Power Supply (UPS)
	C9	In Row Type Precision Air Conditioners for Server Room
	C13	Cold Aisle Containment System
	C14	Network Rack
	C15	Server Rack
	C18	Intelligent Power Distribution Unit (IPDU)
	C28	Datacenter Infrastructure Management (DCIM)
<b>ITB 17.2 (b)</b>	After sales service is: <b><i>required</i></b>	
<b>ITB 18.1</b>	The bid validity period shall be : <b><i>120 days</i></b>	
<b>ITB 18.3 (a)</b>	The bid price shall be adjusted by the following factor(s): <b>Applicable</b> . If the contract award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial bid validity, then at the time of contract award the contract price shall be adjusted by applying a factor of 4% per annum, prorated to the period between fifty-six (56 days) beyond the expiry of the initial bid validity and the date of contract award.	
<b>ITB 19.1</b>	<p>A Bid Security <b><i>shall be</i></b> required.</p> <p>The amount and currency of the bid security shall be equivalent to US\$ 100,000.00 or equivalent in any freely convertible currency.</p> <p>The bidder shall furnish <b>Bid Security</b> in favour of:</p> <p>Project Director, Bangladesh Insurance Sector Development Project, JibanBima Tower Bhaban, Front Block (5th Floor), 10, Dilkusha C/A, Dhaka- 1000</p>	
<b>ITB 19.3 (d)</b>	Other types of acceptable securities: <b><i>None</i></b>	

<b>ITB 19.9</b>	<i>N/A</i>
<b>ITB 20.1</b>	<p>In addition to the original of the bid, the number of copies is: <b>One</b></p> <p>Furthermore, the bidder shall submit one soft copy of the following part of the bid in MS-Word&amp; PDF single one file in a sealed envelope.</p> <p>Technical Specification and Standards offered by the bidder against the requirements set forth in Sub-Section 3. Technical Specifications under Section VII: Schedule of Requirements.</p> <p>In case of any discrepancy between the paper based bid and the soft copy of the bid, the paper based bid shall prevail.</p>
<b>ITB 20.2</b>	<p>The written confirmation of authorization to sign on behalf of the Bidder shall consist of:</p> <p>The written confirmation of authorization to sign on behalf of the Bidder shall consist of: Power of attorney to sign the bid in accordance with ITB clause 20, with supporting document that the person(s) signing the power of attorney has the authority to delegate his/her authority to other person (for example, constitutional document or board resolution).</p> <p>In case the Bidder authorizes a person who is not the payroll employee of the Bidder, the Bidder and the authorized person must include in the bid an Agent Agreement with specific roles and responsibilities with respect to this procurement.</p>
	<b>D. Submission and Opening of Bids</b>
<b>ITB 22.1</b>	<p>For <b><u>bid submission purposes</u></b> only, the Purchaser's address is:</p> <p>Attention: Project Director, Bangladesh Insurance Sector Development Project (BISDP)</p> <p>Address: <b>Office of the Project Director, Bangladesh Insurance Sector Development Project, JibanBima Tower Bhaban, , 10, Dilkusha C/A, Dhaka-1000.</b></p> <p>Floor/ Room number: <b>Front Block (5th Floor)</b></p> <p>City: <b>Dhaka</b></p> <p>ZIP Code: <b>Dhaka -1000</b></p> <p>Country: <b>Bangladesh</b></p> <p>Telephone: <b>+880-02-9514963</b></p> <p>Facsimile number: <i>N/A</i></p> <p>Electronic mail address: <i>pd.bisdpproject@gmail.com,</i></p> <p><b>The deadline for bid submission is:</b></p>



	<p>Date: 11 August 2022</p> <p>Time: 14:00 Hours Local Time (GMT + 6 Hours)</p> <p>Bidders <b>shall not</b> have the option of submitting their bids electronically.</p>
<b>ITB 25.1</b>	<p>The bid opening shall take place at:</p> <p>Street Address: : <b>Office of the Project Director, Bangladesh Insurance Sector Development Project, JibanBima Tower Bhaban, , 10, Dilkusha C/A, Dhaka-1000.</b></p> <p>Floor/ Room number: <b>5<sup>th</sup> Floor</b></p> <p>City: <b>Dhaka</b></p> <p>Country: <b>Bangladesh</b></p> <p>Date: 11 August 2022</p> <p>Time: 14:30 Hours Local Time (GMT + 6 Hours)</p> <p>The bid opening meeting will also be conducted live through Zoom for those bidders who may be unable to attend in person. The virtual connection details will be sent 7 calendar days before the deadline date of bid opening through email to all bidders who purchased the bidding documents.</p>
<b>ITB 25.3</b>	<p>Procedure: The Letter of Bid and Price Schedules of each Bid shall be initialed by all representatives of the Purchaser and shall be numbered. Any inter-lineation, erasures, or overwriting that were already made by the bidder prior to the bid submission deadline, which shall be valid only if they are signed or initialed by the person signing the bid, shall also be initialed by the representatives of the Purchaser at the time of bid opening.</p>
<b>E. Evaluation and Comparison of Bids</b>	
<b>ITB 32.1</b>	<p>The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: <b>BDT (Bangladesh Taka)</b></p> <p>The source of exchange rate shall be: <b>Selling exchange rates from Bangladesh Bank webpage :</b></p> <p><b><u><a href="http://www.bb.org.bd/econdata/exchangerate.php">http://www.bb.org.bd/econdata/exchangerate.php</a></u></b></p> <p>The date for the exchange rate shall be: 14 days prior to the date for bid submission deadline.</p> <p>In case that no exchange rates are available on this date from the source indicated above, the latest available exchange rates from the same source prior to this date will be used.</p>
<b>ITB 33.1</b>	A margin of domestic preference <i>shall</i> apply



	The application methodology shall be defined in Section III – Evaluation and Qualification Criteria.
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<b>ITB 34.2(a)</b>	<p>Evaluation will be done as all items together (complete lot).</p> <p>Evaluation will be done for Single lot basis. Bids will be evaluated by lot, i.e. all items together. If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the prices of other items. An item not listed in the Price Schedule shall be assumed to be not included in the bid, and such bid may be treated as non-responsive.</p>
<b>ITB 34.6</b>	<p>The adjustments shall be determined using the following criteria, from amongst those set out in Section III, Evaluation and Qualification Criteria: <i>[refer to Schedule III, Evaluation and Qualification Criteria; insert complementary details if necessary]</i></p> <ul style="list-style-type: none"> <li>(a) Deviation in Delivery schedule: <i>No</i></li> <li>(b) Deviation in payment schedule: <i>No</i></li> <li>(c) the cost of major replacement components, mandatory spare parts, and service: <i>No</i></li> <li>(d) the availability in the Purchaser's Country of spare parts and after-sales services for the equipment offered in the bid: <i>No</i></li> <li>(e) the projected operating and maintenance costs during the life of the equipment: <i>No</i></li> <li>(f) the performance and productivity of the equipment offered: <i>No</i></li> </ul>



	<b>F. Award of Contract</b>
<b>ITB 39.1</b>	<p>The maximum percentage by which quantities may be increased is: 20% (Twenty Percent)</p> <p>The maximum percentage by which quantities may be decreased is: 20% (Twenty Percent)</p>



## Section III. Evaluation and Qualification Criteria

*This Section contains all the criteria that the Purchaser shall use to evaluate a bid and qualify the Bidders. in accordance with ITB 34 and ITB 36, no other factors, methods or criteria shall be used.*

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### 1. Margin of Preference (ITB 33)

If the Bidding Data Sheet so specifies, the Purchaser will grant a margin of preference to goods manufactured in the Purchaser's country for the purpose of bid comparison, in accordance with the procedures outlined in subsequent paragraphs.

Bids will be classified in one of three groups, as follows:

- (a) **Group A:** Bids offering goods manufactured in the Purchaser's Country, for which (i) labor, raw materials, and components from within the Purchaser's Country account for more than thirty (30) percent of the EXW price; and (ii) the production facility in which they will be manufactured or assembled has been engaged in manufacturing or assembling such goods at least since the date of bid submission.
- (b) **Group B:** All other bids offering Goods manufactured in the Purchaser's Country.
- (c) **Group C:** Bids offering Goods manufactured outside the Purchaser's Country that have been already imported or that will be imported.

To facilitate this classification by the Purchaser, the Bidder shall complete whichever version of the Price Schedule furnished in the Bidding Documents is appropriate provided, however, that the completion of an incorrect version of the Price Schedule by the Bidder shall not result in rejection of its bid, but merely in the Purchaser's reclassification of the bid into its appropriate bid group.

The Purchaser will first review the bids to confirm the appropriateness of, and to modify as necessary, the bid group classification to which bidders assigned their bids in preparing their Bid Forms and Price Schedules.

All evaluated bids in each group will then be compared to determine the lowest evaluated bid of each group. Such lowest evaluated bids shall be compared with each other and if as a result of this comparison a bid from Group A or Group B is the lowest, it shall be selected for the award.

If as a result of the preceding comparison, the lowest evaluated bid is a bid from Group C, all bids from Group C shall be further compared with the lowest evaluated bid from Group A after adding to the evaluated price of goods offered in each bid from Group C, for the purpose of this further comparison only, an amount equal to 15% (fifteen percent) of the respective CIP bid price for goods to be imported and already imported goods. Both prices shall include unconditional discounts and be corrected for arithmetical errors. If the bid from Group A is the lowest, it shall be selected for award. If not, the lowest evaluated bid from Group C shall be selected as paragraph above."



## 2. Evaluation(ITB 34)

### 2.1. Evaluation Criteria (ITB 34.6)

#### Not Applicable

The Purchaser's evaluation of a bid may take into account, in addition to the Bid Price quoted in accordance with ITB Clause 14.8, one or more of the following factors as specified in ITB34.2(f) and in BDS referring to ITB34.6, using the following criteria and methodologies.

- (a) Delivery schedule. (as per Incoterms specified in the BDS)

*The Goods specified in the List of Goods are required to be delivered within the acceptable time range (after the earliest and before the final date, both dates inclusive) specified in Section VII, Schedule of Requirements. No credit will be given to deliveries before the earliest date, and bids offering delivery after the final date shall be treated as nonresponsive. Within this acceptable period, an adjustment, as specified in BDS 34.6, will be added, for evaluation purposes only, to the bid price of bids offering deliveries later than the "Earliest Delivery Date" specified in Section VII, Schedule of Requirements.*

- (b) Deviation in payment schedule.

*(ii) The SCC stipulates the payment schedule specified by the Purchaser. If a bid deviates from the schedule and if such deviation is considered acceptable to the Purchaser, the bid will be evaluated by calculating interest earned for any earlier payments involved in the terms outlined in the bid as compared with those stipulated in the SCC, at the rate per annum specified in BDS 34.6.*

- (c) Cost of major replacement components, mandatory spare parts, and service. *[insert one of the following]*

*(i) The list of items and quantities of major assemblies, components, and selected spare parts, likely to be required during the initial period of operation specified in the BDS16.4, is in the List of Goods. An adjustment equal to the total cost of these items, at the unit prices quoted in each bid, shall be added to the bid price, for evaluation purposes only.*

- (d) Availability in the Purchaser's Country of spare parts and after sales services for equipment offered in the bid.

An adjustment equal to the cost to the Purchaser of establishing the minimum service facilities and parts inventories, as outlined in BDS 34.6, if quoted separately, shall be added to the bid price, for evaluation purposes only.

- (e) Projected operating and maintenance costs.

Operating and maintenance costs. An adjustment to take into account the operating and maintenance costs of the Goods will be added to the bid price, for evaluation



purposes only, if specified in BDS 34.6. The adjustment will be evaluated in accordance with the methodology specified in the BDS34.6.

- (f) Performance and productivity of the equipment.
  - (ii) An adjustment to take into account the productivity of the goods offered in the bid will be added to the bid price, for evaluation purposes only, if specified in BDS 34.6. The adjustment will be evaluated based on the cost per unit of the actual productivity of goods offered in the bid with respect to minimum required values, using the methodology specified in BDS 34.6.
- (g) Specific additional criteria

*Other specific additional criteria to be considered in the evaluation, and the evaluation method shall be detailed in BDS 34.6]*

## **2.2. Multiple Contracts (ITB 34.4)**

**Not Applicable**

## **2.3. Alternative Bids (ITB 13.1)**

**Not Applicable**

## **3. Qualification (ITB 36)**

### **3.1 Post Qualification Requirements (ITB 36.1)**

After determining the lowest-evaluated bid in accordance with ITB 35.1, the Purchaser shall carry out the post qualification of the Bidder in accordance with ITB 36, using only the requirements specified. Requirements not included in the text below shall not be used in the evaluation of the Bidder's qualifications.

(A) If Bidder is Manufacturer:

(i) Financial Capability

The Bidder shall furnish documentary evidence that it meets the following financial requirement(s)

a) The average annual turnover of at least US\$ 12.000 million or equivalent in a freely convertible currency over a period of best three (3) years within last five (5) years, prior to the deadline date for bid submission.

*Bidder shall submit audited financial reports along with the bid if Annual Turnover remains mentioned in the audited financial reports, or if not required by the law of the Applicant's country other financial statements (third party statements enough to substantiate annual turnover) or payment*



*receipts acceptable to the Employer, for the last five (5) years to substantiate average annual turnover.*

b) The Bidder at the time of bid submission should have available for use in this contract at least the amount of US\$ 6 million or equivalent working capital or credit facilities or their combination.

### **Bidder as a Joint Venture**

In case of joint venture, all parties combined must meet the financial requirement stipulated in (a) and (b) above. While, each partner of the joint venture must meet at least 25% of the financial requirements as mentioned above.

#### **(ii) Experience and Technical Capacity**

- (a) The Bidder (in case of JV, each partner of JV) shall have minimum of 10 years of experience in the supply of goods and related services.
- (b) Bidder shall demonstrate that it has successfully completed at least two (2) similar contracts for the supply, installation, testing and commissioning of IT and Supporting Power Infrastructure and DC/DR ( Active & Passive) systems and services, each contract with a value of minimum US\$ 6.0 million in the last 10 years, prior to the deadline date for bid submission.

#### **(B) If Bidder is not manufacturer:**

- (i) If a Bidder is not a manufacturer, but is offering the Goods on behalf of the Manufacturer under Manufacturer's Authorization Form (Section IV, Bidding Forms), the Bidder shall demonstrate the above qualifications 3.1 (A) (i) (a), 3.1 (A) (i) (b) and 3.1 (A) (ii) (a) and
- (ii) The Bidder shall demonstrate that it has successfully completed supply of at least USD 12 (twelve) million in not more than 2 (two) contracts of similar goods within the last 10 (Ten) years prior to the bid submission deadline date and each contract shall include supply, installation, testing and commissioning of IT and Supporting Power Infrastructure and DC/DR ( Active & Passive) systems.





## Section IV. Bidding Forms

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## Letter of Bid

*The Bidder must prepare the Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and address.*

***Note: All italicized text is for use in preparing these form and shall be deleted from the final products.***

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

ICB No.: **[insert number of bidding process]**

Invitation for Bid No.: **[insert identification]**

Alternative No.: ***[insert identification No if this is a Bid for an alternative]***

To: ***[insert complete name of Purchaser]***

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 8)\_\_\_;
- (b) We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
- (c) We havenot been suspended nor declared ineligible by the Purchaser based on execution of a Bid Securing Declaration in the Purchaser's country in accordance with ITB 4.6
- (d) We offer to supplyin conformity with the Bidding Documents and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods:**[insert a brief description of the Goods and Related Services];**
- (e) The total price of our Bid, excluding any discounts offered in item (f) below is:

In case of only one lot, total price of the Bid **[insert the total price of the bid in words and figures, indicating the various amounts and the respective currencies];**

- (f) The discounts offered and the methodology for their application are:
  - (i) The discounts offered are: [Specify in detail each discount offered.]
  - (ii) The exact method of calculations to determine the net price after application of discounts is shown below:[Specify in detail the method that shall be used to apply the discounts];
- (g) Our bid shall be valid for a period of **[specify the number of calendar days]** days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;



- (h) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;
- (i) We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.2(e), other than alternative bids submitted in accordance with ITB 13;
- (j) We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by a member of the World Bank Group or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Employer's country laws or official regulations or pursuant to a decision of the United Nations Security Council;
- (k) We are not a government owned entity/ We are a government owned entity but meet the requirements of ITB 4.5;<sup>1</sup>
- (l) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: **[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]**

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate "none.")

- (m) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (n) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
- (o) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption

Name of the Bidder\* **[insert complete name of person signing the Bid]**

<sup>1</sup>Bidder to use as appropriate



Name of the person duly authorized to sign the Bid on behalf of the Bidder\*\* **[insert complete name of person duly authorized to sign the Bid]**

Title of the person signing the Bid **[insert complete title of the person signing the Bid]**

Signature of the person named above **[insert signature of person whose name and capacity are shown above]**

Date signed **[insert date of signing]** day of **[insert month]**, **[insert year]**

\*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

\*\*: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid Schedules.



## Bidder Information Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]*

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

ICB No.: *[insert number of bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name <i>[insert Bidder's legal name]</i>
2. In case of JV, legal name of each member : <i>[insert legal name of each member in JV]</i>
3. Bidder's actual or intended country of registration: <i>[insert actual or intended country of registration]</i>
4. Bidder's year of registration: <i>[insert Bidder's year of registration]</i>
5. Bidder's Address in country of registration: <i>[insert Bidder's legal address in country of registration]</i>
6. Bidder's Authorized Representative Information  Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i>  <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.3. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. <input type="checkbox"/> In case of Government-owned enterprise or institution, in accordance with ITB 4.5 documents establishing: <ul style="list-style-type: none"> <li>• Legal and financial autonomy</li> <li>• Operation under commercial law</li> <li>• Establishing that the Bidder is not dependent agency of the Purchaser</li> </ul>
2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.



## Bidder's JV Members Information Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture]].*

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

ICB No.: *[insert number of bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name: <i>[insert Bidder's legal name]</i>
2. Bidder's JV Member's name: <i>[insert JV's Member legal name]</i>
3. Bidder's JV Member's country of registration: <i>[insert JV's Member country of registration]</i>
4. Bidder's JV Member's year of registration: <i>[insert JV's Member year of registration]</i>
5. Bidder's JV Member's legal address in country of registration: <i>[insert JV's Member legal address in country of registration]</i>
6. Bidder's JV Member's authorized representative information Name: <i>[insert name of JV's Member authorized representative]</i> Address: <i>[insert address of JV's Member authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Member authorized representative]</i> Email Address: <i>[insert email address of JV's Member authorized representative]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.3. <input type="checkbox"/> In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.5. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.



## Price Schedule Forms

*[The Bidder shall fill in these Price Schedule Forms in accordance with the instructions indicated. The list of line items in column 1 of the **Price Schedules** shall coincide with the List of Goods and Related Services specified by the Purchaser in the Schedule of Requirements.]*





## Price Schedule: Goods Manufactured Outside the Purchaser's Country, to be Imported

(Group C bids, goods to be imported)						Date: _____		
Currencies in accordance with ITB 15						ICB No: _____		
						Alternative No: _____		
						Page N° _____ of _____		
1	2	3	4	5	6	7	8	9
Line Item N°	Description of Goods	Country of Origin	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price CIP ( <i>Any port of Bangladesh</i> ) in accordance with ITB 14.8(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in the Purchaser's country to convey the Goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)
<i>[insert number of the item]</i>	<i>[insert name of good]</i>	<i>[insert country of origin of the Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price CIP per unit]</i>	<i>[insert total CIP price per line item]</i>	<i>[insert the corresponding price per line item]</i>	<i>[insert total price of the line item]</i>
Total Price								

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[Insert Date]*



## Price Schedule: Goods Manufactured Outside the Purchaser's Country, already imported\*

(Group C bids, Goods already imported)										Date: _____	
Currencies in accordance with ITB 15										ICB No: _____	
										Alternative No: _____	
										Page N° _____ of _____	
1	2	3	4	5	6	7	8	9	10	11	12
Line Item N°	Description of Goods	Country of Origin	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price including Custom Duties and Import Taxes paid, in accordance with ITB 14.8(c)(i)	Custom Duties and Import Taxes paid per unit in accordance with ITB 14.8(c)(ii), [to be supported by documents]	Unit Price net of custom duties and import taxes, in accordance with ITB 14.8(c)(iii) (Col. 6 minus Col.7)	Price per line item net of Custom Duties and Import Taxes paid, in accordance with ITB 14.8(c)(i) (Col. 5×8)	Price per line item for inland transportation and other services required in the Purchaser's country to convey the goods to their final destination, as specified in BDS in accordance with ITB 14.8(c)(v)	Sales and other taxes paid or payable per item if Contract is awarded (in accordance with ITB 14.8(c)(iv))	Total Price per line item (Col. 9+10)
[insert number of the item]	[insert name of Goods]	[insert country of origin of the Good]	[insert quoted Delivery Date]	[insert number of units to be supplied and name of the physical unit]	[insert unit price per unit]	[insert custom duties and taxes paid per unit]	[insert unit price net of custom duties and import taxes]	[insert price per line item net of custom duties and import taxes]	[insert price per line item for inland transportation and other services required in the Purchaser's country]	[insert sales and other taxes payable per item if Contract is awarded]	[insert total price per line item]
										Total Bid Price	

Name of Bidder [insert complete name of Bidder] Signature of Bidder [signature of person signing the Bid] Date [insert date]



*\* [For previously imported Goods, the quoted price shall be distinguishable from the original import value of these Goods declared to customs and shall include any rebate or mark-up of the local agent or representative and all local costs except import duties and taxes, which have been and/or have to be paid by the Purchaser. For clarity the bidders are asked to quote the price including import duties, and additionally to provide the import duties and the price net of import duties which is the difference of those values.]*



## Price Schedule: Goods Manufactured in the Purchaser's Country

Purchaser's Country _____		(Group A and B bids)  Currencies in accordance with ITB 15				Date: _____ ICB No: _____ Alternative No: _____ Page N° _____ of _____			
1	2	3	4	5	6	7	8	9	10
Line Item N°	Description of Goods	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price EXW	Total EXW price per line item (Col. 4×5)	Price per line item for inland transportation and other services required in the Purchaser's Country to convey the Goods to their final destination	Cost of local labor, raw materials and components from with origin in the Purchaser's Country % of Col. 5	Sales and other taxes payable per line item if Contract is awarded (in accordance with ITB 14.8(a)(ii))	Total Price per line item (Col. 6+7)
<i>[insert number of the item]</i>	<i>[insert name of Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert EXW unit price]</i>	<i>[insert total EXW price per line item]</i>	<i>[insert the corresponding price per line item]</i>	<i>[Insert cost of local labor, raw material and components from within the Purchase's country as a % of the EXW price per line item]</i>	<i>[insert sales and other taxes payable per line item if Contract is awarded]</i>	<i>[insert total price per item]</i>
<b>Total Price</b>									

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*



## Price and Completion Schedule - Related Services

Currencies in accordance with ITB 15					Date: _____ ICB No: _____ Alternative No: _____ Page N° _____ of _____	
1	2	3	4	5	6	7
Service N°	Description of Services (excludes inland transportation and other services required in the Purchaser's country to convey the goods to their final destination)	Country of Origin	Delivery Date at place of Final destination	Quantity and physical unit	Unit price	Total Price per Service (Col. 5*6 or estimate)
<i>[insert number of the Service ]</i>	<i>[insert name of Services]</i>	<i>[insert country of origin of the Services]</i>	<i>[insert delivery date at place of final destination per Service]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price per item]</i>	<i>[insert total price per item]</i>
<b>Total Bid Price</b>						

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*



## Form of Bid Security

### (Bank Guarantee)

*[The bank shall fill in this Bank Guarantee Form in accordance with the instructions indicated.]*

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[Purchaser to insert its name and address]*

**ICB No.:** *[Purchaser to insert reference number for the Invitation for Bids]*

**Alternative No.:** *[Insert identification No if this is a Bid for an alternative]*

**Date:** *[Insert date of issue]*

**BID GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that \_\_\_\_\_ *[insert name of the Bidder, which in the case of a joint venture shall be the name of the joint venture (whether legally constituted or prospective) or the names of all members thereof]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its bid (hereinafter called "the Bid") for the execution of \_\_\_\_\_ under Invitation for Bids No. \_\_\_\_\_ ("the IFB").

Furthermore, we understand that, according to the Beneficiary's conditions, bids must be supported by a bid guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of \_\_\_\_\_ (\_\_\_\_\_) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

- (a) has withdrawn its Bid during the period of bid validity set forth in the Applicant's Letter of Bid ("the Bid Validity Period"), or any extension thereto provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the performance security, in



accordance with the Instructions to Bidders (“ITB”) of the Beneficiary’s bidding document.

This guarantee will expire: (a) if the Applicant is the successful bidder, upon our receipt of copies of the contract agreement signed by the Applicant and the performance security issued to the Beneficiary in relation to such contract agreement; or (b) if the Applicant is not the successful bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary’s notification to the Applicant of the results of the bidding process; or (ii) twenty-eight days after the end of the Bid Validity Period.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

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*[Signature(s)]*

***Note: All italicized text is for use in preparing this form and shall be deleted from the final product.***

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## Form of Bid Security (Bid Bond)

*[The Surety shall fill in this Bid Bond Form in accordance with the instructions indicated.]*

BOND NO. \_\_\_\_\_

BY THIS BOND *[name of Bidder]* as Principal (hereinafter called “the Principal”), and *[name, legal title, and address of surety]*, **authorized to transact business in** *[name of country of Purchaser]*, as Surety (hereinafter called “the Surety”), are held and firmly bound unto *[name of Purchaser]* as Oblige (hereinafter called “the Purchaser”) in the sum of *[amount of Bond]*<sup>2</sup>*[amount in words]*, for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has submitted or will submit a written Bid to the Purchaser dated the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, for the supply of *[name of Contract]* (hereinafter called the “Bid”).

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:

- (a) has withdrawn its Bid during the period of bid validity set forth in the Principal’s Letter of Bid (“the Bid Validity Period”), or any extension thereto provided by the Principal; or
- (b) having been notified of the acceptance of its Bid by the Purchaser during the Bid Validity Period or any extension thereto provided by the Principal; (i) failed to execute the contract agreement; or (ii) has failed to furnish the Performance Security, in accordance with the Instructions to Bidders (“ITB”) of the Purchaser’s bidding document.

then the Surety undertakes to immediately pay to the Purchaser up to the above amount upon receipt of the Purchaser’s first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

The Surety hereby agrees that its obligation will remain in full force and effect up to and including the date 28 days after the date of expiration of the Bid Validity Period set forth in the Principal’s Letter of Bid or any extension thereto provided by the Principal.

IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this \_\_\_\_ day of \_\_\_\_\_ 20\_\_.

Principal: \_\_\_\_\_ Surety: \_\_\_\_\_  
Corporate Seal (where appropriate)

<sup>2</sup> The amount of the Bond shall be denominated in the currency of the Purchaser’s country or the equivalent amount in a freely convertible currency.



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*(Signature)*  
*(Printed name and title)*

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*(Signature)*  
*(Printed name and title)*



## Form of Bid-Securing Declaration – Not Applicable

*[The Bidder shall fill in this Form in accordance with the instructions indicated.]*

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

Bid No.: *[number of bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[complete name of Purchaser]*

We, the undersigned, declare that:

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

We accept that we will automatically be suspended from being eligible for bidding in any contract with the Purchaser for the period of time of *[number of months or years]* starting on *[date]*, if we are in breach of our obligation(s) under the bid conditions, because we:

- (a) have withdrawn our Bid during the period of bid validity specified in the Letter of Bid;  
or
- (b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract; or (ii) fail or refuse to furnish the Performance Security, if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Name of the Bidder\* \_\_\_\_\_

Name of the person duly authorized to sign the Bid on behalf of the Bidder\*\* \_\_\_\_\_

Title of the person signing the Bid \_\_\_\_\_

Signature of the person named above \_\_\_\_\_

Date signed \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

\*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

\*\* : Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

*[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the bid.]*



## Manufacturer's Authorization

*[The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Bidder shall include it in its bid, if so indicated in the **BDS**.]*

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

ICB No.: *[insert number of bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[insert complete name of Purchaser]*

### WHEREAS

We *[insert complete name of Manufacturer]*, who are official manufacturers of *[insert type of goods manufactured]*, having factories at *[insert full address of Manufacturer's factories]*, do hereby authorize *[insert complete name of Bidder]* to submit a bid the purpose of which is to provide the following Goods, manufactured by us *[insert name and or brief description of the Goods]*, and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with Clause 28 of the General Conditions of Contract, with respect to the Goods offered by the above firm.

Signed: *[insert signature(s) of authorized representative(s) of the Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Manufacturer]*

Title: *[insert title]*

Dated on \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ *[insert date of signing]*



## Form of Letter of Commitment for Bank's Undertaking for Line of Credit

*(This is the format for the Credit Line to be issued by any internationally reputable bank in accordance with ITB)*  
Memo No.: \_\_\_\_\_ Date: \_\_\_\_\_

Invitation for Tender No: \_\_\_\_\_

Date: \_\_\_\_\_

Tender Package No: \_\_\_\_\_

Lot No (when applicable): \_\_\_\_\_  
To: \_\_\_\_\_

[Name and address of the Procuring Entity]

**CREDIT COMMITMENT No:** [insert number]

We have been informed that [name of Tenderer] (hereinafter called "the Tenderer") intends to submit to you its Tender (hereinafter called "the Tender") for the supply of Goods of [description of Goods and related services] under the above Invitation for Tenders (hereinafter called "the IFT").

Furthermore, we understand that, according to your conditions, the Tenderer's Financial Capacity i.e. Liquid Asset must be substantiated by a Letter of Commitment of Bank's Undertaking for Line of Credit.

At the request of, and arrangement with, the Tenderer, we [name and address of the Bank] do hereby agree and undertake that [name and address of the Tenderer] will be provided by us with a revolving line of credit, in case awarded the Contract, for the delivery of Goods and related services viz. [insert name of supply], for an amount not less than [name of currency(s)] [Amount in figure] ( in words) for the sole purpose of the supply of Goods and related services under the above Contract. This Revolving Line of Credit will be maintained by us until issuance of "**Acceptance Certificate**" by the Procuring Entity.

In witness whereof, authorised representatives of the Bank have hereunto signed and sealed this Letter of Commitment.

Name and Signature \_\_\_\_\_

Name and Signature \_\_\_\_\_



## Section V. Eligible Countries

### **Eligibility for the Provision of Goods, Works and Non Consulting Services in Bank-Financed Procurement**

In reference to ITB 4.7 and 5.1, for the information of the Bidders, at the present time firms, goods and services from the following countries are excluded from this bidding process:

Under ITB 4.7(a) and 5.1: *Israel*

Under ITB 4.7(b) and 5.1: *None*



## Section VI. Bank Policy - Corrupt and Fraudulent Practices

Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011.

### “Fraud and Corruption:

1.16 It is the Bank’s policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts.<sup>3</sup> In pursuance of this policy, the Bank:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
  - (i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;<sup>4</sup>
  - (ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;<sup>5</sup>
  - (iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;<sup>6</sup>
  - (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;<sup>7</sup>

<sup>3</sup> In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

<sup>4</sup> For the purpose of this sub-paragraph, “another party” refers to a public official acting in relation to the procurement process or contract execution. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

<sup>5</sup> For the purpose of this sub-paragraph, “party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

<sup>6</sup> For the purpose of this sub-paragraph, “parties” refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other’s bid prices or other conditions.

<sup>7</sup> For the purpose of this sub-paragraph, “party” refers to a participant in the procurement process or contract execution.





- (v) "obstructive practice" is:
- (aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or
  - (bb) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 1.16(e) below.
- (b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- (c) will declare misprocurement and cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- (d) will sanction a firm or individual, at any time, in accordance with the prevailing Bank's sanctions procedures,<sup>8</sup> including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated<sup>9</sup>;
- (e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to

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<sup>8</sup> A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including, inter alia, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

<sup>9</sup> A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.



permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank.”



## PART 2 – Supply Requirements



## Section VII. Schedule of Requirements

### Contents

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## 1. List of Goods and Delivery Schedule

Line Item	Description of Goods	Name of Stakeholder			Total Quantity	Final (Project Site) Destination as specified in BDS	Delivery (as per Incoterms) Date	
		JBC Head office	IDRA Head office				Latest Delivery Date (All times are from date of contract)	Bidder's offered Delivery date [to be provided by the bidder]
		JBC	SBC	IDRA				
Networking items for DR Sites						IDRA Head office: SBC Tower (8th floor), 37/A, Dilkusha C/A, Dhaka 1000  JBC Head office: Head Office 24, Motijheel C/A,	120 days	
A1	Internet Router	2	2	2	6			
A2	WAN Router	2	2	2	6			
A3	Extranet B2B Router	2	2	2	6			
A4	Internet Switch	2	2	2	6			
A5	Extranet B2B Switch	2	2	2	6			
A6	External Firewall	2	2	2	6			
A7	OOB Management Switch	2	2	2	6			
A8	Spine and DCI Core Switch	2	2	2	6			
A9	Border Leaf Switch	2	2	2	6			
A10	Service Leaf Switch	2	2	2	6			
A11	Compute Leaf Switch	2	2	4	8			
A12	Internal Fabric Firewall	2	2	2	6			
A13	SDN Controller	1	1	1	3			
A14	DC Network Analyzer	1	1	1	3			
A15	Security Controller	1	1	1	3			
A16	Campus Network Manager and Controller	1	1	1	3			



A17	WiFi6 Access Point	1300	500	20	1820	Dhaka-1000.		
A18	Multi-DC SDN Orchestration License	1	1	1	3			
A19	Interactive Whiteboard with Advanced Video Conferencing	1	1	1	3			
A20	Web Application Firewall & Server Load Balancer	1	1	1	3			
<b>Computing and Storage items for DR Sites</b>								
B1	Database Server for Production Environment	2	2	2	6			
B2	Application Server for Production Environment	4	4	4	12			
B3	Business Intelligence Server for Production environment			15	15			
B4	DMS Server for Production environment	1	1	6	8			
B5	Server Virtualization License per Processor	16	16	16	48			
B6	Backup Server	1	1	1	3			
B7	Backup Software	1	1	1	3			
B8	Unified Storage for Production Environment	1	1	1	3			
B9	Backup Storage	1	1	1	3			
B10	SAN Switch	2	2	2	6			
<b>IT &amp; Supporting Power Infrastructures</b>								
C1	Power Cable Tray & Ladder	1	1	1	3			
C2	Overhead hanging Wire Mesh Cable Tray/Raceway	1	1	1	3			
C3	Fiber Cable Runner System	1	1	1	3			





C4	Automatic Voltage Regulator (AVR)	1	1	1	3			
C5	Automatic Phase Correction Device with bypass system	1	1	1	3			
C6	Electrical Cabling System	1	1	1	3			
C7	True online Uninterruptable Power Supply (UPS)	2	2	2	6			
C8	Surge Protection Devices (SPD) for Distribution	1	1	1	3			
C9	In Row Type Precision Air Conditioners for Server Room	4	4	4	12			
C10	10.1 Comfort Air-Conditioning-2 Ton	2	2	2	6			
	10.3 AC Control Panel	1	1	1	3			
C11	Lighting System	1	1	1	3			
C12	Rack Automatic Transfer Switch	2	2	2	6			
C13	Cold Aisle Containment System	1	1	1	3			
C14	Network Rack	4	4	4	12			
C15	Server Rack	8	8	8	24			
C16	C16.1: CAT 6A U/UTP LSZH Cable (Box of 305 mtr)	1	1	1	3			
	C16.2: Category 6A U/UTP Modular Information Outlets	1	1	1	3			
	C16.3: Category 6A U/UTP Patch Cord	1	1	1	3			
	C16.4: Category 6A U/UTP Patch Panel	1	1	1	3			
	C16.5: Pre-Terminated MPO Modules – Multimode Om4	1	1	1	3			
	C16.6: High Density Modular Fiber Shelves (1U / 2U Shelf)	1	1	1	3			



	C16.7: 12F MPO Trunk Cable, OM4	1	1	1	3			
	C16.8: LC – LC Multimode (MM) Duplex Fiber Patch Cords, LSZH	1	1	1	3			
	C16.9: Fiber Cabling Pathway system	1	1	1	3			
	C16.10: Copper Wire Basket pathway System	1	1	1	3			
	C16.11: Documentation & Labeling	1	1	1	3			
C17	KVM Switch	4	4	4	12			
C18	Intelligent Power Distribution Unit (IPDU)	24	24	24	72			
C19	Continuous rating Generator for Data Center	1	1	1	3			
C20	Earthing for Data Center	1	1	1	3			
C21	Dehumidifier	1	1	1	3			
C22	Automatic Fire Suppression System	1	1	1	3			
C23	Rodent System	1	1	1	3			
C24	Very Early Smoke Detection Apparatus System (VESDA)	1	1	1	3			
C25	Access Control System for Datacenter	1	1	1	4			
C26	Surveillance system for Data Center (IP Camera)	1	1	1	4			
C27	Water Leak Detection System with EMS	1	1	1	3			
C28	Datacenter Infrastructure Management (DCIM)	1	1	1	4			
C29	Fire Resistant Data safe	1	1	1	3			
C30	Vacuum Cleaner	1	1	1	3			



C31	LAN Cable Analyzer (both copper and fiber)	1	1	1	<b>3</b>			
C32	Interior Work	1	1	1	<b>3</b>			
C33	Raised Floor System for Server Room	1	1	1	<b>3</b>			
C34	Thermal Insulation for Server & Power Room	1	1	1	<b>3</b>			
C35	Minor Civil Work for Data Center	1	1	1	<b>3</b>			
C36	11KV Sub-Station Equipment's (HT Switchgear and transformer)	1	1		<b>2</b>			



## 2. List of Related Services and Completion Schedule

### For (A) JBC & SBC:

Service	Description of Service	Quantity <sup>1</sup>	Physical Unit	Place where Services shall be performed	Final Completion Date(s) of Services
1	<p>Training on operation of 20 persons, for 8 days covering 60 Hours. Training materials, lunch and snacks should be provided. Mode of training should be Classroom and Onsite. 25-seat multimedia training room with standard arrangements to be provided by the bidder.</p> <p>The training should cover the following topics</p> <ol style="list-style-type: none"> <li>2. Data Center Operation</li> <li>3. Data Center Maintenance</li> <li>4. Data Center Security</li> </ol>	20	Person	Any suitable place at or near IDRA head office	120 days
2	Installation, Commissioning and Test of all equipment, including fitting-fixing of Interior Work, Thermal Insulation etc.	1	Ls		120 days



### For (B) IDRA:

Service	Description of Service	Quantity <sup>1</sup>	Physical Unit	Place where Services shall be performed	Final Completion Date(s) of Services
1	<p>Training on operation of 10 persons, for 8 days covering 60 Hours. Training materials, lunch and snacks should be provided. Mode of training should be Classroom and Onsite. 25-seat multimedia training room with standard arrangements to be provided by the bidder.</p> <p>The training should cover the following topics</p> <ol style="list-style-type: none"> <li>1. Data Center Operation</li> <li>2. Data Center Maintenance</li> <li>3. Data Center Security</li> </ol>	10	Person	Any suitable place at or near IDRA head office	120 days
2	Installation, Commissioning and Test of all equipment, including fitting-fixing of Interior Work, Thermal Insulation etc.	1	Ls		120 days



### 3. Technical Specifications

*The purpose of the Technical Specifications (TS), is to define the technical characteristics of the Goods and Related Services required by the Purchaser. The Purchaser shall prepare the detailed TS take into account that:*

- *The TS constitute the benchmarks against which the Purchaser will verify the technical responsiveness of bids and subsequently evaluate the bids. Therefore, well-defined TS will facilitate preparation of responsive bids by bidders, as well as examination, evaluation, and comparison of the bids by the Purchaser.*
- *The TS shall require that all goods and materials to be incorporated in the goods be new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided for otherwise in the contract.*
- *The TS shall make use of best practices. Samples of specifications from successful similar procurements in the same country or sector may provide a sound basis for drafting the TS.*
- *The Bank encourages the use of metric units.*
- *Standardizing technical specifications may be advantageous, depending on the complexity of the goods and the repetitiveness of the type of procurement. Technical Specifications should be broad enough to avoid restrictions on workmanship, materials, and equipment commonly used in manufacturing similar kinds of goods.*
- *Standards for equipment, materials, and workmanship specified in the Bidding Documents shall not be restrictive. Recognized international standards should be specified as much as possible. Reference to brand names, catalogue numbers, or other details that limit any materials or items to a specific manufacturer should be avoided as far as possible. Where unavoidable, such item description should always be followed by the words “or substantially equivalent.” When other particular standards or codes of practice are referred to in the TS, whether from the Borrower’s or from other eligible countries, a statement should follow other authoritative standards that ensure at least a substantially equal quality, then the standards mentioned in the TS will also be acceptable.*
- *Reference to brand names and catalogue numbers should be avoided as far as possible; where unavoidable the words “or at least equivalent” shall always follow such references.*
- *Technical Specifications shall be fully descriptive of the requirements in respect of, but not limited to, the following:*
  - (a) *Standards of materials and workmanship required for the production and manufacturing of the Goods.*
  - (b) *Detailed tests required (type and number).*



- (c) *Other additional work and/or Related Services required to achieve full delivery/completion.*
- (d) *Detailed activities to be performed by the Supplier, and participation of the Purchaser thereon.*
- (e) *List of detailed functional guarantees covered by the Warranty and the specification of the liquidated damages to be applied in the event that such guarantees are not met.*
- *The TS shall specify all essential technical and performance characteristics and requirements, including guaranteed or acceptable maximum or minimum values, as appropriate. Whenever necessary, the Purchaser shall include an additional ad-hoc bidding form (to be an Attachment to the Bid Submission Sheet), where the Bidder shall provide detailed information on such technical performance characteristics in respect to the corresponding acceptable or guaranteed values.*

*When the Purchaser requests that the Bidder provides in its bid a part or all of the Technical Specifications, technical schedules, or other technical information, the Purchaser shall specify in detail the nature and extent of the required information and the manner in which it has to be presented by the Bidder in its bid.*

*[If a summary of the Technical Specifications (TS) has to be provided, the Purchaser shall insert information in the table below. The Bidder shall prepare a similar table to justify compliance with the requirements]*

**“Summary of Technical Specifications.** *The Goods and Related Services shall comply with following Technical Specifications and Standards:*

<i>Item No</i>	<i>Name of Goods or Related Service</i>	<i>Technical Specifications and Standards</i>
<i>Technical specification of goods and related service for JBC,SBC &amp; IDRA : Annex -1(Page1 to 173)</i>		

*Detailed Technical Specifications and Standards [whenever necessary].*

*[Insert detailed description of TS]*

\_\_\_\_\_

\_\_\_\_\_” ]



## 4. Drawings

List of Drawings		
Drawing Nr.	Drawing Name	Purpose
1	JBC Network Architecture	
2	SBC Network Architecture	
3	IDRA Network Architecture	





## 5. Inspections and Tests

The following inspections and tests shall be performed:

The Purchaser shall at its own expense and at no cost to the Supplier have the right to inspect and test the Goods for their conformity to the Contract specifications. The Supplier shall at its own expense and at no cost to the Purchaser, carry out all such inspections and tests of the Goods and related services as specified in the Contract. The Supplier shall provide the Procuring Entity with a report of the results of any such inspection/test. The Procuring Entity will have an Inspection and Testing Committee to review and validate such inspections and tests.

**Inspections:** Inspections shall be required for

- a) **Pre-shipment Inspection/Onsite Inspection:** All the items listed in the Schedule of Requirements will be visually inspected for any defects or damages and conformance to the BOM.
- b) **Pre installation Inspection:** An Itemized QA checklist for all components of the DC infrastructure shall be used to verify all items of the BOM are available for installation as per contract.

**Tests:** Tests shall be required for

- a) **Operational/Functional Test:** In Operational testing both the client and vendor will verify that all equipment's are installed properly, and that installation meets compliance requirements.
- b) **Load/Capacity Test:** Load testing/capacity testing will be done by putting appropriate levels of load in order to ensure stability when used in a normal environment.



## PART 3 - Contract



## Section VIII. General Conditions of Contract

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## Section VIII. General Conditions of Contract

### 1. Definitions

1.1 The following words and expressions shall have the meanings hereby assigned to them:

- (a) “Bank” means the World Bank and refers to the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).
- (b) “Contract” means the Contract Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
- (c) “Contract Documents” means the documents listed in the Contract Agreement, including any amendments thereto.
- (d) “Contract Price” means the price payable to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.
- (e) “Day” means calendar day.
- (f) “Completion” means the fulfillment of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.
- (g) “GCC” means the General Conditions of Contract.
- (h) “Goods” means all of the commodities, raw material, machinery and equipment, and/or other materials that the Supplier is required to supply to the Purchaser under the Contract.
- (i) “Purchaser’s Country” is the country specified in the Special Conditions of Contract (SCC).
- (j) “Purchaser” means the entity purchasing the Goods and Related Services, as specified in the SCC.
- (k) “Related Services” means the services incidental to the supply of the goods, such as insurance, installation, training and initial maintenance and other such obligations of the Supplier under the Contract.
- (l) “SCC” means the Special Conditions of Contract.



- (m) “Subcontractor” means any person, private or government entity, or a combination of the above, to whom any part of the Goods to be supplied or execution of any part of the Related Services is subcontracted by the Supplier.
- (n) “Supplier” means the person, private or government entity, or a combination of the above, whose bid to perform the Contract has been accepted by the Purchaser and is named as such in the Contract Agreement.
- (o) “The Project Site,” where applicable, means the place named in the SCC.

**2. Contract Documents**

- 2.1 Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.

**3. Corrupt and Fraudulent Practices**

- 3.1 The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Appendix to the GCC.
- 3.2 The Purchaser requires the Supplier to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

**4. Interpretation**

- 4.1 If the context so requires it, singular means plural and vice versa.
- 4.2 Incoterms
- (a) Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by Incoterms.
  - (b) The terms EXW, CIP, FCA, CFR and other similar terms, when used, shall be governed by the rules prescribed in the current edition of Incoterms specified in the SCC and published by the International Chamber of Commerce in Paris, France.
- 4.3 Entire Agreement

The Contract constitutes the entire agreement between the Purchaser and the Supplier and supersedes all communications,



negotiations and agreements (whether written or oral) of the parties with respect thereto made prior to the date of Contract.

#### 4.4 Amendment

No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.

#### 4.5 Nonwaiver

- (a) Subject to GCC Sub-Clause 4.5(b) below, no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.
- (b) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

#### 4.6 Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

### 5. Language

- 5.1 The Contract as well as all correspondence and documents relating to the Contract exchanged by the Supplier and the Purchaser, shall be written in the language specified in the SCC. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified, in which case, for purposes of interpretation of the Contract, this translation shall govern.
- 5.2 The Supplier shall bear all costs of translation to the governing language and all risks of the accuracy of such translation, for documents provided by the Supplier.



**6. Joint Venture,  
Consortium or  
Association**

6.1 If the Supplier is a joint venture, consortium, or association, all of the parties shall be jointly and severally liable to the Purchaser for the fulfillment of the provisions of the Contract and shall designate one party to act as a leader with authority to bind the joint venture, consortium, or association. The composition or the constitution of the joint venture, consortium, or association shall not be altered without the prior consent of the Purchaser.

**7. Eligibility**

7.1 The Supplier and its Subcontractors shall have the nationality of an eligible country. A Supplier or Subcontractor shall be deemed to have the nationality of a country if it is a citizen or constituted, incorporated, or registered, and operates in conformity with the provisions of the laws of that country.

7.2 All Goods and Related Services to be supplied under the Contract and financed by the Bank shall have their origin in Eligible Countries. For the purpose of this Clause, origin means the country where the goods have been grown, mined, cultivated, produced, manufactured, or processed; or through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.

**8. Notices**

8.1 Any notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the SCC. The term “in writing” means communicated in written form with proof of receipt.

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

**9. Governing Law**

9.1 The Contract shall be governed by and interpreted in accordance with the laws of the Purchaser’s Country, unless otherwise specified in the SCC.

9.2 Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Purchaser’s country when

(a) as a matter of law or official regulations, the Borrower’s country prohibits commercial relations with that country; or

9.2 (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower’s Country prohibits any import of goods from that country or any payments to any country, person, or entity in that country.





## 10 Settlement of Disputes

- 10.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.
- 10.2 If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract. Arbitration proceedings shall be conducted in accordance with the rules of procedure **specified in the SCC.**
- 10.3 Notwithstanding any reference to arbitration herein,
- (a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
  - (b) the Purchaser shall pay the Supplier any monies due the Supplier.

## 11. Inspections and Audit by the Bank

- 11.1 The Supplier shall keep, and shall make all reasonable efforts to cause its Subcontractors to keep, accurate and systematic accounts and records in respect of the Goods in such form and details as will clearly identify relevant time changes and costs.
- 11.2 The Supplier shall permit, and shall cause its Subcontractors to permit, the Bank and/or persons appointed by the Bank to inspect the Supplier's offices and all accounts and records relating to the performance of the Contract and the submission of the bid, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Supplier's and its Subcontractors and consultants' attention is drawn to Clause 3 [Fraud and Corruption], which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under this Sub-Clause 11.1 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures)



- 12. Scope of Supply** 12.1 The Goods and Related Services to be supplied shall be as specified in the Schedule of Requirements.
- 13. Delivery and Documents** 13.1 Subject to GCC Sub-Clause 33.1, the Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and Completion Schedule specified in the Schedule of Requirements. The details of shipping and other documents to be furnished by the Supplier are specified in the SCC.
- 14. Supplier's Responsibilities** 14.1 The Supplier shall supply all the Goods and Related Services included in the Scope of Supply in accordance with GCC Clause 12, and the Delivery and Completion Schedule, as per GCC Clause 13.
- 15 Contract Price** 15.1 Prices charged by the Supplier for the Goods supplied and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid, with the exception of any price adjustments authorized in the SCC.
- 16. Terms of Payment**
- 16.1 The Contract Price, including any Advance Payments, if applicable, shall be paid as specified in the SCC.
- 16.2 The Supplier's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, and by the documents submitted pursuant to GCC Clause 13 and upon fulfillment of all other obligations stipulated in the Contract.
- 16.3 Payments shall be made promptly by the Purchaser, but in no case later than sixty (60) days after submission of an invoice or request for payment by the Supplier, and after the Purchaser has accepted it.
- 16.4 The currencies in which payments shall be made to the Supplier under this Contract shall be those in which the bid price is expressed.
- 16.5 In the event that the Purchaser fails to pay the Supplier any payment by its due date or within the period set forth in the SCC, the Purchaser shall pay to the Supplier interest on the amount of such delayed payment at the rate shown in the SCC, for the period of delay until payment has been made in full, whether before or after judgment or arbitration award.
- 17. Taxes and Duties** 17.1 For goods manufactured outside the Purchaser's Country, the Supplier shall be entirely responsible for all taxes, stamp duties,



license fees, and other such levies imposed outside the Purchaser's Country.

- 17.2 For goods Manufactured within the Purchaser's country, the Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.
- 17.3 If any tax exemptions, reductions, allowances or privileges may be available to the Supplier in the Purchaser's Country, the Purchaser shall use its best efforts to enable the Supplier to benefit from any such tax savings to the maximum allowable extent.

## **18. Performance Security**

- 18.1 If required as specified in the SCC, the Supplier shall, within twenty-eight (28) days of the notification of contract award, provide a performance security for the performance of the Contract in the amount specified in the SCC.
- 18.2 The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
- 18.3 As specified in the SCC, the Performance Security, if required, shall be denominated in the currency(ies) of the Contract, or in a freely convertible currency acceptable to the Purchaser; and shall be in one of the format stipulated by the Purchaser in the SCC, or in another format acceptable to the Purchaser.
- 18.4 The Performance Security shall be discharged by the Purchaser and returned to the Supplier not later than twenty-eight (28) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless specified otherwise in the SCC.

## **19. Copyright**

- 19.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party

## **20. Confidential Information**

- 20.1 The Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following



completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents, data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier under GCC Clause 20.

20.2 The Purchaser shall not use such documents, data, and other information received from the Supplier for any purposes unrelated to the contract. Similarly, the Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than the performance of the Contract.

20.3 The obligation of a party under GCC Sub-Clauses 20.1 and 20.2 above, however, shall not apply to information that:

- (a) the Purchaser or Supplier need to share with the Bank or other institutions participating in the financing of the Contract;
- (b) now or hereafter enters the public domain through no fault of that party;
- (c) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or
- (d) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

20.4 The above provisions of GCC Clause 20 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.

20.5 The provisions of GCC Clause 20 shall survive completion or termination, for whatever reason, of the Contract.

## 21. Subcontracting

21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in the bid. Such notification, in the original bid or later shall not relieve the Supplier from any of its obligations, duties, responsibilities, or liability under the Contract.

21.2 Subcontracts shall comply with the provisions of GCC Clauses 3 and 7.



## 22. Specifications and Standards

### 22.1 Technical Specifications and Drawings

- (a) The Goods and Related Services supplied under this Contract shall conform to the technical specifications and standards mentioned in Section VI, Schedule of Requirements and, when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the Goods' country of origin.
- (b) The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.
- (c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Schedule of Requirements. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with GCC Clause 33.

## 23. Packing and Documents

- 23.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 23.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in the SCC, and in any other instructions ordered by the Purchaser.

## 24. Insurance

- 24.1 Unless otherwise specified in the SCC, the Goods supplied under the Contract shall be fully insured—in a freely convertible currency from an eligible country—against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery, in accordance with the applicable Incoterms or in the manner specified in the SCC.



**25. Transportation and Incidental Services**

- 25.1 Unless otherwise specified in the **SCC**, responsibility for arranging transportation of the Goods shall be in accordance with the specified Incoterms.
- 25.2 The Supplier may be required to provide any or all of the following services, including additional services, if any, **specified in SCC**:
- (a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;
  - (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;
  - (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
  - (d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
  - (e) training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.
- 25.3 Prices charged by the Supplier for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services

**26. Inspections and Tests**

- 26.1 The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified in the **SCC**.
- 26.2 The inspections and tests may be conducted on the premises of the Supplier or its Subcontractor, at point of delivery, and/or at the Goods' final destination, or in another place in the Purchaser's Country as specified in the **SCC**. Subject to GCC Sub-Clause 26.3, if conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.
- 26.3 The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in GCC Sub-Clause 26.2, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance



including, but not limited to, all traveling and board and lodging expenses.

- 26.4 Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.
- 26.5 The Purchaser may require the Supplier to carry out any test and/or inspection not required by the Contract but deemed necessary to verify that the characteristics and performance of the Goods comply with the technical specifications codes and standards under the Contract, provided that the Supplier's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impedes the progress of manufacturing and/or the Supplier's performance of its other obligations under the Contract, due allowance will be made in respect of the Delivery Dates and Completion Dates and the other obligations so affected.
- 26.6 The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.
- 26.7 The Purchaser may reject any Goods or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to GCC Sub-Clause 26.4.
- 26.8 The Supplier agrees that neither the execution of a test and/or inspection of the Goods or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to GCC Sub-Clause 26.6, shall release the Supplier from any warranties or other obligations under the Contract.

## 27. Liquidated Damages

- 27.1 Except as provided under GCC Clause 32, if the Supplier fails to deliver any or all of the Goods by the Date(s) of delivery or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in the SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum





deduction of the percentage specified in those SCC. Once the maximum is reached, the Purchaser may terminate the Contract pursuant to GCC Clause 35.

## 28. Warranty

- 28.1 The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.
- 28.2 Subject to GCC Sub-Clause 22.1(b), the Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.
- 28.3 Unless otherwise specified in the SCC, the warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the SCC, or for eighteen (18) months after the date of shipment from the port or place of loading in the country of origin, whichever period concludes earlier.
- 28.4 The Purchaser shall give notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.
- 28.5 Upon receipt of such notice, the Supplier shall, within the period specified in the SCC, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.
- 28.6 If having been notified, the Supplier fails to remedy the defect within the period specified in the SCC, the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

## 29. Patent Indemnity

- 29.1 The Supplier shall, subject to the Purchaser's compliance with GCC Sub-Clause 29.2, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design,





trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract by reason of:

- (a) the installation of the Goods by the Supplier or the use of the Goods in the country where the Site is located; and
- (b) the sale in any country of the products produced by the Goods.

Such indemnity shall not cover any use of the Goods or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Goods or any part thereof, or any products produced thereby in association or combination with any other equipment, plant, or materials not supplied by the Supplier, pursuant to the Contract.

- 29.2 If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in GCC Sub-Clause 29.1, the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.
- 29.3 If the Supplier fails to notify the Purchaser within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf.
- 29.4 The Purchaser shall, at the Supplier's request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.
- 29.5 The Purchaser shall indemnify and hold harmless the Supplier and its employees, officers, and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Supplier may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Purchaser.



**30 Limitation of Liability**

- 30.1 Except in cases of criminal negligence or willful misconduct,
- (a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and
  - (b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the supplier to indemnify the purchaser with respect to patent infringement

**31. Change in Laws and Regulations**

- 31.1 Unless otherwise specified in the Contract, if after the date of 28 days prior to date of Bid submission, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in the place of the Purchaser's country where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and/or the Contract Price, then such Delivery Date and/or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with GCC Clause 15.

**32. Force Majeure**

- 32.1 The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- 32.2 For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.



### **33. Change Orders and Contract Amendments**

32.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

33.1 The Purchaser may at any time order the Supplier through notice in accordance GCC Clause 8, to make changes within the general scope of the Contract in any one or more of the following:

- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) the method of shipment or packing;
- (c) the place of delivery; and
- (d) the Related Services to be provided by the Supplier.

33.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery/Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's change order.

33.3 Prices to be charged by the Supplier for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

33.4 Subject to the above, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

### **34. Extensions of Time**

34.1 If at any time during performance of the Contract, the Supplier or its subcontractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to GCC Clause 13, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its



discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

- 34.2 Except in case of Force Majeure, as provided under GCC Clause 32, a delay by the Supplier in the performance of its Delivery and Completion obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 26, unless an extension of time is agreed upon, pursuant to GCC Sub-Clause 34.1.

### 35. Termination

#### 35.1 Termination for Default

- (a) The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate the Contract in whole or in part:
- (i) if the Supplier fails to deliver any or all of the Goods within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 34;
  - (ii) if the Supplier fails to perform any other obligation under the Contract; or
  - (iii) if the Supplier, in the judgment of the Purchaser has engaged in fraud and corruption, as defined in GCC Clause 3, in competing for or in executing the Contract.
- (b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 35.1(a), the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

#### 35.2 Termination for Insolvency.

- (a) The Purchaser may at any time terminate the Contract by giving notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser



### 35.3 Termination for Convenience.

- (a) The Purchaser, by notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.
- (b) The Goods that are complete and ready for shipment within twenty-eight (28) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:
  - (i) to have any portion completed and delivered at the Contract terms and prices; and/or
  - (ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.

### 36. Assignment

- 36.1 Neither the Purchaser nor the Supplier shall assign, in whole or in part, their obligations under this Contract, except with prior written consent of the other party.

### 37. Export Restriction

- 37.1 Notwithstanding any obligation under the Contract to complete all export formalities, any export restrictions attributable to the Purchaser, to the country of the Purchaser, or to the use of the products/goods, systems or services to be supplied, which arise from trade regulations from a country supplying those products/goods, systems or services, and which substantially impede the Supplier from meeting its obligations under the Contract, shall release the Supplier from the obligation to provide deliveries or services, always provided, however, that the Supplier can demonstrate to the satisfaction of the Purchaser and of the Bank that it has completed all formalities in a timely manner, including applying for permits, authorizations and licenses necessary for the export of the products/goods, systems or services under the terms of the Contract. Termination of the Contract on this basis shall be for the Purchaser's convenience pursuant to Sub-Clause 35.3.



## APPENDIX TO GENERAL CONDITIONS

### Bank's Policy- Corrupt and Fraudulent Practices

*(text in this Appendix shall not be modified)*

**Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011:**

**“Fraud and Corruption:**

1.16 It is the Bank's policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts.<sup>10</sup> In pursuance of this policy, the Bank:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
  - (i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;<sup>11</sup>;
  - (ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;<sup>12</sup>
  - (iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;<sup>13</sup>

<sup>10</sup> In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

<sup>11</sup> For the purpose of this sub-paragraph, “another party” refers to a public official acting in relation to the procurement process or contract execution. In this context, “public official” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

<sup>12</sup> For the purpose of this sub-paragraph, “party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

<sup>13</sup> For the purpose of this sub-paragraph, “parties” refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other's bid prices or other conditions.



- (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;<sup>14</sup>
- (v) "obstructive practice" is:
  - (aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or
  - (bb) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 1.16(e) below.
- (b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- (c) will declare misprocurement and cancel the portion of the loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- (d) will sanction a firm or individual, at any time, in accordance with the prevailing Bank’s sanctions procedures,<sup>15</sup> including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated<sup>16</sup>;

<sup>14</sup> For the purpose of this sub-paragraph, “party” refers to a participant in the procurement process or contract execution.

<sup>15</sup> A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank’s sanctions proceedings as per its sanctions procedures, including, inter alia, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

<sup>16</sup> A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either been: (i) included by the bidder





- (e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank.”

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in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.





## Section IX. Special Conditions of Contract

The following Special Conditions of Contract (SCC) shall supplement and / or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

<b>GCC 1.1(i)</b>	The Purchaser's country is: <i>Bangladesh</i>
<b>GCC 1.1(j)</b>	The Purchaser is: Insurance Development and Regulatory Authority, represented by the Project Director, Bangladesh Insurance Sector Development Project.
<b>GCC 1.1 (o)</b>	The Project Site(s)/Final Destination(s) is/are: IDRA Head office: SBC Tower (8th floor), 37/A, Dilkusha C/A, Dhaka 1000 JBC Headoffice: Head Office 24, Motijheel C/A, Dhaka-1000.
<b>GCC 4.2 (a)</b>	The meaning of the trade terms shall be as prescribed by Incoterms.
<b>GCC 4.2 (b)</b>	The version edition of Incoterms shall be 2020,
<b>GCC 5.1</b>	The language shall be: <i>English</i>
<b>GCC 8.1</b>	For <b>notices</b> , the Purchaser's address shall be:  Attention: Project Director, Bangladesh Insurance Sector Development Project (BISDP)  Address: <b>Office of the Project Director, Bangladesh Insurance Sector Development Project, JibanBima Tower Bhaban, , 10, Dilkusha C/A, Dhaka-1000.</b>  Floor/ Room number: <b>Front Block (5th Floor)</b>  City: <b>Dhaka</b>  ZIP Code: <b>Dhaka -1000</b>  Country: <b>Bangladesh</b>  Telephone: <b>02-9514963</b>  Facsimile number: <b>N/A</b>  Electronic mail address: <b>pd.bisdpproject@gmail.com, bisdproject@gmail.com;</b>
<b>GCC 9.1</b>	The governing law shall be the law of: Bangladesh



<b>GCC 10.2</b>	<p>The rules of procedure for arbitration proceedings pursuant to GCC Clause 10.2 shall be as follows:</p> <p><b>(a) Contract with foreign Supplier:</b></p> <p><i>If the Purchaser chooses the UNCITRAL Arbitration Rules, the following sample clause should be inserted:</i></p> <p>GCC 10.2 (a)—Any dispute, controversy or claim arising out of or relating to this Contract, or breach, termination or invalidity thereof, shall be settled by arbitration in accordance with the UNCITRAL Arbitration Rules as at present in force.</p> <p><b>(b) Contracts with Supplier national of the Purchaser's country:</b></p> <p>In the case of a dispute between the Purchaser and a Supplier who is a national of the Purchaser's country, the dispute shall be referred to adjudication or arbitration in accordance with the laws of the Purchaser's country.</p>
<b>GCC 13.1</b>	<p>Details of Shipping and other Documents to be furnished by the Supplier are</p> <p><b>a) For Goods Supplied from outside the purchaser's country:</b></p> <p>Upon shipment the supplier shall notify the purchaser and Insurance Company by fax the full details of the shipments, including contracts number, description of goods, quantity, the vessel, Bill of lading number and date, port of loading, date of shipment, port of discharge etc. The supplier shall mail the following documents of the purchase, with a copy to the Insurance Company:</p> <ul style="list-style-type: none"> <li>(i) <b>4 (Four) copies</b> of the Supplier's invoice showing the description of the goods, quantity, unit price, and total amount (including of freight and insurance) including one set of original printed literature/brochures, operation manual etc. authenticated by the manufacturer;</li> <li>(ii) <b>Original and 3 (Three) copies</b> of the negotiable, clean, on-board bill of lading marked "freight Prepaid" and 4 (four) copies of non-negotiable bill of lading</li> <li>(iii) <b>4 (Four) copies</b> of the packing list identifying contents of each package;</li> <li>(iv) Insurance certificate;</li> <li>(v) Manufacturer's or Supplier's Warranty Certificate;</li> <li>(vi) Inspection certificate, issued by engineer/ nominated inspection agent, and the manufacturer's factory inspection report;</li> <li>(vii) Certificate of origin.</li> </ul>

	<p>The above documents shall be received by the Purchaser before arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.</p>
<b>GCC 15.1</b>	<p>The prices charged for the Goods supplied and the related Services performed shall not be adjustable.</p>
<b>GCC 16.1</b>	<p>GCC 16.1—The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:</p> <p><b>Payment for Goods supplied from abroad:</b></p> <p>Payment of foreign currency portion shall be made in ..... in the following manner:</p> <p>(i) <b>Advance Payment:</b> Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract, and upon submission of claim and a bank guarantee for equivalent amount valid until the Goods are delivered and in the form provided in the bidding documents or another form acceptable to the Purchaser.</p> <p>(ii) <b>On Shipment:</b> Seventy (70) percent of the Contract Price of the Goods shipped shall be paid through irrevocable confirmed letter of credit opened in favor of the Supplier in a bank in its country, upon submission of documents specified in GCC Clause 12.</p> <p>(iii) <b>On Acceptance:</b> Twenty (20) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods and related services upon submission of claim supported by the acceptance certificate issued by the Purchaser.</p> <p>Payment of local currency portion shall be made in BDT within thirty (30) days of presentation of claim supported by a certificate from the Purchaser declaring that the Goods have been delivered and that all other contracted Services have been performed.</p> <p><b>Payment for Goods and Services supplied from within the Purchaser's country:</b></p> <p>Payment for Goods and Services supplied from within the Purchaser's country shall be made in BDT as follows:</p> <p>(i) <b>Advance Payment:</b> Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract against a simple receipt and a bank guarantee for the equivalent amount</p>



	<p>and in the form provided in the bidding documents or another form acceptable to the Purchaser.</p> <p>(ii) <b>On Delivery:</b> Seventy (70) percent of the Contract Price shall be paid on receipt of the Goods and upon submission of the documents specified in GCC Clause 13.</p> <p>(iii) <b>On Acceptance:</b> The remaining twenty (20) percent of the Contract Price shall be paid to the Supplier within thirty (30) days after the date of the acceptance certificate for the respective delivery issued by the Purchaser.</p>
<b>GCC 16.5</b>	<p>The payment-delay period after which the Purchaser shall pay interest to the supplier shall be 60 days.</p> <p>The interest rate that shall be applied is 4%</p>
<b>GCC 18.1</b>	<p>A Performance Security shall be required</p> <p>The amount of the Performance Security shall be: 10% of the Contract Price of the goods.</p>
<b>GCC 18.3</b>	<p>The Performance Security shall be in the form of: a Demand Guarantee (Bank Guarantee) The Performance security shall be denominated in a freely convertible currency acceptable to the Purchaser.</p>
<b>GCC 18.4</b>	<p>Discharge of the Performance Security shall take place:</p> <p>Within twenty-eight (28) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations,</p>

<b>GCC 23.2</b>	<p>The packing, marking and documentation within and outside the packages shall be:</p> <p>The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperature, salt, and precipitation during transit and storage. Packing cage size and weights shall take into consideration, where appropriate, the remoteness the goods final destination and the absence on heavy handling facilities at all points in transit.</p> <p>In addition each package shall be clearly marked legibly with indelible ink/paint in bold letters on front side, with the following:</p> <ul style="list-style-type: none"> <li>a) Contract Number with date,</li> <li>b) Name and Address of Purchaser,</li> <li>c) Country of Origin,</li> <li>d) Gross weight,</li> <li>e) Net Weight,</li> <li>f) Number of Package(s),</li> <li>g) Brief description of Contents.</li> </ul> <p>Package should be marked upside indicating with arrows, at all visible sides.</p>
<b>GCC 24.1</b>	The insurance coverage shall be as specified in the Incoterms.
<b>GCC 25.1</b>	Responsibility for transportation of the Goods shall be as specified in the Incoterms.
<b>GCC 25.2</b>	Incidental services to be provided are: As required to complete the contract.
<b>GCC 26.1</b>	<p>The inspections and tests shall be: The inspections and tests shall be:</p> <ol style="list-style-type: none"> <li>1. Pre-shipment inspection.</li> <li>2. Test to check the performance of goods.</li> </ol> <p>Pre-delivery physical inspection. The tests mentioned above shall be done before delivery.</p>



<b>GCC 26.2</b>	<p>The Inspections and tests shall be conducted at:</p> <ul style="list-style-type: none"> <li>(i) For Pre Shipment Inspection: at the origin or manufacturer's premises.</li> <li>(ii) In other cases, Inspections and tests shall be conducted at the Supplier's/ Supplier's local agent's premise/ local manufacturing plant/ facilities (as applicable) and also at the final destination (project site) as mentioned in the List of Goods and Delivery Schedule under Section VI of this bid document.</li> </ul>
<b>GCC 27.1</b>	The liquidated damage shall be: 0.5% of the contract price of the delayed Goods or Services per week or part thereof.
<b>GCC 27.1</b>	The maximum amount of liquidated damages shall be: 10 % of the contract price
<b>GCC 28.3</b>	<p>The period of validity of the Warranty shall be: Three years from the date of acceptance of goods.</p> <p>For purposes of the Warranty, the place(s) of final destination(s) shall be:</p> <p>IDRA Head office: SBC Tower (8th floor), 37/A, Dilkusha C/A, Dhaka 1000</p> <p>JBC Headoffice: Head Office 24, Motijheel C/A, Dhaka-1000.</p>
<b>GCC 28.5</b>	The period for repair or replacement shall be: 14days of being notified by the Purchaser of the occurrence of such defects.



## Section X. Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

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## Letter of Acceptance

*[letterhead paper of the Purchaser]*

*[date]*

To: *[name and address of the Supplier]*

Subject: **Notification of Award Contract No.** . . . . .

This is to notify you that your Bid dated . . . . *[insert date]* . . . . for execution of the . . . .  
. . . . . *[insert name of the contract and identification number, as given in the SCC]* . . .  
. . . . . for the Accepted Contract Amount of . . . . . *[insert amount in numbers and  
words and name of currency]*, as corrected and modified in accordance with the  
Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with  
the Conditions of Contract, using for that purpose the of the Performance Security Form  
included in Section X, Contract Forms, of the Bidding Document.

Authorized Signature: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Agency: \_\_\_\_\_

**Attachment: Contract Agreement**





## Contract Agreement

*[The successful Bidder shall fill in this form in accordance with the instructions indicated]*

THIS AGREEMENT made

the *[ insert: **number** ]* day of *[ insert: **month** ], [ insert: **year** ]*.

BETWEEN

- (1) *[ insert complete name of Purchaser ], a [ insert description of type of legal entity, for example, an agency of the Ministry of .... of the Government of { insert name of Country of Purchaser }, or corporation incorporated under the laws of { insert name of Country of Purchaser } ] and having its principal place of business at [ insert address of Purchaser ] (hereinafter called “the Purchaser”), of the one part, and*
- (2) *[ insert name of Supplier], a corporation incorporated under the laws of [ insert: country of Supplier] and having its principal place of business at [ insert: address of Supplier ] (hereinafter called “the Supplier”), of the other part :*

WHEREAS the Purchaser invited bids for certain Goods and ancillary services, viz., *[insert brief description of Goods and Services]* and has accepted a Bid by the Supplier for the supply of those Goods and Services

The Purchaser and the Supplier agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other contract documents.
  - (a) the Letter of Acceptance
  - (b) the Letter of Bid
  - (c) the Addenda Nos. \_\_\_\_\_ (if any)
  - (d) Special Conditions of Contract
  - (e) General Conditions of Contract
  - (f) the Specification (including Schedule of Requirements and Technical Specifications)
  - (g) the completed Schedules (including Price Schedules)



- (h) any other document listed in GCC as forming part of the Contract
3. In consideration of the payments to be made by the Purchaser to the Supplier as specified in this Agreement, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of *[insert the name of the Contract governing law country]* on the day, month and year indicated above.

For and on behalf of the Purchaser

Signed: *[insert signature]*  
in the capacity of *[ insert title or other appropriate designation ]*  
in the presence of *[insert identification of official witness]*

For and on behalf of the Supplier

Signed: *[insert signature of authorized representative(s) of the Supplier]*  
in the capacity of *[ insert title or other appropriate designation ]*  
in the presence of *[ insert identification of official witness]*



## Performance Security

### Option 1: (Bank Guarantee)

*[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]*

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[insert name and Address of Purchaser ]*

**Date:** *\_ [Insert date of issue]*

**PERFORMANCE GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *\_ [insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the supply of *\_ [insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* () *[insert amount in words]*,<sup>1</sup> such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the .... Day of ....., 2...<sup>2</sup>, and any demand for payment under it must be received by us at this office indicated above on or before that date.

<sup>1</sup> The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, and denominated either in the currency(ies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

<sup>2</sup> Insert the date twenty-eight days after the expected completion date as described in GC Clause 18.4. The Purchaser should note that in the event of an extension of this date for completion of the Contract, the Purchaser would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Purchaser might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six



This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

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*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

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*months][one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*



## Option 2: Performance Bond

By this Bond *[insert name of Principal]* as Principal (hereinafter called “the Supplier”) and *[insert name of Surety]* as Surety (hereinafter called “the Surety”), are held and firmly bound unto *[insert name of Purchaser]* as Obligee (hereinafter called “the Supplier”) in the amount of *[insert amount in words and figures]*, for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Supplier and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a written Agreement with the Purchaser dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, for *[name of contract and brief description of Goods and related Services]* in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, the Condition of this Obligation is such that, if the Supplier shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Supplier shall be, and declared by the Purchaser to be, in default under the Contract, the Purchaser having performed the Purchaser’s obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions; or
- (2) obtain a Bid or bids from qualified Bidders for submission to the Purchaser for completing the Contract in accordance with its terms and conditions, and upon determination by the Purchaser and the Surety of the lowest responsive Bidder, arrange for a Contract between such Bidder and Purchaser and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “Balance of the Contract Price,” as used in this paragraph, shall mean the total amount payable by Purchaser to Supplier under the Contract, less the amount properly paid by Purchaser to Contractor; or
- (3) pay the Purchaser the amount required by Purchaser to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.



Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Purchaser named herein or the heirs, executors, administrators, successors, and assigns of the Purchaser.

In testimony whereof, the Supplier has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this \_\_\_\_\_ day of \_\_\_\_\_ 20

\_\_\_\_\_.

SIGNED ON \_\_\_\_\_ on behalf of \_\_\_\_\_

By \_\_\_\_\_ in the capacity of \_\_\_\_\_

In the presence of \_\_\_\_\_

SIGNED ON \_\_\_\_\_ on behalf of \_\_\_\_\_

By \_\_\_\_\_ in the capacity of \_\_\_\_\_

In the presence of \_\_\_\_\_



## Advance Payment Security

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[Insert name and Address of Purchaser]*

**Date:** *[Insert date of issue]*

**ADVANCE PAYMENT GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of *[insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum *[insert amount in figures]* () *[insert amount in words]* is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* () *[insert amount in words]*<sup>1</sup> upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

- (a) has used the advance payment for purposes other than toward delivery of Goods;  
or
- (b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

<sup>1</sup> The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Purchaser.



A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number *[insert number]* at *[insert name and address of Applicant's bank]*.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, has been certified for payment, or on the *[insert day]* day of *[insert month]*, 2 *[insert year]*, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No.758, except that the supporting statement under Article 15(a) is hereby excluded.

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*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***





***SAMPLE FORMAT:*****Invitation for Bids****[COUNTRY]****[NAME OF PROJECT]**

Loan No./Credit No./ Grant No.: \_\_\_\_\_

**Contract Title:** \_\_\_\_\_**Reference No. (as per Procurement Plan):** \_\_\_\_\_

1. The *[insert name of Borrower/Beneficiary/Recipient]* *[has received/has applied for/intends to apply for]* financing from the World Bank toward the cost of the *[insert name of project or grant]*, and intends to apply part of the proceeds toward payments under the contract <sup>17</sup>for *[insert title of contract]*<sup>18</sup>.

2. The *[insert name of implementing agency]* now invites sealed bids from eligible bidders for *[insert brief description of Goods required, including quantities, location, delivery period, margin of preference if applicable, etc.]*<sup>19</sup>.

3. Bidding will be conducted through the International Competitive Bidding procedures as specified in the World Bank's *Guidelines: Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers**[insert correct title and date of applicable Guidelines edition as per legal agreement]* ("Procurement Guidelines"), and is open to all eligible bidders as defined in the Procurement Guidelines. In addition, please refer to paragraphs 1.6 and 1.7 setting forth the World Bank's policy on conflict of interest.

4. Interested eligible bidders may obtain further information from *[insert name of implementing agency, insert name and e-mail of officer in charge]* and inspect the bidding

<sup>17</sup> Substitute "contracts" where bids are called concurrently for multiple contracts. Add a new para. 3 and renumber paras 3 - 8 as follows: "Bidders may bid for one or several contracts, as further defined in the bidding document. Bidders wishing to offer discounts in case they are awarded more than one contract will be allowed to do so, provided those discounts are included in the Letter of Bid."

<sup>18</sup> Insert if applicable: "This contract will be jointly financed by *[insert name of cofinancing agency]*. Bidding process will be governed by the World Bank's rules and procedures."

<sup>19</sup> A brief description of the type(s) of Goods should be provided, including quantities, location of Project, delivery/construction period, application of margin of preference and other information necessary to enable potential bidders to decide whether or not to respond to the Invitation. Bidding Documents may require bidders to have specific experience or capabilities; such qualification requirements should also be included in this paragraph.



documents during office hours *[insert office hours if applicable i.e. 0900 to 1700 hours]* at the address given below *[state address at the end of this invitation]*<sup>20</sup>.

5. A complete set of bidding documents in *[insert name of language]* may be purchased by interested eligible bidders upon the submission of a written application to the address below and upon payment of a nonrefundable fee<sup>21</sup> of *[insert amount in Borrower's currency or in a convertible currency]*. The method of payment will be *[insert method of payment]*.<sup>22</sup> The document will be sent by *[insert delivery procedure]*.<sup>23</sup>

6. Bids must be delivered to the address below *[state address at the end of this invitation]*<sup>24</sup> on or before *[insert time and date]*. Electronic bidding will *[will not]* be permitted. Late bids will be rejected. Bids will be publicly opened in the presence of the bidders' designated representatives and anyone who choose to attend at the address below *[state address at the end of this invitation]* on *[insert time and date]*.

7. All bids must be accompanied by a *[insert "Bid Security" or "Bid-Securing Declaration," as appropriate]* of *[insert amount and currency in case of a Bid Security]*.

8. The address(es) referred to above is(are): *[insert detailed address(es) ]*

*[insert name of office, room number]*

Attn: *[insert name of officer & title]*

*[insert postal address and/or street address]*

*[insert postal code, city, country]*

Tel: *[include the country and city code]*

Fax: *[include the country and city code]*

E-mail: *[insert electronic address if electronic bidding is permitted]*

Web site:

<sup>20</sup> The office for inquiry and issuance of bidding documents and that for bid submission may or may not be the same.

<sup>21</sup> The fee chargeable should only be nominal to defray reproduction and mailing costs. An amount between US\$50 and US\$300 or equivalent is deemed appropriate.

<sup>22</sup> For example, cashier's check, direct deposit to specified account number, etc.

<sup>23</sup> The delivery procedure is usually airmail for overseas delivery and surface mail or courier for local delivery. If urgency or security dictates, courier services may be required for overseas delivery. With the agreement of the World Bank, documents may be distributed by e-mail.

<sup>24</sup> Substitute the address for bid submission if it is different from address for inquiry and issuance of bidding documents.



## Annexure



## Annex -1

### A. Technical Specification for DC Networking

Item No	Description of Item	Technical Specification and Standards	
A1	Internet Router	Brand	(To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for WAN Edge Infrastructure.
		Enclosure Type	Rack mountable
		Architecture	Support non-blocking switching structure, Independent Control Plane or Routing Engine or Service Routing Unit
			Support Multi-core CPU or Processors
		Slot	Should support minimum 8 x Interface Cards
		Performance	WAN IMIX performance $\geq$ 10 Gbps.
		Fixed interfaces	Support 14 x 10GE SFP+ (compatible with GE SFP) + 10 x 1 GE (RJ45) WAN interface (All WAN ports can be configured as LAN) from day 1.
			6 x 10GE SFP+ port equipped with 10G 300m Multimode LC Module from day 1 including LC/PC 10m patch cord
		Interface type	WAN interface: Support FE, GE, 10GE
		Operating Temperature	0-45 °C
		LAN Access	Support IEEE 802.1P, 802.1Q standard.
			Support IEEE 802.1d (STP)
			Support VLAN management, VLAN aggregation, MAC management
		Routing	Support IPv4 unicast routing eq. Routing policies, static routes, RIP, OSPF, IS-IS, BGP
			Support IPv6 unicast routing eq. Static routes, routing policies, RIPng, OSPFv3, IS-ISv6, BGP4+
			Support IGMP v1/v2/v3, PIM-SM, PIM-DM, MSDP, MBGP, IPv6 PIM, MLD



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		IP Application	Support IPv6 ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL, ICMPv6, DNSv6, DHCPv6
		IPv6 Tunnel	Support Manual tunnel, automatic tunnel, GRE tunnel, IPv6 over IPv4 tunnel, 6 to 4 tunnel, ISATAP
		MPLS	Support LDP, MPLS L3 VPN, VLL, PWE3, static LSP, dynamic LSP, MPLS TE, IP FRR, LDP FRR, TE FRR
		VPN	Support IPsec VPN, GRE VPN, DMVPN or similar, A2A VPN, L2TP VPN, L2TPv3 VPN
		Security	Should have Built-in firewall, IPS, URL filtering, and multiple VPN technologies, providing comprehensive security protection capability.
			Support domain-based Stateful FW
			Support 802.1x & MAC authentication
			Support Web authentication, AAA authentication, RADIUS authentication, TACACS authentication.
			Support PKI, broadcast storm suppression, ARP security
			Support ICMP attack defense, uRPF, blacklist, attack source tracing, online behavior management,
		QoS	Support DiffServ mode, MPLS QoS, priority mapping, traffic policing, traffic shaping, congestion avoidance, congestion management,
			Support traffic classifier, traffic behavior, and traffic policy
			Support hierarchical QoS.
			Support Application Control
		Reliability	Support Hot-swappable cards and redundant components such as power supplies and fan modules. And 1+1 power supplies from day 1
			Support Link backup for enterprise services.
			Support Fault detection and determination in milliseconds, minimizing service interruption time
		OAM	Support NetFlow or sFlow or Netstream or similar features
			Support Multiple management modes, including SD-WAN management, SNMP-based network management, and web-based network management
			Support CLI, SNMP V1/V2/V3, RMON, NTP, TWAMP
			Support NetConf/YANG.
			Support Auto-Config, URL-based/USB-based deployment
		SD-WAN	The system must have Built-in SD-WAN solution for future upgradation, can be activated SD-WAN

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			feature through license without changing the equipment.
			Support ZTP (email-, USB-, and DHCP-based deployment)
			Support First packet identification for SaaS applications and service awareness for complex applications
			Support Traffic steering based on bandwidth and link quality, ensuring experience of key applications and improving bandwidth utilization
		Service, Support, Warranty & Subscription	The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Unified Management & Operation.
			The proposed equipment must equipped with system software license includes EVPN, DSVPN, Application Control, Any to Any VPN from day 1 and bidder must have to quote Software Subscription and Support (SnS) license for 3 Years.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter

Item No	Description of Item	Technical Specification and Standards	
A2	WAN Router	Brand	(To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.



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			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for WAN Edge Infrastructure.
		Enclosure Type	Rack mountable
		Architecture	Support non-blocking switching structure, Independent Control Plane or Routing Engine or Service Routing Unit
			Support Multi-core CPU or Processors
		Slot	Should support minimum 8 x Interface Cards
		Performance	WAN IMIX performance $\geq$ 10 Gbps.
		Fixed interfaces	Support 14 x 10GE SFP+ (compatible with GE SFP) + 10 x 1 GE (RJ45) WAN interface (All WAN ports can be configured as LAN) from day 1.
			6 x 10GE SFP+ port equipped with 10G 300m Multimode LC Module and 2 x 10GE SFP+ port equipped with 10G 40Km Singlemode LC Module from day 1 including LC/PC 10m patch cord
		Interface type	WAN interface: Support FE, GE, 10GE
		Operating Temperature	0-45 °C
		LAN Access	Support IEEE 802.1P, 802.1Q standard.
			Support IEEE 802.1d (STP)
			Support VLAN management, VLAN aggregation, MAC management
		Routing	Support IPv4 unicast routing eq. Routing policies, static routes, RIP, OSPF, IS-IS, BGP
			Support IPv6 unicast routing eq. Static routes, routing policies, RIPng, OSPFv3, IS-ISv6, BGP4+
			Support IGMP v1/v2/v3, PIM-SM, PIM-DM, MSDP, MBGP, IPv6 PIM, MLD
		IP Application	Support IPv6 ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL, ICMPv6, DNSv6, DHCPv6
		IPv6 Tunnel	Support Manual tunnel, automatic tunnel, GRE tunnel, IPv6 over IPv4 tunnel, 6 to 4 tunnel, ISATAP
		MPLS	Support LDP, MPLS L3 VPN, VLL, PWE3, static LSP, dynamic LSP, MPLS TE, IP FRR, LDP FRR, TE FRR
		VPN	Support IPsec VPN, GRE VPN, DMVPN or similar, A2A VPN, L2TP VPN, L2TPv3 VPN
		Security	Should have Built-in firewall, IPS, URL filtering, and multiple VPN technologies, providing comprehensive security protection capability.
			Support domain-based Stateful FW

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			Support 802.1x & MAC authentication
			Support Web authentication, AAA authentication, RADIUS authentication, TACACS authentication.
			Support PKI, broadcast storm suppression, ARP security
			Support ICMP attack defense, uRPF, blacklist, attack source tracing, online behavior management,
		QoS	Support DiffServ mode, MPLS QoS, priority mapping, traffic policing, traffic shaping, congestion avoidance, congestion management,
			Support traffic classifier, traffic behavior, and traffic policy
			Support hierarchical QoS.
			Support Application Control
		Reliability	Support Hot-swappable cards and redundant components such as power supplies and fan modules. And 1+1 power supplies from day 1
			Support Link backup for enterprise services.
			Support Fault detection and determination in milliseconds, minimizing service interruption time
		OAM	Support NetFlow or sFlow or Netstream or similar features
			Support Multiple management modes, including SD-WAN management, SNMP-based network management, and web-based network management
			Support CLI, SNMP V1/V2/V3, RMON, NTP, TWAMP
			Support NetConf/YANG.
			Support Auto-Config, URL-based/USB-based deployment
		SD-WAN	The system must have Built-in SD-WAN solution for future upgradation, can be activated SD-WAN feature through license without changing the equipment.
			Support ZTP (email-, USB-, and DHCP-based deployment)
			Support First packet identification for SaaS applications and service awareness for complex applications
			Support Traffic steering based on bandwidth and link quality, ensuring experience of key applications and improving bandwidth utilization
		Service, Support, Warranty & Subscription	The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Unified Management & Operation.
			The proposed equipment must equipped with system software license includes EVPN, DSVPN, Application Control, Any to Any VPN, Policy





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			Routing and MPLS L2VPN from day 1 and bidder must have to quote Software Subscription and Support (SnS) license for 3 Years.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter

Item No	Description of Item	Technical Specification and Standards	
A3	Extranet B2B Router	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for WAN Edge Infrastructure.
		Enclosure Type	Rack mountable
		Architecture	Support non-blocking switching structure, Independent Control Plane or Routing Engine or Service Routing Unit
			Support Multi-core CPU or Processors
		Slot	Should support minimum 8 x Interface Cards
		Performance	WAN IMIX performance $\geq$ 10 Gbps.
		Fixed interfaces	Support 14 x 10GE SFP+ (compatible with GE SFP) + 10 x 1 GE (RJ45) WAN interface (All WAN ports can be configured as LAN) from day 1.
			6 x 10GE SFP+ port equipped with 10G 300m Multimode LC Module from day 1 including LC/PC 10m patch cord

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		Interface type	WAN interface: Support FE, GE, 10GE
		Operating Temperature	0-45 °C
		LAN Access	Support IEEE 802.1P, 802.1Q standard.
			Support IEEE 802.1d (STP)
			Support VLAN management, VLAN aggregation, MAC management
		Routing	Support IPv4 unicast routing eq. Routing policies, static routes, RIP, OSPF, IS-IS, BGP
			Support IPv6 unicast routing eq. Static routes, routing policies, RIPng, OSPFv3, IS-ISv6, BGP4+
			Support IGMP v1/v2/v3, PIM-SM, PIM-DM, MSDP, MBGP, IPv6 PIM, MLD
		IP Application	Support IPv6 ND, IPv6 PMTU, IPv6 FIB, IPv6 ACL, ICMPv6, DNSv6, DHCPv6
		IPv6 Tunnel	Support Manual tunnel, automatic tunnel, GRE tunnel, IPv6 over IPv4 tunnel, 6 to 4 tunnel, ISATAP
		MPLS	Support LDP, MPLS L3 VPN, VLL, PWE3, static LSP, dynamic LSP, MPLS TE, IP FRR, LDP FRR, TE FRR
		VPN	Support IPsec VPN, GRE VPN, DMVPN or similar, A2A VPN, L2TP VPN, L2TPv3 VPN
		Security	Should have Built-in firewall, IPS, URL filtering, and multiple VPN technologies, providing comprehensive security protection capability.
			Support domain-based Stateful FW
			Support 802.1x & MAC authentication
			Support Web authentication, AAA authentication, RADIUS authentication, TACACS authentication.
			Support PKI, broadcast storm suppression, ARP security
			Support ICMP attack defense, uRPF, blacklist, attack source tracing, online behavior management,
		QoS	Support DiffServ mode, MPLS QoS, priority mapping, traffic policing, traffic shaping, congestion avoidance, congestion management,
			Support traffic classifier, traffic behavior, and traffic policy
			Support hierarchical QoS.
			Support Application Control
		Reliability	Support Hot-swappable cards and redundant components such as power supplies and fan modules. And 1+1 power supplies from day 1
			Support Link backup for enterprise services.

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			Support Fault detection and determination in milliseconds, minimizing service interruption time
		OAM	Support NetFlow or sFlow or Netstream or similar features
			Support Multiple management modes, including SD-WAN management, SNMP-based network management, and web-based network management
			Support CLI, SNMP V1/V2/V3, RMON, NTP, TWAMP
			Support NetConf/YANG.
			Support Auto-Config, URL-based/USB-based deployment
		SD-WAN	The system must have Built-in SD-WAN solution for future upgradation, can be activated SD-WAN feature through license without changing the equipment.
			Support ZTP (email-, USB-, and DHCP-based deployment)
			Support First packet identification for SaaS applications and service awareness for complex applications
			Support Traffic steering based on bandwidth and link quality, ensuring experience of key applications and improving bandwidth utilization
		Service, Support, Warranty & Subscription	The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Unified Management & Operation.
			The proposed equipment must equipped with system software license includes EVPN, DSVPN, Application Control, Any to Any VPN, Policy Routing and MPLS L2VPN from day 1 and bidder must have to quote Software Subscription and Support (SnS) license for 3 Years.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter

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Item No	Description of Item	Technical Specification and Standards	
A4	Internet Switch	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in the latest Gartner Magic Quadrant for Wired and Wireless LAN Infrastructure.
		Enclosure Type:	Rack mountable, 1U
		Hardware Architecture	The equipment must support one expansion slot
			The equipment must support up to 24 Ethernet 10/100/1,000 ports, 12 x 10 Gig SFP+ and 8 x 10G SFP+ port equipped with 300m Multi Mode module from day 1
			The proposed equipment must support high switching capacity of at least 288 Gbps non-blocking.
		Layer 2:	The equipment must support Static, dynamic, and blackhole MAC address entries
			The equipment must support up to 4K active VLAN
			The equipment must support VLAN Mapping, Guest VLAN, voice VLAN, GVRP
			The equipment must support MAC address learning, aging and 288K MAC entries
			The equipment must support Packet filtering based on source MAC addresses and Interface-based MAC learning limiting
			The equipment must support ERPS (G.8032), BPDU protection, root protection, and loop protection
			The equipment must support DLDP and LACP.
		Layer 3:	The equipment must support Static route, RIP, RIPng, OSPF, OSPFv3
			The equipment must support 512K FIBv4 entries

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		QoS & ACL:	The equipment must support Packet filtering at Layer 2 to Layer 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port number, protocol type, and VLAN ID
			The equipment must support queuing algorithms, such as DRR, SP, and DRR+SP
			The equipment must support Eight queues on each interface
			The equipment must support Interface-based traffic policing, Rate limiting in each queue and traffic shaping on interfaces
		Security:	The equipment must support Binding of the IP address, MAC address, interface number, and VLAN ID, Port isolation, port security, and sticky MAC
			The equipment must support CPU defense, DoS attack defense, ARP attack defense, and ICMP attack defense
			The equipment must support DHCP server, DHCP snooping
			The equipment must support IEEE 802.1x authentication and limit on the number of users on an interface
			The equipment must support AAA authentication, RADIUS authentication, TACACS or similar authentication, and NAC
		Network O&M	The equipment must support SNMPv1/v2c/v3, Telnet, RMON, SSHv2
			The equipment must support Cloud management based on Netconf/Yang
			The equipment must support stacking
		Service, Support, Warranty & Subscription	The bidder must have to quote foundation license with software subscription, support service and SnS license for 3 Years And The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Unified Management & Operation.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution.

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			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacture Authorization Letter

Item No	Description of Item	Technical Specification and Standards	
A5	Extranet Switch B2B	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in the latest Gartner Magic Quadrant for Wired and Wireless LAN Infrastructure.
		Enclosure Type:	Rack mountable, 1U
		Hardware Architecture	The equipment must support one expansion slot
			The equipment must support up to 24 Ethernet 10/100/1,000 ports, 12 x 10 Gig SFP+ and 8 x 10G SFP+ port equipped with 300m Multi Mode module from day 1
			The proposed equipment must support high switching capacity of at least 288 Gbps non-blocking.
		Layer 2:	The equipment must support Static, dynamic, and blackhole MAC address entries
			The equipment must support up to 4K active VLAN
			The equipment must support VLAN Mapping, Guest VLAN, voice VLAN, GVRP

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			The equipment must support MAC address learning, aging and 288K MAC entries
			The equipment must support Packet filtering based on source MAC addresses and Interface-based MAC learning limiting
			The equipment must support ERPS (G.8032), BPDU protection, root protection, and loop protection
			The equipment must support DLDP and LACP.
		Layer 3:	The equipment must support Static route, RIP, RIPng, OSPF, OSPFv3
			The equipment must support 512K FIBv4 entries
		QoS & ACL:	The equipment must support Packet filtering at Layer 2 to Layer 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port number, protocol type, and VLAN ID
			The equipment must support queuing algorithms, such as DRR, SP, and DRR+SP
			The equipment must support Eight queues on each interface
			The equipment must support Interface-based traffic policing, Rate limiting in each queue and traffic shaping on interfaces
		Security:	The equipment must support Binding of the IP address, MAC address, interface number, and VLAN ID, Port isolation, port security, and sticky MAC
			The equipment must support CPU defense, DoS attack defense, ARP attack defense, and ICMP attack defense
			The equipment must support DHCP server, DHCP snooping
			The equipment must support IEEE 802.1x authentication and limit on the number of users on an interface
			The equipment must support AAA authentication, RADIUS authentication, TACACS or similar authentication, and NAC
		Network O&M	The equipment must support SNMPv1/v2c/v3, Telnet, RMON, SSHv2

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			The equipment must support Cloud management based on Netconf/Yang
			The equipment must support stacking
		Service, Support, Warranty & Subscription	The bidder must have to quote foundation license with software subscription, support service and SnS license for 3 Years And The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Unified Management & Operation.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacture Authorization Letter

Item No	Description of Item	Technical Specification and Standards	
A6	External Firewall	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for Network Firewall
		Enclosure Type:	Rack Mountable, 1U
		Hardware Architecture:	The equipment must have 1000 GB local storage from day 1



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			The equipment must have the capability to provide internal redundant power supplies available from day 1
			Interface requirements: Should have 2 x 40GE (QFP+), 12 x 10GE (SFP+) + 12 x 1GE (Rj45) from day 1 and 8 x 10G SFP+ port equipped with 300m MM module from day 1 including patch cord
		Feature & Function Requirements:	Support concurrent SSL VPN users minimum 5000 and 100 SSL VPN user from day 1
			Support IPSec VPN tunnels minimum 15000
			Support Virtual firewalls minimum 500
			Firewall Throughput minimum 30 Gbps
			Number of concurrent connections Minimum 10,000,000
			Number of new connections per second minimum 400,000
			IPSec throughput minimum 20 Gbps
			IPS throughput $\geq 12$ Gbps
			SSL Inspection Throughput $\geq 6$ Gbps
			Security Policies minimum 40,000
			URL Filtering: minimum 130 Categories and minimum 120 million URLs
		Integrated Protection:	The proposed equipment should support Integrates firewall, VPN, intrusion prevention, antivirus, data leak prevention, bandwidth management, anti-DDoS, URL filtering, and anti-spam functions.
			The proposed equipment should Provide a global configuration view, and manages policies in a unified manner.
		Application identification and control:	The proposed equipment should Identifies over 6000 applications and supports the access control granularity down to application functions.
			The proposed equipment should combines application identification with intrusion detection, antivirus, and data filtering, improving detection performance and accuracy.
		Cloud-based management mode:	The proposed equipment should support to initiates authentication and registration to the cloud management platform to implement plug-and-play and simplify network creation and deployment. Service configuration, device monitoring, and fault management can be performed remotely, implementing the management of mass devices in the cloud.
		Intrusion prevention and web protection:	The proposed equipment should Accurately detects and defends against vulnerability-specific attacks based on up-to-date threat information
			The proposed equipment should support defend against web-specific attacks, including SQL injection and XSS attacks.
		Antivirus:	The proposed equipment should Rapidly detects over 5 million types of viruses based on the daily-updated virus signature database.

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		Data leak prevention (DLP):	Inspects files to identify the file types, such as WORD, EXCEL, POWERPOINT, and PDF, based on file content, and filters the file content.
		Bandwidth management:	The proposed equipment should support to Implements refined bandwidth management based on applications and websites, preferentially forwards key services, and ensures bandwidth for key services.
			The proposed equipment should support Manages per-user and per-IP bandwidth in addition to identifying service applications to ensure the network access experience of key services and users.
			The proposed equipment should support Control methods include limiting the maximum bandwidth, ensuring the minimum bandwidth, and changing application forwarding priorities.
		URL filtering	The proposed equipment should Provide a URL category database with over 120 million URLs and accelerates access to specific categories of websites, improving access experience of high- priority websites.
			The proposed equipment should support DNS filtering, in which accessed web pages are filtered based on domain names.
			The proposed equipment should support the SafeSearch function to filter resources of search engines, such as Google, to guarantee access to only healthy network resources.
		Behavior and content audit:	The proposed equipment should support Audits and traces the sources of the accessed content based on users.
		Load balancing & Uplink Selection:	The proposed equipment should support server load balancing and link load balancing, fully utilizing existing network resources.
			The proposed equipment should support 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-egress scenarios.
		VPN Encryption:	The proposed equipment should support multiple highly available VPN features, such as IPSec VPN, SSL VPN, L2TP VPN, MPLS VPN, and GRE, and provides the VPN client for SSL VPN, L2TP VPN, and L2TP over IPSec VPN remote access.
			The proposed equipment should support Dynamic smart VPN establishes VPN tunnels between branches whose public addresses are dynamically changed, reducing the networking and O&M costs of the branches.
			The proposed equipment should support Detects and defends against threats in SSL-encrypted traffic using application- layer protection methods, such as

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			intrusion prevention, antivirus, data filtering, and URL filtering.
			The proposed equipment should support Detects and defends against threats in SSL-encrypted traffic using application-layer protection methods, such as intrusion prevention, antivirus, data filtering, and URL filtering.
			The proposed equipment should support Replaces servers to implement SSL encryption and decryption, effectively reducing server loads and implementing HTTP traffic load balancing.
		Anti-DDoS:	The proposed equipment should support Defends against more than 10 types of common DDoS attacks, including SYN flood and UDP flood attacks.
		User authentication:	The proposed equipment should support multiple user authentication methods, including local, RADIUS, TACACS, AD, and LDAP.
			The proposed equipment should support built-in Portal and Portal redirection functions.
		Security virtualization:	The proposed equipment should support virtualization of multiple types of security services, including firewall, intrusion prevention, antivirus, and VPN. Users can separately conduct personal management on the same physical device.
		Security policy management:	The proposed equipment should support Manages and controls traffic based on VLAN IDs, quintuples, security zones, regions, applications, URL categories, and time ranges, and implements integrated content security detection.
			The proposed equipment should Provide predefined common-scenario defense templates to facilitate security policy deployment.
		Diversified reports	The proposed equipment should Provide visualized and multi-dimensional report display by user, application, content, time, traffic, threat, and URL.
			The proposed equipment should generates network security analysis reports on the OEM security center platform to evaluate the current network security status and provide optimization suggestions.
		Routing	The proposed equipment should support multiple types of routing protocols and features, such as RIP, OSPF, BGP, IS-IS, RIPng, OSPFv3, BGP4+, and IPv6 IS-IS.
		Deployment and reliability	The proposed equipment should support transparent, routing, and hybrid working modes and high availability (HA), including the Active/Active and Active/Standby modes.
		Service, Support, Warranty & Subscription	The bidder must have to quote Advanced Software License from day 1 and 3 (Three) years Threat Protection License subscription including IPS, AV, URL filtering And The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and

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			Controller, Security Controller for Unified Management & Operation.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter
Item No	Description of Item	Technical Specification and Standards	
A7	OOB Management Switch	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Country of Shipment	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in the latest Gartner Magic Quadrant for Wired and Wireless LAN Infrastructure.
		Enclosure Type:	Rack mountable, 1U
		Hardware Architecture	The equipment must support up to 48 x 10/100/1,000Base-T ports, 4 x 10 GE SFP+ and 2 x 10G SFP+ port equipped with 300m Multi Mode module from day 1 including patch cord
			The proposed equipment must support high switching capacity of at least 176Gbps non-blocking.
			The proposed equipment must support high packet transfer rate of at least 120 Mpps (Million packets per second) with 64 bytes per packet.
			The proposed equipment must support 1+1 power supply backup from day 1

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		Layer 2:	The equipment must support Mac-based, Port-based, protocol-based, and IP subnet-based VLAN assignment
			The equipment must support up to 4K active VLAN
			The equipment must support VLAN Mapping, Guest VLAN, voice VLAN, GVRP
			The equipment must support MAC address learning, aging and 64K MAC entries
			The equipment must support Packet filtering based on source MAC addresses
			The equipment must support ERPS (G.8032), BPDU protection, root protection, and loop protection
		Layer 3:	The equipment must support Static route, RIPv1/v2, RIPng, OSPF, OSPFv3, ECMP, IS-IS, IS-ISv6, BGP, BGP4+, VRRP, and VRRP6
			The equipment must support minimum 16K FIBv4 entries and 8K FIBv6 entries
			The equipment must support minimum 8K ND entries, PMTU, 6to4 tunnel, ISATAP tunnel
		QoS& ACL:	The equipment must support Packet filtering at Layer 2 to Layer 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP port number, protocol type, and VLAN ID
			The equipment must support queuing algorithms, such as DRR, SP, and DRR+SP
			The equipment must support Eight queues on each interface
			The equipment must support Interface-based traffic policing, Rate limiting in each queue and traffic shaping on interfaces
		Security:	The equipment must support Binding of the IP address, MAC address, interface number, and VLAN ID, Port isolation, port security, and sticky MAC
			The equipment must support CPU defense, DoS attack defense, ARP attack defense, and ICMP attack defense
			The equipment must support IEEE 802.1x authentication and limit on the number of users on an interface

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			The equipment must support AAA authentication, RADIUS authentication, TACACS authentication, and NAC
		Super Virtual Fabric (SVF):	The equipment should support Working as an SVF client that is plug-and-play with zero configuration
		Network O&M	The equipment must support SNMPv1/v2c/v3, RMON, SSHv2
			The equipment must support Cloud management based on Netconf/Yang, Web-based NMS, sFlow or NetStream
		Virtualization	The equipment must support stacking
			The switch must be equipped with 1-unit SFP+ High Speed Cable-5m from day 1 for stacking.
		Service, Support, Warranty & Subscription	The bidder must have to quote foundation license with software subscription, support service and SnS license for 3 Years And The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Unified Management & Operation.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter

Item No	Description of Item	Technical Specification and Standards	
A8	Spine and DCI Core Switch	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder



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		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Country of Shipment	To be mentioned by bidder
		Quality	TL9000 / ISO9001 for manufacturer, CE / FCC Class A/B for quality assurance
			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for Data Center and Cloud Networking
		Forwarding performance	The switching capacity is larger than or equal to 3.6 Tbps
			The packet forwarding rate is larger than or equal to 940 Mpps.
		Hardware specifications	The switch is Rack mountable; 1 U high
			Power supplies and fan modules work in 1+1 mode from day 1
			The switch supports front-to-back or back-to-front airflow.
		Interface configuration	The switch provides a minimum of 6 port 40GEQSFP+/100G QSFP28 interfaces
			The switch provides a minimum of 48 port 25GE SFP28 /10GE SFP+ interfaces.
			Bidder must need to supply 18 x 10G SFP+ 300m MM LC module & 2 x 10GE (SFP+) 80Km SM LC module from day 1 including LC/PC patch cord. The module must be from same OEM of proposed equipment.
		Layer 2 functions	The switch supports access, trunk, and hybrid modes.
			The switch supports QinQ
			The switch supports M-LAG.
			The switch supports DLDP or similar
			The switch supports MAC addresses $\geq 256K$
		Layer 3 functions	The switch supports static, dynamic, and blackhole MAC address entries.
			The switch supports ARP $\geq 256K$
			The switch supports IPv4 FIB $\geq 256K$
			The switch supports IPv4 dynamic routing protocols, such as RIP, OSPF, IS-IS, and BGP.
			The switch supports IPv6 dynamic routing protocols, such as RIPng, OSPFv3, IS-ISv6, and BGP4+.

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			The switch supports BFD for OSPF, BGP, IS-IS, and static route.
			The switch supports IPv6 VXLAN over IPv4.
			The switch supports IPv6 ND and PMTU discovery.
		QoS	The switch supports queue scheduling modes such as PQ, DRR, and PQ+DRR.
			The switch supports Traffic classification based on Layer 2, Layer 3, Layer 4, and priority information.
			The switch supports Congestion avoidance mechanisms, including WRED and tail drop.
			The switch supports traffic shaping.
		Reliability	The switch supports VRRP, VRRP load balancing, and BFD for VRRP.
			The switch supports N:1 virtualization technologies such as stacking or ESI
			The switch must be equipped with 1 unit QSFP28-100G-High Speed Cable-5m from day 1 for stacking.
		DC features	The switch supports VXLAN and BGP EVPN from day 1
			The switch supports VXLAN mapping
			The switch supports PFC.
			The switch supports QinQ access VXLAN
		Security	The switch supports defense against DoS, ARP, and ICMP attacks.
			The switch supports bindings of IP addresses, MAC addresses, interface numbers, and VLAN IDs.
			The switch supports port isolation.
			The switch supports AAA, RADIUS, and TACACS authentication.
			The switch supports RMON.
			The switch supports multicast traffic suppression.
			The switch supports IGMP snooping.
			The switch supports IGMP proxy.
			The switch supports PIM-SM, and MBGP.
		Configuration and maintenance	The switch supports Telemetry.
			The switch supports ERSPAN+
			The switch supports SNMPv1/v2/v3, Telnet, and SSH.



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			The switch supports network-wide path detection.
			The switch supports statistics on the microburst status in the buffer.
			The switch supports BootROM upgrade and remote upgrade.
			The switch supports ZTP technology that allows the configuration to be automatically delivered.
		Traffic analysis	The switch supports NetFlow or sFlow or jFlow or NetStream.
		SD-DCN	The switch support SDN Features and can be integrated into mainstream SDN & cloud computing platforms and must support integration with Ansible, Open stack Neutron or Open Programmability System (OPS) for future DCN fabric automation. Along with fine grained microsegmentation isolation capability for enhance security
		Service, Support, Warranty & Subscription	The bidder must have to quote Advance Software license from day 1 including IPv6, VXLAN, Telemetry Health Check and Multi-DC SDN Orchestration License for SDN Automation and bidder must have to quote SnS license for 3 Years And the proposed equipment should be same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Network Automation, Unified Management and intelligent O&M.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter

Item No	Description of Item	Technical Specification and Standards	
A9	Border Leaf Switch	Brand	Internationally Reputed Brand (To be mentioned by the bidder)



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		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Country of Shipment	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for Data Center and Cloud Networking
		Forwarding performance	The switching capacity is larger than or equal to 2 Tbit/s, which is subject to the minimum parameters listed on the official website.
			The packet forwarding rate is larger than or equal to 900 Mpps, which is subject to the minimum parameters listed on the official website.
		Hardware specifications	The switch is Rack mountable, 1 U high
			Power supplies and fan modules work in 1+1 mode from day 1
			The switch supports front-to-back or back-to-front airflow.
		Interface configuration	The switch provides a minimum of 6 40GEQSFP+/100G QSFP28 interfaces
			The switch provides a minimum of 48 10GE SFP+ interfaces.
			Bidder must supply 18 x 10G SFP+ 300m MM module from day 1 including LC/PC patch cord. The module must be from same OEM of proposed equipment.
		Layer 2 functions	The switch supports access, trunk, and hybrid modes.
			The switch supports QinQ
			The switch supports M-LAG.
			The switch supports DLDP or similar
			MAC addresses $\geq 250K$

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			The switch supports static, dynamic, and blackhole MAC address entries.
		Layer 3 functions	ARP $\geq 250K$
			IPv4 FIB $\geq 250K$
			The switch supports IPv4 dynamic routing protocols, such as RIP, OSPF, IS-IS, and BGP.
			The switch supports IPv6 dynamic routing protocols, such as RIPng, OSPFv3, IS-ISv6, and BGP4+.
			The switch supports BFD for OSPF, BGP, IS-IS, and static route.
			The switch supports IPv6 VXLAN over IPv4.
			The switch supports IPv6 ND and PMTU discovery.
		QoS	The switch supports queue scheduling modes such as PQ, DRR, PQ+DRR
			The switch supports Congestion avoidance mechanisms, including WRED and tail drop
			The switch support Traffic classification
			The switch supports traffic shaping.
		Reliability	The switch supports VRRP, VRRP load balancing, and BFD for VRRP.
			The switch supports N:1 virtualization technologies such as stacking or M-LAG.
			The switch must be equipped with 1-unit QSFP28-100G-High Speed Cable from day 1 for stacking.
		DC features	The switch supports VXLAN and BGP EVPN from day 1.
			The switch supports VXLAN mapping
			The switch supports PFC, RDMA and RoCE
			The switch supports VXLAN access through QinQ sub-interfaces.
		Security	The switch supports defense against DoS, ARP, and ICMP attacks.
			The switch supports bindings of IP addresses, MAC addresses, interface numbers, and VLAN IDs.
			The switch supports port isolation.

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			The switch supports AAA, RADIUS, and TACACS authentication.
			The switch supports RMON.
		Multicast	The switch supports multicast traffic suppression.
			The switch supports IGMP snooping.
			The switch supports IGMP proxy.
			The switch supports PIM-SM, and MBGP.
		Configuration and maintenance	The switch supports Telemetry. Provide the snapshot at the official website.
			The switch supports ERSPAN+
			The switch supports SNMPv1/v2/v3, Telnet, RMON, and SSH.
			The switch supports network-wide path detection.
			The switch supports statistics on the microburst status in the buffer.
			The switch supports BootROM upgrade and remote upgrade.
			The switch supports ZTP technology that allows the configuration to be automatically delivered.
		Traffic analysis	The switch supports NetFlow or Net Stream or similar. Provide the snapshot at the official website.
			The switch supports sFlow. Provide the snapshot at the official website.
		SD-DCN	The switch support SDN Features and can be integrated into mainstream SDN & cloud computing platforms and must support integration with ansible, Open stack Neutron or Open Programmability System (OPS) for future DCN fabric automation. Along with fine grained microsegmentation isolation capability for enhance security
		Service, Support & Warranty	The bidder must have to quote Advance Software license from day 1 including IPv6, VXLAN, Telemetry Health Check and Multi-DC SDN Orchestration License for SDN Automation and bidder must have to quote SnS license for 3 Years And the proposed equipment should be same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Network

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			Automation, Unified Management and intelligent O&M.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter

Item No	Description of Item	Technical Specification and Standards	
A10	Service Leaf Switch	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Country of Shipment	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for Data Center and Cloud Networking
		Forwarding performance	The switching capacity is larger than or equal to 2 Tbit/s, which is subject to the minimum parameters listed on the official website.



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			The packet forwarding rate is larger than or equal to 900 Mpps, which is subject to the minimum parameters listed on the official website.
		Hardware specifications	The switch is Rack mountable, 1 U high
			Power supplies and fan modules work in 1+1 mode from day 1
			The switch supports front-to-back or back-to-front airflow.
		Interface configuration	The switch provides a minimum of 6 40GEQSFP+/100G QSFP28 interfaces
			The switch provides a minimum of 48 10GE SFP+ interfaces.
			Bidder must supply 48 x 10G SFP+ 300m MM module from day 1 including LC/PC patch cord. The module must be from same OEM of proposed equipment.
		Layer functions 2	The switch supports access, trunk, and hybrid modes.
			The switch supports QinQ
			The switch supports M-LAG.
			The switch supports DLDP or similar
			MAC addresses $\geq 250K$
			The switch supports static, dynamic, and blackhole MAC address entries.
		Layer functions 3	ARP $\geq 250K$
			IPv4 FIB $\geq 250K$
			The switch supports IPv4 dynamic routing protocols, such as RIP, OSPF, IS-IS, and BGP.
			The switch supports IPv6 dynamic routing protocols, such as RIPng, OSPFv3, IS-ISv6, and BGP4+.
			The switch supports BFD for OSPF, BGP, IS-IS, and static route.
			The switch supports IPv6 VXLAN over IPv4.
			The switch supports IPv6 ND and PMTU discovery.
		QoS	The switch supports queue scheduling modes such as PQ, DRR, PQ+DRR
			The switch supports Congestion avoidance mechanisms, including WRED and tail drop

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			The switch support Traffic classification
			The switch supports traffic shaping.
		Reliability	The switch supports VRRP, VRRP load balancing, and BFD for VRRP.
			The switch supports N:1 virtualization technologies such as stacking or M-LAG.
			The switch must be equipped with 1-unit QSFP28-100G-High Speed Cable from day 1 for stacking.
		DC features	The switch supports VXLAN and BGP EVPN from day 1.
			The switch supports VXLAN mapping
			The switch supports PFC, RDMA and RoCE
			The switch supports VXLAN access through QinQ sub-interfaces.
		Security	The switch supports defense against DoS, ARP, and ICMP attacks.
			The switch supports bindings of IP addresses, MAC addresses, interface numbers, and VLAN IDs.
			The switch supports port isolation.
			The switch supports AAA, RADIUS, and TACACS authentication.
			The switch supports RMON.
		Multicast	The switch supports multicast traffic suppression.
			The switch supports IGMP snooping.
			The switch supports IGMP proxy.
			The switch supports PIM-SM, and MBGP.
		Configuration and maintenance	The switch supports Telemetry. Provide the snapshot at the official website.
			The switch supports ERSPAN+
			The switch supports SNMPv1/v2/v3, Telnet, RMON, and SSH.
			The switch supports network-wide path detection.
			The switch supports statistics on the microburst status in the buffer.
			The switch supports BootROM upgrade and remote upgrade.

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			The switch supports ZTP technology that allows the configuration to be automatically delivered.
		Traffic analysis	The switch supports NetFlow or Net Stream or similar. Provide the snapshot at the official website.
			The switch supports sFlow. Provide the snapshot at the official website.
		SD-DCN	The switch support SDN Features and can be integrated into mainstream SDN & cloud computing platforms and must support integration with ansible, Open stack Neutron or Open Programmability System (OPS) for future DCN fabric automation. Along with fine grained microsegmentation isolation capability for enhance security
		Service, Support & Warranty	The bidder must have to quote Advance Software license from day 1 including IPv6, VXLAN, Telemetry Health Check and Multi-DC SDN Orchestration License for SDN Automation and bidder must have to quote SnS license for 3 Years And the proposed equipment should be same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Network Automation, Unified Management and intelligent O&M.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter

Item No	Description of Item	Technical Specification and Standards
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A11	Compute Leaf Switch	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Country of Shipment	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for Data Center and Cloud Networking
		Forwarding performance	The switching capacity is larger than or equal to 2 Tbit/s, which is subject to the minimum parameters listed on the official website.
			The packet forwarding rate is larger than or equal to 900 Mpps, which is subject to the minimum parameters listed on the official website.
		Hardware specifications	The switch is Rack mountable, 1 U high
			Power supplies and fan modules work in 1+1 mode from day 1
			The switch supports front-to-back or back-to-front airflow.
		Interface configuration	The switch provides a minimum of 6 40GEQSFP+/100G QSFP28 interfaces
			The switch provides a minimum of 48 10GE SFP+ interfaces.
			Bidder must supply 48 x 10G SFP+ 300m MM module from day 1 including LC/PC patch cord. The module must be from same OEM of proposed equipment.
		Layer functions 2	The switch supports access, trunk, and hybrid modes.
			The switch supports QinQ
			The switch supports M-LAG.
			The switch supports DLDP or similar
			MAC addresses $\geq 250K$

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			The switch supports static, dynamic, and blackhole MAC address entries.
		Layer functions 3	ARP $\geq 250K$
			IPv4 FIB $\geq 250K$
			The switch supports IPv4 dynamic routing protocols, such as RIP, OSPF, IS-IS, and BGP.
			The switch supports IPv6 dynamic routing protocols, such as RIPng, OSPFv3, IS-ISv6, and BGP4+.
			The switch supports BFD for OSPF, BGP, IS-IS, and static route.
			The switch supports IPv6 VXLAN over IPv4.
			The switch supports IPv6 ND and PMTU discovery.
		QoS	The switch supports queue scheduling modes such as PQ, DRR, PQ+DRR
			The switch supports Congestion avoidance mechanisms, including WRED and tail drop
			The switch support Traffic classification
			The switch supports traffic shaping.
		Reliability	The switch supports VRRP, VRRP load balancing, and BFD for VRRP.
			The switch supports N:1 virtualization technologies such as stacking or M-LAG.
			The switch must be equipped with 1-unit QSFP28-100G-High Speed Cable from day 1 for stacking.
		DC features	The switch supports VXLAN and BGP EVPN from day 1.
			The switch supports VXLAN mapping
			The switch supports PFC, RDMA and RoCE
			The switch supports VXLAN access through QinQ sub-interfaces.
		Security	The switch supports defense against DoS, ARP, and ICMP attacks.
			The switch supports bindings of IP addresses, MAC addresses, interface numbers, and VLAN IDs.
			The switch supports port isolation.

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			The switch supports AAA, RADIUS, and TACACS authentication.
			The switch supports RMON.
		Multicast	The switch supports multicast traffic suppression.
			The switch supports IGMP snooping.
			The switch supports IGMP proxy.
			The switch supports PIM-SM, and MBGP.
		Configuration and maintenance	The switch supports Telemetry. Provide the snapshot at the official website.
			The switch supports ERSPAN+
			The switch supports SNMPv1/v2/v3, Telnet, RMON, and SSH.
			The switch supports network-wide path detection.
			The switch supports statistics on the microburst status in the buffer.
			The switch supports BootROM upgrade and remote upgrade.
			The switch supports ZTP technology that allows the configuration to be automatically delivered.
		Traffic analysis	The switch supports NetFlow or Net Stream or similar. Provide the snapshot at the official website.
			The switch supports sFlow. Provide the snapshot at the official website.
		SD-DCN	The switch support SDN Features and can be integrated into mainstream SDN & cloud computing platforms and must support integration with ansible, Open stack Neutron or Open Programmability System (OPS) for future DCN fabric automation. Along with fine grained microsegmentation isolation capability for enhance security
		Service, Support & Warranty	The bidder must have to quote Advance Software license from day 1 including IPv6, VXLAN, Telemetry Health Check and Multi-DC SDN Orchestration License for SDN Automation and bidder must have to quote SnS license for 3 Years And the proposed equipment should be same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Network Automation, Unified Management and intelligent O&M.

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			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter

Item No	Description of Item	Technical Specification and Standards	
A12	Internal Fabric Firewall	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Quality	The manufacturer of the proposed goods should be ISO9001/9002 certified, or CE / FCC Class A/B for quality assurance certification.
			The OEM of the Proposed brand must be in challenger or Leader quadrant in the latest Gartner Magic Quadrant for Network Firewall
		Enclosure Type:	Rack Mountable, 1U
		Hardware Architecture:	The equipment must have 240 GB local storage from day 1
			The equipment must have the capability to provide internal redundant power supplies available from day 1
			Interface requirements: Should have 2 x 40GE (QFP+), 12 x 10GE (SFP+) + 12 x 1GE (Rj45) from day 1 and 12 x 10G SFP+ port equipped with 300m MM module from day 1 including patch cord
		Feature & Function Requirements:	Support concurrent SSL VPN users minimum 5000 and 100 SSL VPN user from day 1
			Support IPSec VPN tunnels minimum 15000
			Support Virtual firewalls minimum 500
			Firewall Throughput minimum 30 Gbps

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			Number of concurrent connections Minimum 10,000,000
			Number of new connections per second minimum 400,000
			IPSec throughput minimum 20 Gbps
			IPS throughput $\geq 12$ Gbps
			SSL Inspection Throughput $\geq 6$ Gbps
			Security Policies minimum 40,000
			URL Filtering: minimum 130 Categories and minimum 120 million URLs
		Integrated Protection:	The proposed equipment should support Integrates firewall, VPN, intrusion prevention, antivirus, data leak prevention, bandwidth management, anti-DDoS, URL filtering, and anti-spam functions.
			The proposed equipment should Provides a global configuration view, and manages policies in a unified manner.
		Application identification and control:	The proposed equipment should Identifies over 6000 applications and supports the access control granularity down to application functions.
			The proposed equipment should combines application identification with intrusion detection, antivirus, and data filtering, improving detection performance and accuracy.
		Cloud-based management mode:	The proposed equipment should support to initiates authentication and registration to the cloud management platform to implement plug-and-play and simplify network creation and deployment. Service configuration, device monitoring, and fault management can be performed remotely, implementing the management of mass devices in the cloud.
		Intrusion prevention and web protection:	The proposed equipment should Accurately detects and defends against vulnerability-specific attacks based on up-to-date threat information
			The proposed equipment should support defend against web-specific attacks, including SQL injection and XSS attacks.
		Antivirus:	The proposed equipment should Rapidly detects over 5 million types of viruses based on the daily-updated virus signature database.
		Data leak prevention (DLP):	Inspects files to identify the file types, such as WORD, EXCEL, POWERPOINT, and PDF, based on file content, and filters the file content.
		Bandwidth management:	The proposed equipment should support to Implements refined bandwidth management based on applications and websites, preferentially forwards key services, and ensures bandwidth for key services.
			The proposed equipment should support Manages per-user and per-IP bandwidth in addition to identifying service applications to ensure the network access experience of key services and users.

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			The proposed equipment should support Control methods include limiting the maximum bandwidth, ensuring the minimum bandwidth, and changing application forwarding priorities.
		URL filtering	The proposed equipment should Provides a URL category database with over 120 million URLs and accelerates access to specific categories of websites, improving access experience of high- priority websites.
			The proposed equipment should support DNS filtering, in which accessed web pages are filtered based on domain names.
			The proposed equipment should support the SafeSearch function to filter resources of search engines, such as Google, to guarantee access to only healthy network resources.
		Behavior and content audit:	The proposed equipment should support Audits and traces the sources of the accessed content based on users.
		Load balancing & Uplink Selection:	The proposed equipment should support server load balancing and link load balancing, fully utilizing existing network resources.
			The proposed equipment should support 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-egress scenarios.
		VPN Encryption:	The proposed equipment should support multiple highly available VPN features, such as IPsec VPN, SSL VPN, L2TP VPN, MPLS VPN, and GRE, and provides the VPN client for SSL VPN, L2TP VPN, and L2TP over IPsec VPN remote access.
			The proposed equipment should support Dynamic smart VPN establishes VPN tunnels between branches whose public addresses are dynamically changed, reducing the networking and O&M costs of the branches.
			The proposed equipment should support Detects and defends against threats in SSL-encrypted traffic using application- layer protection methods, such as intrusion prevention, antivirus, data filtering, and URL filtering.
			The proposed equipment should support Detects and defends against threats in SSL-encrypted traffic using application-layer protection methods, such as intrusion prevention, antivirus, data filtering, and URL filtering.
			The proposed equipment should support Replaces servers to implement SSL encryption and decryption, effectively reducing server loads and implementing HTTP traffic load balancing.
		Anti-DDoS:	The proposed equipment should support Defends against more than 10 types of common DDoS

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			attacks, including SYN flood and UDP flood attacks.
		User authentication:	The proposed equipment should support multiple user authentication methods, including local, RADIUS, TACACS, AD, and LDAP.
			The proposed equipment should support built-in Portal and Portal redirection functions.
		Security virtualization:	The proposed equipment should support virtualization of multiple types of security services, including firewall, intrusion prevention, antivirus, and VPN. Users can separately conduct personal management on the same physical device.
		Security policy management:	The proposed equipment should support Manages and controls traffic based on VLAN IDs, quintuples, security zones, regions, applications, URL categories, and time ranges, and implements integrated content security detection.
			The proposed equipment should Provides predefined common-scenario defense templates to facilitate security policy deployment.
		Diversified reports	The proposed equipment should Provides visualized and multi-dimensional report display by user, application, content, time, traffic, threat, and URL.
			The proposed equipment should generates network security analysis reports on the OEM security center platform to evaluate the current network security status and provide optimization suggestions.
		Routing	The proposed equipment should support multiple types of routing protocols and features, such as RIP, OSPF, BGP, IS-IS, RIPng, OSPFv3, BGP4+, and IPv6 IS-IS.
		Deployment and reliability	The proposed equipment should support transparent, routing, and hybrid working modes and high availability (HA), including the Active/Active and Active/Standby modes.
		Service, Support, Warranty & Subscription	The bidder must have to quote Advanced Software License from day 1 and 3 (Three) years Threat Protection License subscription including IPS, AV, URL filtering and AI Detection License subscription. And The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller, Security Controller for Unified Management & Operation.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware

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			replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacturer Authorization Letter
Item No	Description of Item	Technical Specification and Standards	
A13	SDN Controller	Brand:	To be mentioned by the bidder
		Model:	To be mentioned by the bidder
		Country of Origin:	To be mentioned by bidder
		Country of Manufacturer:	To be mentioned by bidder
		System Architecture	The system must be inbuilt with OEM provided customized Physical Server with 3 node cluster including OS & DB platform and the server must be provided from day 1(one). Also OEM must need to provide multi-DC controller with 3 node srver cluster to orchestrate services across multiple DCs and clouds, and displays services in a unified manner and ensure Automatic failover among DC-DR SDN controller.
			The system should support cloud-native architecture, service-oriented module design and supports distributed virtualization deployment
		Key Components	The system should provide basic network services such as alarms and logs and product engineering capabilities such as geographic redundancy and backup.
			The system should provide network management, service automation, analysis, and prediction capabilities.
			The system should provide service capabilities such as O&M services for different business scenarios.
			The system should provide northbound APIs to quickly interconnect and integrate with third-party applications or other management and control systems.
			The system should support On-demand Deployment of the Container Network
		Automated E2E Network Deployment	The system should provide one-click ZTP deployment and flexible planning-based deployment for the physical underlay network to meet automatic networking requirements and implement fast network infrastructure construction, upgrade, and capacity expansion.
			The system should provide a simplified drag and drop network design and automatic provisioning process for logical overlay networks.
		Intent-based Network Deployment	The system should Understands and translates the service intent entered by administrators into network intent.



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			The system should Provide multiple preferred network models and deployment solutions based on AI model calculation and configuration plane simulation verification.
			The system should Converts a network deployment solution into NE configurations and automatically delivers the configurations to network devices.
		Change Risk Assessment	The system should provide a simulation verification module for Zero-Error Configuration
			The system should Establishes a technical mechanism to prevent problems caused by manual misoperations, improving work efficiency and security productivity.
		Intelligent O&M	The system should uses the Telemetry technology to collect data from the management plane, forwarding plane, and data plane on the entire network in real time, and detects faults in minutes from the service experience perspective.
			The system should uses AI algorithms to build a network knowledge graph based
			The system should supports intent-based fault remediation and intelligently analyzes fault impacts
			The system should Prevents network quality deterioration and detects faults before they occur, minimizing faults
			The system should quickly locate the fault and resolved, implementing easy O&M.
		NE management and control	The system should support NE fault, configuration, accounting, performance, security (FCAPS) and basic network configuration
		Network service provisioning	The system should interconnect with the mainstream cloud platform OpenStack, container orchestration platform, or third-party applications. The cloud platform or third-party applications invoke the standard APIs to provision network services.
			The system should independently provisions IPv4 or IPv6 network services to implement automatic network deployment.
		Zero Touch Provisioning(ZTP)	The system should Supports device go-online through ZTP and automatic faulty device replacement.
			Automatically identifies and manages network devices
		Cybersecurity	The system should Supports traffic diversion to third-party firewalls and load balancers.
			The system should Supports microsegmentation.
			The system should Supports role-based access control.
			The system should Supports local or remote authentication (RADIUS, AD, and LDAP authentication).

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		SFC	The system should Supports IETF-based SFC model.
		Overlay O&M	The system should Supports logical resource monitoring.
			The system should Supports visibility of the application, logical, and physical network topologies. Mappings from the application to logical topology, and from the logical topology to physical topology can also be displayed.
			The system should Provides an overlay network detection tool to perform path detection, intelligent loop detection, and connectivity detection.
			The system should Provides an overlay O&M tool to perform southbound and northbound data consistency verification, intent-based verification, and device replacement or fault impact analysis, and provide emergency plans.
		Reliability	The system should Supports distributed clusters.
			The system should Supports active/standby geographic redundancy deployment.
		Telemetry network monitoring	The system should Collects and displays performance indicators of devices, boards, chips, interfaces, queues, and optical links through Telemetry, and detects exceptions based on dynamic baselines.
			The system should Supports millisecond-level queue congestion and packet loss detection.
		Application and network visibility	The system should Supports physical network topology visibility and displays abnormal links and congested ports in the current or historical time period in the topology.
			The system should Displays the application health status, interaction relationships between applications and hosts in an application, and details about TCP flows with abnormal host interaction.
		Predictive maintenance	The system should Predicts optical link health status.
			The system should Predicts traffic on a port.
		Network health assessment	The system should Constructs a network health assessment system based ob the device, network, protocol, overlay network, and application flow and provides reports.
		Issue analysis	The system should Identifies minimum 75 typical faults of 7 types (configuration, non-fabric, hardware, resource specifications, entire network, entry, and cybersecurity) within minutes.
		Service, Support, Warranty & Subscription	The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided

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			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder/OEM shall have support and logistics arrangements in Bangladesh.

Item No	Description of Item	Technical Specification and Standards	
A14	DC Network Analyzer	Brand	To be mentioned by the bidder
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		System Architecture	The system must be inbuilt with OEM provided customized Physical Server including OS & DB platform and the server must be provided from day 1(one).
		Key Components	The system should provide second-level collection of real flow on the entire network in Telemetry mode, analyzes and displays network data based on the big data intelligent algorithms, and provides northbound APIs to interconnect with upper-layer application systems.
		Network Visibility & Monitoring	The system should provide All scenario data collection through Telemetry, proactively detecting anomalies before services are affected
			Can quickly locate the time point of dynamic baseline-exceeded anomalies, proactively identifying issues before services are interrupted.
		Intelligent network analysis	Supports system monitoring, license management, resource management.
			Monitors and analyzes KPIs of devices, boards, chips, interfaces, queues, and optical links.
			Compares and analyzes network changes from dimensions such as configurations and entries.
			Supports automatic and manual synchronization of snapshots such as device configurations, ARP entries, ND entries, and RIB entries, automatically analyzes configuration entry differences both before and after changes, and generates detection results.
			Visualizes network-wide log events and intelligently identifies abrupt log changes and occasional exceptions.
			Analyzes VM distribution statistics, access relationship, and tracks.
		Intelligent O&M and Network Health Assessment	Evaluates network health from five layers: device, network, protocol, overlay, and service.
			Exports evaluation reports in real time or periodically.



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			Quickly detects faults, locates their root cause, and eliminates faults from the perspectives of device, network, protocol, overlay, and service.
			collects data on the management, forwarding, and data planes of the entire network in real time, and detects faults in minutes from the perspective of service experience
			uses AI to create network knowledge graphs, and continuously improves efficiency in fault locating through performing drills; locate the root causes of typical faults within 3 minutes
			supports intent-based loop closure
			Intelligently analyze the fault impact and recommend the optimal contingency plan so that typical faults can be quickly rectified within 5 minutes by the cooperation with SDN Controller.
			Supports input of more than 15 intents in four categories — reachability, isolation, existence, and consistency — and automatic and manual verification of whether the network intents meet expectations.
			Provides service intent verification on the data plane and supports automatic inspection to guarantee VIP services.
		Service, Support, Warranty & Subscription	The proposed equipment should be same brand of SDN Controller for Network Automation, Unified Management and Intelligent O&M
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder/OEM shall have support and logistics arrangements in Bangladesh.

Item No	Description of Item	Technical Specification and Standards	
A15	Security Controller	Brand:	To be mentioned by the bidder
		Model:	To be mentioned by the bidder
		Country of Origin:	To be mentioned by bidder
		Country of Manufacturer:	To be mentioned by bidder



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		System Architecture	The system must be inbuilt with OEM provided customized Physical Server including OS & DB platform and the server must be provided from day 1(one). And the platform must need to be capable for log Management function capabilities with 1 year log storage capacity.
		Basic management NE	Device discovery, device management (firewall and IPS), (three level) device group management, virtual system management, configuration consistency check, device SSO, HSB management, customized rights- and domain-based management, system template, device monitoring, and global monitoring
			Resource pool adding, deletion, modification, and query
			Address, service, time range, NAT address pool, URL category, IPS, antivirus, URL filtering, APT, application host, network partition management, and application group
			Security policy, NAT policy, VPC policy, IPSec policy, security service, and task deployment
		Policy Collaboration	Receiving threat handling requests from the big data security analysis system and sending them to threat blocking devices
			Can effectively identify unknown threats based on network behavior analysis and correlation analysis technologies.
			Supports defining whitelists, risk rules, and hybrid rules for compliance check.
			Network topology awareness and SFC-based traffic diversion policy delivery
		Policy orchestration	Automatic delivery of security policies based on network partitions, application mutual access relationships, security services, and VPCs
			Management scope of devices and policies defined by protected network segments to facilitate policy orchestration
			Policy management based on service partitions
			Automatic security service deployment
		Policy tuning	Policy tuning based on redundancy analysis results
		Policy simulation	Analysis of policy change impacts on application services based on simulation results before policy changes
		SDN network Integration	Collaboration with the SDN management and control system to detect network topology changes and implement tenant-based automatic security service deployment.
			North-south threat blocking, east-west threat isolation, and refined SDN network security control through SFC-based traffic diversion.
			Interworking with the cloud platform to automatically convert service policies to security policies.

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		Service, Support, Warranty & Subscription	The bidder must have to quote 3 (Three) years Software Subscription & Support and Security Hardware Management License for minimum 24 device. And The proposed equipment should be same brand of SDN Controller for Network Automation, Unified Management and Intelligent O&M
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution. And OEM Engineer should involve in deployment.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder/OEM shall have support and logistics arrangements in Bangladesh.

Item No	Description of Item	Technical Specification and Standards	
A16	Campus Network Manager and Controller	Brand	Internationally Reputed Brand (To be mentioned by the bidder)
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		System Architecture	The system must be inbuilt with OEM provided customized Physical Server including OS & DB platform and the server must be provided from day 1(one).
		Automatic Network Deployment:	Support physical network deployment automation, virtual network service provisioning automation, and LAN-WAN converged management.

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			Support App-based deployment, DHCP-based deployment, and deployment through the registration query center and ZTP-based deployment of POL devices - Devices are plug-and-play and networks are provisioned within minutes, greatly simplifying network deployment and shortening the construction period.
			Support End-to-end automated VXLAN network deployment - service isolation, one network for multiple purposes, and a wide range of networking models (such as centralized gateway and distributed gateway), enabling more flexible and efficient network adjustment and capacity expansion.
			Support Multi-branch interconnection - LAN and WAN network devices are centrally deployed, managed, and monitored, guaranteeing services in an end-to-end manner while reducing O&M costs and improving O&M efficiency.
		Service Policy Automation:	Support mass user authentication, endpoint plug-and-play, and hierarchical QoS scheduling.
			Support Massive network device management and user network access authentication
			Supports multiple authentication modes, such as 802.1X authentication, Portal authentication, and social media authentication. Users are decoupled from IP addresses, and can access the network anytime and anywhere with consistent permissions. This ensures free mobility and consistent user experience, ensuring user experience while meeting permission control requirements.
			Support Built-in terminal fingerprint library - Multiple intelligent identification methods are combined to accurately identify terminal types. Massive IoT terminals are connected intelligently, and policies are automatically matched and delivered, making IoT terminals plug-and-play.
			Support HQoS scheduling based on users and service priorities - Different policies are implemented for different users and applications, achieving more refined bandwidth policy control and effectively ensuring user access experience.
		Intelligent O&M:	Support Real-Time Experience Visibility, Fault Locating Within Minutes, Intelligent Network Optimization



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			Support Real-time experience visibility for each application of each user in each area - With fault backtracking, quickly and intelligently demarcates faulty devices and analyzes root causes for poor quality.
			Support Continuously trained AI algorithm - Through proactive issue identification, fault locating in minutes, and intelligent fault prediction, identifies 90% of potential network faults and provides optimal rectification suggestions.
			Support Real-time wireless network channel conflict evaluation - performs predictive radio calibration, and compares gains before and after calibration, improving network performance by more than 50%.
		Simplified Network Deployment:	Provides four PnP deployment modes - deployment through app-based barcode scanning, deployment through DHCP, deployment through the registration query center, deployment through the email and ZTP-based deployment of POL devices, to adapt to different network scenarios.
			Support GUI-based network planning and deployment and provision network services in minutes.
		Automatic Virtual Network Service Provisioning:	Support Visualized service configuration and GUI-based fabric planning, configuration, and provisioning.
			Supports service configuration visualization, topology-based virtual network configuration and monitoring, and real-time service provisioning status query.
			Support Automatically establish VXLAN tunnels through BGP EVPN.
			Supports centralized and distributed VXLAN gateway solutions, providing flexible expansion and high efficiency.
		SD-WAN Convergent Management:	Support Automatic deployment of HQ-branch and branch-branch lease line services - automatic configuration of all services including service policies, value-added services (VASs), and dynamic VPN connections, simplifying branch network deployment.
			Support Application experience-prior - Agile supports comprehensive traffic steering considering bandwidth and link quality.



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			Support O&M and network-wide application traffic visualization - supports visualized management by application and link, network-wide status visualization, and real-time network status awareness, improving O&M efficiency.
		Multi-tenant Management:	Support Adopting a three-level management model - The system administrator is responsible for platform- wide management and O&M. The MSP administrator can create tenants and provide construction and maintenance services for tenants. The tenant administrator is responsible for deployment and O&M of the local network; alternatively, the tenant administrator can authorize an MSP to manage tenant networks.
			Supports rights- and domain-based management. In the three-level management model, administrators can be set by role and site to secure network management.
			Support Services are invisible between tenants. Data of different tenants is isolated in an E2E manner and distinguished by tenant IDs in the database. In addition, only the corresponding tenant administrator can access data of a tenant. This ensures tenant data security to the most extent.
		User Access Authentication:	Support authentication protocol HTTP2.0, and can authenticate a large number of network devices and users using various access authentication modes, such as 802.1X authentication, Portal authentication, SMS authentication, and social media authentication. It also provides multiple user access control policies. This significantly improves network security.
			Support Users decoupled from IP addresses, allowing users to access the network anytime, anywhere with consistent permissions. This ensures free mobility and consistent user experience, ensuring user experience while meeting permission control requirements.
		Endpoint plug and play:	Support Built-in terminal fingerprint library - Multiple intelligent identification methods are combined to accurately identify endpoint types.
			Support Massive IoT endpoints are connected intelligently, and policies are automatically matched and delivered, making IoT endpoints plug-and-play.

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		Intelligent HQoS:	Support HQoS scheduling based on users and service priorities - Different policies are implemented for different users and applications, achieving more refined bandwidth policy control and effectively ensuring user access experience.
		Intelligent O&M:	Provides GIS-based networking monitoring, network inspection, and health evaluation to monitor device alarms in real time and detect network conditions in advance for fault prevention. If a fault occurs, system provides various fault locating methods to quickly locate and rectify the fault.
		Capability Openness:	Provides 170+ northbound RESTful APIs for user management, topology management, access authentication, service configuration, and performance monitoring.
			Leveraging such APIs, greatly simplifies integration with third-party systems and shortens the TTM of services.
		Service, Support, Warranty & Subscription Services:	The bidder must have to include Foundation License containing Device Monitoring, Device Configuration & Management, WLAN Controlling function, Management & monitoring License for 3 (Three) years.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			Bidder/OEM shall have support and logistics arrangements in Bangladesh.

Item No	Description of Item	Technical Specification and Standards	
A17	WiFi6 Access Point	Brand	Internationally reputed Brand
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder

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		Quality	The OEM of the Proposed brand must be in the latest Gartner Magic Quadrant for Wired and Wireless LAN Infrastructure.
		Hardware Specifications	The equipment must have minimum 1 x 10M/100M/1GE RJ45 Port.
			Support 1 x USB interface
			Support Bluetooth BLE5.0
			Support Built-in smart antennas or similar
			Support minimum 2.4GHz: 4dBi & 5GHz: 5dBi for antenna gain
			Support minimum 1000 users
		WLAN Features	Support minimum 4 (Four) spatial streams and achieving minimum 1.70 Gbps throughput from day one.
			Support IEEE 802.11ax and IEEE 802.11a/b/g/n/ac/ac Wave 2
			Support Space time block code
			Support Cyclic Delay Diversity /Cyclic Shift Diversity
			Support Beamforming and Low-density parity-check
			Support 1024QAM
			Support Frame aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Tx/Rx)
			Support 802.11 dynamic frequency selection
			Support Short guard interval (GI) in 20 MHz, 40 MHz, 80 MHz modes
			Support Automatic and manual rate adjustment
			Support Automatic channel scanning and interference avoidance
			Support Signal sustain technology
			Support 802.11k and 802.11v smart roaming
			Support Multi-user CAC
			Support 802.11r fast roaming ( $\leq 50$ ms)
		Network Features	Support and Compliance with IEEE 802.3ab & IEEE 802.1q
			Support SSID-based VLAN assignment
			Support VLAN trunk on uplink Ethernet ports

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			Support Management channel of the AP uplink port in tagged and untagged mode
			Support DHCP client, obtaining IP addresses through DHCP
			Support Tunnel data forwarding and direct data forwarding
			Support IPV4/IPV6 Access control lists
			Support Link Layer Discovery Protocol
			Support Soft Generic Routing Encapsulation
			Support IPv6 Source Address Validation Improvements
		QoS Features	Support WMM parameter management for each radio
			Support WMM power saving
			Support Priority mapping for upstream packets and flow-based mapping for downstream packets
			Support Queue mapping and scheduling
			Support User-based bandwidth limiting
			Support automatic bandwidth adjustment based on the user quantity and radio environment
			Support Airtime scheduling
		Security Features	Support Open system authentication
			Support WEP authentication/encryption using a 64-bit, 128-bit, 152-bit or 192-bit encryption key
			Support WPA3-802.1X authentication and encryption
			Support WPA-WPA2 hybrid authentication
			Support WPA2-WPA3 hybrid authentication
			Support WAPI authentication and encryption
			Support Wireless intrusion detection system and wireless intrusion prevention system
			Support rogue device detection and countermeasure, attack detection and dynamic blacklist, and STA/AP blacklist and whitelist
			Support 802.1x authentication, MAC address authentication, and Portal authentication
			Support DHCP snooping, Dynamic ARP Inspection , IP Source Guard

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			Support 802.11w Protected Management Frames
		Maintenance Features	Support automatic login and configuration loading, and plug-and-play
			Support Batch upgrade
			Support Telnet, STelnet using SSH v2, SFTP using SSH v2
			Support Web local AP management through HTTP or HTTPS
			Support Real-time configuration monitoring and fast fault location using the NMS
			Support SNMP v1/v2/v3
			Support Network Time Protocol
			Support cloud based management mode for future without changing the device.
		Service, Support, Warranty & Subscription	The bidder must have to quote foundation license with software subscription, support service and SnS license for 3 Years And The proposed equipment should be from same brand of SDN Controller, DC Network Analyzer, Campus Network Manager and Controller for Network Automation, Unified Management and intelligent O&M.
			The bidder must need to quote OEM Professional Deployment Service (Planning, Design & Implementation Service) with the proposed equipment/solution.
			Customer should able to directly open TAC cases by Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			The bidder must quote minimum 3 (Three) years manufacturer's warranty including Hardware replacement service and 24x7 Remote Technical support. The warranty services will start from the date of successful commissioning.
			Bidder must have to provide Manufacture Authorization Letter

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Item No	Description of Item	Technical Specification and Standards	
A18	<b>Multi-DC SDN Orchestration License</b>	Brand	Internationally reputed Brand
		Requirements Details	The bidder must have to quote Multi-DC SDN Orchestration License for SDN Automation among DC DR with 3 Year subscription.
			The proposed license should be offer for Spine, Leaf (Border, Service, and Compute) of existing DC and it must need to be compatible with existing equipment and proposed license should be same brand of existing Spine & Leaf Switch of DC.

Item No	Description of Item	Technical Specification and Standards	
A19	<b>Interactive Whiteboard with Advanced Video Conferencing</b>	Brand	Internationally reputed Brand
		Model	To be mentioned by the bidder
		Country of Origin	To be mentioned by bidder
		Country of Manufacturer	To be mentioned by bidder
		Overall requirement	The bidding product should provide dual-chip with no less than 4-core, 1.5GHz + 4-core, 1.8 GHz, at least 12 GB RAM, 64GB flash, 4T FLOPS AI computing power.
			Bidder must provide the OPS or similar which is minimum windows 10 with i7, 16G DDR4, 256GB SSD from day one.
			The bidding product should support standard interfaces for Open Pluggable Specification to provide extra services. At least one OPS should be provided for the terminal.
			Bidder must provide the floor stand (with roller) for installation, removable, easy to deploy from day one. Also provide the wall Mount bracket from day one so that user can use as requirements.
			The bidding product should support H.323, SIP and IPv4, IPv6.



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		Screen requirements	The bidding product should provide no less than 65-inch whiteboard display screen and the maximum display resolution is not less than 3840*2160, the refresh rate is not less than 60Hz.
			The bidding product should support anti-reflection and glare, automatic screen brightness adjustment functions.
			The bidding product should support no less than 10 touch points with $\pm 1$ mm precision, and no less than 2 styluses.
			Bidder must provide the touch tablet for controlling the device from day one.
		Camera requirements	The bidding product should support no less than 8 megapixel 1/2.8 inch CMOS imaging chip, the maximum resolution is 4K/1080P30, no less than 2 times digital zoom, no less than 80 ° horizontal field of view, no less than 50 ° vertical field of view, support auto white balance (AWB) and auto exposure (AE).
			The bidding product should support no less than 30 camera presets.
			The bidding product must support intelligent speaker tracking function, using sound source positioning technology, automatically switch the speaker close-up picture without manual intervention.
			The bidding product must support adaptive panoramic shooting, the system can be automatically adjusted according to the number of participants and location, the panoramic screen should cover all participants, and ensure that the participants are displayed in the middle.
		Microphone requirements	The bidding product should support 12 built-in linear microphone arrays, 20 KHz full band audio pickup, the pickup radius is not less than 8 meters, and the audio pickup is not less than 180° forward. Bidder must provide 01 Pcs Table Mic from day one.
		Audio & Video specifications	The bidding product must support the following access rates: 64 kbit/s to 4 Mbit/s.
			The bidding product must support H.264 BP, H.264 HP, H.264SVC and H.265.
			The bidding product should support G.711, G.722, G.722.1C, Opus and AAC-LD.
			The bidding product should support 1080p25/30, 720p50/60, 720p25/30, 4CIF, and CIF video encoding and decoding.
		Dual-stream specifications	The bidding product must support H.323-based H.239, SIP-based BFCP protocol.

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			The bidding product should support video+presentation with 1080p 30fps+1080p 30fps, 1080p 30fps+4K 8fps.
			The bidding product must support wireless projection code function. It is not necessary to input the terminal IP address, and the mobile or PC can be shared to terminal by the projection code, the number of projection codes is not more than 6 bits.
		Whiteboard requirements	The bidding product should support two persons writing at the same time, providing stroke effect and realistic writing experience when writing on the electronic whiteboard.
			The bidding product should support built-in local whiteboard function and gesture operations, realize handwriting, drawing, erasing, labeling, screenshot, background-color customization, whiteboard zoom, dragging the canvas and other functions.
			The bidding product should support to save the whiteboard locally and continue to edit it when it is opened for the second time, or save it in the external USB flash, or send the whiteboard via email.
			The bidding product must support data conferencing function, realize remote whiteboard sharing, two-way collaboration and annotation in conferences, and the data conference resolution is not less than 4K.
		Port requirements	The bidding product must provide at least 2 HDMI video inputs and at least 1 HDMI video output port.
			The bidding product must come with at least the HDMI 2.0 port.
			The bidding product must provide 3 audio input ports and 2 audio output ports.
			The bidding product should allow a user to import a configuration file using the USB port, which facilitates device installation and deployment.
			The bidding product should support at least one 10/100/1000 Mbit/s auto-negotiation network port, one RJ45 port for touch control connection.
			The bidding product must support 2.4GHz/5GHz dual-band access to Wi-Fi. Functions to enable and disable its Wi-Fi hotspot and client, and the function to implement audiovisual communication over Wi-Fi, facilitating network cabling in conference rooms.



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		Network adaptability	The bidding product should support packet loss concealment during video call even when the packet loss rate is as high as 20%.
			The bidding product should support packet loss concealment during audio call even when the packet loss rate is as high as 70%.
		Security specifications	The bidding product must support H.235 signaling encryption using H.323, TLS and SRTP encryption using SIP, and AES media stream encryption to improve conference security.
			The bidding product must support 802.11a/b/g/n/ac/w protocols and WPA2 authentication.
		Endpoint functions	The bidding product should support bulletin board to release various types of information on the home page, the content can be managed by level and can be flexibly defined based on application scenarios.
			The bidding product should support welcome page, at least three welcome page templates are available and the content and font can be customized by users.
			The bidding product should support dual-screen function, the presentation and video can be displayed independently on two screens.
			The bidding product should support dual-screen clone function, the content on the screen can be cloned to another screen.
		Reference Document	Bidder must submit the required performance document and compliance reference document for the proposed device.
		Service, Support & Warranty	Customer should able to directly open TAC cases through Phone, Email, Ticket etc. with OEM and OEM direct resources access should be provided
			Mentioning Manufacturer's warranty should be quoted minimum 03 (Three) year warranty should be provided for this unit from the date of successful commissioning.
			Bidder must have to provide Manufacture Authorization Letter
		Installation & Commissioning	Installation, testing and commissioning with necessary accessories

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Item No	Description of Item	Technical Specification and Standards	
A20	<b>Web Application Firewall &amp; Server Load Balancer</b>	Physical Specification	System must be 19-inch rack mountable 1 U form factor
			System must have dedicated management port
			System must have RJ-45 console port
			System must have 6 x 1 G Interface populated from day 1, and 2 x 1 G fiber for future expansion
			System must have 3*10 G interface populated from day 1 and 9*10 G fiber ports for future expansion
			System must have dual Power supply
			System must be purpose built appliance based platform without any provision of running any other OS on it
		Performance	System must support 40 Gbps of L7 throughput
			System must support 128 million concurrent sessions
			System must support 2 million Layer4 connection per second
			System must support 750 K 1:1 Layer7 connection per second for HTTP
			System must support 30 Gbps of SSL offloading throughput and 35K SSL CPS on ECC Ciphers
		Application delivery partition/Virtual Context	System must support 1000 Application delivery partition/Virtual Context/Route Domain/Virtual Router Forwarding (VRF)
			System must support dedicated configuration file for each Virtual context
			System must support resource allocation to each context for capacity or feature considering CPU/throughput/CPS/Concurrent connection/SSL throughput
			System must be able to modify the resource allocation without impacting the traffic in high-availability mode.
			All the partition/Virtual context/Route Domain/Virtual Router Forwarding (VRF) license must be available from day 1.
		DDOS	System must support protection from Fragmented packets

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			System must support protection from IP Option
			System must support protection from Land Attack
			System must support protection from Packet Deformity Layer 3
			System must support protection from Packet Deformity Layer 4
			System must support protection from Ping of Death
			System must support protection from TCP No Flag
			System must support protection from TCP Syn Fin
			System must support protection from TCP Syn Frag
			System must support connection limit based on source IP
			System must support connection rate limit based on source IP
			System must support request rate limit based on source IP
		Server Load-balancing /Reverse Proxy features	System must support Layer4-Layer7 load-balancing
			System must support load-balancing algorithms including round-robin, least connection, service least connection, fastest response, hash etc
			System must support active-active and active-backup server configuration for load-balancing
			System must support reverse proxy functionality of hosting multiple http/https service behind single IP
			System must support Source-NAT for SLB traffic
			System must have flexibility to config VIP as Source NAT IP
			System must support X-forwarder option. The appliance should have option to enable x-forwarder option per service to log actual client IP in web server log.
			System must support HTTP Compression
			System must support Global Server load-balancing

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			System must support Authentication offloading from back-end servers using SAML, Kerberos, NTLM, TDS SQL Logon, LDAP, RADIUS, Basic, OCSP stapling, HTML Form- based
			System must support graceful activation and disabling of the backend server
			System must support application-level load-balancing of Radius and Diameter protocol
			System must support application-level load-balancing of DNS protocol
			System must support application-level load-balancing of SPDY protocol
			System must support application-level database load-balancing
			System must support application level IMAP,POP3 and SMTP load-balancing
			System must support application-level load-balancing for SIP protocol
			System must support application-level load-balancing for FIX protocol
			System must support DNS Caching
			System must support Anycast based Global server load-balancing
			System must support connection limit per server/link
			System must support connection rate limit per server/link
			System must support request rate limit per server/link
			System must support Single sign-on (SSO) authentication relay
			System must support Authentication for Microsoft SharePoint, Outlook Web Access, and other packaged and custom applications
			System must support Perfect Forward Secrecy (PFS) with Elliptic Curve DiffieHellman Exchange (ECDHE) and other Elliptic Curve Cryptography(ECC) ciphers

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			System must support Scriptable health check support using TCL, Python, Perl, and Bash
			System must support for Link load balancing for efficiently route traffic per multiple links.
			System must support Internet Content Adaptation Protocol (ICAP)
		Web application Firewall	System must support cookie encryption
			System must support protection from SQL injection
			System must support protection from cross-site scripting
			System must support protection from BOT generated requests
			System must support HTTP protocol compliance check
			System must support Cloaking to hide server responses/error status codes
			System must support Credit Card numbers/US SSN masking
			System must support PCRE based masking
			System must support CSRF check and XSS check
			System must support filtering of http methods
			System must support learning, passive and active mode of WAF deployment
			System must support protection from buffer overflow
			System must support URL blacklisting and whitelisting
			System must support TCL based scripts for custom rules
			System must be ICSA labs Certified for firewall and VPN
			System must Support Multiple security Zones
			System must support Site to Site IP-Sec VPN
		Redundancy	System must support VRRP based redundancy or equivalent technology based redundancy mechanism in high-availability mode.

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			System must support active-active and active-backup configuration
			System must support automatic and manual configuration sync
			System must support dynamic VRRP priority or equivalent technology based priority by traffic interface, server, next hop and routes in high-availability mode.
			System must support scale-out configuration upto 8 devices to support higher throughput
			System must support dedicated VRRP setting per virtual context
		Management	System must have Web-based Graphical User Interface (GUI)
			System must have Industry-standard Command Line Interface (CLI)
			System must support Granular Role-based/Object-based Access Control
			System must support REST-style XML API (aXAPI) for all functions
			System must support external authentication including LDAP, TACACS+, RADIUS
		Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three ) years warranty for OEM technical solution support, Patch & New Software Upgrade should be provided for this unit from the date of commissioning.

## B. Technical Tender Specification for Data Center Computing and Storage

Item No	Description of Item	Technical Specification and Standards	
B1	<b>Database Server for Production Environment</b>	Brand Name	Internationally Reputed brand (To be mentioned by the Bidder)
		Quality	ISO 9001/9002 for manufacturer, CE/FCC Class A/B for quality assurance



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Item No	Description of Item	Technical Specification and Standards	
		Model	To be mentioned by Bidder
		Country of origin	To be mentioned by Bidder
		Country of Assemble	To be mentioned by Bidder
		Form Factor	Rack Server with Rack Mountable Rail Kit along with cable organization arm and Bezel Kit
		Processor	Intel Xeon Gold 6230(min. 2.1 GHz) or higher
		Number of Processor	4 (four) Processor
		Chipset	Intel C620 series Chipset or higher
		Core per Processor	Minimum 20 (Twenty) core or higher
		Cache Memory per processor	Minimum 27.50 MB or higher
		Memory	256GB (4 x 64GB RDIMM) 2933 MT/s DDR4 with advanced ECC capability
			Min. 48 DIMM slots per server
		Graphics	Integrated video card for standard configuration
		Hard Drive	4 x 480GB Read Intensive SATA SSD
			Should provide the chassis with minimum 8 (eight) hard disk drive bay.
		DVD+/RW	Internal or external DVD+/RW
		Storage Array Controller	Provide RAID controller card supports RAID R0,1,5,6,10,50,60,12Gb/s & with 2GB Cache
		PCIe Expansion slots	Supports minimum 08 (Eight) or higher PCIe 3.0 I/O expansion Slots
		Network Interface Controller	Should be supplied with Embedded Dual port 1Gb Ethernet Port & Dual Port 10Gb Optical ports with Multimode transceiver.
			Should have additional 1 x Dual port 10Gb Network card with Multimode transceiver
		Host Bus Adapter (HBA)	Should be supplied with 2 x Dual Port 32Gb Fiber Channel HBA with 32Gb FC Transceivers.
		Remote management port & features	Integrated remote management with following feature
			· Should support out of band upgrades, Agentless out-of-band management, integrated diagnostics and Power monitoring and reporting.
			· Should support multiple management interfaces including web user interface and command line interface.
		Power Supply & System Fan Support	Should have standard redundant power supply & hot-swappable fan modules, providing protection against single-fan failures
		Operating System Support	Operating Systems and Virtualization Software
			· Windows Server 2016

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Item No	Description of Item	Technical Specification and Standards	
			<ul style="list-style-type: none"> <li>· VMware ESXi</li> <li>· Red Hat Enterprise Linux (RHEL)</li> <li>· SUSE Linux Enterprise Server (SLES)</li> </ul>
		Other Features	<ul style="list-style-type: none"> <li>· Should support Hardware Policy based security</li> <li>· Should support System Lock Down.</li> </ul>
		Industry Standard Compliance	<ul style="list-style-type: none"> <li>· PCIe 3.0 Compliant</li> <li>· USB 3.0 Compliant; USB 2.0 Compliant</li> <li>· BIOS</li> <li>· UEFI</li> </ul>
		Accessories	Must supply necessary cables (Fiber, Cat-6, power Cord).
		Warranty	Mentioning Manufacturer's warranty should be quoted, minimum 3 (Three) years warranty should be provided for this unit from the date of commissioning
B2	<b>Application Server for Production Environment</b>	Brand Name	Internationally Reputed brand (To be mentioned by the Bidder)
		Quality	ISO 9001/9002 for manufacturer, CE/FCC Class A/B for quality assurance
		Model	To be mentioned by Bidder
		Country of origin	To be mentioned by Bidder
		Country of Assemble	To be mentioned by Bidder
		Form Factor	Rack Server with Rack Mountable Rail Kit along with cable organization arm and Bezel Kit
		Processor	Intel Xeon Gold 6230(min. 2.1 GHz) or higher
		Number of Processor	4 (Four) Processor
		Chipset	Intel C620 series Chipset or higher
		Core per Processor	Minimum 20 (Twenty) core or higher
		Cache Memory per processor	Minimum 27.50 MB or higher
		Memory	256GB (4 x 64GB RDIMM) 2933 MT/s DDR4 with advanced ECC capability
			Min. 48 DIMM slots per server
		Graphics	Integrated video card for standard configuration



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Item No	Description of Item	Technical Specification and Standards	
		Hard Drive	2 x 480GB Read Intensive SATA SSD
			Should provide the chassis with minimum 8 (eight) hard disk drive bay.
		DVD+/RW	Internal or external DVD+/RW
		Storage Array Controller	Provide RAID controller card supports RAID R0,1,5,6,10,50,60,12Gb/s & with 2GB Cache
		PCIe Expansion slots	Supports minimum 08 (Eight) or higher PCIe 3.0 I/O expansion Slots.
		Network Interface Controller	Should be supplied with Embedded Dual port 1Gb Ethernet Port & Dual Port 10Gb Optical ports with Multimode transceiver. Should have additional 1 x Dual port 10Gb Network card with Multimode transceiver
		Host Bus Adapter (HBA)	Should be supplied with 2 x Dual Port 32Gb Fiber Channel HBA with 32Gb FC Transceivers.
		Remote management port & features	Integrated remote management with following feature
			· Should support out of band upgrades, Agentless out-of-band management, integrated diagnostics and Power monitoring and reporting.
			· Should support multiple management interfaces including web user interface and command line interface.
		Power Supply & System Fan Support	Should have standard redundant power supply & hot-swappable fan modules, providing protection against single-fan failures
		Operating System Support	Operating Systems and Virtualization Software
			· Windows Server 2016
			· VMware ESXi
			· Red Hat Enterprise Linux (RHEL)
			· SUSE Linux Enterprise Server (SLES)
		Other Features	· Should support Hardware Policy based security
			· Should support System Lock Down.
		Industry Standard Compliance	· PCIe 3.0 Compliant
			· USB 3.0 Compliant; USB 2.0 Compliant
			· BIOS

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Item No	Description of Item	Technical Specification and Standards	
			· UEFI
		Accessories	Must supply necessary cables (Fiber, Cat-6, power Cord).
		Warranty	Mentioning Manufacturer's warranty should be quoted, minimum 3 (Three) years warranty should be provided for this unit from the date of commissioning
B3	<b>Business Intelligence Server for Production environment</b>	Brand Name	Internationally Reputed brand (To be mentioned by the Bidder)
		Quality	ISO 9001/9002 for manufacturer, CE/FCC Class A/B for quality assurance
		Model	To be mentioned by Bidder
		Country of origin	To be mentioned by Bidder
		Country of Assemble	To be mentioned by Bidder
		Form Factor	Rack Server with Rack Mountable Rail Kit along with cable organization arm and Bezel Kit
		Processor	Intel Xeon Gold 5218(min. 2.3 GHz) or higher
		Number of Processor	02(Two)
		Chipset	Intel C620 series Chipset or higher
		Core per Processor	Minimum 16 (Sixteen) core or higher
		Cache Memory per processor	Minimum 22 MB or higher
		Memory	128GB (2 x 64GB RDIMM) 2933 MT/s DDR4 with advanced ECC capability
			Min. 24 DIMM slots per server
		Graphics	Integrated video card for standard configuration
		Hard Drive	2 x 480GB Read Intensive SATA SSD
			Should provide the chassis with minimum 8 hard disk drive bay.

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Item No	Description of Item	Technical Specification and Standards	
		DVD+/RW	Internal or external DVD+/RW
		Storage Array Controller	Provide RAID controller card supports RAID R0,1,5,6,10,50,60,12Gb/s & with 2GB Cache
		PCIe Expansion slots	Supports minimum 06 (Six) or higher PCIe 3.0 I/O expansion Slots
		Network Interface Controller	Should be supplied with Embedded Dual port 1Gb Ethernet Port & Dual Port 10Gb Optical ports with Multimode transceiver. Should have additional 2 x Dual port 10Gb Network card with Multimode transceiver.
		Host Bus Adapter (HBA)	Should be supplied with 2 x Dual Port 16Gb Fiber Channel HBA with 16Gb FC Transceivers.
		Remote management port & features	Integrated remote management with following feature
			· Should support out of band upgrades, Agentless out-of-band management, integrated diagnostics and Power monitoring and reporting.
			· Should support multiple management interfaces including web user interface and command line interface.
		Power Supply & System Fan Support	Should have standard redundant power supply & hot-swappable fan modules, providing protection against single-fan failure
		Operating System Support	Operating Systems and Virtualization Software
			· Windows Server 2016
			· VMware ESXi
			· Red Hat Enterprise Linux (RHEL)
			· SUSE Linux Enterprise Server (SLES)
		Other Features	· Should support Hardware Policy based security
			· Should support System Lock Down.
		Industry Standard Compliance	· PCIe 3.0 Compliant
			· USB 3.0 Compliant; USB 2.0 Compliant
			· BIOS
			· UEFI
		Accessories	Must supply necessary cables (Fiber, Cat-6, power Cord).

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
		Warranty	Mentioning Manufacturer's warranty should be quoted, minimum 3 (Three) years warranty should be provided for this unit from the date of commissioning
B4	<b>DMS Server for Production environment</b>	Brand Name	Internationally Reputed brand (To be mentioned by the Bidder)
		Quality	ISO 9001/9002 for manufacturer, CE/FCC Class A/B for quality assurance
		Model	To be mentioned by Bidder
		Country of origin	To be mentioned by Bidder
		Country of Assemble	To be mentioned by Bidder
		Form Factor	Rack Server with Rack Mountable Rail Kit along with cable organization arm and Bezel Kit
		Processor	Intel Xeon Gold 6230(min. 2.1 GHz) or higher
		Number of Processor	02 (two)
		Chipset	Intel C620 series Chipset or higher
		Core per Processor	Minimum 20 (Twenty) core or higher
		Cache Memory per processor	Minimum 27.50 MB or higher
		Memory	768GB (12 x 64GB RDIMM) 2933 MT/s DDR4 with advanced ECC capability
			Min. 24 DIMM slots per server
		Graphics	Integrated video card for standard configuration
		Hard Drive	4 x 480GB Read Intensive SATA SSD
			Should provide the chassis with minimum 8 hard disk drive bay
		DVD+/RW	Internal or external DVD+/RW
		Storage Controller Array	Provide RAID controller card supports RAID R0,1,5,6,10,50,60,12Gb/s & with 2GB Cache

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
		PCIe Expansion slots	Supports minimum 06 (Six) or higher PCIe 3.0 I/O expansion Slots
		Network Interface Controller	Should be supplied with Embedded Dual port 1Gb Ethernet Port & Dual Port 10Gb Optical ports with Multimode transceiver.
			Should have additional 2 x Dual port 10Gb Network card with Multimode transceiver
		Remote management port & features	Integrated remote management with following feature
			· Should support out of band upgrades, Agentless out-of-band management, integrated diagnostics and Power monitoring and reporting.
			· Should support multiple management interfaces including web user interface and command line interface.
		Power Supply & System Fan Support	Should have standard redundant power supply & hot-swappable fan modules, providing protection against single-fan failures
		Operating System Support	Operating Systems and Virtualization Software
			Windows Server 2016
			VMware ESXi
			Red Hat Enterprise Linux (RHEL)
			SUSE Linux Enterprise Server (SLES)
		Other Features	Should support Hardware Policy based security
		Industry Standard Compliance	PCIe 3.0 Compliant
			USB 3.0 Compliant; USB 2.0 Compliant
			BIOS
			UEFI
		Accessories	Must supply necessary cables (Fiber, Cat-6, power Cord).
		Warranty	Mentioning Manufacturer's warranty should be quoted, minimum 3 (Three) years warranty should be provided for this unit from the date of commissioning
B5	Server Virtualization	Brand	Internationally Reputed brand (To be mentioned by the Bidder)

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Item No	Description of Item	Technical Specification and Standards	
	License per Processor	Model	To be mentioned by the bidder
		Country of origin	To be mentioned by the bidder
		Computing Virtualization	The virtualization platform must support VM life cycle management, including querying, creating, deleting, starting, stopping, restarting and cloning VMs.
			The virtualization platform must support VM HA
			The virtualization platform must support that GPU and SSD devices can be passed through to VMs. Software and hardware are combined to improve VM graphics processing and storage I/O performance.
			System must support VM affinity rules. VMs that apply the Keep VMs Together rule must run on the same host. VMs that apply the Mutually Exclusive rule must run on different hosts.
			Each VM must support up to maximum of 148 vCPUs or higher.
			Each VM must support up to 4 TB memory
			Each VM must support up to 10 virtual NICs.
			The maximum capacity of a single virtual disk on a VM support up to 60 TB or higher.
		Network Virtualization	Server nodes must support the Elastic Virtual Switch function.
			The virtualization platform must support the distributed virtual switch (DVS) across multiple physical servers.
			System must support the single root I/O virtualization (SR-IOV) to support better network performance.
			The virtualization platform must support binding of the IP address and MAC address of a VM to prevent address snooping and DHCP server snooping.
		Storage Virtualization	The virtualization platform must support IP SAN, and FC SAN storage devices. These storage resources can be added, deleted, queried, and scanned on the virtualization platform.
			Volumes can be created, queried, attached, detached, deleted, and cleared on storage devices.

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
			System must support thin provisioning. The system allocates physical storage space only when data is written into the virtual disk.
			System must allow multiple VMs to share one virtual disk, which facilitates the deployment of shared-disk applications on VMs.
			System must be compatible with mainstream SAN storage devices.
		Management Features	The virtualization platform must support Dynamic Resource Scheduler (DRS) function, which uses intelligent load balance scheduling algorithms and relies on dynamic power management, periodically checks the load on different physical hosts in a cluster and migrates VMs to achieve load balancing within the cluster and minimize power consumption.
			The virtualization platform must support dynamic power management (DPM) by detecting server loads. The system can combine VMs on light-load servers and power off idle servers to save energy, or power on idle servers and migrate VMs from heavy-load servers to the new servers to optimize user experience.
			The virtualization platform must support automatic backup of management node data so that the management data can be automatically backed up and transmitted to a third-party storage device using FTP or FTPS. If some or all management nodes are faulty, the backup data can be used to restore the faulty management nodes.
			The virtualization platform must support the wizard-based installation and deployment tool using Web UI, providing automatic deployment capabilities, simplifying deployment operations, improving the deployment efficiency of the virtualization system, and lowering skill requirements on O&M personnel.
			The virtualization platform must support the wizard-based system upgrade tool using Web UI. Then, the upgrade can be automatically performed with high reliability, improving upgrade efficiency, reducing upgrade risks, and lowering skill requirements on O&M personnel.

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
			<p>The virtualization platform must provide health check tools for technical support engineers and system maintenance engineers to implement routine maintenance and export health check reports on each component. The reports show the current information and operating status of the system, and the tools can be used in maintenance scenarios, such as system deployment, preventive maintenance, and upgrade.</p> <p>The virtualization platform must support the active/standby deployment mode by default to ensure system reliability.</p>
		Security	The virtualization platform must support VM isolation so that resources on different VMs running on the same physical machine are separated. This is one of the basic characteristics of a VM. The resources include CPUs, memory, internal networks, and disk I/O.
		Function Adaptability of Robotic Process Automation(RPA)	Supports automatic operations of various common office software, including MS Office, WPS, PDF, XPS, and Exchange. Supports automated operations for Windows applications developed by C/C++, C#, WinForm, WPF, Java, QT, and PowerBuilder. Supports the operation of common ERP software, including SAP, Yonyou, Kingdee, and Oracle Form applications. Supports data read, write, and manage Oracle, MySQL, MSSQLServer, PostgreSQL, MongoDB, and GaussDB databases. The Python interpreter and running environment can be embedded in the robot. Python code can be directly invoked and run without the need to deploy or configure the Python environment.
			The user-machine interaction interface and applet can be customized with low code to extend functions. The input display and rule setting of the RPA business process can be completed through the applet customized with low code.
			Supports quick customization and expansion of data models, facilitating data storage and sharing between robots and third-party applications, and flexibly generating and depositing key data assets of business processes.



## Annex -1

Item No	Description of Item	Technical Specification and Standards	
			The API orchestration implements interaction between applications and the system. APIs can also be used as assets for development, management, and O&M. Supports full-lifecycle management of APIs. Supports one-stop API definition, development, commissioning, and statistics monitoring.
			Supports full lifecycle management of automatic requirement submission, assessment, development, and delivery.
			The unattended robot supports lock screen operation. The manned robot supports dual-screen operation. Supports the picture-in-picture function, which can realize split-body operation;
			The Designer supports both the Professional Edition for Professional Developers and the Easy Development Edition for Business Personnel.
			Number of preset components: 400 +
			If required bidder can provide this RPA functionality with separate software which should run on mentioned server virtualization software and ensure interoperability.
		Warranty	3 (Three) years manufacturer's warranty should be provided for this unit from the date of commissioning
		Installation, testing and commissioning	Installation, testing and commissioning with necessary accessories
<b>B6</b>	<b>Backup Server</b>	Brand Name	Internationally Reputed brand (To be mentioned by the Bidder)
		Quality	ISO 9001/9002 for manufacturer, CE/FCC Class A/B for quality assurance
		Model	To be mentioned by Bidder
		Country of origin	To be mentioned by Bidder
		Country of Assemble	To be mentioned by Bidder
		Form Factor	Rack Server with Rack Mountable Rail Kit along with cable organization arm and Bezel Kit
		Processor	Intel Xeon Silver 4215(min. 2.5GHz) or higher
		Number of Processor	02 (Two)
		Chipset	Intel C620 series Chipset or higher

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
		Core per Processor	Minimum 8 (Eight) core or higher
		Cache Memory per processor	Minimum 11 MB or higher
		Memory	128GB (4 x 32GB RDIMM) 2933 MT/s DDR4 with advanced ECC capability
			Min. 24 DIMM slots per server
		Graphics	Integrated video card for standard configuration
		Hard Drive	4 x 960GB SATA SSD
			Should provide the chassis with minimum 8 hard disk drive bay
		DVD+/RW	Internal or external DVD+/RW
		Storage Array Controller	Provide RAID controller card supports RAID R0,1,5,6,10,50,60,12Gb/s & with 2GB Cache
		PCIe Expansion slots	Supports minimum 06 (Six) or higher PCIe 3.0 I/O expansion Slots
		Network Interface Controller	Should be supplied with Embedded Dual port 1Gb Ethernet Port & 2 x Dual Port 10Gb Optical ports with Multimode transceiver.
		Host Bus Adapter (HBA)	Should be supplied with 1 x Dual Port 32Gb Fiber Channel HBA with 32Gb FC Transceivers.
		Remote management port & features	Integrated remote management with following feature
			· Should support out of band upgrades, Agentless out-of-band management, integrated diagnostics and Power monitoring and reporting.
			· Should support multiple management interfaces including web user interface and command line interface.
		Power Supply & System Fan Support	Should have standard redundant power supply & hot-swappable fan modules, providing protection against single-fan failure
		Operating System Support	Operating Systems and Virtualization Software
			· Windows Server 2016
			· VMware ESXi
			· Red Hat Enterprise Linux (RHEL)
			· SUSE Linux Enterprise Server (SLES)
		Other Features	· Should support Hardware Policy based security
			· Should support System Lock Down.

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Item No	Description of Item	Technical Specification and Standards	
		Industry Standard Compliance	· PCIe 3.0 Compliant
			· USB 3.0 Compliant; USB 2.0 Compliant
			· BIOS
			· UEFI
		Accessories	Must supply necessary cables (Fiber, Cat-6, power Cord).
		Warranty	Mentioning Manufacturer's warranty should be quoted, minimum 3 (Three) years warranty should be provided for this unit from the date of commissioning
B7	<b>Backup Software</b>	Country of Origin	Internationally Reputed brand (To be mentioned by the Bidder) and the OEM of the proposed brand must be in the latest Gartner's Magic Quadrant for data centre Backup and recovery Solution.
		Country of Manufacture	To be mentioned by the bidder
		Brand Name	To be mentioned by the bidder
		Model	To be mentioned by the bidder
		Quantity	For JBC: Proposed backup software must be quoted with minimum 30TB Backend Capacity  For SBC: Proposed backup software must be quoted with minimum 30TB Backend Capacity  For IDRA: Proposed backup software must be quoted with minimum 50TB Backend Capacity
		OEM credibility	Backup Software OEM should be a publicly listed company for last 3 years in any of the world's leading stock exchanges like NYSE, NASDAQ, Tokyo Stock Exchange.
		Centralized Management	The backup software may have firewall support & alerts on Mobile devices etc. centralized management / Single interface for management of all backup and archival (file system and E-mail) activities across physical servers, VMs and Mobile devices like Laptops / Tabs / Phone and SaaS based applications like Microsoft O365(Backup & Archival) and G Suite
		Security	The proposed solution must have ability to protect all mount paths associated with disk

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
			libraries configured from a Backup/Media Server against Ransomware attacks.
		Efficient Data Management	Should support software based de-duplication to support any storage system, cloud repository and object storage as de-duplicated disk target. Based on policy backup software should be able to move data to a tape library automatically
		Replication	Backup software should be able to replicate backed up data in de-duplicated format (for bandwidth optimization) to another site for compliance purposes, with or without the need of external replication tools. All necessary licenses for achieving consistent replication of backup data should be quoted.
		Licensing	The proposed licenses should be Subscription in nature. All the necessary licenses should be supplied along with the solution.
		Database Support	Backup software should be able to protect the following through online agents enabling granular restores. Major DBs Oracle, Exchange, Sybase, Informix, DB2, MS SQL, MySQL, MongoDB, MariaDB, etc. and Applications likes SAP, etc. across wide range of popular Windows / Linux and Unix flavours.
		Hardware Support	Backup software must have the ability to perform cross hardware restore with completely different hardware configurations. Must support dissimilar system hardware restore on multiple platforms including Windows, Solaris, Linux and AIX.
		Reporting	Comprehensive reporting of media, backup server, jobs, and analytics should be offered as part of the functionality in the supplied software. Must not be a separate product or console.
		Hypervisor Support	It should have full support for backing up virtual servers (image level) on various hypervisors like Hyper - V, ESXi, RHEV, OVM, Acropolis, Citrix, Fusion, etc.
		Efficient Data Management	Backup software should have the ability to archive data and create a single repository for backup and archive for space efficiency and easier data management.
		Encryption	It should support the following algorithms and provide better security in deployment across sites - BLOWFISH, GOST, Serpent, AES, Twofish, 3-DES, etc.

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
		Storage Array Support	Should support software based de-duplication to support any storage system, cloud repository and object storage as de-duplicated disk target. Based on policy backup software should be able to move data to a tape library automatically The proposed backup solution should support snapshot based backup from various vendors such as Hyperflex, HP 3PAR, EVA, Fujitsu Eternus, Oracle ZFS, Infinidat, Solidfire, Huawei, Tintri, etc.
		Oracle/ MSSQL Database Security	The Backup solution should support Oracle/MSSQL Data Masking, whereby a copy of backed up data can be handed over to any third party without allowing them to view data within the instance. They should be able to troubleshoot, run dev / test instances on the copy and yet not have access to confidential data of the organization.
		Data Management	Proposed solution should support universal recovery to restore from P2P, P2V, V2V, V2P, V2C and C2V without having to wait to extract the full backup to production storage. Backup software should be able to protect the Big data apps like Cassandra, Greenplum, Hadoop, IBM-GPFS
		Warranty	3 (Three) years manufacturer's warranty should be provided for this unit from the date of commissioning
		Installation, testing and commissioning	Installation, testing and commissioning with necessary accessories
B8	<b>Unified Storage for Production Environment</b>	Brand	Must be internationally reputed brand and recognized as Leader in Gartner's Magic Quadrant.
		Model	To be mentioned by the bidder
		Country of origin	To be mentioned by the bidder
		Manufacturing Country	To be mentioned by the bidder
		Form factor	Rack Mountable Storage
		System architecture	Offered Storage array shall be a unified storage with a single Management for block and file.
		Node Type	Storage should be configured with minimum dual active/active controllers, and provide 2TB cache for the whole system. (excluding performance acceleration modules, NAS cache, FlashCache, PAM, or SSD Cache)
			Offered Storage array should be scalable to Eight Controllers. Each controller supports SAN and NAS protocols. The controller interconnection

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
			protocol can be PCI-E, IB, or RDMA (not FC or IP).
		Disk Scalability	The proposed storage device should be scalable to minimum 1920 Drives supported with SSD, SAS and NL SAS/SATA disk without controller upgrade/replacement/adding or external storage virtualization.
		Capacity	For JBC: The single storage array shall be offered with 50TB usable capacity with SSD drive by using RAID 5 configuration. The single SSD disk size should not more than 4TB SSD.  For SBC: The single storage array shall be offered with 50TB usable capacity with SSD drive by using RAID 5 configuration. The single SSD disk size should not more than 4TB SSD.  For IDRA: The single storage array shall be offered with 70TB usable capacity with SSD drive by using RAID 5 configuration. The single SSD disk size should not more than 4TB SSD.
			Global hot spare disk capacity should be at least 4% of the total storage capacity.
		Raid	The Storage array should support Controller based RAID Levels: RAID 1, RAID 3, RAID 10, RAID 50, RAID 5, and RAID 6
		Front End Ports	The Storage Array should be Provided with minimum 16 x 10 Gbps iSCSI interface and minimum 16 x 32 Gbps front end Fiber Channel ports. It could be expanded to minimum 160 ports across all storage controllers.
		Back End Connectivity	The Storage Array should be Provided at least 4 ports with SAS3.0 preferable (4*12Gbps) or 16 ports with SAS2.0 (4*6Gbps) or higher backend
		No Single point of failure	It should have the provision for Redundancy of critical units like processor, disk drives, controllers, fan, Power supply etc.
			It should support hot plugging and hot swapping of critical components with minimal disruption.
		Cache Data Backup in Power Failure	In case of power failure, system should ensure that there is no loss of data and battery backup for cache should be provided. Also the data should be de-staged to internal flash or disk drives for higher protection of data
		Data Reconstruction	The storage array should support hot spare space to remove the special spare disks that was reconstruction bottleneck.
		Thin Provisioning	The Storage System provide Thin Provisioning to allocate resource on demand for better utilization of storage capacity. Thin provisioning should

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
			support zero detection and reclaim space that has been deleted to improve space utilization.
		Performance and Quality of Service	1. Storage shall support Performance Management Software.
			2. Offered storage array shall support quality of service for critical applications so that appropriate are required response time can be defined for application logical units at storage. It shall be possible to define different service / response time for different application logical units.
			3. Quality of service engine shall allow to define minimum and maximum cap for required IOPS / bandwidth for a given logical units of application running at storage array.
		Multipathing Driver	Multipathing driver developed by the storage vendor should be provided along with the storage device for the maximum nos. of supported host connectivity. It should optimize access path, provides fault switchover and load balancing.
		Snapshot	1. Should support with point in time snapshots function with full capacity software license. Support up to 4000 such snapshots should be possible.
			2. It should be possible to create the copies in a different disk array/system using virtualization capability.
		Data Migration	The Storage System should support online data migration from one disk system or one storage array to other.
		Controller failure tolerance	Adopts a redundancy architecture for the active-active engines, allowing three out of four controllers to fail at the same time.
		Remote Replication	Offered Storage should capable to replicate data with DC site storage. If additional hardware required to do the replication between DC and DR storage, the bidder should provide the hardware in redundant way. Bidder should provide remote replication with full capacity software license, provides Fibre Channel and IP-based replication, and offers a GUI-based management page to allow users to customize intervals for remote, asynchronous data transfer (the interval must not be longer than 5 seconds). Offered storage should provide the asynchronous data replication function to replicate data from the active data centers site to the DR site data center.
		Management Software	The Storage System should be provided with intuitive Web Based GUI interface to manage architectural configuration and embedded graphical performance monitoring.
		Compatibility and Certification	Obtains certificates of SMI-S or later and provides screenshots and official website links.

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Item No	Description of Item	Technical Specification and Standards	
			It should support all industry leading operating systems including Windows 2003, 2008, 2012 server, Sun Solaris, IBM AIX, HP-UX, VMware, Citrix Xen, Hyper-V, Oracle Linux, Redhat, SUSE, Apple Mac OS.
		Manageability	Provide standard storage device management software via GUI/Web-based and CLI (Include volume management, resource allocation, host access control, data security etc.)
		Design and Implementation Scope	Respective OEM to also ensure that the final deployment is done basis the OEM specified and validated design standards and best practices
			Bidder should submit BOQ of proposed device including the details part numbers and manufacturer's warranty part number
		Warranty	3 (Three) years manufacturer's warranty should be provided for this unit from the date of commissioning
		Installation & Commissioning	Installation, testing and commissioning with necessary accessories
B9	Backup Storage	Brand	Must be internationally reputed brand and recognized as Leader in Gartner's Magic Quadrant.
		Model	To be mentioned by the bidder
		Country of origin	To be mentioned by the bidder
		Manufacturing Country	To be mentioned by the bidder
		Form factor	Rack Mountable Storage
		System architecture	Offered Storage array shall be a unified storage with a single Management for block and file. The storage controller enclosure should not be more than 2U rack unit.
			Offered Storage array should be Provided with Active/Active Controllers for redundancy and minimum 32 processor physical cores.
		Cache	Offered Storage Array should be configured with minimum two Controllers, each controller should have minimum 16GB cache. (excluding performance acceleration modules, FlashCache, PAM, or SSD Cache)
		Disk Scalability	The proposed storage device should be scalable to minimum 500 Drives supported with SSD, SAS and NL SAS/SATA disk without controller upgrade/replacement/adding or external storage virtualization.





## Annex -1

Item No	Description of Item	Technical Specification and Standards	
		Capacity	<p>For JBC: The single storage array shall be offered with 30TB usable capacity in RAID 6 using not more than 10TB NLSAS HDD.</p> <p>For SBC: The single storage array shall be offered with 30TB usable capacity in RAID 6 using not more than 10TB NLSAS HDD.</p> <p>For IDRA: The single storage array shall be offered with 50TB usable capacity in RAID 6 using not more than 10TB NLSAS HDD.</p> <p>Global hot spare disk capacity should be at least 4% of the total storage capacity.</p>
		Raid	The Storage array should support Controller based RAID Levels: RAID 1, RAID 3, RAID 10, RAID 50, RAID 5, and RAID 6
		Front End Ports	The Storage Array should be Provided with minimum 8 x 10 Gbps iSCSI interface and minimum 8 x 32Gbps front end Fiber Channel ports.
		Back End Connectivity	The Storage Array should be Provided at least 4 ports with SAS3.0 preferable (4*12Gbps) or 8 ports with SAS2.0 (4*6Gbps) or higher backend
		No Single point of failure	<p>It should have the provision for Redundancy of critical units like processor, disk drives, controllers, fan, Power supply etc.</p> <p>It should support hot plugging and hot swapping of critical components with minimal disruption.</p>
		Cache Data Backup in Power Failure	In case of power failure, system should ensure that there is no loss of data and battery backup for cache should be provided. Also the data should be de-staged to internal flash or disk drives for higher protection of data
		Data Reconstruction	The storage array should support hot spare space to remove the special spare disks that was reconstruction bottleneck.
		LUN Support	The storage device should support minimum 1500 LUN.
		Thin Provisioning	The Storage System provide Thin Provisioning to allocate resource on demand for better utilization of storage capacity. Thin provisioning should support zero detection and reclaim space that has been deleted to improve space utilization.

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Item No	Description of Item	Technical Specification and Standards	
		Performance and Quality of Service	<p>1. Storage shall support Performance Management Software.</p> <p>2. Offered storage array shall support quality of service for critical applications so that appropriate are required response time can be defined for application logical units at storage. It shall be possible to define different service / response time for different application logical units.</p> <p>3. Quality of service engine shall allow to define minimum and maximum cap for required IOPS / bandwidth for a given logical units of application running at storage array.</p>
		Automatic storage tiering	Automatic tiering is adjusted at a hotspot data granularity. The graphic automatic tiering policy adjustment tool is provided to adjust time and tiering method of data tiering and to improve utilization efficiency of storage resources. Hotspot data I/O monitoring can be enabled within a specific time period to automatically migrate data. At least three tiers (SSD, SAS, and NL-SAS) are supported.
		Snapshot	1. Should support with point in time snapshots function with full capacity software license. Support up to 2000 such snapshots should be possible.
		LUN Virtualization Capability	Offered storage should be capable of storage virtualization. It should have the capability to take over heterogeneous storage arrays for unified resource allocation and management. Provides online data migration based on heterogeneous virtualization and supports mainstream storage vendors such as EMC, HDS, IBM, and HPE.
		Remote Replication	Offered Storage should capable to replicate data with DC site storage. If additional hardware required to do the replication between DC and DR storage, the bidder should provide the hardware in redundant way. Should provide remote replication with full capacity software license, provides Fibre Channel and IP-based replication, and offers a GUI-based management page to allow users to customize intervals for remote, asynchronous data transfer (the interval must not be longer than 5 seconds).
		Management Software	The Storage System should be provided with intuitive Web Based GUI interface to manage architectural configuration and embedded graphical performance monitoring.

## Annex -1

Item No	Description of Item	Technical Specification and Standards	
		Compatibility and Certification	Obtains certificates of SMI-S or later and provides screenshots and official website links. It should support all industry leading operating systems including Windows 2003, 2008, 2012 server, Sun Solaris, IBM AIX, HP-UX, VMware, Citrix Xen, Hyper-V, Oracle Linux, Redhat, SUSE, Apple Mac OS.
		Manageability	Provide standard storage device management software via GUI/Web-based and CLI (Include volume management, resource allocation, host access control, data security etc.)
		Design and Implementation Scope	Respective OEM to also ensure that the final deployment is done basis the OEM specified and validated design standards and best practices Bidder should submit BOQ of proposed device including the details part numbers and manufacturer's warranty part number Bidder should submit the required performance document and compliance reference document for the proposed device.
		Warranty	3 (Three) years manufacturer's warranty should be provided for this unit from the date of commissioning
		Installation & Commissioning	Installation, testing and commissioning with necessary accessories
B10	SAN Switch	Brand	Internationally Reputed brand (To be mentioned by the Bidder)
		Model	To be mentioned by the bidder
		Country of origin	To be mentioned by the bidder
		Manufacturing Country	To be mentioned by the bidder
		Quality Certifications	ISO 9001/9002 or higher for manufacturer, CE/FCC Class A/B Bidder must submit appropriate documents for the certifications.
		Bandwidth	Switch mode (default): Minimum of 48 ports should active and SAN Switch should be upgrade able up to 64 ports.
			Switch should have populated with 48 unit of 32Gbps FC Transceiver from day 1 with all enterprise licenses from day 1.
		Performance	Auto-sensing of 8, 16 and 32Gbps speeds • Hot-swappable
		Aggregate bandwidth	• 2 Tbps

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Item No	Description of Item	Technical Specification and Standards	
		Port types	FL_Port, F_Port, M_Port (Mirror Port), and E_Port
		Features	Shall support Error detection and fault isolation.
			The switch must support authentication when managing from GUI, console or telnet to prevent unauthorized access.
			The switch must support multilevel security on console access prevents unauthorized users from altering the switch configuration.
		Management	Switch must support out-band management via SNMP or Telnet or SSH, TFTP.
		Peripherals and Accessories	All cables and Connectors as required for the solution.
		Form Factor	Rack Mountable with Rail Kit
		Extension	• Integrated optional 10 GbpsFibre Channel for DWDM MAN connectivity
		Management access	• 10/100/1000 Mbps Ethernet (RJ-45), in-band over Fibre Channel, serial port (RJ-45), and one USB port
		Power supply	• Dual, hot-swappable redundant power supplies with integrated system cooling fans
		Warranty	Mentioning Manufacturer's warranty should be quoted, minimum 3 (Three) years warranty should be provided for this unit from the date of commissioning

## Annex -1

### C. Technical Tender Specification IT & Supporting Power Infrastructures

Item No	Description of Items	Technical Specifications and Standards		UoM
C1	<b>Power Cable Tray &amp; Ladder</b>	MS angle ladder	MS angle: 12" for Power cable laying of Ceiling & wall mounting with top and bottom in Ground Floor to Data Center Power room. For JBC: 160 Meter For SBC: 160 Meter For IDRA: 160 Meter	Meter
		Cable Tray for Network & Power room of data center	Cable Tray for industrial socket and Power Room:16 & 18 SWG Sheet steel fabricated Ceiling mounting with inside cable laying with cover. For JBC: 130 Meter For SBC: 130 Meter For IDRA: 130 Meter	Meter
			* 16-gauge cable tray with Cover for Power room cable Laying (300mmX150mm)	
			* Accessories (Screw, Royal Bolt, Clump, Rivet, thread Road, Angle Bar, at Actual)	
		Lighting for Server& Power room	16-gauge cable tray (150mmX75mm) with Accessories (Screw, Royal Bolt, Clump, Rivet, thread Road, Angle Bar, at Actual) For JBC: 80 Meter For SBC: 80 Meter For IDRA: 80 Meter	Meter
			Installation: Installation and commissioning with all required accessories as per actual measurement For JBC: 01 For SBC: 01 For IDRA: 01	Job

Item No	Description of Items	Technical Specifications and Standards		UoM
C2	<b>Overhead hanging Wire Mesh Cable Tray/Raceway</b>	Wire Mesh Cable Tray/Raceway	For JBC: 115 Rft. For SBC: 115 Rft. For IDRA: 115 Rft.	Rft.
			Brand : Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		Wire Mesh Cable Tray	(MS Steel) Features for overhead hanging cable tray/raceway:	



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Item No	Description of Items	Technical Specifications and Standards		UoM
			1. It should have clips/hole to hold the cables.	
			2. It should have the mechanism of holding the cable, which comes out from the top of the Racks.	
			3. The cable tray should be hanged from the rooftop.	
			4. The tray should pass over all the Racks in the datacenter, so that cable can be routed from any rack to other.	
			Load Capacity at a single point: To be mentioned by the bidder	
			Dimension : Min. 300mm(W) x 50 mm (H)	
			Tray/Raceway width: Preferably > 01 ft. Area to be covered: As per drawing. Layout should be Submit	
			Layout : Layout should be Submitted by the bidder	
			Installation: Installation, Testing and Commissioning with hanging and related accessories as per actual measurement.	
			Warranty : 1 Year	

Item No	Description of Items	Technical Specifications and Standards		UoM
C3	<b>Fiber Cable Runner System</b>	Fiber Cable Runner System	For JBC: 200 Rft. For SBC: 200 Rft. For IDRA: 200 Rft.	Rft.
			Brand : Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			<b>Built Material</b>	
			(Plastic) Features for overhead hanging cable tray/raceway with cover	
			1. It should have clips/hole to hold the cables.	
			2. It should have the mechanism of holding the cable, which comes out from the top of the Racks.	

## Annex -1

			3. The cable tray should be hanged from the rooftop.	
			4. The tray should pass over all the Racks in the datacenter, so that cable can be routed from any rack to other.	
			Load Capacity at a single point: To be mentioned by the bidder	
			Tray/Raceway width : Preferably > 01 ft. Area to be covered: As per drawing	
			Layout: Layout should be Submitted by the bidder	
			Installation: Installation, Testing, commissioning with hanging and related accessories as per actual measurement.	
			Warranty : 1 Year	

For Item no. C1-C3 actual work may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

Item No	Description of Items	Technical Specifications and Standards	Uo M
C4	<b>Automatic Voltage Regulator (AVR)</b>	Three - Phase Electro- Mechanical Digital Voltage Stabilizer with manual bypass enable system	Nos.
		Brand : Any reputed brand to be mentioned by the bidder	
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		For JBC: Rated power: 400 KVA- continuous duty For SBC: Rated power: 400 KVA- continuous duty For IDRA: Rated power: 400 KVA- continuous duty	
		<b>INDOOR INSTALLATION</b>	
		Input voltage: 3PH+N 380Y/220 VAC 3PH and 4 wires	
		Input voltage range : 400Y/230 VAC +/-15%,	
		From 340V up to 460V for three phase L- L	
		Output voltage: 3PH+N 380Y/220 or 400Y/230 VAC selectable	
		Frequency: 50/60 Hz +/- 5%	
		Admitted load variation: 0 to 100%	
		Admitted load unbalance: up to 100%	
		Operation type: Electro Servo mechanical, motor drive controlled	
		Operation control system: Unit sensed by Solid state electronics, conformal coated to prevent short circuiting due to humidity.	

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		Correction speed: Should be 18 ms/V or less	
		Power factor of the load: To be mentioned by the bidder	
		Waveform distortion: Should be minimum.	
		Full load efficiency :> 98% at 100% linear load	
		Permissible overload : Should support up to 200%	
		Operating temperature: -25°C up to +40°C	
		Storage Temperature: -25°C up to +60°C	
		Relative humidity : < 90% (non condensing)	
		Ambient environment site: dusty with small pollution	
		Applicable Safety Standards: IEEE 587, EN 50081-1:1992, EN 50082-1:1998, IEC 439 or Equivalent Standards.	
		Company certification: ISO 9001:2000 or Equivalent Standards	
		<b>Fittings</b>	
		Multi-task digital analyzers monitoring of INPUT / OUTPUT electrical values	
		Measurement front panel with the following parameters	
		: voltage, current, frequency, power factor, Power, KVA	
		: Lightning protection arrestors of	
		spikes/surges TVSS class II	
		: Soft start and Soft Stop protections given by super-capacitor	
		: system for safe load supply at start-up	
		: Logic control based on a microprocessor control system	
		: Buzzer alarm provisions over-temperature, under/over voltage	
		: Alarms for minimum and maximum voltage	
		: Alarms for maximum current	
		: Alarms for ventilation failure and over-temperature	
		: Auxiliary circuit are protected by fuses Terminal board: Input & Output bus bars terminals with prevision of suitable connection holes. Cables fed the AVR from the bottom side	
		The AVR system should integrate with EMS	
		Protection degree : metallic cabinet IP21	
		Installation: Installation and commissioning with all required accessories	job



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Item No	Description of Items	Technical Specifications and Standards	UoM
C5	<b>Automatic Phase Correction Device with bypass system</b>	Automatic Phase Correction Device	Nos.
		Brand: Any reputed brand to be mentioned by the bidder	
		Component Model/ Manufacturer Part Number: To be mentioned by the bidder	
		Assembled in: Mention by bidder	
		Features: Load Protection from phase reversal problem	
		: If any of phases is changed then Output Should be in the right sequence (RYB).	
		: Whenever input supply is given three phases should be checked and correct automatically.	
		: In case of neutral failure, it also protects the load.	
		: Selectable switch for high and low voltage selection	
		Operating Voltage: Nominal voltage should be 400 (+/- 10 %).	
		Operating Current: Nominal operating current is 600 A	
		Enclosure: 16 SWG sheet steel enclosed dust and vermin proof, free standing floor stand indoor type phase correction Equipment's hanging box with	
		: Best quality lock and powder coated paint finished. The PCD bus bar should be hard drawn electrolytic 800 Amp or higher copper busbar, proper insulated, TPN & E and equipped with: insulator,	
		: internal ebonite cover for busbar section, Energy meter; indicator lamp-3pcs per phase, Phasing Preventer really 3 pcs for phase correction ;	
		min 630 Amp Magnetic Conductor: 3 pcs.	
		Installation: Installation and commissioning with all required accessories	Job

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
C6	<b>Electrical Cabling System</b>	General specification for DB	Sheet steel fabricated, floor & wall mounting (16 or 18 SWG), tropicalized design, indoor type, low tension switchgear for 3 phase, 4 wire, 50-60 Hz, 380/415V AC system & shall be supplied complete TP + N + PE busbars suitably sized & properly insulated arrange to withstand & short current of 50KA for 1 sec.	
			All MCCB units & panel boards shall fully comply regulation of the 15th edition IEE wiring regulation for isolation & switching or equivalent.	
		<b>Circuit Breaker Brand:</b> Any reputed brand to be mentioned by Bidder		
		<b>LT DB-1 Nos</b>	<b>INCOMING :</b>	
			800A, TP, 36KA, 415V, 50Hz (MCCB Adjustable) with thermal overload and magnetic short circuit protection. For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			Energy meter with RS485 Capable (Brand: Internationally reputed) For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos.
			Current transformer ratio: 630/5A with suitable accuracy and burden. For JBC: 3 Nos. For SBC: 3 Nos. For IDRA: 3 Nos.	Nos.
			Phase indicating lamp For JBC: 3 Nos. For SBC: 3 Nos. For IDRA: 3 Nos.	Nos.
			Set control fuse. For JBC: 3 Nos. For SBC: 3 Nos. For IDRA: 3 Nos.	Nos.
			<b>OUTGOING :</b>	
			800A, TP, 36KA, 415V, 50Hz (MCCB adjustable) with thermal overload and magnetic short circuit protection. For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			Enclosure as required. For JBC: 1 Set For SBC: 1 Set For IDRA: 1 Set	Set
			Copper Rating : 800A,	
			TP+(N+PE busbar suitably sized).	
			125A,36kA, 3-pole, MCCB (adjustable) with thermal overload and magnetic short circuit protection. (For common utility load) For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos.
			800A, TP, 36KA, 415V, 50Hz (MCCB adjustable) with thermal overload and magnetic short circuit protection. For ATS to MTS connection (Isolator Box) For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	2
		<b>EMDB-2 Nos</b>	<b>INCOMING :</b>	
			800A, TP, 36KA, 415V, 50Hz (MCCB adjustable) with thermal overload and magnetic short circuit protection. For JBC: 4 Nos. For SBC: 4 Nos. For IDRA: 4 Nos.	Nos.
			Energy meter with RS485 Capable For JBC: 4 Nos. For SBC: 4 Nos. For IDRA: 4 Nos.	Nos.
			Current transformer ratio: 800/5A with suitable accuracy and burden. For JBC: 12 Nos. For SBC: 12 Nos. For IDRA: 12 Nos.	Nos.
			Phase indicating lamp For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			Set control fuse. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			<b>OUTGOING :</b>	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			400A, TP, 36KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			160A, TP, 25KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			63A, TP, 36KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			63A, 10 kA, 3-pole, MCB For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			Enclosure as required. For JBC: 1 Set. For SBC: 1 Set. For IDRA: 1 Set.	Set
			Copper Rating : 800A,	
			TP+(N+PE busbar suitably sized).	
		<b>MDB-2 Nos</b>	<b>INCOMING :</b>	
			400A, TP, 36KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. (with Mechanical Interlock) For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			Energy meter with RS485 Capable For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			Current transformer ratio: 400/5A with suitable accuracy and burden. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			Phase indicating lamp For JBC: 6 Nos.	Nos.

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			For SBC: 6 Nos. For IDRA: 6 Nos.	
			<b>OUTGOING :</b>	
			250A, TP, 36KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. For JBC: 4 Nos. For SBC: 4 Nos. For IDRA: 4 Nos.	Nos.
			10A,SP, 6KA, MCB For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			Enclosure as required. For JBC:1 set For SBC: 1 set For IDRA: 1 set	Set
			Copper Rating: 400A	
			TP+(N+PE busbar suitably sized).	
		<b>PAC DB- 2 Nos</b>	<b>OUTGOING :</b>	
			40A,TP, 10KA, 415V,50Hz (MCB) For JBC: 16 Nos. For SBC: 16 Nos. For IDRA: 16 Nos.	Nos.
			Enclosure as required. For JBC:1 set For SBC: 1 set For IDRA: 1 set	Set
			Copper Rating: 250A	
			TP+(N+PE busbar suitably sized).	
		<b>MTS DB For PAC-2 NOS</b>	63 A Manual Transfer switch/Changeover, Havels/other For JBC: 3 Nos. For SBC: 3 Nos. For IDRA: 3 Nos.	Nos.
		<b>UTILITY DB-2 Nos</b>	<b>INCOMING :</b>	
			160A TP, 25KA, 415V,50Hz (MCCB) with thermal overload and magnetic short circuit protection. For JBC: 2 Nos. For SBC: 2 Nos. For IDRA:2 Nos.	Nos.
			Energy meter with RS485 Capable For JBC: 2 Nos. For SBC: 2 Nos. For IDRA:2 Nos.	Nos.

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			Current transformer ratio: 200/5A with suitable accuracy and burden. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA:6 Nos.	Nos.
			Phase indicating lamp For JBC: 6 Nos. For SBC: 6 Nos. For IDRA:6 Nos.	Nos.
			Set control fuse. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA:6 Nos.	Nos.
			<b>OUTGOING :</b>	
			63A, TP, 10k MCB. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA:6 Nos.	Nos.
			32A SP, 10k MCB. For JBC: 4 Nos. For SBC: 4 Nos. For IDRA:4 Nos.	Nos.
			20A SP, 10k MCB. For JBC: 14 Nos. For SBC: 14 Nos. For IDRA: 14 Nos.	Nos.
			16A SP, 10k MCB. For JBC: 16 Nos. For SBC: 16 Nos. For IDRA:16 Nos.	Nos.
			Enclosure as required. For JBC:1 set For SBC: 1 set For IDRA: 1 set	Set
			Copper Rating : 200A,	
			TP+(N+PE busbar suitably sized).	
		<b>COMMON UTILITY DB-1 Nos</b>	<b>INCOMING :</b>	
			100ATP, 25KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos.
			Energy meter with RS485 Capable For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos.

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			Current transformer ratio: 100/5A with suitable accuracy and burden. For JBC: 3 Nos. For SBC: 3 Nos. For IDRA: 3 Nos.	Nos.
			Phase indicating lamp For JBC: 3 Nos. For SBC: 3 Nos. For IDRA: 3 Nos.	Nos.
			Set control fuse. For JBC: 3 Nos. For SBC: 3 Nos. For IDRA: 3 Nos.	Nos.
			<b>OUTGOING :</b>	
			32A, TPSP, 10k MCB. For JBC: 8 Nos. For SBC: 8 Nos. For IDRA: 8 Nos.	Nos.
			20A, SP, 10k MCB. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			16A, SP, 10k MCB. For JBC: 8 Nos. For SBC: 8 Nos. For IDRA: 8 Nos.	Nos.
			Enclosure as required. For JBC:1 set For SBC: 1 set For IDRA: 1 set	Set
			Copper Rating : 100A,	
			TP+(N+PE busbar suitably sized).	
		<b>UPS DB-2 O/P</b>	<b>INCOMING :</b>	
			250ATP, 36KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. (with Mechanical Interlock) For JBC: 8 Nos. For SBC: 8 Nos. For IDRA: 8 Nos.	Nos.
			Energy meter with RS485 Capable	Nos.
			Current transformer ratio: 250/5A with suitable accuracy and burden. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			<b>OUTGOING :</b>	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			40A, SP, 6k MCB. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			Enclosure as required. For JBC: 1 set For SBC: 1 set For IDRA: 1 set	Set
			Copper Rating : 400A,	
			TP+(N+PE busbar suitably sized).	
		<b>MTS DB -2 Nos</b>	<b>INCOMING :</b>	
			630A, TP, 36KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			Energy meter with RS485 Capable	Nos.
			Current transformer ratio: 600/5A with suitable accuracy and burden. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			Phase indicating lamp For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			Set control fuse. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			<b>OUTGOING :</b>	
			630A, TP, 36KA, 415V, 50Hz (MCCB) with thermal overload and magnetic short circuit protection. For JBC: 8 Nos. For SBC: 8 Nos. For IDRA: 8 Nos.	Nos.
			Enclosure as required. For JBC: 1 set For SBC: 1 set For IDRA: 1 set	Set
			Copper Rating: 800A,	
			TP+(N+PE busbar suitably sized).	



## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
		<b>Electrical Cable</b>	Supply of PVC insulated single core cable/PVC insulated & PVC sheathed single/multi core fire rated cables	
			<b>Cable Brand:</b> Any reputed brand to be mentioned by the bidder	
		DB to ATS-2NOS	1X300 rm NYY(3P+N) For JBC: 200 Met. For SBC: 200 Met. For IDRA: 200 Met.	Met.
			1x300 rm BYA For JBC: 60 Met. For SBC: 60 Met. For IDRA: 60 Met.	Met.
		DG 2 To ATS-2	1X300 rm NYY(3P+N) For JBC: 200 Met. For SBC: 200 Met. For IDRA: 200 Met.	Met.
			1x300 rm BYA For JBC: 60 Met. For SBC: 60 Met. For IDRA: 60 Met.	Met.
		ATS-2 To 630 A CB ISOLATOR BOX	1X300 rm NYY (3P+N) For JBC: 60 Met. For SBC: 60 Met. For IDRA: 60 Met.	Met.
			1x300 rm BYA For JBC: 200 Met. For SBC: 200 Met. For IDRA: 200 Met.	Met.
		ISOLATOR BOX 2 To MTS-2	1X300 rm NYY(3P+N) For JBC: 1000 Met. For SBC: 1000 Met. For IDRA: 1000 Met.	Met.
			1x300 rm BYA For JBC: 200 Met. For SBC: 200 Met. For IDRA: 200 Met.	Met.
		MTS-2 TO AVR-2 INPUT	1X300 rm NYY(3P+N) For JBC: 130 Met. For SBC: 130 Met. For IDRA: 130 Met.	Met.
			1x300 rm BYA For JBC: 30 Met. For SBC: 30 Met. For IDRA: 30 Met.	Met.

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
		AVR-2 OUTPUT TO MTS-2	1X300 rm NYY(3P+N) For JBC: 130 Met. For SBC: 130 Met. For IDRA: 130 Met.	Met.
			1x300 rm BYA For JBC: 30 Met. For SBC: 30 Met. For IDRA: 30 Met.	Met.
		MTS-2 OUTPUT TO EMDB 2	1X300 rm NYY(3P+N) For JBC: 80 Met. For SBC: 80 Met. For IDRA: 80 Met.	Met.
			1x300rm BYA For JBC: 20 Met. For SBC: 20 Met. For IDRA: 20 Met.	Met.
		EMDB 2 TO MDB-2	1X240 rm NYY(3P+N) For JBC: 80 Met. For SBC: 80 Met. For IDRA: 80 Met.	Met.
			1x240rm BYA For JBC: 20 Met. For SBC: 20 Met. For IDRA: 20 Met.	Met.
		EMDB 2 TO MDB-1	1X240 rm NYY(3P+N) For JBC: 120 Met. For SBC: 120 Met. For IDRA: 120 Met.	Met.
			1x240rm BYA For JBC: 30 Met. For SBC: 30 Met. For IDRA: 30 Met.	Met.
		EMDB 1 TO UTILITY DB-2	1X16, 25 rm NYY(3P+N) For JBC: 100 Met. For SBC: 100 Met. For IDRA: 100 Met.	Met.
			1x16rm BYA For JBC: 30 Met. For SBC: 30 Met. For IDRA: 30 Met.	Met.
		EMDB -2 TO SPD	1X6 rm NYY(3P+N) For JBC: 60 Met. For SBC: 60 Met. For IDRA: 60 Met.	Met.
			1x1rm BYA For JBC: 20 Met. For SBC: 20 Met.	Met.

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Item No	Description of Items	Technical Specifications and Standards		UoM
			For IDRA: 20 Met.	
	UPS 2 to Isolation TX 2 input	1X120 rm NYY(3P+N) For JBC: 80 Met. For SBC: 80 Met. For IDRA: 80 Met.		Met.
		1x120rm BYA For JBC: 20 Met. For SBC: 20 Met. For IDRA: 20 Met.		Met.
	Isolation TX 2 to UPS DB 2 input	1X120 rm NYY(3P+N) For JBC: 80 Met. For SBC: 80 Met. For IDRA: 80 Met.		Met.
		1x120rm BYA For JBC: 20 Met. For SBC: 20 Met. For IDRA: 20 Met.		Met.
	UPS 2 to UPS O/P DB 2	1X120rm NYY(3P+N) For JBC: 120 Met. For SBC: 120 Met. For IDRA: 120 Met.		Met.
		1x120 rm BYA For JBC: 30 Met. For SBC: 30 Met. For IDRA: 30 Met.		Met.
	MDB 2 to PAC DB 2	1X50 rm NYY (3P+N) For JBC: 60 Met. For SBC: 60 Met. For IDRA: 60 Met.		Met.
		1x50 rm BYA For JBC: 20 Met. For SBC: 20 Met. For IDRA: 20 Met.		Met.
	PAC DB 2 to PAC MTS 1,2,3	1X16 rm NYY (3P+N) For JBC: 160 Met. For SBC: 160 Met. For IDRA: 160 Met.		Met.
		1x16 rm BYA For JBC: 40 Met. For SBC: 40 Met. For IDRA: 40 Met.		Met.
	PAC DB-2 TO PAC MTS 4,5	1X6rm NYY (3P+N) For JBC: 100 Met. For SBC: 100 Met. For IDRA: 100 Met.		Met.
		1X6rm BYA For JBC: 200 Met.		Met.

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Item No	Description of Items	Technical Specifications and Standards		UoM
			For SBC: 200 Met. For IDRA: 200 Met.	
	PAC-MTS 4,5 to F.STAND AC 1,2	1X6rm NYY (3P+N) For JBC: 100 Met. For SBC: 100 Met. For IDRA: 100 Met.		Met.
		1X6rm BYA For JBC: 40 Met. For SBC: 40 Met. For IDRA: 40 Met.		Met.
	Utility DB B To COS TO CAC	4X4 rm NYY For JBC: 400 Met. For SBC: 400 Met. For IDRA: 400 Met.		Met.
		1x4 rm BYA For JBC: 400 Met. For SBC: 400 Met. For IDRA: 400 Met.		Met.
	UPS O/P DB -2 to Rack PDU	3X6 rm NYY For JBC: 1200 Met. For SBC: 1200 Met. For IDRA: 1200 Met.		Met.
	Utility DB B to Lighting & Others	1 x 1.5 rm BYM (Black and Red) For JBC: 64 coil For SBC: 64 coil For IDRA: 64 coil		coil
	Industrial Socket	32A, 1 Phase Any reputed brand For JBC: 52 Nos. For SBC: 52 Nos. For IDRA: 52 Nos.		Nos.
	Industrial Socket	32A, 3 Phase Any reputed brand For JBC: 10 Nos. For SBC: 10 Nos. For IDRA: 10 Nos		Nos.
	COS/MTS	63A TP Change Over Switch(3Pole) For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos		Nos.
		Installation: Installation with required accessories & testing		Set

For Item no. C6 actual work may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

## Annex -1

Item No	Name of Goods	Technical Specifications and Standards	UoM
C7	<b>True online Uninterruptable Power Supply (UPS)</b>	True On-Line UPS	Nos.
		Brand: Any reputed brand to be mention by the Bidder	
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		Capacity: For JBC: The Modular type UPS capacity should be minimum 120 KVA. For SBC: The Modular type UPS capacity should be minimum 120 KVA. For IDR: The Modular type UPS capacity should be minimum 120 KVA.	
		Type: To be mentioned by the bidder	
		Controller: Redundant/ Individual Controller	
		Power Module: Each module capacity should be minimum 30 KVA	
		UPS Type: Fully modular redundant design. Power module, bypass module and ECM is hot swappable. Support maintenance online	
		Backup time: 60Min.	
		<b>Basic requirement</b>	
		The integrated UPS of a single cabinet should be integrated with the UPS, UPS input, UPS output, maintenance bypass route, IT power distribution, air conditioner power supply, and lighting power supply.	
		UPS output power rating (1.0 p.f.)	
		Efficiency in double conversion mode: $\geq 96\%$	
		Efficiency in ECO mode: up to 99%	
		Static bypass rating: Minimum 120 KVA	
		UPS topology: Double conversion	
		UPS degree of protection: IP20	
		<b>Mains input (Normal operation)</b>	
		Grid system: 3 phases + neutral + ground	
		Voltage range (full load): 138~485VAC	
		Frequency range: 40 – 70 Hz	
		Power factor (PF): 1	
		THDi (full load): < 3% (full linear load); < 5% (full non-linear load)	
		<b>Bypass input (bypass operation)</b>	
		Grid system: 3 phases + neutral + ground	
		Voltage (nominal): 380 V/400 V/415 V	
		Voltage (range): +/-10% (from selected voltage)	

## Annex -1

		Frequency (nominal): 50/60 Hz	
		<b>Output</b>	
		Power rating: Minimum 120 KVA	
		Grid system: 3 phases + neutral + ground	
		Voltage (nominal): 380 V/400 V/415 V L-L	
		Frequency regulation: battery mode: 50/60 Hz +/- 0.05%	
		Synchronized slew rate: Programmable to <0.6 Hz/sec.	
		Overload (normal operation): 110% overload for 60min; 125% over load for 10min; 150% overload for 1min	
		THDv100% linear load : <1%(50%~100% linear load) <4% (100% non linear load)	
		<b>Efficiency</b>	
		Normal operation: 96%	
		Power Module capacity: Minimum 30 KVA per power module	
		<b>Modular Battery System</b>	
		Battery Frame Model: To be mentioned by the bidder	
		Battery type: Li-ion battery, battery cells should be made of lithium iron phosphate (LFP) to ensure cell stability.	
		Battery cabinet: The UPS supports lithium batteries and allows lithium batteries to be deployed in the cold aisle containment module. No independent battery room is required. The lithium battery cabinet consists of the lithium battery module, intelligent battery management module, and power distribution cabinet. The power distribution unit (PDU) of the lithium battery cabinet provides an output circuit breaker to facilitate battery connection and disconnection and implement reliable battery protection. The lithium battery cabinet is equipped with a monitoring module, which is responsible for battery sampling, voltage equalization, and communication. Multiple lithium batteries can be connected in series. The battery module adopts the natural heat dissipation design. Multiple battery modules can be connected in series to adjust the system voltage. All external ports of the battery modules are located in the front of the cabinet to facilitate installation and maintenance.	
		<b>Battery monitor system</b>	

		The intelligent battery management module supports the hot swap function and provides the BMS management for battery strings.	
		<p>The battery cabinet can be equipped with a display or not. If there is only one cabinet, the battery cabinet is equipped with a display. If there are multiple cabinets connected in parallel, only the main cabinet is equipped with a display screen. All information about the battery cabinets connected in parallel is displayed on one LCD and alarms are generated. The main cabinet implements northbound communication.</p> <p>The following information is displayed on the LCD and the communication information is displayed (Screenshots of the LCD are required):</p> <ol style="list-style-type: none"> <li>1. The UPS monitoring page displays the lithium battery system information (analog parameters such as the battery cell voltage extremum), battery rack system information (analog parameters such as the battery cell voltage extremum), and BMU alarms in each rack of the lithium battery system.</li> <li>2. The lithium battery monitoring system displays the battery cell data, battery module data, battery cabinet data, and system data.</li> </ol>	
		<b>Battery General Features</b>	
		Battery cell shall have a 1C maximum charging current	
		Single cabinet capacity is not less than 80Ah and 40Kwh	
		The lithium battery cabinet complies with CE/CB/RoHS/REACH.	
		Cabinet and modular design, Unique Active Current Balance Control, One Battery Module Failure, The System Can Work Normally	
		Cabinet-level fire extinguishing, precise and quick fire extinguishing, preventing fire from spreading	
		There shall be an embedded 3 level battery management unit (BMS) to manage the health of the battery, and communicate monitoring center with the real-time status	
		Active Current Balance Control, Supporting New and Old Battery String Connected in Parallel , Flexible to Expand; Bias Current <2%	
		The battery cabinet has active switching function. When the battery cabinet fails, the faulty cabinet is automatically isolated. After the fault is been eliminated, the cabinet can actively access the system at a proper time.	

## Annex -1

		Included Battery Modules: To be mentioned by the bidder	
		Typical recharge time: To be mentioned by the bidder	
		Battery Volt-Amp-Hour Capacity: To be mentioned by the bidder	
		The battery cell needs to provide a third-party report on Nail Penetration Test conducted by a well-known organization such as TUV.	
		<b>Communications &amp; Management</b>	
		Interface Port(s): RS485,FE, Dry contacts	
		Control panel: LED/LCD controller panel	
		Audible Alarm: Alarm when on battery : distinctive low battery alarm : configurable delays	
		Emergency Power Off (EPO): Yes	
		<b>Physical</b>	
		Maximum Height:To be mentioned by the bidder	
		Maximum Width: To be mentioned by the bidder	
		Maximum Depth: To be mentioned by the bidder	
		Net Weight: To be mentioned by the bidder	
		Shipping weight:To be mentioned by the bidder	
		Rack Height: 42U	
		Color: Any	
		<b>Environmental</b>	
		Operating Temperature: 0 - 40 °C	
		Relative Humidity: 5 - 95 % (non-condensing)	
		Storage Temperature: -40°C - 70 °C	
		Protection Class: IP20	
		Certification: Should provide the Manufacturer's Authorization Form	
		Installation: Installation, Testing and Commissioning.	

Item No	Name of Goods	Technical Specifications and Standards	UoM
C8	<b>Surge Protection Devices (SPD) for Distribution</b>	Brand: Any reputed brand to be mentioned by the bidder	Nos.
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		Connection Type: Parallel Operating Voltage Range: $\pm 10\%$	
		Product or component type: Surge arrester with pluggable cartridge	
		Device application: Distribution	





## Annex -1

		Poles description:3P + N	
		Remote signaling:With	
		Signal contacts composition: 1 SD (1 C/O)	
		Surge arrester type:Electrical distribution network	
		<b>Complementary</b>	
		Surge arrester class type: Type 2	
		Surge arrester technology: MOV + GDT	
		<b>[Ue] rated operational voltage:</b>	
		230 V (+/- 10 %) AC 50/60 Hz,	
		400 V (+/- 10 %) AC 50/60 Hz	
		<b>[In] nominal discharge current:</b>	
		Common mode : 20 kA L/PE,	
		Common mode : 20 kA N/PE,	
		Differential mode : 20 kA L/N	
		<b>[Imax] maximum discharge current:</b>	
		Common mode : 65 kA L/PE,	
		Common mode : 65 kA L/PE	
		Common mode : 65 kA N/PE,	
		Differential mode : 65 kA L/N,	
		<b>[Uc] maximum continuous operating voltage:</b>	
		Common mode : 260 V N/PE,	
		Common mode : 350 V L/PE,	
		Differential mode : 350 V L/N.	
		<b>[Up] voltage protection level:</b>	
		1.5 kV type 2 common mode N/PE,	
		1.5 kV type 2 differential mode L/N.	
		<b>[Ut] temporary overvoltage:</b>	
		Withstand : 337 V L/N for 5 s,	
		Withstand : 442 V L/PE for 5 s,	
		Safe failure mode : 1200 V N/PE for 200 ms Di,	
		<b>Disconnecter device type</b>	
		Associated circuit breaker iC60H 50 A curve C - Icu 15 kA	
		Associated circuit breaker iC60N 50 A curve C - Icu 10 kA	
		Associated circuit breaker NG125N 50 A curve C - Icu 25 kA	
		Associated circuit breaker NG125H 100 A curve C - Icu 36 kA	
		Associated circuit breaker NG125L 100 A curve C - Icu 50 kA	
		<b>[Iscer] short-circuit current rating</b>	
		36 kA	
		50 kA	

## Annex -1

		Local signaling: Flag color: white/red	
		Signaling circuit voltage: 0.25 A/250 V AC 50/60 Hz	
		Mounting mode: Clip-on	
		Mounting support: DIN rail	
		9 mm pitches: 8	
		Color: White or Black	
		Response time : <= 25 ns	
		<b>[Ipe] Ground residual current:</b>	
		0.6 mA, 0.003 mA	
		<b>Environment Standards</b>	
		EN 61643-11 : 2012	
		IEC 61643-11 : 2011	
		Product certifications: CE	
		Quality labels: NF, KEMA-KEUR	
		IP degree of protection: On front face : IP40 conforming to IEC 60529 Built-in : IP20 conforming to IEC 60529	
		IK degree of protection: IK03 conforming to IEC 62262	

Item No	Description of Items	Technical Specifications and Standards		UoM
C9	In Row Type Precision Air Conditioners for Server Room	In Row DX Air Conditioners	In Row DX Direct Expansion Air Conditioners	Nos.
			Brand: To be mentioned the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		General requirement	Bidder must be ISO9001 certified and comply with the RoHS, REACH, CQC and CE statement and to protect human health and environmental safety. Please provide the RoHS, REACH statement by the National Certified Institution of the Original Country.	
		<b>Net Cooling Capacity</b>		
			Total Cooling Capacity: Minimum 30KW for each unit	
			Sensible Capacity: Minimum 30KW for each unit	
		<b>Technical specifications:</b>		
			Refrigerant: R410a	

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			Temperature range Operation (environment): +18°C~ +45°C	
			Color: To be mentioned by the bidder	
			<b>General:</b>	
			The power source allowed voltage tolerance: 380~415V	
			Frequency tolerance: 50/60Hz	
			Operating ambient temperature: -20°C ~ +55°C	
			Operating ambient humidity: 5%–95% RH	
			The cooling unit should be equipped with energy-efficient EC fans.	
			Indoor fan and power module can be maintained on-line and replaced without shutdown; 7” true color screen, display cooling capacity, air volume real-time, easy O&M.	
			Indoor unit should be configured with compressor, evaporator, EC fans, controller, electric expansion valve, oil separator, dryer filter, humidifier and electrical heater.	
			The system comprising DX cooling unit and external condenser must be filled with refrigerant R410A after installation at the site.	
			Installation and commissioning on site, laying of the refrigerant pipes, and evacuation and filling of the system with refrigerant should be included in the scope of supply and must be realized by correspondingly qualified persons.	
			Unit should use environment friendly refrigerant R410A.	
			Unit should be configured with built-in temperature sensors and built-in temperature & humidity sensor to measure the temperature more accurately and increase system reliability.	
			<b>Control type:</b>	

## Annex -1

			The PAC unit should be configured with LCD true color touch screen to provide good human-computer interaction and a vivid interface. The controller should support interface switching. The controller should support to display minimum 30 day's temperature & humidity color curves, and should also be able to graphically display the operation status of the unit components.	
			PAC unit should have the one-key touch function for display and collection of faulty message into a USB disk.	
			It should display the detailed fault operation and maintenance advices on the control panel	
			The operation status and faulty information of outdoor unit could be displayed on control panel and management system.	
			The operation status and faulty information of drain pump could be displayed on control panel and management system. The faulty could generate voice alarm and support managed by the management system to improve the draining reliability	
			The recorded history of alarms messages should not be less than 1500.	
			<b>Monitoring performance</b>	
			Unit should have the function of local and remote monitoring.	
			Unit should have RS485 & FE communication interface to do remote inspection and parameter setting, Modbus open protocol should be provided to integrate to data center facility management system and reduce OPEX.	
		High-efficiency fans	Indoor unit should use high efficiency energy saving variable speed EC fans to reduce fan power consumption.	
		Evaporator	Evaporator should be ease condensation water drainage and avoid water being carried out in the meantime improving heat exchanging capability	
		LCD display	Touch-screen color display	

## Annex -1

		Humidifier	Humidifier canisters are replaceable. The humidifier controller communicates directly to the microprocessor controller and provides complete status and control at the operator interface Continuous dehumidification at 20% load.	
			Certification: Should provide the Manufacturer's Authorization Form	
			Installation: Installation and commissioning Accessories Like: Gas, Frame, etc	

Item No	Description of Items	Technical Specifications and Standards		UoM
C10	Comfort Air-Conditioning	Split AC	Split Type Air Conditioner	Nos.
			Brand: Any reputed brand To be mentioned the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Capacity: 24000 BTU, 2 Ton	
			Type: Wall / ceiling Mount	
			Remote Control: Wireless with Clock	
			Refrigerant Type: R22 or Equivalent	
			Power Supply: 1 $\Phi$ / 230 VAC / 50-60Hz	
			Air Direction Control: Up/Down	
		AC Control Panel	ACP: Automatic Control Panel for power room Floor Stand type AC. Operation: 2 Hour to 11 Hours interval by Automatic Control Panel (ACP). Operating Power: 220V AC.	Nos.
			Brand: To be mentioned the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		Temperature Control	7 Segment LED display with 27C (Adjustable) Setting	
		Alarm Loop	Alarm for Air- Con unit On /Off, system fail, temperature high.	
		Fire Alarm	Capable to accept fire alarm signal from fire alarm control panel to shut down all air-conditioner unit	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
		<b>Control</b>	Fully digital control and auto / manual option	
			Installation: Installation and commissioning with all required accessories	Job

For Item no. C10 quantity/actual work may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

Item No	Description of Items	Technical Specifications and Standards		UoM
C11	<b>Lighting System</b>	Panel Light for Server & Power Room	LED 1'x1' panel light, Supply of imported ceiling surface/concealed mounted light fixture complete Installation For JBC: 48 Nos. For SBC: 48 Nos. For IDRA: 48 Nos.	Nos.
			Brand: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			ceiling mount LED Light Panel 300X300mm with Controller should ensure 500 Lux	
		Panel Light for Rest of Area	LED 2'x2' panel light, Supply of imported ceiling surface/concealed mounted light fixture complete Installation for Rest for area For JBC: 48 Nos. For SBC: 48 Nos. For IDRA: 48 Nos.	Nos.
			Brand: Any reputed brand to be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			ceiling mount LED Light Panel 600X600mm with Controller should ensure 500 Lux	
		Emergency Light for Server & Power Room	Emergency Light with Battery Backup for Server and Power Room. Installation (Light fittings work) For JBC: 16 Nos. For SBC: 16 Nos. For IDRA: 16 Nos.	

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Item No	Description of Items	Technical Specifications and Standards		UoM
		4 Gang switch	4 Gang switch For JBC: 20 Nos. For SBC: 20 Nos. For IDRA: 20 Nos.	Nos.
			Brand : Any reputed brand to be mentioned by the bidder	
			Origin : To be mentioned by the bidder	
		Socket for power	13A 3-Pin Multi-Socket For JBC: 27 Nos. For SBC: 27 Nos. For IDRA: 27 Nos.	Nos.
			Brand : Any reputed brand to be mentioned by the bidder	
			Origin : To be mentioned by the bidder	
		MK PVC BOX	3"X3" PVC BOX for Switch & socket For JBC: 60 Nos. For SBC: 60Nos. For IDRA: 60 Nos.	Nos.
			Installation: Installation, Testing with necessary installation Material For JBC:1 set For SBC: 1 set For IDRA: 1 set	Set

For Item no. C11 actual work may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

Item No	Description of Items	Technical Specifications and Standards	UoM
C12	<b>Rack Automatic Transfer Switch</b>	Brand: Any reputed brand to be mentioned by the bidder	Nos.
		Country of Origin: Bidder to mention	
		Model: To be mentioned by the bidder	
		Type: Automatic switching power redundancy to single corded equipment with Manageable	
		Input Voltage: 200V, 208V, 230V	
		Frequency: 50/60 Hz	
		Dimension: To be mentioned by the bidder	
		Output Voltage: 230V	
		Form factor: 2U	
		Manageability: Network manageable through TCP/IP	
		Transfer Time : <9ms	



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Item No	Description of Items	Technical Specifications and Standards	UoM
		Capacity: 32A	
		Display: LCD display for operating information	
		Output Connection: (16) IEC 320 C13 (Battery Backup) , (2) IEC 320 C19	
		<b>Interface:</b>	
		Access, configure, and manage remotely via web interface, telnet, SNMP, SSH	
		Bidder should be integrate with Central CMS/DCIM which are installed at Data Center	
		Input Connection : IEC 309 32A 2P+E	
		Cord Length: minimum 2.44 meters	
		<b>Protection:</b>	
		10 KAIC overcurrent protection	
		Power Path Indicators with Heartbeat	
		Field replaceable color LCD Display/intelligence module	
		Robust out-of-phase switching capability	
		Command Line Interface(CLI) via serial connection	
		USB Port for firmware upgrades	
		Installation: Installation, Commissioning with all required accessories, Troubleshooting at site	

Item No	Description of Items	Technical Specifications and Standards	UoM
C13	Cold Aisle Containment System	Intelligent Containment Solutions that Increase Data Center Cooling Efficiency while Protecting Critical IT Equipment	Nos.
		Brand: To be mentioned by the bidder	
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		General For JBC: Cold Aisle Containment for 20 Nos Production Racks, 2 Nos UPS Racks, 2 Nos Battery Racks, 4 Nos air conditioner Racks, 8 Nos IT Racks, 4 Nos Network Racks. For BIA: Cold Aisle Containment for 12 Nos Production Racks, 2 Nos UPS Racks, 2 Nos Battery Racks, 2 Nos air conditioner Racks, 4 Nos IT Racks, 2 Nos Network Racks	



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			For SBC: Cold Aisle Containment for 20 Nos Production Racks, 2 Nos UPS Racks, 2 Nos Battery Racks, 4 Nos air conditioner Racks, 8 Nos IT Racks, 4 Nos Network Racks For IDRA: Cold Aisle Containment for 20 Nos Production Racks, 2 Nos UPS Racks, 2 Nos Battery Racks, 4 Nos air conditioner Racks, 8 Nos IT Racks, 4 Nos Network Racks	
			The Containment uses a series of panels, door frames and doors, and air blocks to enclose a cold aisle zone which contains cooling unit supply air	
			Access control to the aisle can be controlled with either contactless card, PIN, fingerprint or face recognition.	
			The modular DC should have a clear status indication, which can support indicate the status of module, and can interact with the access control and the alarm. The red indicates that the recognition failed, and green indicates that the identification is successful. It can also interact with the status of the module when the module has an alarm. Critical alarm, Major alarm, Minor alarm, and Warning alarm can be distinguished and can be indicated by different light colors.	
		<b>Skylights/Ceiling</b>		
			Brand: Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Control skylight, for 600 mm wide cabinets and 1200 mm wide aisle containments, dedicated for M-type cabinets	Nos.
			600mm full glass skylight/Ceiling	Nos.
			800mm full glass skylight/Ceiling	Nos.
			300mm full glass skylight, Used for 1200 mm aisle containment	Nos.
			The control Ceiling on both ends of the aisle	

## Annex -1

			It can be installed with the camera, temperature and humidity sensor, smoke detector, aisle lighting, infrared sensor, and reserved hole for fire extinguishing nozzles	
			The skylights /Ceiling Glass in the middle can be fixed and rotated (automatically controlled by the magnetic locks)	
		<b>Fire Safe Ceiling System</b>		
			Opening skylights /Ceiling Glass can activate the fire extinguishing linkage alarm signal in the aisle	
			In case of fire, the magnetic locks open and rotating skylights /Ceiling Glass open automatically due to gravity force	
			The design ensures that fire extinguishing gas enters the cold aisle containment	
			After the skylights /Ceiling Glass open, the net height of the cold aisle containment should be at least 2m so that it does not affect routine maintenance and the safety of maintenance personnel	
			Blue ambient light is installed at the bottom of the channel	
		<b>LED Lighting</b>		
			Intelligent light system	Nos.
			Light System, LED ground lamp,220V-240V,single phase,50Hz	
		<b>Frames and Component Seal use with necessary equipment.</b>		
			Fully-enclosed bottom plates for 600/300 mm wide cabinets, compatible with 1100 mm and 1200 mm deep cabinets, for M-type cabinets	Nos.
		<b>Blanking Panels, Height Adapters, and Depth Extenders use with necessary equipment.</b>		
			Blank panel,1U	Nos.
			Installation: Installation with accessories	Job

## Annex -1

Item No	Description of Items	Technical Specifications and Standards	UoM
C14	Network Rack	Brand : Any reputed brand to be mentioned by the bidder	Nos.
		Country of Origin: To be mentioned by the bidder	
		Model: To be mentioned by the bidder	
		Network rack: Rack Enclosure 800mm x 1200mm w/ Sides Black	
		Rack Height: 42U	
		Minimum Height: 2000mm	
		Minimum Width: 800mm	
		Minimum Depth: 1200mm	
		Net Depth with Stabilizing Feet: To be mentioned by the bidder	
		Weight Capacity (static load): 1500KG--1800KG	
		Weight Capacity (dynamic load): 800KG--1000KG	
		<b>Specifications:</b>	
		The cabinet complies with IEC 60297-2 and is compatible with the 19" rack international standard.	
		Color: Black	
		The door frames of the cabinet can be installed with expansion bolts (ground) or bolts (base).	
		<b>Convenience:</b>	
		There are at least four mounting bars inside the cabinet for installing devices and securing partition panels. The distance between the front and rear mounting bars can be adjusted flexibly by each step of 25 mm. U numbers are marked.	
		The static bearing capacity is not less than 1500 kg, and the test report issued by a third-party authority is provided.	
		The entire cabinet is protected to at least IP20.	
		All panels and accessories (except engineering installation supports) can be removed and assembled separately to ensure quick deployment and reduce labor costs.	

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		Dedicated cabinet connecting pieces are used. The connecting points are designed on the door frames of the cabinet. In this way, cabinets can be combined quickly without removing the cabinet doors. This saves labor costs and facilitates quick deployment.	
		The cabinet can be installed on a base, concrete floor, or ESD floor.	
		The ground points of the cabinet are located at the lower or upper part of the posts to provide comprehensive grounding protection.	
		The cabinet should provide a separate grounding point for the PDU to improve the grounding safety and reliability.	
		Cabinets can be installed side by side. The connecting pieces should be delivered with the cabinets. Side-by-side cabinets should be separated from each other by side panels.	
		Fixing holes are reserved at the bottom of the cabinet to connect to the ground or base.	
		<b>Adaptability:</b>	
		Castors are available at the bottom of the cabinet for easy transportation.	
		Connecting parts such as cabinet materials, screws, and bolts should be stainless.	
		The cabinet should be configured with matched screws and nuts.	
		The cabinet should be configured with matched screws and nuts.	
		Required Vertical Cable Manager for each rack and adjustable kit	

Item No	Description of Items	Technical Specifications and Standards	UoM
C15	Server Rack	Brand : Any reputed brand to be mentioned by the bidder	Nos.
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		Server rack: Server Rack Enclosure 600mm x 1200mm w/ Sides Black	
		Rack Height: 42U	



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		Minimum Height: 2000mm	
		Minimum Width: 600mm	
		Minimum Depth: 1200mm	
		Net Depth with Stabilizing Feet: To be mentioned by the bidder	
		Weight Capacity (static load): 1500KG--1800KG	
		Weight Capacity (dynamic load): 800KG--1000KG	
		<b>Specifications:</b>	
		The cabinet complies with IEC 60297-2 and is compatible with the 19" rack international standard.	
		Color: Black	
		The door frames of the cabinet can be installed with expansion bolts (ground) or bolts (base).	
		<b>Convenience:</b>	
		There are at least four mounting bars inside the cabinet for installing devices and securing partition panels. The distance between the front and rear mounting bars can be adjusted flexibly by each step of 25 mm. U numbers are marked.	
		The static bearing capacity is not less than 1500 kg, and the test report issued by a third-party authority is provided.	
		1 The entire cabinet is protected to at least IP20.	
		All panels and accessories (except engineering installation supports) can be removed and assembled separately to ensure quick deployment and reduce labor costs.	
		Dedicated cabinet connecting pieces are used. The connecting points are designed on the door frames of the cabinet. In this way, cabinets can be combined quickly without removing the cabinet doors. This saves labor costs and facilitates quick deployment.	
		The cabinet can be installed on a base, concrete floor, or ESD floor.	
		The ground points of the cabinet are located at the lower or upper part of the posts to provide comprehensive grounding protection.	
		The cabinet should provide a separate grounding point for the PDU to improve the grounding safety and reliability.	

## Annex -1

		Cabinets can be installed side by side. The connecting pieces should be delivered with the cabinets. Side-by-side cabinets should be separated from each other by side panels.	
		Fixing holes are reserved at the bottom of the cabinet to connect to the ground or base.	
		<b>Adaptability:</b>	
		Castors are available at the bottom of the cabinet for easy transportation.	
		Connecting parts such as cabinet materials, screws, and bolts should be stainless.	
		The cabinet should be configured with matched screws and nuts.	
		The cabinet should be configured with matched screws and nuts.	

### C16. Data Center Network Cabling System

#### DC LAN Structured Cabling System (SCS):

Item No	Description of Items	Technical Specifications and Standards		UoM
C16.1	<b>CAT 6A U/UTP LSZH Cable (Box of 305 mtr)</b>	<b>CAT 6A U/UTP LSZH Cable (Box of 305 mtr)</b>		
			Brand : Any reputed brand to be mentioned by the bidder	
			Model :To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		Quantity	For JBC: 15 Box. For SBC: 15 Box. For IDRA: 15 Box.	Box
		General	CAT6A U/UTP 23 AWG Cable should meet and exceed ANSI/TIA 568C.2 Category 6A and ISO/IEC 11801 Class EA Specifications	
			Cable be constructed with pair separator as well as individual conductor separator.	
			The cable have an inner finned jacket design to mitigate A-NEXT challenges in CAT6A channel.	
		<b>Environmental, Compliance &amp; Safety features:</b>		
			The cable have Low-Smoke, Zero Halogen (LSZH) jacketing.	

## Annex -1

			Factory test reports for CAT6A cable should be available for verification of authenticity, at OEM website with unique print string on individual cable jacket.	
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Item No	Description of Items	Technical Specifications and Standards		UoM
C16.2	<b>Category 6A U/UTP Modular Information Outlets</b>	<b>Category 6A U/UTP Modular Information Outlets</b>		
			Brand : Any reputed brand to be mentioned by the bidder	
			Model : To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		Quantity	For JBC: 25 Box. For SBC: 25 Box. For IDRA: 25 Box.	Nos.
		General	The CAT6A UTP 8-pin modular (RJ-45) jacks have Electrical performance guaranteed to meet or exceed the channel specifications of ISO/IEC 11801 Class EA and ANSI/TIA-568-C.2 Category 6A.	
			support network line speeds up to at least 10 gigabits per second	
			Information outlet have IDC connector terminations on rear of base allow quick and easy installation of 22 to 24 AWG cable	
			Each outlet be supplied with rear protective strain relief cap to protect against contamination and securing the termination.	
			<b>Mechanical performance:</b>	
			Material: High-impact, flame retardant, thermoplastic	

## Annex -1

			<b>Single Port Faceplate:</b> <b>JBC: 25 Nos</b> <b>SBC: 25 Nos</b> <b>IDRA: 25 Nos</b>	
			Faceplate be available in 1 or 2 port square version, with dust caps or shutter.	
			Faceplate Material be high impact, flame retardant.	

Item No	Description of Items	Technical Specifications and Standards		UoM
C16.3	<b>Category 6A U/UTP Patch Cord</b>	<b>Category 6A U/UTP Patch Cord</b>		
			Brand : Any reputed brand to be mentioned by the bidder	
			Model :To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		Quantity	For JBC: 270 Nos.(7ft) For SBC: 270 Nos.(7ft) For IDRA: 270 Nos.(7ft)	Nos.
		General	CAT6A U/UTP Patch Cord, be of 4 pair solid construction, with pair separator.	
			Cords be factory terminated with 8-pin modular plugs on each end.	
			Plugs be designed with an anti-snag latch to facilitate easy removal during move, add and change processes.	
			Patch Cord have LSZH jacket.	
			Patch Cord have min plug insertion life of 750 cycles.	
			Patch Cords have maximum dc Resistance:0.30 Ohm	
			Shall be compliant with the channel specifications of ANSI/TIA 568-C.2. ROHS compliant and EN 50575 compliant.	



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Item No	Description of Items	Technical Specifications and Standards		UoM
C16.4	<b>Category 6A U/UTP Patch Panel,</b>	<b>Category 6A U/UTP Patch Panel</b>		
			Brand : Any reputed brand to be mentioned by the bidder	
			Model :To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		Quantity	For JBC: 20 Nos. For SBC: 20 Nos. For IDRA: 20 Nos.	Nos.
		General	Patch Panel be 24 port, ANSI TIA 568-C.2 CAT6A UTP outlets loaded with rear cable manager, supplied with bundle holders (4 nos) and velcro.	
			Patch panel shall be available in 1U (24 port), in either straight or angled version.	
			Termination managers shall be provided with the panel. These termination managers should provide proper pair positioning, control, and strain relief feature to the rear termination of the panel.	

Item No	Description of Items	Technical Specifications and Standards		UoM
C16.5	<b>Pre-Terminated MPO Modules – Multimode Om4</b>	<b>Pre-Terminated MPO Modules – Multimode Om4</b>		
		Quantity	For JBC: 28 nos. (MPO – LC 24F Cassette, 2x12F MPO) For SBC: 28 nos. (MPO – LC 24F Cassette, 2x12F MPO) For IDRA: 28 nos. (MPO – LC 24F Cassette, 2x12F MPO)	Nos.
			Brand : Any reputed brand to be mentioned by the bidder	
			Model :To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	

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Item No	Description of Items	Technical Specifications and Standards		UoM
C16.6	<b>High Density Modular Fiber Shelves (1U / 2U Shelf)</b>	Quantity	For JBC: 9 nos. (High Density 1U sliding fiber panel enclosure) For SBC: 9 nos. (High Density 1U sliding fiber panel enclosure) For IDRA: 9 nos. (High Density 1U sliding fiber panel enclosure)	Nos.
			For JBC: 2nos. (High Density 2U sliding fiber panel enclosure) For SBC: 2nos. (High Density 2U sliding fiber panel enclosure) For IDRA: 2nos. (High Density 2U sliding fiber panel enclosure)	Nos.
			Brand : Any reputed brand to be mentioned by the bidder	
			Model :To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Capacity & Type: High Density 1U sliding fiber panel enclosure, accepts (4) MPO modules, for up to 48 duplex LC (96 fiber) termination. High Density 2U sliding fiber panel enclosure, accepts (12) MPO modules, providing min 144 duplex LC ports (288 fibers)	

Item No	Description of Items	Technical Specifications and Standards	UoM
C16.7	<b>12F MPO Trunk Cable, OM4</b>	For JBC: 2 nos. (MPO-12 Pre-terminated Trunk Cable, 8m) For SBC: 2 nos. (MPO-12 Pre-terminated Trunk Cable, 8m) For IDRA: 2 nos.(MPO-12 Pre-terminated Trunk Cable, 8m)	Nos.
		For JBC: 12 nos. (MPO-12 Pre-terminated Trunk Cable, 10m) For SBC: 12 nos. (MPO-12 Pre-terminated Trunk Cable, 10m) For IDRA: 12 nos. (MPO-12 Pre-terminated Trunk Cable, 10m)	Nos.
		For JBC: 6 nos. (MPO-12 Pre-terminated Trunk Cable, 15m) For SBC: 6 nos. (MPO-12 Pre-terminated Trunk Cable, 15m) For IDRA: 6 nos. (MPO-12 Pre-terminated Trunk Cable, 15m)	Nos.

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		For JBC: 5 nos. (MPO-12 Pre-terminated Trunk Cable, 20m) For SBC: 5 nos. (MPO-12 Pre-terminated Trunk Cable, 20m) For IDRA: 5 nos. (MPO-12 Pre-terminated Trunk Cable, 20m)	Nos.
		For JBC: 2 nos. (MPO-12 Pre-terminated Trunk Cable, 30m) For SBC: 2 nos. (MPO-12 Pre-terminated Trunk Cable, 30m) For IDRA: 2 nos. (MPO-12 Pre-terminated Trunk Cable, 30m)	Nos.
		Brand : Any reputed brand to be mentioned by the bidder	
		Model :To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	

Item No	Description of Items	Technical Specifications and Standards		UoM
C16.8	LC – LC Multimode (MM) Duplex Fiber Patch Cords, LSZH	Quantity	For JBC: 348 nos. (LC-LC Multimode OM4 Patch Cord, 3m) For SBC: 348 nos. (LC-LC Multimode OM4 Patch Cord, 3m) For IDRA: 348 nos. (LC-LC Multimode OM4 Patch Cord, 3m)	Nos.
			For JBC: 72 nos. (LC-LC Multimode OM4 Patch Cord, 5m) For SBC: 72 nos. (LC-LC Multimode OM4 Patch Cord, 5m) For IDRA: 72 nos. (LC-LC Multimode OM4 Patch Cord, 5m)	Nos.
			Brand : Any reputed brand to be mentioned by the bidder	
			Model :To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	

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Item No	Description of Items	Technical Specifications and Standards		UoM
C16.9	<b>Fiber Cabling Pathway system</b>	Quantity	For JBC: Min 55 Mtr. (Fiber Guide 4x6 Inch-Pathway system) For SBC: Min 55 Mtr. (Fiber Guide 4x6 Inch-Pathway system) For IDRA: Min 55 Mtr. (Fiber Guide 4x6 Inch-Pathway system)	Mtr.
			For JBC: 1 Lot (Fiber Guide 4x6 Inch-Pathway accessories as per design) For SBC: 1 Lot (Fiber Guide 4x6 Inch-Pathway accessories as per design) For IDRA: 1 Lot (Fiber Guide 4x6 Inch-Pathway accessories as per design)	Set
			Brand : Any reputed brand to be mentioned by the bidder	
			Model :To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	

Item No	Description of Items	Technical Specifications and Standards		UoM
C16.10	<b>Copper Wire Basket pathway System</b>	Quantity	For JBC: 55 Mtr. (Copper Pathway System :300mm x 100mm x 2000mm –W x H x L) For SBC: 55 Mtr. (Copper Pathway System :300mm x 100mm x 2000mm –W x H x L) For IDRA: 55 Mtr. (Copper Pathway System :300mm x 100mm x 2000mm –W x H x L)	Mtr.
			For JBC: 1+1 =2 Set (Copper Pathway accessories as per design) For SBC: 1+1 =2 Set (Copper Pathway accessories as per design) For IDRA: 1+1 =2 Set (Copper Pathway accessories as per design)	set
			Brand : Any reputed brand to be mentioned by the bidder	
			Model :To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		General	The Pathway system provide 100mm (4inch) high side walls for sufficient cable placement.	

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			Each 300mm x 100mm straight section be 2000mm long.	
			be equipped with Horizontal -T Bends and Horizontal Elbow bends	
			System be suspended from the ceiling using M12 threaded rods, 15.8 mtr long.	

Item No	Description of Items	Technical Specifications and Standards	UoM
C16.11	Documentation & Labeling	9mm, 12mm, 18mm Laminated label tape with standard adhesive for hot and cold environment for all UTP and fiber cable as per TIA-942 Standard	Lot

For Item no. C16 actual may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

Item No	Description of Items	Technical Specifications and Standards	UoM
C17	<b>KVM Switch</b>	Brand : Any reputed brand to be mentioned by the bidder	Set
		Model :To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		General Information	
		The KVM switch allows local and remote users to monitor and access multiple servers from a single console over the LAN & WAN	
		Should Support VGA, DVI,HDMI, DP port servers connectivity	
		Should Support Windows , Linux ,Unix, Mac , Solaris (Sun),Redhat,Ubuntu	
		Hot pluggable –add or remove computers without having to power down the switch	
		Adaptive 10/100/1000 Mbps LAN Ports BIOS –level access & Support firmware	
		Video quality and video tolerance can be adjusted to optimize data transfer speed up to 30 fps	
		Server Connections : Integrated 16 ports Port Emulation : Push Button , UI interface , Web	

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Item No	Description of Items	Technical Specifications and Standards	UoM
		LCD Panel : FHD TFT 18.5 inch Optimum Resolution : 1920 x 1080 @ 60 Hz	
		Display Color : 16.7 M RS485 Serial Interface : RJ45 Copper	
		Remote Management : WEB browser –based	

Item No	Description of Items	Technical Specifications and Standards	UoM
C18	<b>Intelligent Power Distribution Unit (IPDU)</b>	Brand : To be mentioned by the bidder	Nos.
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		Standard: Power Inlet 1x IEC 60309 or equivalent	
		Power Outlets: 20 x IEC 320 C13, 4 x IEC 320 C19 outlets each PDU	
		Input Power Rating: Should be support 100–240V~; 50/60Hz; 32A	
		Load Capacity: Should be support at least 7000 VA	
		Operating Temp.: Should be support 0 - 40°C	
		Storage Temp.: Should be support -20 - 60°C	
		Humidity: Should be support 0-80% RH Non-condensing	
		Monitoring: Input: total input voltage, total load current, total apparent power, active power, reactive power, total load power factor, and total electric energy Output: load current of each unit, active power of each unit, switch status of each unit, and electric energy metering of each unit	
		Weight: To be mentioned by the bidder	
		Dimension: Shall be compatible with 42 U Rack	
		Protocol: SNMP&MODBUS	
		Industrial Socket: Bidder shall provide 32Amp industrial sockets to integrate with existing power source	
		Installation and Configuration: Bidder should provide installation, configuration, setup and integration with devices as per tenderer's guideline.	

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Item No	Description of Items	Technical Specifications and Standards		UoM
C19	<b>Continuous rating Generator for Data Center</b>		Manufacturer Name: To be mention by the Bidder	Nos.
			For JBC: 400 KVA Continuous rating Diesel Generator For SBC: 400 KVA Continuous rating Diesel Generator For IDRA: 400 KVA Continuous rating Diesel Generator	
			Ambient Temperature: 40-50 Deg	
			Altitude: minimum 16 meter	
		<b>General Specification of Generator Set</b>		
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Country of Assembly: To be mentioned by the bidder	
			Year of Production: Not earlier than contracted year	
			Type: Continuous rating Diesel Generator	
			Rated Prime Output (min): To be mentioned by the bidder	
			Rated output voltage (min): 400 Volt	
			No. of Phases & Wire: 3 Ph 4 wires	
			Power Factor (min): 0.8	
			Voltage Regulation (max): $\pm 1\%$ with any power factor and speed variations between -5% +30%	
			RPM: 1500 or better	
			Efficiency : $\Rightarrow 94.4\% @ 400V$	
			Frequency : 50 Hz	
		<b>Engine:</b>		
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Country of Assembly: Bidder to mention	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards	UoM
		Year of Production: Brand New and not earlier than the year of contract.	
		Type of engine: Diesel Engine	
		Displacement of Engine: 12-14 Liter	
		No. of Cylinders (min): 6 In line	
		Bore/Stroke (mm): 131/ 158 mm	
		Piston Displacement : 12-13 Litre	
		Output power (KW): To be mentioned by the bidder	
		Cooling system: Water Cooled.	
		Specific Fuel Consumption: 219 g/kWh@25%, 200g/kWh@50%, 197V@75%, 194 g/kWh @100%	
		Starting voltage: 23-24 Volt DC	
		Engine Alternator: Self-battery charging by engine driven.	
		Engine Efficiency: To be mention by the Bidder	
		Weight of Engine: 1300-1400 Kg Wet	
		Fuel Tank Capacity (min): <b>12 Hours back up fuel tank</b>	
		Battery for Start the Generator: 150-155 AH	
		Battery charging facilities: Self-charging by engine driven alternator and AC voltage.	
		<b>Control Panel:</b>	
		LCD display and alarm channel shall include: Generator Volts, Generator Amps, Generator Frequency, Mains Volts, Mains Frequency, Engine Speed, Plant Battery Volts, Engine Hours Run, Generator total power, Generator Poser factor, Under/over generator voltage, over-current, under/over generator frequency, under/over speed, charge fail, emergency stop, low oil pressure, high engine temperature, fail to start, low/high DC battery voltage, reverse power, Earth Fault protection 1 – 40 A (protection of	



## Annex -1

Item No	Description of Items	Technical Specifications and Standards	UoM
		the machine), Remote Start from VFC availability.	
		Tele-management, Overload and short circuit (electronic protections), power, generator phase rotation error, generator short-circuit protection, loss of speed sensing signal, mains out of limits	
		a. Meters & Gauges	
		b. Switches: Start & Stop key/ push button with auto starter provision.	
		LOAD TRANSFER SWICTH : power, generator phase rotation error, generator short-circuit protection, loss of speed sensing signal, mains out of limits	
		Power Output cable: 250 meter of NYY type adequate size, 3 Phase with neutral power cable to be provided with each generator with cable lugs at the delivery end & adequate size power plug at the generator end/out let.	
		Tool Kits: A complete set of tool kits to be provided with each set of generator. List to be provided.	
		Any Other; To be mentioned by the Bidder	
		<b>Working Condition:</b>	
		Noise pressure level @ 7 mt: dB(A) 75	
		Operational condition: (ii) Should be able to operate in all-weather condition.	
		Weather condition: (iii) The generator should have noise suppressions system and able to operate in the open in all-weather condition.	
		Canopy: Should be made of steel sheet having corrosive resistance paint and should be able to attenuate up to db(A) 80 at 1 meter having lockable louvers, doors,	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			glass window for monitoring the meters etc.	
			Transportation: The generator should have all provisions for transportation of it by vehicle, transporter or trailer.	
			Mounting: The generator to be mounted on its base with anti-vibration mounting which should have provision to place on a trailer. Provision shall be made to dismount Gen set from the trailer.	
			Hooks: Required number of hooks to be provided in required points of the frame of generator so that it can be lifted by crane. Number of hooks to be mentioned.	
			Starting system: Self-starter with auto provision.	
			Safety Features: The generator should shut down with sound warning against main voltage, over current, overload, low oil pressure, over temperature etc.	
			Canopy color: Green	
			Overall efficiency: 39.17% or better	
		<b>Automatic Transfer Switch(ATS) with Bypass</b>		
			Brand: Any reputed brand to be mentioned by the bidder	
			Origin of ATS: To be mentioned by the bidder	
			Controller: ATS should be controller based to set priority	
			Interlocking: Electrical as well as mechanical	
			Magnetic Contactor / Motorized switch: 4 Pole	
			Brand of Magnetic Contactor: To be mentioned by the bidder	
			Auto Voltage Stabilizer (AVS): AVS for, protection of coil of magnetic contractor of ATS,	
		Paint	Powder coated	

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Item No	Description of Items	Technical Specifications and Standards		UoM
		<b>Terms &amp; Condition</b>		
			a) Original catalogue with details tech spec/data should be submitted along with the offer.	
			b) Every data should be supported by the submitted catalogue.	
			c) The offer should be clear and specific against specification of Generator.	
			d) Manufacturer Authorization Letter should be submitted along with the offer.	
			e) Manufacturer warranty certificate for 12 (twelve) months should be submitted along with the offer.	
			f) Port of Shipment: Port of Shipment should be mentioned in the offer.	
			g) Load test shall done by the acceptance committee and the fuel and all sort of expenditures incurred upon shall be carried out by the suppliers.	
			Quality Management System of Generator Manufacturer: ISO 9001:2008 Certified by CISQ/DNV/Lloyd's Register Quality Assurance with approval certificate no. and validity date or equivalent	
			Rating Definition of Generator: Rating Continuous as per ISO 8528-3	
			Installation: Installation, Testing & Commissioning with all required accessories	job
			Certification: Should provide the Manufacturer's Authorization Form	
			Warranty: 1 year full warranty with parts & labor	

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Item No	Description of Items	Technical Specifications and Standards		UoM
C20.	<b>Earthing for Data Center</b>	General	Earthing system: Earthing depth should be 150 feet with 15.5 inch MS pipe. 0/2 SWG copper wire end connected with Copper bonded earthing Rods and top connected with a bus-bar with Socket. All groundings should be interconnected. Earthing value should be < 1 Ohm. All accessories Like: cooper, Nut+Bolt, Pit etc For JBC: 08 Nos. For SBC: 08 Nos. For IDRA: 08 Nos.	Nos.
		Earthing Cable	1X70rm BYA /As per requirement (50,70 ,95,120 RM) For JBC: 400 Mtr. For SBC: 400 Mtr. For IDRA: 400 Mtr.	Mtr.
		Installation: Installation, Testing & Commissioning with all required accessories		job

Item No	Description of Items	Technical Specifications and Standards	UoM
C21	<b>Dehumidifier</b>	Dehumidifier	Nos.
		Brand : Any reputed brand to be mentioned by the bidder	
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		Capacity: 30 liter /24 Hour	
		Power: 1 $\Phi$ / 220VAC / 50Hz	
		Current: 15.6 Amp	
		Power Consumption: 290W	
		Working Environment: 5°-35°C	
		Bucket Volume: 4L	

Item No	Description of Items	Technical Specifications and Standards	UoM
C22	<b>Automatic Fire Suppression System</b>	Suppression Agent	Item: Suppression Agent (GAS) NOVEC 1230 or Inergen Gas
			Brand : Any reputed brand to be mentioned by the bidder
			Country of Origin: To be mentioned by the bidder



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		<b>Cylinder Assembly</b>	Compliance : UL Listed/ VDS	
			Brand: Any reputed brand to be mentioned by the bidder	
			Part number: Bidder Should be specified	
			Country of Origin: To be mentioned by the bidder	
			Storage Pressure: Working pressure of 34.5 bar	
			Test Pressure: From 150 bar to 300 bar	
		For Server Room	NOVEC 1230 agent For JBC: 198 Kg. For SBC: 198 Kg. For IDRA: 198 Kg.	Kg.
			227 L capacity Cylinder Assembly with label indicator with installation accessories For JBC: 2 Set For SBC: 2 Set For IDRA: 2 Set	Set
		For Power Room	NOVEC 1230 agent For JBC: 67 Kg. For SBC: 67 Kg. For IDRA: 67 Kg.	Kg.
			105 L capacity Cylinder Assembly with label indicator with installation accessories For JBC: 1 Set For SBC: 1 Set For IDRA: 1 Set	Set
		CO <sub>2</sub> Gas Portable extinguisher	CO <sub>2</sub> Gas Portable extinguisher, capacity 3KG For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.
			Brand : Any reputed brand to be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Country of Assemble: To be mentioned by the bidder	
		<b>Intelligent Addressable Fire Alarm Control Panel</b>		
		<b>Fire Alarm Control Panel</b>	single Loop Fire Alarm Panel C/w battery backup, For JBC: 1 Set	Set
			Brand : Any reputed brand to be mentioned by the bidder	

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			Model : To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		The Addressable Fire Alarm Control Panel (FACP) used in the Building shall confine to the EN54 standards having the following features:		
			Expansion feature: 1 to 2 loops future expansion. It shall have facility to discriminate between a real fire alarm and a false alarms. Network: FACP will function as fully stand-alone panel & also networked to other FACPs with peer to peer communication. Redundancy, Display, Loop Card Failure, AC Voltage, Spare Availability, sequence, Intelligence, IP – 30.	
			It shall have a CPU processor which shall be of at-least 32 bit, which shall be designed to accept all the inputs and process the outputs within the time stipulated by the standards. 127 detectors/devices in any combination. LED test button	
		<b>Addressable Smoke detector c/w mounting Base &amp; built in two Isolator</b>	For JBC: 16 Set For SBC: 16 Set For IDRA: 16 Set	Set
			Brand : Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		The Intelligent Addressable Heat Detector used in this Building shall confine to:		
			The detector shall change sensitivity settings based on day/night mode or with schedules based on the programming. A red flashing LED visible 360° indicates the alarm. Dual ray detector, Inbuilt Isolators, EMC Value,	
		<b>Addressable Heat detector c/w mounting Base&amp; built in two Isolator</b>	For JBC: 13 Set For SBC: 13 Set For IDRA: 13 Set	Set
			Brand: Any reputed brand to be mentioned by the bidder	

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			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		Technical:		
			Intelligent Addressable Heat detector c/w mounting Base & built in two Isolator, Thermal sensors with intelligent evaluation electronics, A red flashing LED visible 360° indicates the alarm. Inbuilt Isolators, EMC Value.	
		<b>Addressable Sounder with Flash light with Built in two Isolator (93 db)</b>	For JBC: 3 Set For SBC: 3 Set For IDRA: 3 Set	Set
			Brand: Bosch or equivalent	
			Model: To be mentioned by the bidder	
			Country Of Origin: To be mentioned by the bidder	
			Addressable Sounder with Flash light with Built in two Isolator (93 db)	
		<b>Addressable Manual Call Point with built in two isolator</b>	For JBC: 3 Set For SBC: 3 Set For IDRA: 3 Set	Set
			Brand: To be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country Of Origin: To be mentioned by the bidder	
			Addressable Manual Call Point with built in two isolator	
			Alarm triggering by pressing the black marking or breaking the glass pane,	
		<b>ModBus Communicator</b>	ModBus Communicator For DCIM For JBC: 1 Set	Set
			Brand: To be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	

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		<b>Fire Monitoring Software</b>	For JBC: 1 Set For SBC: 1 Set For IDRA: 1 Set	Set
			Brand: To be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country Of Origin: To be mentioned by the bidder	
		<b>Features:</b>		
			The Fire Monitoring System is a graphical user interface for displaying and monitoring small to medium fire alarm systems with up to 5000 detection points. It is compatible with the fire alarm panels, Monitoring Software to manage up to 2500 detection points. The fire panels can be connected to the Fire Monitoring System via an Ethernet connection.	
			The authorizations are based on customizable groups. The rights to access to e.g. different sources, maps, alarm zones and devices are managed at group level. Each user can be part of one or more groups.	
			Events can be forwarded by e-mail to users according to their user settings	
			In the event log all procedures and actions are recorded. You can search according to various criteria, cluster and generate statistics, make backups or print the event log. The reports can be exported to Excel.	
		<b>Server for Fire Monitoring software</b>	<b>Server will provided by the stakeholder</b>	Nos.
		<b>Workstation</b>	Brand PC/workstation all in one for monitoring of the system included peripheral (1 TB HDD, 16GB RAM, high quality Graphics) For JBC: 1 Nos.	Nos.



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			Brand: Any reputed brand to be mentioned by the bidder	
		<b>28 " Monitor</b>	<b>28 " Monitor</b> For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos.
			Brand: Any reputed brand to be mentioned by the bidder	
		<b>Control Panel</b>	Extinguishing Area Control Panel with Gas release, Detection Zone: 4 & Extinguishing are: 2. For JBC: 1 Set For SBC: 1 Set For IDRA: 1 Set	Set
			Brand: Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		<b>Battery</b>	SLA Battery for control panel, 12V each 7.2 ah For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos.
		<b>Double Flashing Light</b>	Double Flashing light	Nos.
			Brand: Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Spec: 24V DC / 75 mA per light ON	
		<b>Manual Gas Releaser</b>	Manual Release For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			Brand: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		<b>Gas Discharge Sign</b>	Gas Discharge Sign Brand: Bidder to mention For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos
			Brand: Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	

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			Country of Origin: To be mentioned by the bidder	
			Current Rating: 220 mA	
			Indication: Red	
		<b>Evacuate Sign</b>	Evacuate Sign For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
			Brand: Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Current Rating: 220 mA	
			Indication: Red	
			AC Shutoff: AC Shutoff Devices For JBC: 2 Set. For SBC: 2 Set. For IDRA: 2 Set.	Set
		<b>Mechanical and Electrical fittings</b>		
		Accessories for suppression Channel	Schedule 40 pipe 1½" Dia, Korea , Schedule 40 pipe 1¼" Dia, Korea , Schedule 40 pipe ¾" Dia, Korea, Schedule 40 pipe ½" Dia, Korea For JBC: 1 Set. For SBC: 1 Set. For IDRA: 1 Set.	Set
		Fire Alarm cable UL Listed	2 X 15.5 mm Fire Alarm cable UL Listed For JBC: 500 Mtr. For SBC: 500 Mtr. For IDRA: 500 Mtr.	Mtr.
		Flexible cable,	Flexible cable, 2 x 40/0.0076, For JBC: 100 Mtr. For SBC: 100 Mtr. For IDRA: 100 Mtr.	Meter
		Flexible cable, 3 x 40/0.0076	Flexible cable, 3 x 40/0.0076 For JBC: 100 Mtr. For SBC: 100 Mtr. For IDRA: 100 Mtr.	Meter
			Certification: Should provide the Manufacturer's Authorization Form	
			Installation: Installation of Aluminum channel with conduit, fittings, Tagging and identification of all Equipment, Ducting, Piping, Cabling with Permanent painting, drawing,	Meter

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			testing, Commissioning with all required Accessories For JBC: 700 Mtr. For SBC: 700 Mtr. For IDRA: 700 Mtr.	
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For Item no. C22 actual work may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

Item No	Description of Items	Technical Specifications and Standards		Uo M
C23	Rodent System	Digital Controller	For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos
			Brand: Any reputed brand to be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Model/Manufacturer part Number: To be mentioned by the bidder	
		Coverage area: $\geq 5000$ Sq Feet		
			LCD display with on-board controls	
			Wave Speed: Is an indicator for the number of frequency sweeps per minute. It can have a maximum value of 130 and a minimum value of 60. The incremental size is 5 i.e. 65, 70, 75 and so on.	
			Wave Density: Is an indicator for the number of divisions within a frequency band. It can have a maximum value of 100 and a minimum value of 80. The incremental size is 10 i.e. 80, 90 and 100.	
			Machine/Controller ID: Is an indicator of the machine/controller identification number. It can have any value within the range of 0 to 255.	
			Transducer Testing: Can drive upto 20 Transducers and all the 20 transducers can be tested in an audible range one at a time by using this feature of this device	
			Inbuilt RS/EIA-485 transmission upto 15.2 kms to protected area (BMS Room).	
			Frequency band of $> 20$ KHz and $< 60$ KHz is pre-tuned for 100 different frequencies.	



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Item No	Description of Items	Technical Specifications and Standards	Uo M
		Each Transducer should cover up to 500 sq. feet of area on true ceiling and below false flooring or up to 400 sq. feet of area.	
		UL and CE approved transformers for power supply.	
		Transducer For JBC: 16 Nos. For SBC: 16 Nos. For IDRA: 16 Nos..	Nos.
		Brand: MASER/ Internationally Reputed Brand	
		Country of Origin: Bidder to mention	
		The satellites or Transducers shall be circular on true ceiling mounted low profile units that produce high decibel sound waves at very high frequency not less than 20 Khz. These satellites shall cover an area not less than 400 Sq.ft for Room void application, for ceiling Voids & floor void applications	
		Accessories For JBC: 1 Set. For SBC: 1 Set. For IDRA: 1 Set.	Set
		Controller base For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos..	Nos.
		Cable for transducers (2 x .4 rm) (100 meter per coil) Cable for transducers (2 x .4 rm) (100 meter per coil) For JBC: 3 Coil For SBC: 3 Coil. For IDRA: 3 Coil.	Coil
		Power Cable (100 meter per coil) Power Cable (100 meter per coil) For JBC: 1 Coil For SBC: 1 Coil. For IDRA: 1 Coil.	Coil
		Others (if any) Conduit with all accessories For JBC: 1 Set. For SBC: 1 Set. For IDRA: 1 Set.	Set
		Tagging and Identification: Tagging and identification of all Equipment, Ducting, Piping, Cabling with Permanent painting For JBC: 1 Set. For SBC: 1 Set. For IDRA: 1 Set.	Set

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Item No	Description of Items	Technical Specifications and Standards		UoM
			Shop drawing, Asbuilt and Documentation Preparation of detail fabrication drawing, section details, site modification drawing, Erection drawing, etc. coordinating with other services. The works also includes, preparation of as-built drawing, Preparation of testing-commissioning reports, Technical specifications, model, brand, code of all installed items with deviation list from the Contract, Furnishing of Operational and maintenance manuals, catalogs, preparation periodic servicing and maintenance schedule, etc. For JBC: 1 Set. For SBC: 1 Set. For IDRA: 1 Set.	Set
			Two sets print out in A2 Paper	
			Soft Copy in CD in AutoCAD Version	
			Soft Copy in PDF Version	
			Installation: Installation, Testing, Commissioning with required accessories	Job

Item No	Description of Items	Technical Specifications and Standards		UoM
C24	Very Early Smoke Detection Apparatus System (VESDA)	Addressable Intelligent Aspirating Smoke Detection System (VESDA)	Brand: To be mentioned by the Bidder Model/Manufacturer part Number: To be mentioned by the bidder Country of Origin: Bidder to mention APPROVALS standards • LPCB (Loss Prevention Certification Board) • FM (Factory Mutual), US • UL (Underwriters Laboratories Inc.), US • ULC (Underwriters Laboratories Canada), Canada • Vds (Verband der Sachversicherere.V), Germany The solution of Very Early High Smoke Detection Apparatus (VESDA) system should combines aspirating Smoke Detection Plus Gas Detection. Gas	

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Item No	Description of Items	Technical Specifications and Standards		UoM
			detection specially for Power and battery room area	
			Laser-based Absolute Smoke Detection	
			Event log – up to 18000 events	
			Alarm Sensitivity Range: 0.0015%–6.25% obs/ft. (0.005%–20% obs/m)	
			Maximum Area: To be mentioned by the bidder	
			Total Number of Alarm Thresholds: 8 (Day/Night)	
			Programmable Relays:7 Relays, Contacts rated 2 A @ 30 VDC NO/NC Contacts	
			Bar Graph/Indicator LED: Local or Remote (20 segment bargraph display)	
			IP Rating IP30	
			Tested to: -10°C–55°C (14°–131°F)	
			Detector Ambient: 0°C–39°C (32°–103°F)	
			Sampled Air: -20°–60°C (-4°–140°F)	
			Humidity: 10%–95% RH, non-condensing	
			Dimensions (W x H x D): To be mentioned by the bidder	
			Weight:To be mentioned by the bidder	
			IP Rating:To be mentioned by the bidder	
			Mounting:to be mentioned by the bidder	
		Operating Conditions:		
		HSSD for Server room	One inlet HSSD for Server room for JBC , One inlet HSSD for Server room for SBC One inlet HSSD for Server room for IDRA	Nos.
		HSSD for Server room	One inlet HSSD for Power room	Nos.
		GAS detector (Hydrogen gas) for power room & Battery room	One GAS detector (Hydrogen gas) for power room & Battery room	Nos.
		Power Supply Input	One set Power Supply Input with Battery Backup c/w metal box as per OEM recommendation	Set
		Air sampling pipe	21 ID or 25 OD mm pipe as per OEM recommendation For JBC: 40 Mtr. For SBC: 40 Mtr.	Mtr.



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Item No	Description of Items	Technical Specifications and Standards		UoM
			For IDRA: 40 Mtr.	
		End Cap (Material should be like pipe)	End Cap (Material should be like pipe) For JBC: 8 Nos. For SBC: 8 Nos. For IDRA: 8 Nos.	Nos.
		Accessories	Hanger, End Cap, Jointer, PVC Pipe, etc.	Set
		Hooter / Sounder	Sounder cum Strobe	Nos.
			Brand: Any reputed brand to be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
			Model: To be mentioned by the bidder	
		3 core x 1 sq. mm cable for Power - 24 Volt DC	3 core x 1 sq. mm cable for Power - 24 Volt DC For JBC: 100 Coil For SBC: 100 Coil For IDRA: 100 Coil	Coil
			Installation: Installation, Testing and commissioning with all required accessories	Job

Item No	Description of Items	Technical Specifications and Standards		UoM
C25	Access Control System for Datacenter	Aisle door	For JBC: 2 Nos. For BIA: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.  Brand: Any reputed brand to Mention by Bidder  Model/Manufacturer part Number: To be mentioned by the bidder  Country of Origin: to be mentioned by the bidder	Nos.
		Access	Finger+Card+Password+Face recognition	
		Integration	The access controller should support multiple access control devices, such as fingerprint, and IC reader with a keypad, fingerprint and IC card reader, and card reader with a keypad.	
			Face recognition can be support with the camera on local Pad, and open the door with authorized customer face.	

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			An aisle-level access control is mainly used in a contained aisle. It provides security monitoring and data protection for contained equipment and related personnel.	
		Client Software	For JBC : 1 Set For BIA: 1 Set For SBC : 1 Set For IDRA: 1 Set	Set
			Support a floating IP address provide a unified access entrance to shield the impact caused by the IP switching of the internal server.	
			To ensure that the integrated management system is easy to expand and manage equipment rooms	
			The system must support cluster capacity expansion and manage tens of millions of test points.	
			The system must support concurrent access of 100 clients	
			The software must be able to run stably. The mean time between failures (MTBF) of the entire monitoring system should be greater than 20000h	
			The mean time to repair (MTTR) should be less than 0.5h.	
			1 The response time should be less than 3s.	
			1 The response time of the control command is less than 5s.	
			1 The device alarm response time should be less than 5s.	
			The report query time is less than or equal to 10 seconds for 20,000 records.	
			This project requires that the access control system be integrated into the DCIM system to display the switch status of the access ports on the DCIM system.	
			1 The access permission of the client computer must be set. The authorization and time period for the computer in a certain area to access the system must be set.	
			1 The access rights of mobile terminals must be set. Unauthorized mobile terminals cannot directly access the system, preventing unauthorized users from accessing the system APP.	



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			In addition, the system must support the LDAP technology to authenticate users on a third-party authorization server to implement centralized user management for multiple software. In addition, the system can verify the validity and rights of users to ensure that only authorized users can access the DCIM system.	
			Mobile Access	
			<b>Features:</b>	
			Access control of mobile APP should be supported	
			it can bind a mobile phone IEMI code to an app access user to prevent unauthorized users from intruding the system.	
		Skylight Actuator: POE	Environment Monitoring System,null,48VDC,Control Skylight Switch by Upper Computer Instruction or Fire Control Linkage, Skylight Actuator For JBC : 1 Set For BIA: 1 Set For SBC : 1 Set For IDRA: 1 Set	Nos.
		Double sliding door	2000 mm high cabinets and 1200 mm wide aisle containments For JBC : 1 Set For BIA: 1 Set For SBC : 1 Set For IDRA: 1 Set	Nos.
		Door box double sliding doorsLock-Double Door	Door box for double sliding doors For JBC : 1 Set For BIA: 1 Set For SBC : 1 Set For IDRA: 1 Set	Nos.
		Pad mounting bracket	for mounting the pad and access controller For JBC : 1 Set For BIA: 1 Set For SBC : 1 Set For IDRA: 1 Set	Nos.
		ETH	Smart ETH gateway-48VDC-POE For JBC : 1 Set For BIA: 1 Set For SBC : 1 Set For IDRA: 1 Set	Nos.
			Certification: Should provide the Manufacturer's Authorization Form	
			Installation: Job	1

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Item No	Description of Items	Technical Specifications and Standards		UoM
C26	<b>Surveillance system for Data Center (IP Camera)</b>	The NVR (32 Channel) appliance hardware shall have the following characteristics		Nos.
			Brand: Any reputed brand to be mentioned by the bidder	
			Model/Manufacturer part Number: To be mentioned by the bidder	
			Country Of Origin: To be mentioned by the bidder	
		Camera	For JBC : 2 Set For BIA: 2 Set For SBC : 2 Set For IDRA: 2 Set	Nos.
		Image sensor	1/2.7" two-megapixel progressive scan CMOS	
			Lowest illuminance:	
			<ul style="list-style-type: none"> <li>Color: 0.01 lux (F15.4, AGC ON)</li> <li>Black and white: 0.004 lux (F15.4, AGC ON)</li> </ul>	
			0 lux (infrared enabled)	
			Wide dynamic range: 120 dB	
			Focal length : 2.8–12 mm manual zoom, 4.3x optical zoom	
			Video coding format: H.265/H.264/MJPEG	
			Maximum resolution: 1920 x 1080	
			Intelligent video analysis: Supports tripwire detection, loitering detection, intrusion detection, abandoned object detection, and removed object detection, target color recognition, classifications of people and vehicles, and metadata backhaul.	
			Power supply: PoE (802.3at/af), 24 V AC±25%, 24 V DC±25%, 12 V DC±25% (polarity-insensitive DC power supply), applicable to DC/AC adapter and PoE hot backup	
			Protection level: IP66; complying with IEC 60529	
			Vandal-proof class: IK10; complying with IEC 62262	
		Image sensor	1/2.8" two-megapixel progressive scan CMOS	
			Lowest illuminance:	

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			Color: 0.008 lux (F15.4, AGC ON) B/W: 0.002 lux (F15.4, AGC ON), Zero lux with IR on	
			Window Self-cleaning: Supported	
			IR Coverage: 50m	
			Window Self-cleaning: Supported	
			Video Compression: H.265/H.264/MJPEG	
			Intelligent Analytics: Tripwire detection, loitering detection, intrusion detection, abandoned object detection, removed object detection, target color recognition, distinguishes humans and vehicles	
			Power Supply: 12V DC $\pm 25\%$ , 24V DC $\pm 25\%$ , 24V AC $\pm 25\%$ , and PoE (IEEE 802.3at) DC supply polarity is self-adaptive, DC/AC supply can be hot standby for PoE	
			IP Protection Class: IP66, complies with IEC 60529	
			Intelligent Analytics: Tripwire detection, loitering detection, intrusion detection, abandoned object detection, removed object detection, target color recognition, distinguishes humans and vehicles	
			Power Supply :12V DC $\pm 25\%$ , 24V DC $\pm 25\%$ , 24V AC $\pm 25\%$ , and PoE (IEEE 802.3at) DC supply polarity is self-adaptive, DC/AC supply can be hot standby for PoE	
			IP Protection Class: IP66, complies with IEC 60529	
			Intelligent Analytics: Tripwire detection, loitering detection, intrusion detection, abandoned object detection, removed object detection, target color recognition, distinguishes humans and vehicles	
			Power Supply:12V DC $\pm 25\%$ , 24V DC $\pm 25\%$ , 24V AC $\pm 25\%$ , and PoE (IEEE 802.3at) DC supply polarity is self-adaptive, DC/AC supply can be hot standby for PoE	
			IP Protection Class: IP66, complies with IEC 60529	

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For Item no. C26 actual work/quantity may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

Item No	Description of Items	Technical Specifications and Standards		Uo M
C27	<b>Water Leak Detection System with EMS</b>	EMS Controller	For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos.
			Brand: Any reputed brand to be mentioned by the bidder	
			Country of Origin: to be mentioned by the bidder	
			Model/Manufacturer part number: To be mentioned by the bidder	
			Supports port: up to 8 x Temperature/Humidity Sensors	
			Supports Go-Probe: up to 16 x Go-Probe Alarm Sensors	
			GSM Modem: Optional GSM modem for SMS alerts	
			Notification: Email, SNMP alerts	
			Web Interface: Web browser interface for remote monitoring	
		<b>Monitoring</b>	Monitoring also possible using an SNMP-based Network Management System & Telnet	
			Up to 2 Relay Outputs for automated, on-site, crisis management	
			On-board logging (network independent)	
			On-board graphing facility	
			User-configurable alarm thresholds	
			Range of optional sensors available	
			Cat6 cabling to Temperature/Humidity probes for maximum user flexibility	
		<b>Software</b>	Shall support all reputed browser	
			EMS can be monitored and managed 'out-of-the-box' via its comprehensive browser interface.	
			<b>Key features include:</b>	
			Visual 'comprehensive' interface for quick identification of temperature/humidity or sensor alarms	
			Straightforward labelling of sensors to identify location and type of sensor	

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Item No	Description of Items	Technical Specifications and Standards		Uo M
			Quick configuration of alarm thresholds, Email recipients, trap receivers, system information	
			Viewing of extensive event and detail files, all of which can be exported in .csv format into excel, etc.	
			A java window can be launched via the EMS browser interface to display real-time meters or graphs for each sensor being monitored, as well as for historical and extended historical data recorded by the EMS.	
			<b>Network Management</b>	
			EMS can be integrated into network management systems supporting SNMP, such as WhatsUp Gold and HP Openview	
		<b>Temperature /Humidity</b>	High and low warning and critical temperature and humidity thresholds can be configured in the EMS to ensure alarms are raised when room or rack conditions are abnormal. The hysteresis configuration facility ensures that alarms are not continually triggered when levels are 'floating' around the configured thresholds. For JBC : 5 Nos. For SBC : 5 Nos. For IDRA : 5 Nos.	Nos.
		<b>Zone wise Water Leak system 3 meter</b>	The EMS water leak sensor to be supplied with 3 m of leak detection cable. The cable can be run under air conditioning units, in ceiling voids, under raised floors, under pipes, and around room perimeters to provide a comprehensive, easy-to-install, leak detection facility. For JBC: 8 Nos. For SBC: 8 Nos. For IDRA: 8 Nos.	Nos.
		<b>Dry Contact Sensor</b>	Universal sensors can be used to monitor any normally open / closed output such as those provided by UPS, air conditioners, BMS devices, security alarm panels, generators, fire alarm panels, etc. For JBC: 6 Nos. For SBC: 6 Nos. For IDRA: 6 Nos.	Nos.

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Item No	Description of Items	Technical Specifications and Standards	UoM
		<b>GSM modem :</b> GSM modem for SMS alerts (Sim should provide customer) For JBC: 1 Nos. For SBC: 1 Nos. For IDRA: 1 Nos.	Nos.
		<b>Vibration Sensor</b> Vibration Sensor For JBC: 2 Nos. For SBC: 2 Nos. For IDRA: 2 Nos.	Nos.
		Installation & Commissioning: Installation of EMS with all necessary accessories	job

Item No	Description of Items	Technical Specifications and Standards	UoM
C28	Datacenter Infrastructure Management (DCIM)	<b>Server for DCIM</b>	Nos.
		Brand: Any reputed brand to be mentioned by the bidder	
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		Basic Management software	Nos.
		The system needs to implement real-time and centralized monitoring of various power facilities and environment facilities. The following table lists the monitoring indexes of each device.	
		The System displays the real-time running status of equipment rooms and devices in a 3D view. Supports 3D views of various data center layers including buildings, floors, smart modules, and cabinets to display the device layout, alarm information, and running status.	
		Brand: Any reputed brand to be mentioned by the bidder	
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		<b>Technical Specifications</b>	
		The data collector should be the same brand as the software system and have	

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			<p>high reliability. The following reports or certificates should be provided:</p> <ol style="list-style-type: none"> <li>1. CE certification should be provided</li> <li>2. A safety-test report with ILAC-MRA qualification should be provided</li> <li>3. An evaluation report that meets RoHS requirements should be issued</li> </ol>	
			Energy and Environment Management Infrastructure Software	
			Monitors the UPS input phase voltage, output phase voltage, bypass phase voltage, input phase current, output phase current, input line current, output current, bypass phase current, input line voltage, output line voltage, input power, output power, load rate, power factor, active power, and peak ratio.	
			Monitors the state of charge (SOC), percentage of remaining battery power, state of health (SOH), battery capacity, battery status, current, voltage, battery backup time, number of battery strings.	
			Monitors the operating status and operating parameters of the compressor, fan, water pump, heater, humidifier, dehumidifier, and filter of the precision air conditioner. Including : Current humidity, current temperature, rated cooling capacity, fan output, air volume, average return air humidity, average return air temperature, unit startup and shutdown status, heating output, humidification output, teamwork status, average air supply humidity, average air supply temperature, temperature and humidity control type, cooling capacity, cooling output, average pressure difference on the wind side, and control output percentage, number of fans, number of compressors, number of humidifiers, and number of heaters.	
			DCIM system needs to integrate and monitor Data hall monitor system , power distribution system, video system, access control system	

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		Intelligent energy efficiency analysis		Nos.
			Workflow management allows for easily tracking and executing moves, adds and changes of equipment in the data center.	
			Brand: Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of origin: To be mentioned by the bidder	
		<b>Technical Specifications</b>		
		To evaluate the energy efficiency of key devices in a data center and identify low-energy devices, the DCIM system must support energy efficiency analysis for key devices on the entire power supply and distribution link from the mains entry to the IT cabinet. The functions are as follows: a. The energy efficiency of the UPS, and CRAC can be evaluated. For example: COP and UPS conversion efficiency; If the energy efficiency is abnormal, ask the user to locate the fault. b. Supports the energy efficiency analysis of the UPS group, identifies exceptions based on the UPS energy efficiency curve and current conversion efficiency, and automatically provides energy saving suggestions for whether the UPS module should be in sleep mode.		
		Asset management software		Nos.
			Brand: Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of Origin: To be mentioned by the bidder	
		<b>Technical Specifications</b>		
		Provides the U space automatic identification function. The system monitors the U space occupation status of the cabinets in the data hall in real time and supports automatic asset counting.		
		Provide IT device models library, which shall contain at least 500 IT device models.		



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			Allows users to edit, add, and delete asset attributes.	
			Provides the asset account function. The account should contain information about all IT devices and infrastructure devices in the data center and support the import, export, and query of asset information.	
			The system can automatically count the online status, positive, and negative inventory losses of IT equipment assets.	
			The warehouse management function is provided to trace and manage the data hall maintenance tools and spare parts.	

Item No	Description of Items	Technical Specifications and Standards	UoM
C29.	<b>Fire Resistant Data safe</b>	Brand: Any reputed brand to be mentioned by the bidder	Nos.
		Model: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		Assemble: To be mentioned by the bidder	
		Dimension Outside: To be mentioned by the bidder	
		Dimension Inside: To be mentioned by the bidder	
		Humidity: 0.85	
		Weight: 535 Kgs	
		Heating: 10100 C	
		Fire Rating: 2 Hours	
		Capacity: 252 Litres /9.07 ft <sup>3</sup>	
		Door System: Double Door Entry System (1 steel door, 1 Fiber door)	
		Outer Protection: Fire, Heat, Percussion & Burglary.	
		Inner Protection: Humidity, Water, Steam & Magnets.	
		Fire Rating: UL Certification, USA	
		Movement System: Wheel System at the Bottom	
		Locking System: Triple Lock System (2 Key Lock & 1 Combination Lock	
		: Four Side Locking System) Automatic Re-Locking Device.	
		Accessories: 6 Shelves (Sliding) standard	
		Installation: Installation, commissioning with accessories	job

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Item No	Description of Items	Technical Specifications and Standards	UoM
C30	Vacuum Cleaner	Brand: To be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		Motor (W): 2100	
		Cabinet: Plastic	
		Nozzle: 2 ways	
		Dust Bag: Cloth Bag	
		Filtration: The filter type is anti-bacterial	
		Power Control: Yes	
		Extension Wands: Metal Telescopic	
		Other Feature: Rubber Wheel, Gross Finish	
		Installation: Installation, commissioning with accessories	job

Item No	Description of Items	Technical Specifications and Standards	UoM
C31	LAN Cable Analyzer ( fiber & Copper)	Simplifiber Pro Basic Verification Kit for trouble shooting of Optical fiber cabling System	Brand: To be Mentioned by Bidder
			Model: To be Mentioned by Bidder
			Origin: To be Mentioned by Bidder
			Manufacture: To be Mentioned by Bidder
			The Kit should be able to measures optical power loss at 850nm,1300nm, 1310nm and 1550nm simultaneously and save records from two wavelengths on one report.
			The Optical power meter shall auto-senses the source wavelength
			Power meter should incorporates interchangeable connector adapters for simple network connection
			The Optical Power meter should be able emits an audible tone and displays an icon when a live fiber is detected,

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			eliminating the need to set up a measurement.	
			Optical Power meter should support following calibrated wavelengths in the power meter at 850nm, 1300nm, 1310nm, 1490 nm, 1550nm and 1625 nm	
			Both Power meter and Power Source should be ruggedly built for demanding field use and to survives drops, vibrations and impacts	
			Handheld power meter should have Find Fiber function to Locate and identify fiber core – by using remote cable Identifiers at patch panels or wall Outlets or LIU's.	
			Handheld Power Source for Multimode (850nm & 1300nm) & Single Mode (1310nm and 1550nm) should have Dual wavelength on Single Port with Auto Wavelength functionality and FindFiber Mode for easy identification of fiber core.	
			The Kit Should include 2 Find Fiber Source shall help in Identify the physical location of cabling runs to ensuring polarity and correct location on each fiber drop	
			Emitter Type : Laser	
			Fixed SC Connector Interface	
			FindFiber Code can be selected from 1 through 8.	
			Should have Power On/Low-battery Indicator	
			Power Requirement : Should be 2AA size Battery Operated with 80 Hours typical battery life	
			Fiber Inspector video probe camera shall provide high resolution 200X endface images of both multimode and	

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			singlemode end-faces inside ports and on patch cords	
			Display : 3.2 inch TFT LCD, 320 x 240	
			Should have 200x. Zoom function has 1x, 2x and 4x settings	
			Camera should be 5 Megapixel 1/4-inch CMOS sensor	
			Should have Autocenter for precise fiber ferule inspection	
			Should have PortBright™, a built-in flashlight illuminates dark areas and dense panels	
			Should support various probe adapter tips for inspection through many different connector port types with autofocus	
			Power source : Rechargeable NiMH, 2 x 1.2V, 2700 mAh	
			The Kit should also include a Visual Fault Locator that helps to diagnose and repair simple fiber link problems. It emits a bright beam of red light easily visible from a distance. Thus it performs simple end-to-end continuity checks. The tool will have ability to quickly illuminate fiber breaks, damaged connectos, defective splices in splice trays,and tight fiber bends in and around equipment racks. It also helps fiber polarity verification.	
			Should be Compatible : Multimode and Singlemode Fibers	
			Wave Length : 650 nm (Visible wave length)	
			Output power : 1.0 m W max	
			Output modes : Continuous (steady) and flashing 2 to 3 Hz pulsed )	
			Range : At least 3km multimode, 4km singlemode	

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			The Kit should also support the following key features / specifications	
			Temperature range : -10 to +50 degree	
			Certifications : CE, CSA, N10140, Class 1 laser-safe	
			Power Meter range : ~+10 to -60db	
			Should be able to Display power in dBm, mW & $\mu$ W	
			Battery Operated : 2 AA alkaline batteries with minimum 30 hours life on both Power source & Power Meter	
			Memory : Should be able to save 1000 results	
			Cable Test Management Software should be supplied with the kit to download and manage the results	
			The handheld test kit should be supplied in a professional and durable case.	
	<b>LAN Cable Analyzer (Copper)</b>	Handheld portable Ethernet tester	The tester shall have able to Quickly test, verify, troubleshoot wired networks	
			The tester shall be able to test and support diagnostic Protocols Link Layer Discovery Protocol (LLDP)	
			Cisco Discovery Protocol (CDP)	
			Fast Link Pulses (FLP)	
			The tester shall support 10G performance testing	
			The tester should support media access for Copper at 10M/100M/1G/2.5G/5G/10G	
			The tester shall have inbuilt Rechargeable lithium-ion battery pack	
			The tester should be able support active diagnostics with basic details switch name, port number, vlan name, advertised data rates and advertised duplex	

## Annex -1

			The tester shall have USB Type-A Port and USB Type-C	
			The tester shall support cable type Balanced twisted-pair cabling, Unshielded twisted-pair, Screened twisted-pair, 2-pair and/or 4-pair	
			The tester shall support PoE 802.3af/at/bt, Class 0-8 and UPOE	
			The tester shall also support Industrial Connectors (M8D, M12D, M12X)	
			The tester shall support cable tests with pair lengths, opens, shorts, split-pairs, crossed, straight through, and wireview	
			The tester shall Support Industrial Ethernet (EtherNet/IP, PROFINET, EtherCAT, and others	
			The tester should have Colour Touch screen	
			The tester shall support maximum length of 305 mtrs	
			The tester shall support Wire Map , length of each pair, Diagnose split pairs, user selectable T568A or T568B, User selectable crossover settings (Straight through, Half-crossover, Full-crossover)	
			The tester should support on board result storage capability	

Item No	Description of Items	Technical Specifications and Standards		UoM
C32	Interior Work	Furniture		
		Manager Table with side Table	For JBC: 01 Pcs For SBC: 01 Pcs For IDRA: 01 Pcs	Pcs.
			Brand: Any reputed brand to be mentioned by the bidder	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			Model: To be mentioned by the bidder	
			Country of origin: To be mentioned by the bidder	
			Major material: Wood	
			Color: Coffee	
			Dimension: 1700(L)x1800(W)x750(H)mm	
			Overview: Table should be perfect design to create a comfort environment, a multi-step, elegant lacquer finishing.	
		<b>Manager Chair:</b>	For JBC: 01 Pcs For SBC: 01 Pcs For IDRA: 01 Pcs	Pcs.
			Brand: Any reputed brand to be mentioned by the bidder	
			Model: To be mentioned by the bidder	
			Country of origin: To be mentioned by the bidder	
			Major material: Mild Steel	
			Color: Black	
			Dimension: Seat: 510(W) x 500(L) mm. Back : 740(W)x540(L)mm. Height : Floor to seat top height 410	
			Overview: Chair should be perfect design to create an comfort environment, a multi-step, elegant color/lacquer finishing. Protect back with the adjustable chair is cushioned and molded to ensure comfort over long hours. All chair should have arms.	

For Item no. C32 quantity/actual work may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

Item No	Description of Items	Technical Specifications and Standards	UoM
C33	<b>Raised Floor System for Server Room</b>	Solid Panel: Raised Floor Solid panel	
		Brand: Any reputed brand to be mentioned by the bidder	



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Item No	Description of Items	Technical Specifications and Standards	UoM
		Model: To be mentioned by the bidder	
		Country of origin: To be mentioned by the bidder	
		Total Area: For JBC: 450 Sft. For SBC: 450 Sft. For IDRA: 450 Sft.	
		<b>Panel:</b>	
		Calcium Sulphate	
		Breadth Size: 600 mm x 600mm	
		Panel Thickness: 30-35mm	
		Finished Floor Height: FFH 300-450mm	
		Description: Access floor system shall be made from high density Calcium Sulphate and Provide Class 1 Fire Ratings and fire resistance up to 90 min as per NFPA 75. System should have antistatic property and air leakage resistance. The system shall be able to withstand a minimum UDL of 2000 kg Per sq.meter and a point load of min 390 kg. The pedestal shall withstand Axial Load of min 2800 kg.	
		Density: min 1400 kg/cbm	
		Surface of the panel: The entire Access floor system will provide for adequate fire resistance, acoustic barrier and air leakage resistance.	
		<b>Panels:</b>	
		Panels will be made up of inert material Calcium sulphate with laminate having Antistatic properties.	
		The bottom of the panel shall be of 0.05 mm Aluminum foil to create a fire and humidity barrier and this should provide floor's electrical continuity	
		Panels will remain flat through and stable unaffected by humidity or fluctuation in temperature throughout its normal working life	
		Panels will provide for impact resistance top surfaces minimal deflection, corrosion resistance properties and shall not be combustible or aid surface spread of flame	
		Panels will be insulated against heat and noise transfer	
		Panels will be 600 x 600mm x 30-35 mm height fully interchangeable with each other within the range of a specified layout	



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Item No	Description of Items	Technical Specifications and Standards	UoM
		Panels shall rest on the grid formed by the stringers which are bolted on to the pedestals	
		Panels shall be finished with anti-static 0.9 mm Laminate and 0.45 mm thick plastic edge material that is self-extinguishing and will be PVC free Panel Loading	
		Fire Rating: The Panels will confirm to class O and Class 1 Fire Ratings tested `as per CIRC 91/61 or BS 476 Part 6 & 7 (30 min).	
		<b>Pedestals:</b> Pedestals installed to support the panel shall be suit able to achieve a specified floor height from the existing floor level and shall be placed 600m distance in both directions to form a grid of 600x600mm.	
		Pedestal design shall confirm spe assembly and removal for relocation and maintenance.	
		Pedestal base shall be permanently secured to position on the sub floor mostly by effective glue of mechanical fastening.	
		Pedestal assembly shall provide for easy adjustment of levelling and accurately align nels to ensure lateral restrain	
		Pedestal shall be built entirely of Galvanized steel and fixed with stringers to form a grid of 600 x 600mm.	
		These stringers are locked into the pedestal head and n both ways and has gasket made up of extruded plastic , with a U section and acts as a sound deaden and makes it air tight	
		Pedestals shall support an axial load of 3000 Kg and an ultimate load of 3800 Kg. Pedestal head shall be designed to avoid any rattle or squeaks nd carrying gasket which is conductive in nature.	
		<b>Understructure system:</b>	
		Understructure system consists of stringers to form a grid of 600 x 600mm	
		These stringers are locked into the pedestal head and run both ways.	
		The Understructure system will provide adequate solid, rigid and quiet support for access floor panels.	
		The Understructure system will provide a minimum clear, uninterrupted height of 600 mm between the bottom of the floor and bottom of the access floor for electrical conducting and wiring	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards	UoM
		Panel Lifter, Double Cup Suction Type, and Same Brand of raised floor. For JBC: 02 Pcs. For SBC: 02 Pcs. For IDRA: 02 Pcs.	Pcs.
		Installation: Installation of all Raised floor with all necessary accessories For JBC : 01 For SBC : 01 For IDRA : 01	Job

For Item no. C33 quantity/actual work may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.

Item No	Description of Items	Technical Specifications and Standards	UoM
C34	<b>Thermal Insulation for Server &amp; Power Room</b>	Under Raised Floor & Over Head Insulation For JBC: 900 Sft. For SBC: 900 Sft. For IDRA: 900 Sft.	Sft.
		Brand: Any reputed brand to be mentioned by the bidder	
		Country of Origin: To be mentioned by the bidder	
		<b>Others Feature:</b>	
		Good fire-retardant rigid PU foam.	
		Both sides aluminum foil with corrosion resistant paint in total thickness 80 micron	
		Doesn't absorb humidity	
		Zero Ozone Depleting Potential, Green Product	
		Fire safety, fire retardant B1	
		Thickness of panel: 20mm	
		Compressive strength: 200 N/mm <sup>2</sup>	
		Thermal conductivity: 0.020W/m.C	
		Flame retardant: B1	
		Working temperature: -60~+80C	
		Humidity: 0~100%	
		Pressure in duct max: 2,000 Pa	
		Light weight, No moulds, viruses and bacteria grow on its surface, Excellent appearance and long lasting, life expectancy are 12 years	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
C35	<b>Minor Civil Work for Data Center</b>	10" Brick Works:	10" brick work with 1st class bricks in cement mortar (1:4) and making bond with connected walls racking out joints, filling the intersects with mortar, cleaning and soaking the bricks at least for 24 hours before use and washing of sand & necessary scaffolding. Complete as per drawing, design & direction For JBC: 1620 Sft For SBC: 1620 Sft For IDRA: 1620 Sft	Sft.
		RCC Work:	153 mm width and 153 mm height RCC lintel & Column work. Reinforced cement concrete works (1:2:4) having minimum crushing strength at 28 days with cement conforming, best quality sand, including breaking chips and screening, making, placing in position, making shutter water-tight properly, placing reinforcement using deformed bars. For JBC: 140 Rft. For SBC: 140 Rft. For IDRA: 140 Rft.	Rft.
		12mm Thick Plaster at Brick Wall:	Supplying fitting & fixing 12 mm Thick Plaster works at Brick wall, made of cement mortar (1:6) with at last 7 days curing with all complete as per design. For JBC: 3250 Sft. For SBC: 3250 Sft. For IDRA: 3250 Sft.	Sft.
		Plastic Paint Works:	Plastic emulsion paint of approved color to wall/column of inside wall of two coats over coat of brand specified scalar collapsing specified time for drying/recoating including cleaning, drying, making free from dirt grease, wax, removing all chalked and scald materialism fungus, mending grid the surface defects, sand papering the surface and necessary scaffolding by roller/brush etc. All complete as per Drawing, design & direction. Brand: Any reputed brand to be mentioned by the bidder. For JBC: 8500 Sft. For SBC: 8500 Sft. For IDRA: 8500 Sft.	Sft.
		Fire Protected Coating for Wall:	Epoxy Paint, Industrial Paint for protect Fire proof and wall dam proof for Server Room, Network Room and Power Room.	

## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
			Brand: Any reputed brand to be mentioned by the bidder. For JBC: 3250 Sft. For SBC: 3250 Sft. For IDRA: 3250 Sft.	
		Floor Tiles	Supplying, fitting & fixing of mirror polish floor tiles 2'x2'-approved sample and racking out the joint with tiles grout including cutting and laying tiles in proper way and finishing etc. with care. All complete as per Drawing, Design & direction. Brand: Any reputed brand to be mentioned by the bidder. For JBC: 1750 Sft. For SBC: 1750 Sft. For IDRA: 1750 Sft.	Sft.
		Drop wall work:	Supplying fitting and fixing of drop wall Made with MS galvanized C Channel Framing, Paneling by ½" Gypsum board(01 hour fire protected) including paint finish, having maximum compressive scaffoldings, labor for installation, screw, nails etc. Making provisions for electrical wiring & switching etc. Complete in all respect as per site inspection by vendor. For JBC: 650 Sft. For SBC: 650 Sft. For IDRA: 650 Sft.	Sft.
		3" Thai- Glass Partition:	Supplying, fitting and fixing 3" Thai Glass Partition work made with anodized 'Silver' color 3' Aluminum Profile section, & 5mm clear glass included original bronze anodized star matching screw, etc. Complete in all respect as per site inspection by vendor. Brand: Any reputed brand to be mentioned by the bidder. For JBC: 799 Sft. For SBC: 799 Sft. For IDRA: 799 Sft.	Sft.
		4" Thai Aluminum Sewing Glass Door:	Supplying, fitting and fixing 4" Thai aluminum sewing Glass door work made with anodized 'Silver' color 4' Aluminum Profile section, & 5mm clear glass included DIMOND Brand door closer, original bronze anodized star matching screw, etc. Complete in all respect as per site inspection by vendor. Brand: Any reputed brand to be mentioned by the bidder.	Sft.

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Item No	Description of Items	Technical Specifications and Standards		UoM
			For JBC: 55 Sft. For SBC: 55 Sft. For IDRA: 55 Sft.	
		Tempered Glass Door:	Supplying, Fitting and Fixing of Double Leaf/Single Leaf Imported Frame Less Clear Tempered Glass Door having 10 mm thickness with V.V.P closer & all accessories ( <i>Thailand origin</i> ) standard handle best quality, screw, weather seal & approved quality complete in al respect as per design. (Size: 7'-0" x 2'-6") For JBC: 02 Pcs For SBC: 02 Pcs For IDRA: 02 Pcs	PCs
		Single Leaf Fire Rated Door:	120 min Fire Rated Door-UL Listed; Brand: Any reputed brand to be mentioned by the bidder; Model: To be mentioned by the bidder; Country of origin: To be mentioned by the bidder; Features: Fire Rated Metal Main Door 1100x2000mm for emergency exit-UL Listed. Shutter materials: Steel Two-hour fire resistivity. -UL Listed; Jamb:2 vertical Fire Resisting jamb and 1 Fire Resisting horizontal jamb-UL Listed; Vision panel: ±200mmx 200mm Fire Rated glass vision panel Hinge, bolt and screw-UL Listed; Fire rated Internal Insulation: Honeycomb core insulation; Lock: Built in mortise lock-UL Listed; Auto Door Closer - UL Listed; Hinges Listed For JBC: 01 Pcs For SBC: 01 Pcs For IDRA: 01 Pcs	Pcs
		MS Ramp:	1.5"X1.5" X3mm angle, 3mm Segar sheet. Complete as per design. For JBC: 01 Pcs For SBC: 01 Pcs For IDRA: 01 Pcs	Pcs
		Site preparation;	Dismantling, Garbage removal, renovation, Relocation, cheeping, concealed hole making, Cleaning after construction etc.) For JBC : 01 For SBC : 01 For IDRA : 01	lot

For Item no. C35 quantity/actual work may vary as per site requirement and in that case variation and payment will be made with the approval of the competent authority.



## Annex -1

Item No	Description of Items	Technical Specifications and Standards		UoM
C36	11KV Sub-Station Equipment's (HT Switchgear and transformer)		UTILITY -: 11 KV- EQUIPMENTS	
		11KV Lighting Arrestor	11 KV lightning arrester (3 nos. ) of following specification including required size galvanized iron angle/channel as per drawing & direction Qty: 1 Set (3 nos.)	Set
			Specifications	
			Rated Voltage : 11 KV	
			Rated System Voltage : 12 KV	
			Frequency : 50 Hz	
			Min. Spark Over (rms) : 14 KV	
			Max. Spark Over(rms) : 40 KV	
			Max. Impulse Spark(Crest) : 45 KV	
			BIL (Peak) : 75 KV	
			Withstand Voltage	
			Wet. 10 Sec. : 24 KV	
			Dry. 1 Min : 28 KV	
			Discharge Current : 5 KA	
			Impulse Current withstand : 55 KV	
		11KV Dropout Fuse	11KV Drop-out Fuse (3 Nos.400amp) of following specification including required size galvanized iron angle/channel as per drawing & direct Qty: 1 Set (3 nos.)	Set
			Specifications	
			Rated Voltage : 11 KV	
			Rated System Voltage : 15 KV	
			Frequency : 50 Hz	
			Rated Current (rms) : 400 A	
			Interrupted Current (rms) : 10 A	
			BIL (Peak) : 75 KV	
			Withstand Voltage	
			Wet. 10 Sec. : 30 KV	
			Dry. 1 Min : 35 KV	
		630A HT Switchgear 11KV with 630A	Metal enclosed, metal clad, compartmentalized, Fixed truck type design, dust and vermin proof, free standing, floor mounting, indoor type 11kV, 25kA, 50 Hz, H.T. Switchgear according to IEC 298 complete with 800 A, 3 phase hard drawn electrolytic copper busbars and all internal wiring, comprising of :	Set

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		630A, 11 kV, 25 kA ( 3 sec.), triple pole, completely maintenance free (neither greasing nor adjustment will be required) Fixed type Vacuum Circuit Breaker (VCB) with manually/motor operated stored energy mechanism, with closing solenoid & shunt trip coil, with trip button and auxiliary contacts (6 NO + 6 NC), etc.; Brand: To be mentioned by Bidder Pcs: 01	Pcs
		11 kV, 25 kA, triple pole earthing switch to be interlocked with VCB Pcs: 01	Pcs
		11 kV Cast resin insulated, dry type single pole Potential Transformer, ratio: 11/0.11 kV, class 0.5, burden 50VA each Pcs: 03	Pcs
		Triple pole MCB for PT secondary protection Pcs: 01	Pcs
		Cast resin insulated 11 KV dry type double core C.T., ratio : 250/5/5A 1st core for metering and 2nd core for protection Core 1 : 10 VA, Class 0.5M10 Core 2 : 15 VA, Class 10P10; Pcs: 03	Pcs
		Digital Ammeter, 0 - 125 A with selector switch Pcs: 01	Pcs
		Digital Voltmeter, 0 - 15 kV with selector switch Pcs: 01	
		Triple pole, solid state micro-computer operated IDMT Relay with adjustable minimum time setting for over current, earth fault and short circuit protection; Brand: To be mentioned by Bidder Pcs: 01	Pcs
		Battery 200 AH capacity 12/24/48/110 volts DC sealed maintenance free batteries duly charged. Pcs: 01	Pcs
		Battery charger unit with provisions of Boost charging, and Float charging. Suitable for 230 V single phase $\pm 10\%$ AC, 50 Hz supply DC output of 12/24/48/110 volts. Pcs: 01	Pcs
		3 phase, 3 wire Digital Multifunction Meter for measuring Kwh/kVARh/kVAh/kW/kVAR/KVA for double tariff operation indicating or off peak energy and maximum demand in KW with time integration period 30 mins... Brand: To be mentioned by bidder. Pcs: 01	Pcs

## Annex -1

			Indicating lamps: Spring Charge, OFF/TRIP, ON Pcs: 03	Pcs
			Panel space heater with thermostat Pcs: 02	Pcs
		<b>SPECIFICATION OF 1250KVA STEP DOWN TRANSFORMER: (DRY Type)</b>	BRAND: To be mentioned by bidder	
			ORIGIN: To be mentioned by bidder	
			Type of Transformer : DRY Type	
			Standard : IEC60076-11, 2004	
			Rated output : 1250 KVA	
			Voltage ratio : 11000V/415V	
			Phase : Three	
			Frequency : 50Hz	
			Type of Cooling : AN	
			Installation : Indoor	
			IP Protection : IP00	
			Winding : Two winding of high conductivity AL	
			Tap Changer: Off Load ( $\pm 2 \times 2,5 \%$ )	
			Direction of Normal	
			Power : HV-LV (Step Down)	
			Vector group : Dyn 11	
			BIL : 12/28/75 kV – 1,1/3 kV	
			Noise Level : 71dB	
			Star point brought out & loadable up to : 100%	
			No Load Current : 1.2%	
			<u>Efficiency for PF-1</u>	
			At 100% Power 98.00 %	
			<u>Losses No load/ load</u>	
			• No load loss : 2800 W	
			• Load loss : 14500 W@75degC	
			Type of termination	
			a) High Voltage : Bushing for Cable	
			b) Low Voltage : Bushing for Cable	
			Impedance : 6%	
			Temp. Rising of (Core/ Winding): 65Deg.C/55Deg.C	
			Ambient temp. : 40deg.C	
			Accessories:	
			-Rating & Diagram Plate	
			-Lifting Lugs	
			-Skids	
			-Pulling eyes	
			-Terminal marking Plate	
			-Inspection cover	
			-Bi-directional flanged rollers	
			-Earthing terminal	
			LT SWITCHGEAR	





## Annex -1

			<p>Supply of "LV SWITCHGEAR" fabricated out of electro-zinc coated sheet steel comprised with:-</p> <ul style="list-style-type: none"> <li>• Each panel have phase indication along with digital volt meter, ammeter with appropriate CT.</li> <li>• Panel size as per required items with compartmentalized 2b design &amp; polyester powder coating with selected color.</li> <li>• Panel made of 14/16 SWG material &amp; door is earthing with 4mm cable.</li> <li>• Enclosure have IP 42 grade protection.</li> <li>• Bus Bar Short Ckt current withstand capability 50kA for 1 sec.</li> <li>• Bus Bar Orientation TP on Top/Middle, Neutral &amp; Earth Bar on bottom.</li> <li>• Internal cabling and all related accessories as per detail drawings and specifications.</li> <li>• System operation will be 415 V, 50 Hz, indoor type Distribution Panel complete with hard drawn electrolytic copper busbars of adequate rating, TPN &amp; E as per BNBC, Accord, Alliance regulations and equipped with:</li> </ul>	
		<b>LT Switchgear</b>	INCOMING	Set
			2000A ACB FROM 1250KVA TRANSFORMER	
			METERING, SELECTION, INDICATIONS	
			Digital Multifunction meter with RS 485 MODBUS (A, V, HZ, kw, pf) Brand: To be mentioned by bidder. Pcs: 01	Pcs
			Current Transformer (CT) Having ratio 1250/5A, with suitable accuracy. Pcs: 03	Pcs
			Push Button Switch ON & OFF Pcs: 02	Pcs
			Phase Indication Lamp [R, Y, B]. Pcs: 03	Pcs
			2000 A, 66 kA,, 3-pole Metal Clad Air Circuit Breaker (Fixed Mounting Type) (ACB ), having following features : ETU with LI Protection. • Short CKT current withstand capability 66kA for 1 sec. • Long-time delayed (Overload protection) • Instantaneous short-circuit protection. • Manual operating mechanism with storage with mechanical request energy feature. Brand & Origin: To be mentioned by bidder. Pcs: 01	Pcs
			Shunt release or closing Coil - 220-240V AC/ 220-250V DC, Pcs: 02	Pcs

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			Under Voltage Coil - 220-240V AC/ 220-250V DC, Pcs: 01	Pcs
			Motor operating mechanism with mechanical & electrical closing with motor and closing solenoid voltage- 220-240V AC/ 220-250V DC Pcs: 01	Pcs
			Auxiliary Contact Blocks (2 NO + 2 NC) Pcs: 01	Pcs
			Shunt release or closing Coil - 220-240V AC/ 220-250V DC, Pcs: 02	Pcs
			Under Voltage Coil - 220-240V AC/ 220-250V DC, Pcs: 01	Pcs
			Motor operating mechanism with mechanical & electrical closing with motor and closing solenoid voltage- 220-240V AC/ 220-250V DC Pcs: 01	Pcs
			Auxiliary Contact Blocks (2 NO + 2 NC) Pcs: 01	Pcs
			OUTGOING	
			630A TP (MCCB) Molded Case Circuit Breaker with built-in thermally delayed overload Protection and short-circuit trip unit. Adjustable. Breaking Capacity: 36KA Brand & Origin: To be mentioned by bidder. Pcs: 01	Pcs
			32/40/63/80/100A TP (MCCB) Molded Case Circuit Breaker with built-in thermally delayed overload Protection and short-circuit trip unit. Adjustable. Breaking Capacity: 25KA Brand & Origin: To be mentioned by bidder. Pcs: 10	Pcs
			400A TP (MCCB) Molded Case Circuit Breaker with built-in thermally delayed overload Protection and short-circuit trip unit. Adjustable. Breaking Capacity: 36KA Brand & Origin: To be mentioned by bidder. Pcs: 01	Pcs
			250A TP (MCCB) Molded Case Circuit Breaker with built-in thermally delayed overload Protection and short-circuit trip unit. Adjustable. Breaking Capacity: 36KA Brand & Origin: To be mentioned by bidder. Pcs: 02	Pcs
			125A TP (MCCB) Molded Case Circuit Breaker with built-in thermally delayed overload Protection and short-circuit trip unit. Adjustable. Breaking Capacity: 25KA Brand & Origin: To be mentioned by bidder. Pcs: 02	Pcs

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		160A TP (MCCB) Molded Case Circuit Breaker with built-in thermally delayed overload Protection and short-circuit trip unit. Adjustable. Breaking Capacity: 25KA Brand & Origin: To be mentioned by bidder. Pcs: 02	Pcs
		COMMON BUSBAR & INSULATION	Lot
		2500A TPN+1/2E - 1 Lot hard down Electrolytic copper bus-bar as per IEC, Covered with Heat Shrink tube, S.S Nut-Bolts with other accessories. suitable for 415V, 3 Phase, 4 wire, 50Hz operation	
		ENCLOUSER (H-2000 x W-2400 x D-900)MM	Lot
		Enclosure with Powder Coated gray paint equipped with Nut-Bolts with other accessories. suitable for 415V, 3 Phase, 4 wire, 50Hz operation as per IEC & BNBC.	
		750 KVAR AUTO MANUAL PFI PLANT	SET
		Sheet steel enclosed, dust & vermin proof, free standing, floor mounting, 415V, 50 Hz, Indoor type Auto/Manual Power Factor Improvement Plant having standard switching steps with Copper Busbar, comprising:	
		1250A TP (MCCB) Molded Case Circuit Breaker with built-in thermally delayed overload and adjustable short-circuit trip unit of electronic trip unit & LI Function. Type: 3VT-Adjustable. Breaking Capacity: 55KA Brand & Origin: To be mentioned by bidder. Pcs: 01	Pcs
		Micro-processor Controlled Automatic Power Factor Correction 12 stage Relay with in-built digital Power Factor Meter; Brand & Origin: To be mentioned by bidder. Pcs: 01	Pcs
		100 (25X4) KVAR, 415V, 50 Hz, 3 phase Power Capacitor Bank; Make- To be mentioned by bidder Origin-EU for stage 8,9,10,11,12 Pcs: 20	Pcs
		50(25x2) KVAR, 415V, 50 Hz, 3 phase Power Capacitor Bank Make- To be mentioned by bidder Origin-EU, for stage 4,5,6,7 Pcs: 08	Pcs
		25 KVAR, 415V, 50 Hz, 3 phase Power Capacitor Bank Make- To be mentioned by bidder Origin-EU, for stage 3 Pcs: 01	Pcs

## Annex -1

			12.5 KVAR, 415V, 50 Hz, 3 phase Power Capacitor Bank Make- To be mentioned by bidder Origin-EU, for stage 2 Pcs: 01	Pcs
			12.5 KVAR, 415V, 50 Hz, 3 phase Power Capacitor Bank;(Fixed) Make- To be mentioned by bidder Origin-EU, for stage 1 Pcs:01	Pcs
			Auxiliary Contactor Relay, 4 NO+ 4 NC; Make: To be mentioned by bidder Pcs:02	Pcs
			Magnetic Contactor for 25 KVAR Capacitor bank Make: To be mentioned by bidder Pcs: 29	Pcs
			Magnetic Contactor for 12.5 KVAR Capacitor bank Make: To be mentioned by bidder Pcs:01	Pcs
			63 A TP (MCB) Miniature Circuit Breaker/ HRC Fuse with Link Make: To be mentioned by bidder Pcs:29	Pcs
			25 A TP (MCB) Miniature Circuit Breaker/ HRC Fuse with Link Make: To be mentioned by bidder Pcs:02	Pcs
			AUTO/MANUAL Selector Switch Pcs:02	Pcs
			Push Button Switch ON & OFF Pcs:24	Pcs
			Cooling fan with thermostat Pcs:02	Pcs
			Louver with dust filter Pcs:02	Pcs
			PANEL CU BUSBAR INSULATION & CABLES	Pcs
			1600A 1 Lot TP+N +Ecc hard down Electrolytic copper bus-bar as per IEC, Covered with Heat Shrink tube, 1 Lot Wiring Cable, cable socket, cable lugs, cable gland, RT fuse, S.S Nut-Bolts with other accessories. suitable for 415V, 3 Phase, 4 wire, 50Hz operation	
			ENCLOUSER (2000 x 1600 x 900)MM	Pcs
			Enclosure with Powder Coated gray paint equipped with Nut-Bolts with other accessories. Suitable for 415V, 3 Phase, 4 wire, 50Hz operation as per IEC & BNBC. Pcs: 01	
			EARTHING FOR 11KV SUBSTATION	SET

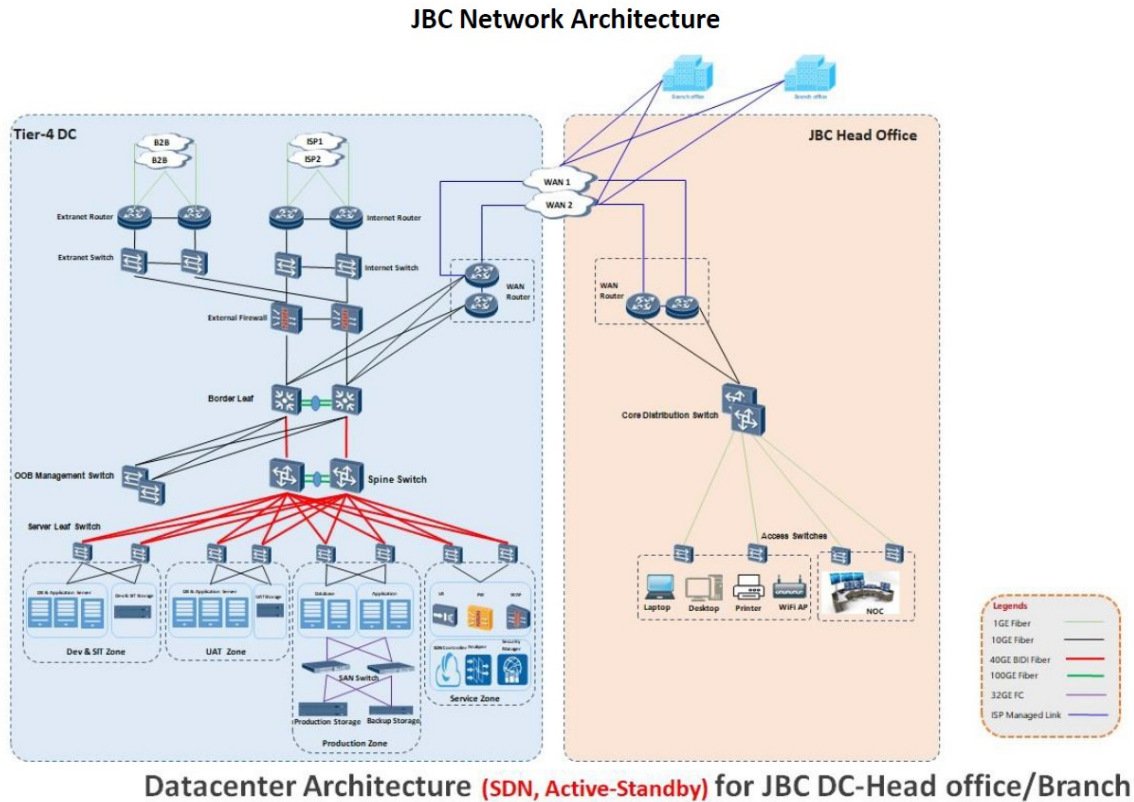
## Annex -1

			<p>Earthing will be done as per standard specification and practice i.e. with 2.5" G. I. Pipe &amp; 12.7 mm Copper Wire, up to depth minimum of 120'-0" below the ground level. However, actual depth will be dependent on Earthing Result which MUST BE BELOW .5 For 33 KV Area &amp; 1 for other area but depth cannot be below 120'-0" though requisite earth result achieved.</p> <p>Set: 05</p>	
		<b>Part-B: (ELB/DPDC/ Metering)</b>	HT CT Meter with Panel	Set
			HT Cable- 120RM Qty: at actual.	M
			LT Cable 3*300 RM Qty: at actual.	M
			PFI Cable 2*300 RM Qty: at actual.	M
			Cable lying with cable tray Qty: at actual.	M
			Road Cutting and others Qty: at actual.	job

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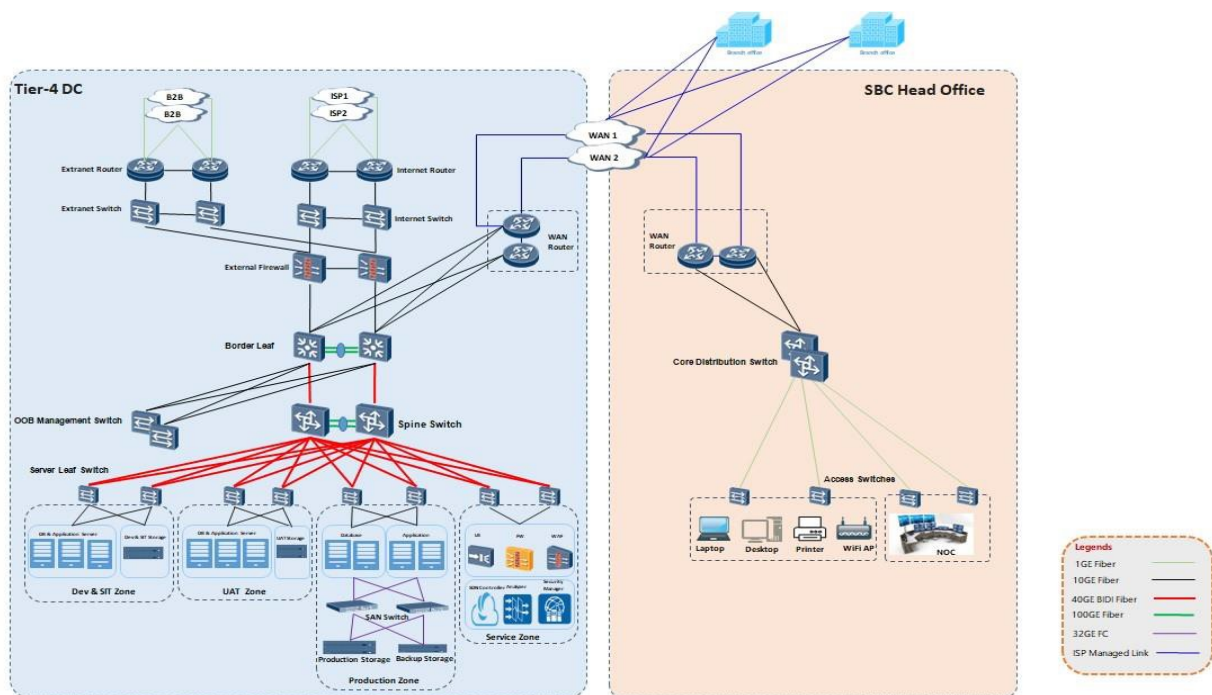
Existing Data center Network Diagram of JBC, SBC and IDRA:

(i). JBC DC Network Diagram:



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(ii). SBC DC Network Diagram:

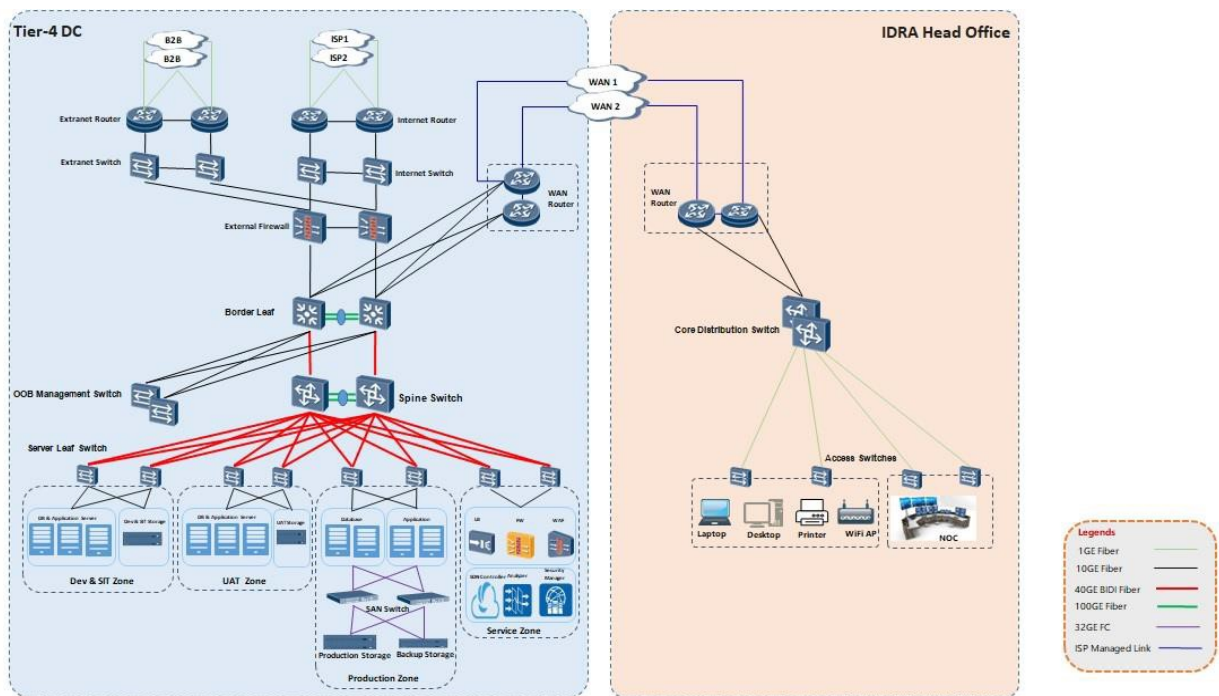


**Datacenter Architecture (SDN, Active-Standby) for SBC DC-Head office/Branch**



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### (iii). IDRA DC Network Diagram:



**Datacenter Architecture (SDN, Active-Standby) for IDRA DC-Head office**