



CSIR-Central Building Research Institute ROORKEE (UTTARAKHAND) INDIA

BID DOCUMENT

OPEN TENDER IN TWO BID SYSTEM

To Be Submitted To

**Stores & Purchase Officer,
Central Building Research Institute,
Roorkee – 247 667 (Uttarakhand) INDIA**

**Ph: +91-1332- 283257, 283530, 283281 Fax: +91-1332-272272, 272543
Tel Fax : +91-1332-272239**

NB: THIS BID DCOUMENT CAN BE DOWNLOADED **FREE OF COST FROM OUR
WEBSITE <http://www.cbri.res.in>
E-Mail : spo@cbri.res.in**

CHAPTER – I: NOTICE INVITING TENDER No.PB-1/2016/3

Director CBRI, Roorkee (Uttarakhand) India, invites *sealed* offers from reputed manufacturers or their authorized agents for the supply/installation/commissioning of the following items. Since CBRI is a public funded scientific R&D centre and institute of Higher Studies (M.Tech. & Ph.D.) Please consider and quote bare minimum special **prices applicable to academic Institutions**.

S. N.	FILE REF. NO.	DESCRIPTION OF ITEMS	Qty	BID TYPE	EMD (Rs.)
		(For Details Please Refer To Chapter XVI of the Bid Document)			
1	PB-1(03)16	60 Channel Dynamic Data Acquisition System	01	TWO BID	1,20,000
2	PB-1(04)16	Electrically Heated High Temperature Chamber Furnace	01	TWO BID	30,000
3	PB-1(05)16	Rapid Chloride Permeability Test Apparatus	01	TWO BID	30,000
4	PB-1(06)16	Automated Compression Testing Machine	01	TWO BID	50,000
5	PB-1(07)16	Concrete Rheometer for Fresh Concrete	01	TWO BID	50,000
6	PB-1(09)16	High Speed Camera	01	TWO BID	50,000
7	PB-1(10)16	3D Hot Wire Anemometer	01	TWO BID	50,000

IMPORTANT DATES & TIME

- ♦ Last Date & Time For downloading/purchasing : Nov. 21, 2016 (1700 HRS)
- ♦ Last Date & Time For Submission : Nov. 21, 2016 (1700 HRS)
- ♦ Date/Time of Opening of Bids : Nov. 22, 2016 (1130 HRS)
- ♦ Venue of Bid Opening at CBRI : **Stores & Purchase Section**

PLEASE NOTE:

- PLEASE STRICTLY ADHERE TO THE DATES/TIMES MENTIONED IN THIS DOCUMENT
- PLEASE FILL & ENCLOSE THE BRIEF SUMMARY OF QUOTATION & CHECKLIST AND ENCLOSE WITH YOUR BID (WITH PRICE BID IN CASE OF TWO BID SYSTEM)

The **bids** (Technical Bids in case of Two Bid) will be **opened** in the presence of representatives of tenderers, if any. **If the due date/opening date happens to be a holiday, then next working day shall be the prescribed due date of opening. Requests for postponement will not be entertained.** Fax/email bids shall not be accepted. Late/Delayed tenders shall not be opened. CBRI will not be responsible for any postal delay/loss in transit. Please send your bids to the **Stores & Purchase Officer** at the address mentioned on the cover of the document.

Director, Central Building Research Institute, Roorkee reserves the right to accept or reject in part or in full to any or all the tenders without assigning any reason thereof.

Thanking you,

Yours faithfully,

(S.K.Singh)
Stores & Purchase Officer

BRIEF SUMMARY OF QUOTATION & CHECKLIST (Enclose with Price Bid)

(Information provided in this sheet shall not to be used for evaluation/comparison purpose)

FOR Rs. QUOTE FILL RELEVANT INFORMATION IN Rs.

(Please Fill It Up. DON'T Write 'AS PER QUOTATION' / 'PLEASE REFER TO OUR OFFER' etc.)

Quotation Ref. No.		Date	
01	Name of the Item (Equipment / System etc.)		
02	Main Item Model NUMBER		
03	Total FCA/FOB Value Of The Offered Package (Inclusive of Indian Agency Commission, if any)		
04	Insurance & Airfreight Charges		
05	CIF / CIP Value Of The Package		
06	Payment Terms (Conditional Payment Terms Will NOT Be Accepted)		
07	Delivery Time (Weeks/Months)		
08	Warranty (Months/Years)		
09	Validity of Quotation (Days/Months)		
10	Product Import Code * (ITC HS Code of the item / main item) (Please consult any Export / Import / Customs Agent or ITC Handbook)		
11	Country of Origin (product)		
12	Port(s) of Shipment		
13	Approx. Shipment Wt. (Chargeable Wt.) of the Item (kg)		
14	Approx. Dimensions (LXBWX)/Vol. of The Packed Consignment		

CHECKLIST

CHECKLIST

CHECKLIST

01	Following Things Are Mentioned On The Main (Outer) Envelope •Item Name •CBRI Reference No. •Last Date For Submission Of Tender •Date Of Opening Of Tender •Firm's Name & Address	
02	EMD is Enclosed (with Technical Bid Envelope In Case Of Two Bid)	
03	Demand Draft/TDR is in favour Of Director CBRI, Roorkee And Payable At Roorkee (If Applicable) Bidding Firm's Name / Our Ref. No. etc. has been mentioned on the back side of Demand Draft	
04	Prices have been quoted keeping in view clauses C8, C13 of Chapter II (ITB) and SCC clauses 3,7,8, 9 & 10(c) of Chapter IV	
05	The Bid Papers Have Been PUNCHED With A Hole <input checked="" type="checkbox"/> On The Top Left Hand Corner Side And Properly Tagged.	
06	Only Relevant Documents (Technical Brochures/Leaflets Etc.) Required In Support Of The Quoted Item Have Been Enclosed. No Irrelevant Papers like ITCC, User Recommendations, and Order Copies etc. Have Been Enclosed Unless Specifically Asked For	
07	Quotation Have Been Duly Signed And Stamped By the Authorized & Competent Person. All Cuttings/Over Writings Have Been Duly Checked, Initialled And Stamped. (If Applicable)	
08	In Case of Two Bid, Single Combined Quote Has Not Been Submitted OR 'Price Bid' Has Not Been Enclosed In The Envelope Marked 'Technical Bid'	
09	In Case of Two Bid Tender This Page Will Be Enclosed With The Price Bid	

We have read and understood the tender terms and conditions. The undersigned is competent to sign the tender document including this page on behalf of the quoting firm.

Date

(Signature with Seal)

CHAPTER – II: INSTRUCTION TO BIDDERS

A. INTRODUCTION

1 Eligible Bidders

- 1.1 This Invitation for Bids is open to all manufacturers or their authorised dealers specifically authorised by the manufacturers to quote on their behalf as per manufacturer's authorization form and Indian agents of foreign principals, if any.

2 Cost of Bidding

- 2.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and "the Purchaser", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

B. THE BIDDING DOCUMENTS

3 Cost of Bid Document

- 3.1 The complete bid document can be downloaded **FREE OF COST (No Bid Document Fee To Be Paid)** from our website <http://www.cbri.res.in>. Tender Document can also be obtained from the office of **Stores & Purchase Officer, CBRI, Roorkee** on a written request on payment of non-refundable and non-transferable Tender Document Fee i.e. Rs.300.00 in the form of crossed Demand Draft issued by the Scheduled Bank drawn in favour of **Director, CBRI payable at Roorkee** as per schedule given in NIT. CBRI will not be responsible for non-receipt of Tender Documents due to postal delay/loss in transit.

4 Contents of Bid Document

- 4.1 The goods required, bidding procedures and contract terms are prescribed in **this** Bid Document which includes the following:

S. No.	Title	Chapter No.
01	Notice Inviting Tender	I
02	Instructions to Bidder	II
03	General Conditions of Contract (GCC)	III
04	Special Conditions of Contract (SCC)	IV
05	Bid Form	V
06	Bidder Information Form	VI
07	Bid Security Form	VII
08	Manufacturer's Authorisation Form	VIII
09	Bidder's Performance Statement Form	IX
10	Service Support Details	X
11	Deviation Statement Form (ITB, GCC, SCC)	XI
12	Technical Compliance Statement Form	XII
13	Contract Form	XIII
14	Performance Security Form	XIV
15	Qualification Requirements	XV
16	Technical Specifications	XVI

- 4.2 The Bidder is expected to examine all instructions, forms, terms (ITB/GCC/SCC etc.), and specifications in the bidding documents which shall be binding till the completion of the contract unless modified expressly in between. Failure to furnish all information required by the bidding documents or submission of a bid not substantially responsive may result in rejection of the bid.

5 Amendment To Bid Document

- 5.1 At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the Bid Document by amendment. Such amendments shall form an integral part of bid documents and it shall amount to an amendment of relevant clauses of the Bid Document.
- 5.2 All prospective bidders who have **issued** the enquiry letter will be notified of the amendment in writing or by cable or by fax, or by e mail and will be binding on them.
- 5.3 The prospective bidders are **required** to keep a watch on the CBRI website w.r.t. any amendment to the tender document or to clarification to the queries raised by the bidders till **05 (Five) days** prior to the opening of the tender. The Purchaser reserves the right to reject the bids if the bids are submitted without taking into account these amendments/clarifications. Further bidder will be fully responsible for downloading of the tender document and amendments thereto if any for their completeness.
- 5.4 In order to allow prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids.

C. PREPARATION OF BIDS

6 Language of Bid

- 6.1 The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the bidder and the purchaser shall be written in English language, provided that any printed literature furnished by the bidder may be written in another language but it is to be accompanied by an English translation of its pertinent passage(s) duly signed and verified as true English translation. The responsibility for the correctness of the translation will be solely and completely on the bidder and CBRI shall not be responsible for any loss/likely loss due to error in translation whatsoever. In such cases, for the purpose of interpretation of the bid, the English translation shall only govern.

7 Documents Comprising the Bid

The bid is required to be submitted in **two parts**. One part is the Techno-Commercial Unpriced Bid and the other part is the Financial/Price Bid.

- 7.1 The Techno-Commercial Unpriced Bid prepared by the Bidder shall include the following, without indicating the price in the Bid Form.

- (i) Bid Security/EMD As Specified In The Invitation To Bids.
- (ii) Service Support Details Form;
- (iii) T&C Deviation Statement Form;
- (iv) Technical Specification Compliance Form;
- (v) Performance Statement Form;
- (vi) Manufacturer's Authorization Form.
- (vii) Bid Form.
- (viii) The Comprehensive Annual Maintenance Contract (CAMC) terms & conditions detailing the exclusions, if any and the estimated life of the equipment offered.
- (ix) If the demonstration of the goods/equipment is deemed essential as per the technical requirements then confirmation reflecting willingness to arrange demonstration of the equipment offered free of charge at CBRI or any other location on a mutually agreeable date, prior to opening of priced bid to ascertain conformity with the tendered specifications.

- 7.2 The Price/Financial Bid shall comprise the Techno Commercial Bid with price indicated in the bid form.

8 Bid Prices

- 8.1 The Bidder shall indicate the unit prices and total bid prices of the goods it proposes to supply under the order and enclose it with the priced bid. Since CBRI is a public funded scientific R&D centre and institute of Higher Studies (M.Tech. & Ph.D.) Please consider and quote bare minimum special **prices applicable to academic Institutions**.

- 8.2 Prices indicated shall be entered separately in the following manner **(For Indigenous Items)**:

- (i) The price of the goods, quoted (ex-works, ex-factory, ex-showroom, ex-warehouse, or off-the-shelf, as applicable). All duties and sales and other taxes already paid or payable should be mentioned separately.
- (ii) **Taxes:** We are exempted from payment of Excise Duty under notification number 10/97 dated 01.03.1997 and Customs Duty under notification No.51/96 dated 23.07.1996. **Hence Excise Duty and Customs Duty, if any, should be shown separately.** Please mention the applicable taxes (VAT/CST/Service) clearly. We don't issue any 'Form C' or 'Form D'. However, being R&D Organization Concessional Sales Tax Forms can be issued, if it is applicable in your State from where the material is being supplied. If there is no explicit mention of taxes in your offer then quoted price will be deemed inclusive of such taxes. **No other charges except those mentioned clearly in the quotation will be paid.**
- (iii) Rates should be quoted Free delivery at CBRI, Roorkee inclusive of packing, forwarding, installation and commissioning charges etc. If ex-works prices are quoted then packing, forwarding, documentation, freight and insurance charges must be clearly mentioned separately. Vague terms like "packing, forwarding, transportation etc. extra" without mentioning the specific amount/percentage of these charges will NOT be accepted. Such offers shall be treated as incomplete and rejected. **Where there is no mention of packing, forwarding, freight, insurance charges, such offers shall be summarily rejected as incomplete.**

- 8.3 Prices indicated shall be entered separately in the following manner **(For Imported Items)**:

- (i) The price of the goods, quoted FOB/FCA port of shipment. Please note that all FCA orders will be on FCA (International Carrier) INCOTERMS 2000 basis and as such Export Packing, Loading Charges, Inland Freight etc. in the shipper country will have to be paid by the Supplier. Items as per the purchase order duly cleared for export in shipping country would be required to be handed over to our nominated freight forwarder.
- (ii) The price for inland transportation, insurance and other local costs incidental to delivery of the goods upto their port of despatch.

- 8.4 Prices quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non - responsive and rejected.

9 Bid Currencies

- 9.1 Prices shall be quoted in Indian Rupees or in freely convertible foreign currency preferably in **USD (\$), Euro (€), Yen (¥), GBP (£)** wherever possible for correct evaluation during comparison.

10 Documents Establishing Goods' Eligibility and Conformity to Bid Document

- 10.1 The documentary evidence of the goods and services eligibility shall consist of a statement on the country of origin of the goods and services offered which shall be confirmed by a certificate of origin at the time of shipment.
- 10.2 Specifications are basic essence of the product. It must be ensured that the offers are strictly as per our specifications. At the same time it must also be kept in mind that merely copying our specifications in their quotation shall not make firms eligible for consideration. The documentary evidence of conformity of the goods and services to the Bid Document may be in the form of literature, drawings and data, and shall consist of:
- (i) A detailed description of the essential technical and performance characteristics of the goods;
 - (ii) 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 for a period of two years, following commencement of the use of the goods by the Purchaser; and
 - (iii) An item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.
- 10.3 For purposes of the commentary to be furnished pursuant to above, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications. Technically unsuitable offers, offers not confirming to tender schedule shall be rejected.

11 Bid Security/EMD

- 11.1 The Bidder shall furnish, as part of its bid, a bid security for an amount as specified in the Invitation for Bids/NIT. The bid security is required to protect the Purchaser against the risk of Bidder's conduct, which would warrant the security's forfeiture.
- 11.2 The bid security shall be preferably in Indian Rupees or USD (\$) and shall be in one of the following forms:
- (i) A bank guarantee issued by a Nationalized/Scheduled bank, in the form provided in the Bid Document (Chapter VI) and valid for 45 days beyond the validity of the bid; or
 - (ii) A Banker's cheque/ demand draft or TDR in favour of the Director, CBRI.
- 11.3 Any bid not secured in accordance with Clauses 11.1 and 11.2 above will be **rejected** by the Purchaser as **non-responsive**.
- 11.4 Unsuccessful bidder's bid security will be discharged/returned as promptly as possible but not later than 15 days after the expiration of the period of bid validity or placement of order whichever is later.
- 11.5 The successful Bidder's bid security will be discharged upon the Bidder furnishing the performance security or receipt of material physically in good condition whichever is earlier.
- 11.6 The bid security may be forfeited:
- (i) If a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form; or
 - (ii) In case of a successful Bidder, if the Bidder fails to furnish order acceptance within 21 days of the order and/or fails to furnish Performance Security in the prescribed format or does not supply the material within the prescribed period.

12 Period of Validity of Bids

- 12.1 Bids shall remain valid for 120 days after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period may be rejected by the Purchaser as non-responsive.
- 12.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing (or by fax or e mail). The bid security provided under Clause 11 shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.
- 12.3 Bid evaluation will be based on the bid prices without taking into consideration the above corrections.

13 Format and Signing of Bid

- 13.1 The Bidder shall submit the bids in two separate envelopes. One envelop shall contain Techno commercial un-priced bid and the other shall contain the priced bid.
- 13.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. Name, designation and contact number of the authorised signatory should be mentioned below his signatures. All pages of the bid, except for un-amended printed literature, shall be initialled by the person or persons signing the bid.
- 13.3 Any interlineations, erasures or overwriting shall be valid only if the person or persons signing the bid initial them.
- 13.4 The Bidder shall furnish information on commissions or gratuities, if any paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the contract as per the bid form.

D. SUBMISSION OF BIDS

14 Sealing and Marking of Bids

- 14.1 The bidder shall seal the Techno Commercial Unpriced Bid and the Price/Financial Bid in two separate envelopes duly marked as "Techno Commercial Unpriced Bid" and "Price/Financial Bid" respectively. Both the envelopes shall then be sealed in one outer (main) envelope.
- 14.2 **The inner and outer envelopes shall:**
- (i) Be addressed to the Purchaser at the following address:

**The Stores & Purchase Officer
Central Building Research Institute,
Roorkee – 247667 (UK) INDIA**

- (ii) Bear the Item Name /Reference No./ Last Date For Submission Of Tender / Date Of Opening Of Tender / Firm's Name & Address and a statement "Do not open before Time hrs(IST) on Date." As per the NIT details.
- 14.3 If the outer envelope is not sealed and marked as required Clause 14.2, the Purchaser will assume no responsibility for the bid's misplacement or premature opening.
- 14.4 **Telex, Cable, Fax or e-mail bids will be rejected.**

15 Deadline for Submission of Bids

- 15.1 Bids must be received by the Purchaser at the address specified under Clause 15.2 no later than the time and date specified in the Invitation for Bids. In the event of the specified date for the submission of Bids being a holiday for the Purchaser, the Bids will be received upto the appointed time on the next working day.
- 15.2 The Purchaser may, at its discretion, extend this deadline for submission of bids by amending the bid documents in accordance with Clause 5, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

16 Late Bids

- 16.1 Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, pursuant to Clause 16, will be rejected and/or returned to the Bidder.

17 Modification and Withdrawal of Bids

- 17.1 The Bidder may modify or withdraw its bid after the bid's submission; provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of bids.
- 17.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of Clause 15. A withdrawal notice may also be sent by telex or cable or fax or e mail but followed by a signed confirmation copy, post marked not later than the deadline for submission of bids.
- 17.3 No bid may be modified subsequent to the deadline for submission of bids.
- 17.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the bid form or after placing the purchase order by the purchaser. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid security, pursuant to Clause 11.6.

E. OPENING AND EVALUATION OF BIDS

18 Opening of Bids by the Purchaser

- 18.1 The Purchaser will open all Techno Commercial Unpriced Bids, in the presence of Bidders' representatives who choose to attend, as per the schedule given in invitation to bids.

- 18.2 The Bidders' representatives who are present shall sign the quotation opening sheet evidencing their attendance. In the event of the specified date of Bid opening being a holiday for the Purchaser, the Bids shall be opened at the appointed time and location on the next working day.
- 18.3 The bidders' names, bid modifications or withdrawals, specifications, and the presence or absence of requisite bid security and such other details as the Purchaser, at its discretion, may consider appropriate, will be announced at the opening. No bid shall be rejected at bid opening, except for late bid.
- 18.4 Bids (and modifications sent pursuant to Clause 18.2) that are not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances.
- 18.5 If in response to our TWO BID enquiry, a single combined bid is submitted, it will be opened at the risk and responsibility of bidder.

19 Clarification of Bids

- 19.1 To assist in the examination, evaluation and comparison of bids, the Purchaser may, at its discretion ask the bidder for any clarification(s) of its bid. The request for clarification and the response shall be in writing and no change in the price substance of the bid shall be sought, offered or permitted. However no post Bid clarifications at the initiative of the Bidder shall be entertained.

20 Preliminary Examination

- 20.1 The Purchaser will examine the bids to determine whether they are complete, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order. Bids from suppliers, without proper Authorization from the manufacturers and from Indian agents without DGS&D Registration Certificate shall be treated as non-responsive and rejected summarily.
- 20.2 Arithmetical errors in the priced bids will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the supplier does not accept the correction of errors, its bid will be rejected. If there is a discrepancy between the price quoted in words and figures, whichever is the higher of the two shall be taken as the bid price.
- 20.3 The Purchaser may waive any minor informality, non-conformity, or irregularity in a bid in terms of specifications and clauses of the bid document, which does not constitute a material deviation, provided such a waiver, does not prejudice or affect the relative ranking of any Bidder.
- 20.4 Prior to the detailed evaluation, the Purchaser will determine the **substantial responsiveness** of each bid to the Bid Document. For purposes of these Clauses, a substantially responsive bid is one, which conforms to all the specifications and terms and conditions of the Bid Document without material deviations. Deviations from or objections or reservations to critical provisions such as those concerning Bid Security/ Performance Security. Warranty, Force Majeure, Applicable law and Taxes & Duties will be deemed to be a material deviation. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 20.5 If a bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.
- 20.6 After downloading, the language of standard clauses etc. mentioned in this 'Bid Document' should not be tempered with/ changed/modified in any manner whatsoever. If any such modification etc. comes to our knowledge at any stage, the bid shall be rejected immediately and EMD shall also be forfeited.

21 Conversion to Single Currency

- 21.1 To facilitate evaluation and comparison, the Purchaser will convert all bid prices expressed in the amounts in various currencies in which the bid prices are payable to Indian Rupees at the selling exchange rate established by any bank in India as notified in the Newspapers/banks' website on the date of Price/Financial Bid opening.

22 Evaluation & Comparison Of Bids

- 22.1 For the bids surviving the technical evaluation which have been found to be responsive the evaluation & comparison shall be made as under:
- (i) **Indigenous Offers**
The final landing cost of purchase after all discounts, freight, forwarding, insurance, taxes etc. shall be the basis of evaluation.
 - (ii) **Imported Offers**
The FOB/FCA price shall be the basis of evaluation
 - (iii) **Imported Vs. Indigenous Offers**
The final landing cost of purchase taking into account, tentative/estimated freight, forwarding, insurance, taxes etc. (CIF/CIP with customs clearance charges, Bank/LC charges, transportation upto CBRI as per available records with CBRI for imported goods) or in the best judgement of decision making authorities shall be the basis of evaluation

22.2 Conditional tenders/discounts etc. shall not be accepted. Rates quoted without attached conditions (viz. Discounts having linkages to quantity, payment terms etc.) will only be considered for evaluation purpose. Thus conditional discounted rates linked to quantities and prompt/advance payment etc, will be ignored for determining *inter-se* position. The Purchaser however reserves the right to use the discounted rate/rates considered workable and appropriate for counter offer to the successful tenderers.

22.3 Where there is no mention of packing, forwarding, freight, insurance charges, taxes etc. such offers shall be rejected as incomplete. ***Therefore quotations showing only Ex-Works (EXW) prices shall be rejected summarily.***

23 Contacting the Purchaser

23.1 Subject to ITB Clause 19, no Bidder shall contact or attempt to contact the Purchaser or anyone related to the Purchaser on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded. If the bidder wishes to bring additional information to the notice of the Purchaser, it should do so in writing.

23.2 Any effort by a Bidder to influence the Purchaser in its decisions on bid evaluation, bid comparison or contract award may result in rejection of the Bidder's bid.

24 Post Qualification

24.1 In the absence of pre-qualification, the Purchaser will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the contract satisfactorily.

24.2 The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder as well as such other information as the Purchaser deems necessary and appropriate.

25 Award Criteria

25.1 Subject to ITB Clause 27, the Purchaser will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the contract satisfactorily.

26 Purchaser's Right To Vary Quantities At Time Of Award

26.1 The Purchaser reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.

27 Purchaser's Right To Accept Any Bid And To Reject Any Or All Bids

27.1 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 award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Purchaser's action.

28 Notification of Award

28.1 Prior to the expiration of the period of bid validity, the Purchaser will notify the successful bidder in writing by registered letter or fax or e mail that the bid has been accepted by way of a Purchase Order.

28.2 Upon the successful Bidder's furnishing of performance security pursuant to ITB Clause 29, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to Clause 11.

29 Performance Security

29.1 Within 21 days of the receipt of notification of award/purchase order from the Purchaser, the successful Bidder shall furnish the performance security of 10% of order value, in the Performance Security Form provided in the Bid Document.

29.2 Failure of the successful bidder to accept the order shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security and call for new bids.

30 Order Acceptance

30.1 The successful bidder should submit acceptance of the Purchase Order immediately but not later than 21 days in any case from the date of issue of the Purchase Order failing which it shall be presumed that the vendor is not interested and his bid security is liable to be forfeited pursuant to clause 12.6 of ITB.

31 Buy Back Items

31.1 If the goods are to be quoted on 'Buy Back' basis, then bidders must offer a separate buy back price for the old item. The Purchaser reserves the right to place the order with or without 'buy back' option. If required the condition of old buy back goods may be examined by the bidder before submission of its bid.

CHAPTER – III: GENERAL CONDITIONS OF CONTRACT (GCC)

1 Definitions

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

- (i) "The Order" means the Purchase Order placed by the Purchaser including all the attachments and appendices thereto and all documents incorporated by reference therein;
- (ii) "The Contract Price" means the price payable to the Supplier under the Order for the full and proper performance of its contractual obligations;
- (iii) "The Goods" means all the equipment, machinery, and/or other materials, which the Supplier is required to supply to the Purchaser under the Contract;
- (iv) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other obligations of the Supplier covered under the Contract;
- (v) "GCC" mean the General Conditions of Contract contained in this section.
- (vi) "SCC" means the Special Conditions of Contract.
- (vii) "The Purchaser" as specified in Special Conditions of Contract.
- (viii) "The Purchaser's country" is "India".
- (ix) "The Supplier" means the individual or firm supplying the Goods and Services under this Contract.
- (x) "Day" means calendar day.

2 Application

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

3 Standards

3.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

4 Use of Contract Documents and Information

- 4.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance. The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information enumerated in GCC Clause 4.1 except for purposes of performing the Contract.
- 4.2 Any document, other than the Contract itself, enumerated in GCC Clause 4.1 shall remain the property of the Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so required by the Purchaser.
- 4.3 The purchaser may be under obligation to make any document/information submitted by the bidder in response to this bid public if required under the provision of Right to Information Act 2005. Therefore bidder may explicitly indicate if any document/information in his tender includes information of commercial confidence, trade secrets or intellectual property, the disclosure of which would jeopardize the competitive position of the bidder.

5 Patent Rights

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

6 Submission of the bids

- 6.1 All bids complete in every respect must reach this office within the last date and time of receipt of bid. No extension shall be allowed for any reason what so ever. Late tenders, Tenders received without Bid security/Earnest Money, cost of bidding documents, if applicable etc. shall be rejected summarily.
- 6.2 Interested bidders may download the tender documents from our website, as indicated in invitation for bids.

7 Performance Security

- 7.1 Within 21 days of receipt of the notification of contract award/purchase order, the Supplier shall furnish performance security for the amount specified in SCC.
- 7.2 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.
- 7.3 The Performance Security shall be submitted in one of the following forms:

- (i) Indian manufacturers/suppliers or Authorized Indian Agents of the Foreign Principals can submit the performance security on behalf of their foreign principals in the form of Bank Guarantee issued by a Nationalized/Scheduled bank located in India on the format provided in the bidding documents. **Or**
 - (ii) Foreign Principals can also submit performance security directly in the form of Standby Letter of Credit which must be advised and confirmed by any bank in India located preferably in Roorkee (Uttarakhand).
- 7.4 The performance security/Standby LC will be discharged by the Purchaser and returned to the Supplier not later than 60 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, unless specified otherwise in SCC.
- 7.5 In the event of any contract amendment, the supplier shall, within 21 days of receipt of such amendment, furnish the amendment to the performance security/SLC, rendering the same valid for the duration of the contract, as amended for further period of 60 days thereafter.

8 Inspections and Tests

- 8.1 The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser. SCC and the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Supplier in writing in a timely manner of the identity of any representatives retained for these purposes.
- 8.2 The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at the point of delivery and/or at the Goods final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data - shall be furnished to the inspectors at no charge to the Purchaser.
- 8.3 Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject the goods and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser.
- 8.4 The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at Project Site shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment.
- 8.5 Nothing in GCC Clause 8 shall in any way release the Supplier from any warranty or other obligations under this Contract.

9 Packing

- 9.1 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. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit 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.
- 9.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be provided for in the Contract including additional requirements, if any, specified in SCC and in any subsequent instructions ordered by the Purchaser.

10 Delivery and Documents

- 10.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified by the Purchaser in the order within the period as indicated in the SCC. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.

11 Insurance

- 11.1 The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in SCC.

12 Transportation

- 12.1 Where the Supplier is required under the Contract to transport the Goods to a specified place of destination within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the Contract Price.

13 Incidental Services

- 13.1 The supplier may be required to provide any or all of the following services, including additional services, specified in SCC, if any:
- (i) Performance or supervision of the on-site assembly and/or start-up of the supplied Goods;
 - (ii) Furnishing of tools required for assembly and/or maintenance of the supplied Goods;

- (iii) Furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods;
- (iv) 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
- (v) 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.

14 Spare Parts

- 14.1 As specified in the SCC, the Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:
- (i) Such spare parts as the Purchaser may elect to purchase from the Supplier, providing that this election shall not relieve the Supplier of any warranty obligations under the Contract; and
 - (ii) In the event of termination of production of the spare parts:
 - (iii) Advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and
 - (iv) Following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if requested.
- 14.2 Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares for the Goods, such as gaskets, plugs, washers, belts etc. Other spare parts and components shall be supplied as promptly as possible but in any case within six months of placement of order.

15 Warranty

- 15.1 The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination. **The warranty should be comprehensive and on site.**
- 15.2 This warranty shall remain valid for 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 Contract, or for 16 months after the date of shipment whichever period concludes earlier, unless specified otherwise in the SCC.
- 15.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall immediately within in 02 days arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Purchaser for the replaced parts/goods thereafter. The period for correction of defects in the warranty period is 02 days. If the supplier having been notified fails to remedy the defects within 02 days, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses and without prejudice to any other rights, which the purchaser may have against the supplier under the contract.

16 Payment

- 16.1 The method and conditions of payment to be made to the Supplier under this Contract shall be as specified in the SCC.
- 16.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and the Services performed, and by documents, submitted pursuant to GCC Clause 10, and upon fulfilment of other obligations stipulated in the contract.
- 16.3 Payments shall be made promptly by the Purchaser normally within sixty (60) days after submission of the invoice or claim by the Supplier.
- 16.4 Payment shall be made in currency as indicated in the order.

17 Prices

- 17.1 Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid.

18 Change Orders

- 18.1 The Purchaser may at any time, by written notice given to the Supplier pursuant to GCC Clause 30, make changes within the general scope of the Contract in any one or more of the following:
- (i) Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
 - (ii) The method of shipping or packing;

- (iii) The place of delivery; and/or
 - (iv) The Services to be provided by the Supplier.
 - (v) The delivery schedule.
- 18.2 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 delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within fifteen (15) days from the date of the Supplier's receipt of the Purchaser's change order.

19 Contract Amendments

- 19.1 Subject to GCC Clause 18, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

20 Assignment

- 20.1 The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

21 Subcontracts

- 21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in his original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.
- 21.2 Sub-contract shall be only for bought-out items and sub-assemblies.

22 Delays in the Supplier's Performance

- 22.1 Since time is the essence of the contract, delivery of the Goods and performance of the Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser in the Contract.
- 22.2 If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s).
- 22.3 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 with or without penalty, in which case the extension shall be ratified by the parties by amendment of the Contract.
- 22.4 Except as provided under GCC Clause 25, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of penalty pursuant to GCC Clause 23, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of penalty clause.

23 Penalty

- 23.1 Subject to GCC Clause 25, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage specified in SCC. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC Clause 24.

24 Termination for Default

- 24.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:
- (i) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the order, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 22; or
 - (ii) If the Supplier fails to perform any other obligation(s) under the Contract.
 - (iii) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
- 24.2 For the purpose of this Clause:
- (i) **"Corrupt practice"** means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.
 - (ii) **"Fraudulent practice"** means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition;"
- 24.3 In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 24.1, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess

costs for such similar Goods or Services. However, the Supplier shall continue the performance of the Contract to the extent not terminated.

25 Force Majeure

- 25.1 Notwithstanding the provisions of GCC Clauses 22, 23 and 24, 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.
- 25.2 For purposes of this Clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not limited to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 25.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions 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.

26 Termination for Insolvency

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

27 Resolution of Disputes

- 27.1 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.
- 27.2 If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the SCC. These mechanisms may include, but are not limited to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and national or international arbitration.

28 Governing Language

- 28.1 The contract shall be written in English language. Subject to GCC Clause 30, English language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract, which are exchanged by the parties, shall be written in the same language.

29 Applicable Law

- 29.1 The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction as specified in SCC.

30 Notices

- 30.1 Any notice given by one party to the other pursuant to this contract/order shall be sent to the other party in writing or by cable, telex, FAX or e mail and confirmed in writing to the other party's address specified in the SCC.
- 30.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

31 Taxes and Duties

- 31.1 Suppliers shall be entirely responsible for all taxes, duties, license fees, octroi, road permits, etc., incurred until delivery of the contracted Goods to the Purchaser. However, VAT in respect of the transaction between the Purchaser and the Supplier shall be payable extra, if so stipulated in the order.

CHAPTER – IV: SPECIAL CONDITIONS OF CONTRACT (SCC)

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

1 Definitions (GCC Clause 1)

- 1.1 The Purchaser is 'The Director, Central Building Research Institute (CBRI), Roorkee (Uttarakhand), INDIA.

2 Performance Security (GCC Clause 7) Substitute clause 7.1 of the GCC by the following:

- 2.1 Within 21 days after the Supplier's receipt of order, the Supplier shall furnish Performance Security to the Purchaser for an amount of 10% of the contract value, valid upto 60 days after the date of completion of performance obligations including warranty obligations.
- 2.2 If the performance security is not furnished within the stipulated time as per 2.1 above, the contract shall be deemed terminated in pursuance of GCC Clause 24.

3 Inspection and Tests: Inspection and tests prior to shipment of Goods and at final acceptance are as follows:

- 3.1 After the goods are manufactured and assembled, inspection and testing of the goods shall be carried out at the supplier's plant by the supplier, prior to shipment to check whether the goods are in conformity with the technical specifications attached to the purchase order. Manufacturer's test certificate with data sheet shall be issued to this effect and submitted along with the delivery documents. The purchaser shall be present at the supplier's premises during such inspection and testing if need is felt. The location where the inspection is required to be conducted should be clearly indicated. The supplier shall inform the purchaser about the site preparation, if any, needed for installation of the goods at the purchaser's site at the time of submission of order acceptance.
- 3.2 The acceptance test will be conducted by the Purchaser, their consultant or other such person nominated by the Purchaser at its option after the equipment is installed at purchaser's site in the presence of supplier's representatives. The acceptance will involve trouble free operation and ascertaining conformity with the ordered specifications and quality. There shall not be any additional charges for carrying out acceptance test. No malfunction, partial or complete failure of any part of the equipment is expected to occur. The Supplier shall maintain necessary log in respect of the result of the test to establish to the entire satisfaction of the Purchaser, the successful completion of the test specified.
- 3.3 In the event of the ordered item failing to pass the acceptance test, a period not exceeding one weeks will be given to rectify the defects and clear the acceptance test, failing which the Purchaser reserve the right to get the equipment replaced by the Supplier at no extra cost to the Purchaser.
- 3.4 Successful conduct and conclusion of the acceptance test for the installed goods and equipments shall also be the responsibility and at the cost of the Supplier.

4 Manuals and Drawings

- 4.1 Before the goods and equipments are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications.
- 4.2 The Manuals shall be in the ruling language (English) in such form and numbers as stated in the contract.
- 4.3 Unless and otherwise agreed, the goods equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawing have been supplied to the Purchaser.

5 Packing (GCC Clause 9) Add as Clause 9.3 of the GCC of the following:

- 5.1 Packing Instructions: Each package will be marked on three sides with proper paint/indelible ink, the following:
 - (i) Item Nomenclature
 - (ii) Order/Contract No.
 - (iii) Country of Origin of Goods
 - (iv) Supplier's Name and
 - (v) Packing list reference number

6 Delivery and Documents (GCC Clause 10)

- 6.1 Delivery of the goods should be made within a maximum of 08 weeks from the date of placement of purchase order. Within 24 hours of shipment, the supplier shall notify the purchaser and the insurance company by cable/telex/fax/e mail the full details of the shipment including contract number, railway receipt number/ AWB etc and date, description of goods, quantity, name of the consignee, invoice etc. The supplier shall mail the following documents to the purchaser with a copy to the insurance company:

- (i) 4 Copies of the Supplier invoice showing contract number, goods' description, quantity, unit price, total amount;
 - (ii) Acknowledgment of receipt of goods from the consignee(s) by the transporter;
 - (iii) Insurance Certificate if applicable;
 - (iv) Manufacturer's/Supplier's warranty certificate;
 - (v) Inspection Certificate issued by the nominated inspection agency, if any, and the Supplier's factory inspection report; and
 - (vi) Certificate of Origin.
 - (vii) Two copies of the packing list identifying the contents of each package.
- 6.2 The above documents should be received by the Purchaser before arrival of the Goods (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.

7 Insurance (GCC Clause 11)

- 7.1 For delivery of goods at the purchaser's premises, the insurance shall be obtained by the Supplier in an amount equal to 110% of the value of the goods from "warehouse to warehouse" (final destinations) on "All Risks" basis including War Risks and Strikes. The insurance shall be valid for a period of not less than 3 months after installation and commissioning. **However, in case of orders placed on FOB/FCA basis, the purchaser shall arrange Insurance.**

8 Incidental services (GCC clause 13) The incidental services also include:

- 8.1 Furnishing of 01 set of detailed operations & maintenance manual.
- 8.2 Arranging the shifting/moving of the items to their location of final installation within CBRI premises.

9 Warranty (GCC Clause 15)

- 9.1 Warranty period shall be 12 months from date of acceptance of Goods or 16 months from the dates of Shipment, whichever occurs earlier. The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the contract. If for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall at its discretion make such changes, modifications, and/or additions to the Goods or any part thereof as may be necessary in order to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further performance tests. **The warranty should be comprehensive on site.**
- 9.2 If a different period of warranty has been specified in the 'Technical Specifications' Chapter then the period mentioned in Clause 9.1 above shall stand modified to that extent.

10 Payment (GCC Clause 16) : Advance payment is not permissible.

- 10.1 **(A) For Indigenous Suppliers :** Payment shall be made by the Purchaser against delivery, inspection, successful installation, commissioning and acceptance of the equipment at CBRI in good condition and to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee as specified in Clause 2.1 of SCC. Payment will be made on bill basis after receipt of stores in good condition at our site by e-payment mode namely Electronic Clearance System (ECS)/National Electronic Fund Transfer (NEFT)/Real Time Gross Settlement (RTGS)/Net Banking by direct credit to the account of the beneficiary. Therefore do provide 11 digit core banking account number alongwith the name of Bank, IFSC Code, MICR Code and other information required for the purpose.
- (B) For Foreign Suppliers :** Payment shall be made by a Letter of Credit/FDD/Telegraphic Transfer on production of unconditional performance bank guarantee as specified in Clause 2.1 of SCC.
- (C)** In case of payment through L/C, bank charges outside India shall be born by supplier & inside India the same shall be born by purchaser.
- 10.2 Agency commission, if any shall be paid after satisfactory installation & commissioning of the goods at the destination at the exchange rate prevailing on the date of negotiation of LC documents, subject to DGS&D registration.

11 Penalty Clause (GCC Clause 23)

- 11.1 For delays: GCC Clause 23.1 -- The applicable rate is 1% per week and the maximum deduction is 10% of the contract price.

12 Resolution of Disputes (Clause 28): Add as GCC Clause 27.3 the following:

- 12.1 The dispute resolution mechanism to be applied pursuant to GCC Clause 27 shall be as follows:
- (i) In case of Dispute or difference arising between the Purchaser and a domestic supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Indian Arbitration & Conciliation Act, 1996, the rules there under and any statutory modifications or re-enactments thereof shall apply to the arbitration proceedings. The dispute shall be referred to the Director General, Council of Scientific & Industrial Research and if he is unable or unwilling to act, to the sole arbitration of some other person appointed by him willing to

act as such Arbitrator. The award of the arbitrator so appointed shall be final, conclusive and binding on all parties to this order.

- (ii) In the case of a dispute between the purchaser and a Foreign Supplier, the dispute shall be settled by arbitration in accordance with provision of sub-clause (a) above. But if this is not acceptable to the supplier then the dispute shall be settled in accordance with provisions of UNCITRAL (United Nations Commission on International Trade Law) Arbitration Rules.
- (iii) The venue of the arbitration shall be the place from where the order is issued.

13 Applicable Law (GCC Clause 29) Add as Clause 29.2 of the GCC the following:

13.1 The place of jurisdiction would be Roorkee (Uttarakhand) INDIA.

14 Notices (GCC Clause 30)

14.1 For the purpose of all notices, the following shall be the address of the Purchaser and Supplier.

- (i) **Purchaser:** The Director,
CSIR-Central Building Research Institute,
Roorkee – 247667 (Uttarakhand) INDIA.

- (ii) **Supplier:** (To be filled in by the supplier)

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15 Progress of Supply

15.1 Supplier shall regularly intimate progress of supply, in writing, to the Purchaser as under:

- (i) Quantity offered for inspection and date;
- (ii) Quantity accepted/rejected by inspecting agency and date;
- (iii) Quantity dispatched/delivered to consignees and date;
- (iv) Quantity where incidental services have been satisfactorily completed with date;
- (v) Quantity where rectification/repair/replacement effected/completed on receipt of any communication from consignee/Purchaser with date;
- (vi) Date of completion of entire Contract including incidental services, if any; and
- (vii) Date of receipt of entire payments under the Contract (In case of stage-wise inspection, details required may also be specified).

16 Right to Use Defective Goods

16.1 If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.

17 Supplier Integrity

17.1 The Supplier is responsible for and obliged to conduct all contracted activities in accordance with the Contract using state of the art methods and economic principles and exercising all means available to achieve the performance specified in the contract.

18 Training

18.1 The Supplier is required to train the designated Purchaser's technical and end user personnel to enable them to effectively operate the total equipment.

CHAPTER – V: BID FORM

**The Director,
Central Building Research Institute,
Roorkee – 247667 (U.A.) India**

Sir,

Having examined the bidding document, we the undersigned offer to supply and deliver

(Description of Goods) in conformity with the said bidding documents for a sum or such other sums as may be ascertained from the bid.

We undertake that if our bid is accepted to deliver the goods in accordance with the delivery schedule specified and submit the performance security as specified in SCC for the due performance of the contract.

We agree to abide by this bid for requisite period of time after the date fixed for bid opening as per the instructions to the bidders and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any bid you
may receive.

Dated this _____ day of _____ 20 _____

Signature _____

In the capacity of _____

Duly authorized to sign the bid for and on behalf of _____

CHAPTER – VI: BIDDER INFORMATION FORM

- a) *[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. This should be done of the letter head of the firm]*

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

Tender No.: *[insert number from Invitation for bids]*

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01.	Bidder's Legal Name <i>[insert Bidder's legal name]</i>
02.	In case of JV, legal name of each party: <i>[insert legal name of each party in JV]</i>
03.	Bidder's actual or intended Country of Registration: <i>[insert actual or intended Country of Registration]</i>
04.	Bidder's Year of Registration: <i>[insert Bidder's year of registration]</i>
05.	Bidder's Legal Address in Country of Registration: <i>[insert Bidder's legal address in country of registration]</i>
06.	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>
07.	Attached are copies of original documents of: <i>[check the box(es) of the attached original documents]</i> Articles of Incorporation or Registration of firm named in 1, above.

Signature of Bidder _____

Name _____

Business Address _____

CHAPTER – VII: BID SECURITY FORM

Whereas¹ (*hereinafter called “the Bidder”*) has submitted its bid dated (*Date of submission of bid*) for the supply of (*Name and/or description of the goods*) (Hereinafter called “the Bid”).

KNOW ALL PEOPLE by these presents that WE (*Name of bank*) of (*Name of country*), having our registered office at (*Address of bank*) (Hereinafter called “the Bank”), are bound unto **Director, Central Building Research Institute, Roorkee** (Hereinafter called “the Purchaser”) in the sum of _____ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this ____ day of _____ 19 ____.

THE CONDITIONS of this obligation are:

1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity:
 - (a) Fails or refuses to execute the Contract Form if required; or
 - (b) Fails or refuses to furnish the performance security, in accordance with the Instruction to Bidders.

We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including forty-five (45) days after the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

(Signature with Seal of the Bank)
(Complete Contact Details with Tel./Fax/email etc)

¹ _____
Name of Bidder

CHAPTER – VIII: MANUFACTURERS' AUTHORIZATION FORM

No. _____

Dated _____

**The Director,
Central Building Research Institute,
Roorkee – 247667 (U.A.) India**

Dear Sir:

We _____ who are established and reputed manufacturers of _____ having factories at _____ (*address of factory*) do hereby authorize M/s _____ (*Name and address of Agent*) to submit a bid, negotiate and receive the order from you against your tender enquiry and or execute the contract.

No company or firm or individual other than M/s _____ is authorized to bid, and conclude the contract in regard to this business.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract and Clause of the Special Conditions of Contract for the goods and services offered by the above firm.

Yours faithfully,

(Name)

(Name of manufacturers)

Note: This letter of authority should be on the **letterhead of the manufacturer** and should be signed by a person competent and having the power of attorney to bind the manufacturer. It should be included by the Bidder in its techno-commercial unpriced bid.

CHAPTER – IX: BIDDER'S PERFORMANCE STATEMENT FORM
(For A Period Of Last 3 Years)

Name of the Firm.....

Order placed by (full address of purchaser)	Order No. and date	Description and quantity of ordered equipment	Price	Date of completion of delivery as per Contract/Actual	Remarks indicating reasons for late delivery, if any	Has the equipment been installed satisfactory? (Attach a certificate from the purchaser/Consignee)	Contact Person alongwith Tel. NO., Fax No. & e- mail address

Place :

Date :

Signature
Rubber stamp

CHAPTER X: SERVICE SUPPORT DETAILS FORM

S. N.	Nature of training imparted	List of similar type equipments serviced in the past 3 years	Address, Telephone Nos., Fax and e mail address of the firm	Value of minimum stock of consumable spares held at all times.

Signature and Seal of the manufacturer/Bidder.....

Place :

Date :

CHAPTER – XI: DEVIATION STATEMENT FORM (ITB, GCC, SCC)

The following are the particulars of deviations (ITB, GCC, SCC Clauses) from the requirements of the tender document and specifications:

CLAUSE	DEVIATION	REMARKS (INCLUDING JUSTIFICATION)

Place:

Date:

and seal of the

Manufacturer/Bidder

Signature

NOTE:

Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations".

CHAPTER – XII: TECHNICAL COMPLIANCE STATEMENT FORM

An item-by-item commentary on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

ITEM NAME			
S.No.	Tender Specifications	Bidder's Specifications	Remarks/Deviation If any

(Technical literature/brochures/manuals should be attached alongwith this format)

Please note:

1. Compliance/Deviation statement comparing the specifications of the quoted model to the required specifications. This statement should also give the page number(s) of the technical literature where the relevant specification is mentioned.
2. Bids must have supporting documents (technical literature or copies of relevant pages from the service manual or factory test data) for all the points noted above, failure regarding which may result in rejection of bid.

CHAPTER – XIII: CONTRACT FORM

THIS AGREEMENT made theday of200....between.....
Director, Central Building Research Institute, Roorkee (UA) India (hereinafter “the Purchaser”) of the one part and(Name of Supplier) of(City and Country of Supplier) (hereinafter called “the Supplier”) of the other part:

WHEREAS the Purchaser invited bids for certain Goods and ancillary services viz.,
.....(Brief Description of Goods and Services) and has accepted a bid by the Supplier for the supply of those goods and services in the sum of
.....(Contract Price in Words and Figures) (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
 - (a) the Bid Form and the Price Bid submitted by the Bidder;
 - (b) the Technical Specifications;
 - (c) the General Conditions of Contract;
 - (d) the Special Conditions of Contract; and
 - (e) the Purchaser’s Notification of Award/Purchase Order.
3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the goods and services and to remedy defects therein 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.

Brief particulars of the goods and services which shall be supplied/provided by the Supplier are as under:

ITEM DESCRIPTION & QTY.		AMOUNT
		EXW/FOB/FCA/CIF/CIP
Payment Terms		Agency Commission
Delivery Schedule		[TO BE PAID IN EQUIVALENT INR]

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

Signed, Sealed and Delivered by the

Said.....(For the Purchaser)

In the presence of

Signed, Sealed and Delivered by the

Said.....(For the Supplier)

In the presence of

CHAPTER – XIV: PERFORMANCE SECURITY FORM

**The Director,
Central Building Research Institute,
Roorkee – 247667 (U.A.) India**

WHEREAS (Name of Supplier)
Hereinafter called "the Supplier" has undertaken, in pursuance of Contract no.....
dated,..... 200... to supply.....(Description of
Goods and Services) hereinafter called "the Contract".

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

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

This guarantee is valid until theday of.....19.....

Signature and Seal of Guarantors

(Complete Address/Contact Details with Tel./Fax/email etc)

Date

CHAPTER XV: QUALIFICATION REQUIREMENTS

- 1 The Bidder should be a manufacturer or their dealer specifically authorised by the manufacturer to quote on their behalf for this tender as per manufacturer authorisation form and Indian agents of foreign principals, if any who must have designed, manufactured, tested and supplied the equipment(s) similar to the type specified in the "Technical Specification". Such equipments must be of the most recent series/models incorporating the latest improvements in design. The models should be in successful operation for at least one year as on date of Bid Opening.
- 2 The Indian Agents of foreign manufacturers/ suppliers quoting directly on behalf of their principals must be enlisted with Central Purchase Organization e.g. DGS&D as per order of Finance Ministry. One Indian Agent cannot represent two different foreign principals for the same item in one tender.
- 3 The bidder should have supplied at least one such system/equipment to any Central Govt./State Govt./PSUs/Autonomous bodies. The details should be incorporated in the performance statement form along with documentary evidence.
- 4 If required, the bidder may be asked and should be willing to arrange demonstration of the equipment offered, free of charge at on a mutually agreeable place and date prior to opening of priced bids to ascertain their conformity with tendered specifications.
- 5 Details of service support facilities that would be provided after the warranty period should be submitted in the Service Support Details Form.
- 6 That, in the case of a Bidder not doing business in India, the Bidder is/or will be (if successful) represented by an Agent in India who shall be equipped and able to carry out the Supplier's maintenance, repairs and spare parts, stocking obligations prescribed by the conditions of the contract.
- 7 That adequate and specialized expertise is already available or will be made available following the execution of the contract in the Purchaser's country, to ensure that the support services are responsive and adequate.
- 8 That the Bidder will assume total responsibility for the fault-free operation of equipment, application software, if any, and maintenance during the warranty period and provide necessary maintenance services for five years after end of warranty period if required.
- 9 Bidders who meet the criteria given above are subject to be disqualified, if they have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification requirements or have a record of poor performance, not properly completing the contract, inordinate delays in completion or financial failure, etc.
- 10 ***Any additional bid participation criteria / eligibility conditions etc. mentioned in the Technical Specifications sheet will also form part of the Qualification Requirements along with those mentioned in this chapter.***

CHAPTER XVI: TECHNICAL SPECIFICATIONS

S.No.	Particulars of Item	Quantity
1.	60 Channel Dynamic Data Acquisition System	01 No.
Technical Specifications:		
DAS consisting of Scanner, adaptable Individual input cards for strain gauge and strain-gauge based transducers, thermocouples, sensor with high- level voltage outputs, and LVDTs with minimum range of scan rate 1- 2048 samples per second are as follows-		
(A) SCANNER		1 No.
SPECIFICATIONS (60 Channels, 8 input cards)		
Measurement accuracy	±0.05% of full scale	
Configuration	Rack-mount or bench-top	
LED panel	Individual red/green LEDs; one per channel	
Input Power	230VAC, single phase, 50 Hz	
Ethernet Interface	IEEE 802.3, 802.3u 10Base-T, 100Base-TX, half-and full-duplex, auto-detect	
Compact Flash Capacity	1 GB (removable)	
Processor	Minimum 250 MHz floating point digital signal processor	
Memory	Minimum 64 MB SDRAM	
System Calibration Ref.	Firmware-controlled	
	Resolution: 150µV nominal	
	Voltage: ±5V	
(B) ANALOG INPUT CARD		16 No.s
(6 no.s for Strain Gauge Input, 4 no's High Level Input, 4 no's for LVDT input, 2 no's for thermocouple Input)		
Channels	Min. Eight per card	
A/D Converter	Quantity: Eight (one per channel)	
	Architecture: Sigma-delta	
	Resolution: 24 bits	
	Conversion rate: Radix-10: 40k samples/second/channel	
	Radix-2: 40.96k samples/second/channel	
Data recording rates	2048, 1024, 512, 256, 128, or 64 samples/second/ channel (radix-2)	
	2000, 1000, 500, 200, 100, or 10 samples/second/ channel (radix-10)	
Pre-triggerr buffer	Type SDRAM, firmware-controlled	
Analog Anti-Alias filter	Type: Low-pass	
	Frequency: 3.5 kHz @ -3 dB	
(C) STRAIN GAUGE INPUT CARD (Includes Bridge Completion & Shunt Calibration Resistors)		6 No.s
Channels	Min. Eight per card	
Inputs	Software selectable for S+/S-, VCAL+/VCAL-, or Excitation	
Strain gauge	120Ω, 350Ω, 1000Ω quarter-bridges; 60Ωto 5000Ω half-and full-bridges	
Source Current	±5 nA per volt excitation	
Analog output	Compatible with scanner	
Resolution	0.5 µε (GF=2)	
Input Connector	Eight-pin TIA/EIA RJ-45 (Amp type 554739 or equivalent)	
Amplifier	Analog input (including full-Scale balance):	
	Low Range: ±50 mV	

		High Range: ± 220 mV Linearity: $\pm 0.02\%$ of Full Scale Software (mathematical) range: Full ADC range
Balance type		
Excitation		
	Selection:	Software controlled
	Resolution:	1 mV
	Accuracy:	± 4 mV typical (Firmware measures excitation variations during arming process)
	Current:	50mA max. per channel Over-current limited with indication
Shunt Calibration		
	Selection:	Firmware controlled
	Configuration:	Internal: P-to D120, P-to D350, P-to D1000
	Sockets:	Low resistance
	Levels:	Simulates 10,000 $\mu\epsilon$ @ GF = 2.0 Values: P- to D120: $5940\Omega \pm 0.1\%$ P- to D350: $17,325\Omega \pm 0.1\%$ P- to D1000: $49,500\Omega \pm 0.1\%$
System Calibration		Firmware controlled Calibration voltage: Supplied voltage calibration card
(D) HIGH-LEVEL INPUT CARD		4 No.'s
Channels		Min. Eight per card
Inputs		Differential
Input Connector		Eight-pin TIA/EIA RJ-45
Amplifier		DC gain Accuracy and Stability: $\pm 0.1\%$; ± 30 ppm/ $^{\circ}\text{C}$ Linearity: $\pm 0.02\%$ of Full Scale Common-Mode Voltage Range: $\pm 12\text{V}$ typical
Measurement ranges and resolution		Range: $\pm 10\text{V}$ Resolution: 100 μV effective
Excitation		
	Selection:	Software controlled
	bipolar range:	0 to ± 12 VDC
	unipolar range:	0 to +12 VDC
	Accuracy:	$\pm 0.1\%$ of full scale
(E) LVDT INPUT CARD		4 No.'s
Channels		Min. Eight per card
Inputs		Six-, five-, four- and three-wire transducers
Input Connector		Eight-pin TIA/EIA RJ-45
Amplifier		DC gain Accuracy and Stability: $\pm 0.25\%$ Common-mode Voltage range: $\pm 12\text{V}$ typical
Post Demodular Filter		
	type:	Low-Pass
	frequency:	1.0 kHz @ -3 dB
Measurement ranges and resolution		
	Range	± 5 V rms
	Resolution:	50 mV rms effective
Excitation		
	Selection:	Software controlled
	Frequency:	2500, 5000, or 10000 Hz sine wave
	Amplitude:	3 VRMS
	Accuracy:	$\pm 0.5\%$ of full scale
(F) THERMOCOUPLE INPUT CARD		2 No.'s
Channels		Eight per card

Inputs	Supported thermocouple types: J, K, T, E, N, R, S, B Cold-junction compensation, software-selectable Open-sensor detection
Input Connector	Five-position connector with screw terminals
Amplifier	DC gain Accuracy and Stability: $\pm 0.1\%$ Common-mode Voltage range: $\pm 12V$ typical
Measurement resolution	$1^{\circ}C$
Accuracy	$\pm 2^{\circ}C$
(G) POWER SUPPLY 1 No.	Compatible with Indian standard, 230v AC, single phase, 50Hz
(H) SOFTWARE :	
<p>The Wizard-based project setup, Each project includes Sensors, Materials, Hardware settings, Channel and user-defined assignments, Raw and reduced data, Display settings, Data acquisition, data presentation& Project can be saved as template for re-use.</p> <p>Principal strains and principal stress calculations, Calculation of failure criteria parameters (St.Venant, Haigh, Rankine, von Mises, Tresca).</p> <p>Corrections for all known errors in strain measurements, such as Wheatstone bridge non-linearity, apparent strain output due to temperature, gauge factor correction for temperature, scaling for number of active arms, lead wire desensitization effect on gauge factor, etc.</p> <p>The stored data to be displayed in numeric, graphical, bar chart, X-Y, or strip-chart format.</p> <p>User-defined assignment to allow math calculations using channel data as variables, to evaluate the data online.</p> <p>Export of Stored data in common file formats such as ASCII text , Word, Excel etc.</p>	

CHAPTER XVI: TECHNICAL SPECIFICATIONS

S.No.	Particulars of Item	Quantity
2.	Electrically Heated High Temperature Chamber Furnace	01 No.
Technical Specification: <ol style="list-style-type: none"> Maximum Temperature: 1800°C or higher. Heating elements: 'Molybdenum Di-Silicide'. Heat up time to reach the maximum operating temperature: Less than 1 hr. Thermocouple type: Pt20%Rh/Pt40%Rh. Minimum working chamber size: 200mm (Height) x 190mm (Width) x 190mm (Depth). Microprocessor based digital 'Eurotherm' Proportional-Integral-Derivative (PID) temperature programmer controller for temperature control of 30°C to 1800°C with $\pm 2^\circ\text{C}$ (maximum) accuracy with minimum 8-segment and RS232- computer interface for programming of heating, cooling and holding. 'Phase Angle Firing Thyristor Drive' to maintain the temperature up to $\pm 2^\circ\text{C}$ (maximum) of the set value. Microprocessor based digital safety On/Off temperature controller for over temperature prevent. Furnace should be equipped to work on 375-440 Volts AC, 50 Hz with Power Rating of 8 kW (maximum). The product must follow the BSEN: 61010 directives for all electrical components and related safety majors. A compatible desktop computer with a user-friendly PC software package (licensed software) to generate records, plot & print Time-Temperature graphs and for programming of furnace operations; including a printer and a UPS with the following specification- <ol style="list-style-type: none"> 11.1 Desktop computer (Preferably Dell/HP): <ol style="list-style-type: none"> i. Intel Pentium i5 Generation Processor & Intel GH67 Chipset Motherboard ii. 2 GB DDR3 RAM & 500 GB HDD iii. 18.5 inch LED/TFT Monitor with Multimedia Keyboard & Optical Scroll Mouse iv. Windows 10 Pro operating system 11.2 Laser Printer (Preferably Canon/HP): <ol style="list-style-type: none"> i. Print resolution: Minimum 600 x 600 dpi ii. Internal Memory: 64MB (minimum) & Monthly Duty Cycle (A4) up to 10,000 pages iii. Automatic 2 sided printing iv. Print Speed: (Simplex; A4)-minimum 25 ppm & (Duplex; A4)-minimum 15 ppm 11.3 Offline UPS: 600 VA & minimum 15 minutes battery backup. <p>Optional Items:</p> <ol style="list-style-type: none"> i. Alumina crucibles: Seven (minimum size: 65mm dia & 30 mm ht.). ii. Tongs: Two. iii. Sets of gloves: Two. iv. 'Molybdenum Di-Silicide' heating elements: Two. 		

CHAPTER XVI: TECHNICAL SPECIFICATIONS

S.No.	Particulars of Item	Quantity
3.	Rapid Chloride Permeability Test Apparatus	01 No.
Technical specification :		
<ul style="list-style-type: none"> • Applied voltage : Min. 60 V dc • Accuracy : Voltage accuracy ± 0.1 V • : Current accuracy ± 1 mA • Measurement channel : Min. 4 Nos. • Test cell along with accessories : Min. 4 Nos. for holding specimen of size: min 95 mm dia, 50 mm thick • Vacuum saturation apparatus along with kits <ul style="list-style-type: none"> - Separatory funnel : min 500 mL capacity - Vacuum desiccator : min 250 mm inside dia - Vacuum pump maintaining pressure: < 50 mm Hg - Vacuum gage : Accurate to ± 5 mm Hg over range of 0-100 mm Hg • Operating voltage/current : 100-240 V, 50 Hz • Auto temperature control during test • Programmable test duration • Measurement display • User friendly PC software along with USB connection • Conform to ASTM C1202 / AASHTO T227 for electrical indication for resistance of concrete to chloride ion penetration 		
Optional accessories		
<ul style="list-style-type: none"> • Temperature measuring device :0-100 °C • Data storage facilities • Shunt resistor-100 mV, 10 A rating and tolerance $\pm 0.1\%$ 		

CHAPTER XVI: TECHNICAL SPECIFICATIONS

S.No.	Particulars of Item	Quantity
4.	Automated Compression Testing Machine	01 No.
<u>Technical specification:</u> <ul style="list-style-type: none"> Automated combined compression testing machine of Min. capacity 3000 kN with Flexure test frame of Min. capacity 100 kN. Conforming to IS 516, EN 206, ASTM C 39 and other relevant standards. <p>A. Compression test setup</p> <ul style="list-style-type: none"> Standard specimen size: 100mm & 150mm for cubes and 150 x 300 mm for cylinder Working Range : 150kN to 3000kN, Resolution : 0.1 kN Piston stroke: Min 50 mm Platen size: Min 300 mm Accuracy: 1 % of measured value in working range. Compressometer and Extensometer for specimen size of 150 x 300 mm cylinder to measure axial deformation and diametrical deformation with 0.001 mm resolution and with 1 % accuracy of measured value. <p>B. Flexural test assembly</p> <ul style="list-style-type: none"> Standard specimen size: 100x100x500 mm & 150x150x750 mm (beam) Working Range: 5 kN to 100kN, Resolution : 0.01kN Piston stroke: Min 100 mm Support system: Roller based <p>C. Hydraulics</p> <ul style="list-style-type: none"> Dual stage hydraulic pump Hydraulic controller to connect 4 load frames up to capacity of 5000kN. <p>D. Hardware</p> <ul style="list-style-type: none"> Closed-loop P.I.D. control Min. 4 channels for load sensors (pressure transducers and load cells) Min. 6 channels to measure strain values with transducers (LVDT, magnetostrictive, potentiometric) Min. 4 channels for strain measurement with strain gauges Computer screen and digital controller integrated in rack with required accessories. <p>E. Software</p> <ul style="list-style-type: none"> Fully PC controlled Automatic execution of compression, indirect tensile tests, 3 point and 4 point flexural tests on different types of specimens. Programmable load/stress cycles. Automatic pace rate control within 10 % of set value. Load V/s. time value in excel to check correct pace rate. Real time monitoring of test data, stress/time, stress/axial strain, stress/lateral strain graphs. 		

- Active frame selection via software enabled.
- Automatic verification of sample centering and sensors functionality, as per standards.
- Printing and saving of customized test reports both for single and batch tests in Excel form.
- Multi-point (min. 5) calibration point to cover entire working range.
- NABL calibration must be provided for both frames.
- Installation and training to CBRI personals
- Operational manual
- Warranty: Min 2 years

Optional Items:

- Hydraulic with pressure filter for clean oil.
- Electric pressure indicator for safety mode in case of failure of a hose, pipe etc
- Max. oil temp. protection (shut down of the system)

CHAPTER XVI: TECHNICAL SPECIFICATIONS

S.No.	Particulars of Item	Quantity
5.	Concrete Rheometer for Fresh Concrete	01 No.
Technical specification: <ul style="list-style-type: none"> • Torque range: 0.001-10 Nm . • Rotation speed range: 0.05-10 rpm. • Capacity of the container should be a minimum of 20 liters. • Nominal maximum sizes of aggregate for testing : ≥ 32 mm • Operating mode: Controlled shear rate and shear stress. • Device can operate in concrete, having a slump of at least 50 mm. • Auto calibration facility • Customized mode of operation at various rotation speed or torque. • Suitable to perform in unsheared concrete without segregation, blockage of aggregates or causing any interference with the wall of container. • Portable type, suitable for testing at lab or at site. • Dedicated laptop/tablet/mobile facility for data capture/transfer/storage along with USB cable. • Rheology software: Display all relevant test data recorded with real time (Static & dynamic yield stress, plastic viscosity etc.) and facility to compute the real time Bingham parameters. 		

CHAPTER XVI: TECHNICAL SPECIFICATIONS

S.No.	Particulars of Item	Quantity
6.	High Speed Camera	01 No.

Sr. No.	Parameter	Specification
1	Sensor	CMOS, Color
2	Image Resolution	1 Mega-Pixel
3	Image Pixel Size	$\leq 20 \mu\text{m}$
4	Frame Rate	≥ 4000 frames/second at 1 Mega-Pixel resolution and ≥ 500000 FPS at lowest resolution
5	Internal memory	≥ 16 GB with memory upgradation facility
6	Bit Depth/Colour Depth	≥ 12 Bit
7	Camera Mount	F mount
8	Exposure Time	$\leq 1.05 \mu\text{Sec}$ with Global shutter
9	Connectivity Options	ETHERNET 1 Gb/ USB 3.0
10	Operating Temperature	Upto 40°C
11	Lens Specification i. Focal length range ii. Maximum Aperture	Compatible with standard F-mount 24-85 mm F/2.8
12	White Light source i. Type ii. Luminous Flux	Solid State LED with Flicker Free Light Minimum 7700 lumens
13	Laptop	8 GB RAM, 1TB hard Disk, 15" Monitor, i7 Processor compatible with the High Speed Camera and with pre-installed Software
14	Article I. Camera Control Software	Capable of operating on Windows OS (Windows 7 or further latest windows OS), The software should be capable of adjusting the frame rate and resolution, Control all parameters of high-speed camera, Advanced Image Processing Controls and Save / convert files to a variety of video formats.
15	Accessories	Tripod Stand with 3D head, necessary cables and other related accessories.
16	Warranty	2 years

CHAPTER XVI: TECHNICAL SPECIFICATIONS

S.No.	Particulars of Item	Quantity
7.	3D Hot Wire Anemometer	01 No.
Detailed Technical Specifications		
Mode of operation	Based on Constant Temperature Anemometry mode	
Medium of Fluid	Air	
Fluid temperature	minimum 150 °C	
No of Channels for measurement of velocity	Capture Velocity measurement data from atleast 2 hot wire 1D probes. Provision for upgrading to atleast 4 velocity 1D probes in future	
Velocity Measurement range	0 to 250 m/s	
Velocity Resolution	0.1 m/s or better	
Frequency Response per Channel	Maximum bandwidth of atleast 250 KHz per each measurement channel	
Analog to Digital Converter	Minimum 12 bit A/D converter with simultaneous sampling (sample and hold capability with a multiplexer) for atleast 4 channels each having adequate sampling rate compatible with HWA signal processor bandwidth.	
HWA Bridge	<ul style="list-style-type: none"> Automatic Setup/tuning of the CTA bridge for best Signal to Noise ratio. raw data output via BNC connector without signal conditioning. 	
Application Software	Probe calibration, acquisition of data, data conversion & data reduction capability with Associated Data acquisition system, . The system software should be capable of operating on Windows operating system (windows 7 or further latest windows OS)	
Probe and Probe Support	Single sensor Wire Probe: 2 no. Dual Sensor Cross Flow 2D probe: 1 no. Single sensor Wire Probe support: 2 no. Dual Sensor Cross Flow 2D probe support: 1 no.	
Accessories	5m BNC cable for each channel. Necessary cables and other related accessories.	