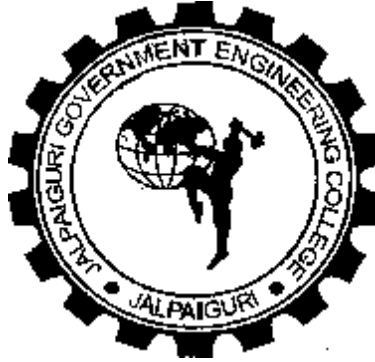


E-tender is being invited for supplying goods and Repairing & Maintenance.
Follow: <http://wbtenders.gov.in> , from: 14.08.2018, 12.00 hours. www.jgec.ac.in
Notice no.:JGEC/SG/2018-19/01
Principal, Jalpaiguri Govt. Engg.College

**TENDER DOCUMENT
FOR
PROCUREMENT OF
GOODS AND REPAIRING & MAINTENANCE UNDER SG
State Grant:2018-19**

Tender Notice No: JGEC/SG/2018-19/01 dated 14.08.2018



**JALPAIGURII G GOVERNMENT ENGINEERING COLLEGE
JALPAIGURI- 735 102**

www.jgec.ac.in

Phone: 03561561 – 255131 (Principal), Fax: 03561 – 256143

255132 (Accounts Officer), 255465 (EPABX)

**OFFICE OF THE PRINCIPAL
JALPAIGURII G GOVERNMENT ENGINEERING COLLEGE
JALPAIGURI – 735 102**

www.jgec.ac.in

e-mail:principal@jgec.ac.in, cpc@jgec.ac.in

GENERAL INFORMATION TO THE TENDERERS

1. INVITATION:

Two Bid Tenders / Quotations are invited by the Principal, Jalpaiguri Government Engineering College, from bonafide and experienced firms/agencies through the e-tendering portal of the Govt. of West Bengal (<https://wbtenders.gov.in>) for supply of machinery, laboratory equipments, accessories, consumables etc. for different academic/ non-academic departments /sections as listed **BOQs (8 Nos.)** from the manufacturers / their authorized distributors /dealers / stockiest as applicable. While the main tender document (both technical and financial) must be submitted electronically following the instructions given in the said portal, hard copies of the technical bid together with all supporting documents may be submitted directly to the Principal of the College at the above address within the stipulated last date of submission.

BOQs are as follows:

- a. **JGEC/SG/2018-19/ 01/CE Dated: 14.08.2018:** JGEC BOQ 2018 GOODS CE and corresponding item description file is JGEC Etender 2018 Goods CE
- b. **JGEC/SG/2018-19/01/ME Dated: 14.08.2018:** JGEC BOQ 2018 GOODS ME and corresponding item description file is JGEC Etender 2018 Goods ME
- c. **JGEC/SG/2018-19/01/EE Dated: 14.08.2018:** JGEC BOQ 2018 GOODS EE and corresponding item description file is JGEC Etender 2018 Goods EE
- d. **JGEC/SG/2018-19/01/CSE Dated: 14.08.2018:** JGEC BOQ 2018 GOODS CSE and corresponding item description file is JGEC Etender 2018 Goods CSE
- e. **JGEC/SG/2018-19/01/ECE Dated: 14.08.2018:** JGEC BOQ 2018 GOODS ECE and corresponding item description file is JGEC Etender 2018 Goods ECE
- f. **JGEC/SG/2018-19/01/IT Dated: 14.08.2018:** JGEC BOQ 2018 GOODS IT and corresponding item description file is JGEC Etender 2018 Goods IT
- g. **JGEC/SG/2018-19/01/WS Dated: 14.08.2018:** JGEC BOQ 2018 GOODS WS and corresponding item description file is JGEC Etender 2018 Goods WS
- h. **JGEC/SG/2018-19/RM/01 Dated: 14.08.2018:** JGEC BOQ 2018 R&M all and corresponding item description file is JGEC Etender 2018 RM

2. LANGUAGE OF TENDER:

The tender shall be submitted in the prescribed form in English. All papers and correspondences in connection with the tender shall also be in English.

3. VALIDITY:

The validity of the offer shall be for a minimum period of 180 days from the date of submission of the same.

4. SUPPORTING DOCUMENTS:

All the tenders must be accompanied by photocopies/ originals of the following documents, hard copies of which may be submitted directly to the Principal of the College at the above address:

- a) Valid "Certificate of Incorporation"/ "Trade License".
- b) Having GST Registration No. (GSTIN), PTAX Registration;
- c) PANCard.
- d) "Manufacturer's Authorization Letter" (if the quoted item is not manufactured by the Bidder itself).
- e) Sales Tax and Income Tax Clearance Certificates, if applicable.
- f) Catalogue including photograph of the specific equipment offered.
- g) List of clients to whom same or similar type of item has/have been supplied during the last 5(five) years along with satisfactory installation & performance certificate.

h) Details of service facilities available directly with the Bidder in Kolkata related to all types of support, including installation, maintenance and training

i) Confirmation of availability of Spare Parts as and when required.

Technical documents must contain the following for each of the Item for which bidder is willing to quote:

- a. Name of Item
- b. Make and model no.
- c. Detailed Technical Specification
- d. Relevant Literature
- e. Specify whether the quoted model conforms the Technical specifications of Item(s) as mentioned in our Bid Document.
- f. Comprehensive on-site Warranty for at least one year or as specified.
- g. If the bidder is not the maker of the item, Proper Authorized Dealership certificate
- h. Bidder's relevant credentials.
- i. Supplementary information if any may be submitted under separate cover before the last date of submission of the tender.
- j. Proof of EMD Deposit, if any.

Checklist of ANNEXURE-II for other document may be consulted.

5. OPENING OF TENDER:

- Last date of submission of the Bids is 1st September, **2018 up to 14.00Hours**
- Technical Bids will be opened on 3rd September, **2018 at 15.30 Hours**. at the office of Jalpaiguri Government Engineering College, Jalpaiguri, West Bengal, in presence of the intending bidders / their authorized representatives, if any.
- If for any administrative reason the date of opening of the tenders be a declared a holiday, the tender will be opened on the next working day at the same time and place.
- If the tender could not be opened on the date of opening due to any unavoidable circumstances, the next date of opening of tender may be known from the college website.

6. EVALUATION OF TENDER

- i) The purchaser will evaluate and compare the quotations determined to be satisfactorily responsive based on:
 - a) The Bids are properly signed (i.e., signed on all pages and duly stamped)
 - b) the bids which conform to the Laid Down terms and conditions as mentioned in the tender document,
 - c) The bids which are found technically suitable according to the technical specifications of the purchaser,
 - d) Supporting documents submitted along with the bids as required in item no. 5 above under heading "SUPPORTING DOCUMENTS" are LEGIBLE.
- ii) The quotations would be evaluated separately for each item.
- iii) The Purchaser shall be under no obligation to accept the lowest quotation. Further the college reserves the right to reject all or any of the tenders without assigning any reasons, if any discrepancy is found in the bid.

7. DELIVERY:

Free delivery of the consignment is to be made at the premises of Jalpaiguri Government Engineering College, Jalpaiguri, West Bengal, 735102 within the stipulated date to be mentioned in the purchase order and the same has to be tested /commissioned / installed immediately. Part delivery will not be entertained.

8. PRICE:

The prices of the items may have separate Price Components and Taxes & Duties Components (Tax & Duties Components which are required to be borne and paid by the Purchaser). The price component should be the basic price of the item including cost of packing, installation, commissioning, training to personnel etc., if any.

However, the quoted prices should be inclusive of all and to be written both in figures and words. Correction if any shall be made by crossing and sign with date and re-writing. In case of conflict between the figures & words latter will prevail. The price quoted by the Bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account. Each Bidder shall submit one item per one quotation only. Conditional Discounts in the Price offered by the Bidder will not be entertained. The prices shall be quoted in Indian rupees only for stores of Indian origin. Price preference as per existing government rules shall be given to eligible bidders.

QUOTED PRICE SHOULD BE ON THE BASIS OF UNIT PRICE(Nos./ Sets/ Users whichever is applicable as per annexed BOQs). Quoted Price should be item-wise and it will be evaluated on item-wise (like CE-1 or ME-3 etc.)

(a) The college will provide DSIR Certificate for availing concessional Duties (if required), after observing the necessary formalities.

(b) The college will also provide WAY BILL in Form 50 of the West Bengal Value Added TAX Rules, 2005 (if required) after observing the necessary formalities by the suppliers.

9. ACCEPTANCE OF MATERIAL/INSPECTION/QUALITY ASSURANCE:

After issuance of purchase order in favour of successful bidder, the latter has to make necessary arrangement for inspection and testing of the consignment by the tender inviting authority, i.e. Principal, Jalpaiguri Government Engineering College, Jalpaiguri, West Bengal, or his representative, if he deems fit. In such case, the Principal, Jalpaiguri Government Engineering College may accept only tested cleared consignment.

10. SECURITY MONEY FORE-TENDER:

For each BOQ, 10,000/- (Ten Thousand Rupee only) security money deposit for e-Tender security purpose in favour of “Principal, Jalpaiguri Government Engineering College, Jalpaiguri, West Bengal,” to be remitted electronically through the above mentioned portal, salient features of which are given in **Annexure I. Note:**

Traditional process of deposit of SECURITY MONEY through offline instruments like Bank Draft, Pay Order etc. has been stopped for e-tender procurement of this Institute wef. 01.09.2016. Necessary SECURITY MONEY will be deposited by the bidder electronically: online – through his net banking enabled bank account, maintained at any bank or: offline – through any bank by generating NEFT/ RTGS challan from the e-tendering portal. Intending Bidder will get the Beneficiary details from e-tender portal with the help of Digital Signature Certificate and may transfer the SECURITY MONEY from their respective Bank as per the Beneficiary Name & Account No., Amount, Beneficiary Bank name (ICICI Bank) & IFSC Code and e-Proc Ref No. Intending bidder who wants to transfer SECURITY MONEY through NEFT/RTGS must read the instruction of the Challan generated from E-Procurement site. Bidders are also advised to submit SECURITY MONEY of their bid, at least 5 working days before the bid submission closing date as it requires time for processing of Payment of SECURITY MONEY.

11. PAYMENT/ PERFORMANCE SECURITY:

i) Payment shall be made to the supplier after the processing of the Bill through e-clearance as per existing norm of State Government after the receipt of the ordered item(s) in full and in good condition at the premises of the Purchaser and issue of satisfactory performance certificate by the USER. For AMC : AMC charges for 12 months shall be paid against the submission of invoices within 60 days after receipt of invoices.

ii) **Along with the Bill, Bidder has to submit a performance security of 5% of the Billing Amount which will be retained during the period of warranty as performance guarantee.**

12. GUARANTEE /WARRANTY:

The warranty shall be comprehensive and for a period of **01 (ONE) YEAR or mentioned in the item descriptions from the date of satisfactory installation and commissioning of the item at the premises of the Purchaser.** In case the bidder shall remain responsible without cost to buyer for all defects in materials / spares and workmanship which may develop in

normal use and which have been called to the attention of the successful bidder prior to expiry of guarantee period, it will be the responsibility of the bidder to take up the matter with their respective manufacturers for fulfillment of the guarantee / warranty provisions. Duly filled in Warrantee/Guarantee card shall have to be supplied in cases of supply of all items. In case of failure on the part of the bidder to remedy the defects / replace the materials within reasonable period (30 days) in spite of due intimation by the Principal, Jalpaiguri Government Engineering College, Jalpaiguri, West Bengal, the purchaser reserves the right to remedy the defects / replace the materials at the cost and responsibility of the bidder without further notice and the same shall be deducted from his security deposit. In addition normal warranty as provided by the original equipment manufacturer for replaced parts has to be extended to the purchaser.

13. LIQUIDATED DAMAGES:

Liquidated Damages shall be levied in case of delay in the delivery of goods or completion of Works and shall be levied at the rate of 2% per month of delay or part thereof. Liquidated Damages will be subject to a ceiling of 10% of the contract price and shall be levied by way of Pre-estimated damages and not by way of penalty.

14. INSURANCE:

The Goods under supply must be fully insured against any loss or damages during transit or storage or during commissioning or installation.

15. FORCE MAJEURE:

There could be circumstances/events where the supplier/contractor may not be in a position in spite of his best efforts, to meet the delivery/ completion schedule due to events beyond their control and not foreseeable such as wars, riots, fires, floods, epidemics, other natural calamities, quarantine restrictions and freight embargo etc. In such cases suitable delivery extensions based on merit of the case may be granted for arranging the delivery of goods or completion of works on the basis of written application by the supplier / contractor at the discretion of the college authority. Also the supplier shall not be made liable for forfeiture of performance security, liquidated damages or termination of contract as per provisions made in the contract elsewhere due to reasons for delay mentioned above.

16. PATENT RIGHTS:

The supplier/contractor should have proper and valid license / right to the use of and/ or supply the product/ services for their design, material or manufacturing and its patent, trademark or industrial design rights in the purchaser's country. The supplier/contractor should safeguard the interest of the purchaser from any third party claim towards the infringement of it and indemnify the purchaser.

17. LAWS GOVERNING THE CONTRACT:

- i) The contract shall be governed by the laws of the Union of India in force.
- ii) All disputes are subject to jurisdiction of courts of law situated at Jalpaiguri only.

18. ARBITRATION:

In the event of any question, dispute or difference arising under the conditions of Contract, or any special conditions of contract, or in connection with the contract (except as to any matters the decision of which is specially provided for by these or the special conditions) the same shall be referred to the sole arbitration of an officer as per prevailing norms of Govt. of West Bengal.

19. FRAUD AND CORRUPTION:

The Bidders, Suppliers, Contractors and their Subcontractors and Consultants in the contracts require to observe the highest standard of ethics during the procurement and execution of this contract by not being engaged in Corrupt, fraudulent, collusive, coercive or obstructive practice as generally defined. Non-Compliance

of the above will lead to rejection of proposal for award/declaring a firm or individual ineligible even for future bidding.

20. AWARD OF CONTRACT:

The purchaser shall award the contract, within the validity period of tenders, to the bidder who meets the tender conditions in all aspects, has the necessary technical and production capabilities and financial resources and whose bid is substantially responsive to the tender conditions and has offered the lowest evaluated cost offered by the technically accepted bidders. The terms of the accepted offer shall be incorporated in the purchase order.

21. INCIDENTAL SERVICES:

The supplier shall be required to provide any or all of the following services, including additional services, if any, free of cost:

- (a) Performance or supervision of the on-site assembly and /or start-up of the supplied Goods.
- (b) Furnishing of tools required for assembly and/or maintenance of the supplied Goods.
- (c) Furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods.
- (d) Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this Contract.
- (e) Training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance and/or repair of the supplied Goods/software.

22. SPECIAL ATTENTION:

All bidders are to note that tenders containing any deviation from the terms and conditions, specifications and other requirements are liable to be rejected. The bidder who do not meet the appropriate standard of capability and financial resources, may not be considered. The tender inviting authority reserves all rights to reject any or all the tenders without assigning any reason and also split up the supply if necessary and to accept the tender in whole or part.

Invitation of the tender shall under no circumstances create any right, legal or otherwise in favour of the bidder in case the tender is closed, withdrawn or cancelled before issuance of purchase order nor shall the inviting authority be liable to explain the reason of such closure, withdrawal or cancellation of the tender.

While tenders are under consideration, bidders and their representatives or other interested parties shall refrain from contacting by any means any persons or representatives of the purchaser, i.e., Jalpaiguri Government Engineering College, Jalpaiguri, West Bengal, on matters relating to the tender under study. The purchaser if necessary may request for clarification of tender in writing. After the public opening of the tenders, information relating to examination, clarification and evaluation of tenders and recommendations concerning awards shall not be disclosed to bidders or other persons not officially concerned with this process until the successful bidder is notified of the award of the contract.

23. Important Dates:-

- 01. Date of Publishing of N.I.T. & Tender documents(online): 14.08.2018, 12:00 Hours.**
- 02. Starting of Documents download(online): 14.08.2018 from 12:00 Hours.**
- 03. Bid Submission starting (online): 14.08.2018 from 12:00 Hours.**
- 04. Last date of Documents download and submission of bid (on line): 01.09.2018,14:00 Hours.**
- 05. Date of Technical Bid opening : 03.09.2018,15:30 Hours.**
- 06. Date of uploading list for Technically qualified Bidder (online) : To be notified later**

- 07. Date of opening of Financial Proposal(online) :To be notified later**
- 08. Date of uploading of list of bidders along with the approved rate :To be notified later**
- 24. Agreement: For AMC successful bidder(s) have to sign a Contract Form provided incorporating all agreements between the bidder(s) and Purchaser.**
- 25. For AMC of Computers/ Laptop one on site Engineer has to be posted in college.**
- 26. For Repairing & Maintenance Bidder(s) have to visit the departments or sections to asses the Conditions / States/ positions for appropriate bidding.**

1. Login bybidder:

Annexure I

Government of West Bengal ON-line e-payment by Bidder

- a) A bidder desirous of taking part in a tender invited by a State Government Office/PSU/ Autonomous Body/Local Body/ PRIs, etc shall login to the e-Procurement portal of the Government of West Bengal (<https://wbtenders.gov.in>) using his login ID and password.
- b) He will select the tender to bid and initiate payment of pre-defined EMD / Tender Fees for that tender by selecting from either of the following payments modes:
- i) Net banking (any of the banks listed in the ICICI Bank Payment gateway) in case of payment through ICICI Bank Payment Gateway;
 - ii) RTGS/NEFT in case of offline payment through bank account in any Bank.

2. Payment procedure:

- a) Payment by Net-banking (any listed bank) through ICICI Bank Payment Gateway:
- i) On selection of net banking as the payment mode, the bidder will be directed to ICICI Bank Payment Gateway webpage (along with a string containing a Unique ID) where he will select the Bank through which he wants to do the transaction.
 - ii) Bidder will make the payment after entering his Unique ID and password of the bank to process the transaction.
 - iii) Bidder will receive a confirmation message regarding success/failure of the transaction.
 - iv) If the transaction is successful, the amount paid by the bidder will get credited in the respective Pooling account of the State Government /PSU/Autonomous Body/local Body/PRIs, etc maintained with the Focal Point Branch of ICICI Bank at R .N. Mukherjee Road, Kolkata for collection of EMD/Tender Fees.
 - v) If the transaction is failure, the bidder will again try for payment by going back to the first step.
- b) Payment through RTGS/NEFT:
- i) On selection of RTGS/NEFT as the payment mode, the e-Procurement portal will show a pre- filled challan having the details to process RTGS/NEFT transaction.
 - ii) The bidder will print the challan and use the pre-filled information to make RTGS/NEFT payment using his Bank account.

Once payment is made, the bidder will come back to the e-Procurement portal after expiry of a reasonable time to enable the NEFT/RTGS process to complete, in order to verify the payment made and continue the bidding process.

- iii) If verification is successful, the fund will get credited to the respective Pooling account of the State Government /PSU/ Autonomous Body/Local Body/PRIs, etc maintained with the Focal Point Branch of ICICI Bank at R.N. Mukherjee Road, Kolkata for collection of EMD/Tender Fees.
- iv) Hereafter, the bidder will go to e-Procurement portal for submission of his bid.
- v) But if the payment verification is unsuccessful, the amount will be returned to the bidder's account.

3. Refund / Settlement Process:

- i) After opening of the bids and technical evaluation of the same by the tender inviting authority through electronic processing in the e-Procurement portal of the State Government, the tender inviting authority will declare the status of the bids as successful or unsuccessful which will be made available, along with the details of the unsuccessful bidders, to ICICI Bank by the e-Procurement portal through web services.
- ii) On receipt of the information from the e-Procurement portal, the Bank will refund, through an automated process, the EMD of the bidders disqualified at the technical evaluation to the respective bidders' bank accounts from which they made the payment transaction. Such refund will take place within T+2 Bank Working Days where T will mean the date on which information on rejection of bid is uploaded to the e-Procurement portal by the tender inviting authority.
- iii) Once the financial bid evaluation is electronically processed in the e-Procurement portal, EMD of the technically qualified bidders other than that of the L1 and L2 bidders will be refunded, through an automated process, to the respective bidders' bank accounts from which they made the payment transaction. Such refund will take place within T+2 Bank Working Days where T will mean the date on which information on rejection of financial bid is uploaded to the e-Procurement portal by the tender inviting authority. However, the L2 bidder should not be rejected till the LOI process is successful.
- iv) If the L1 bidder accepts the LOI and the same is processed electronically in the e-Procurement portal, EMD of the L2 bidder will be refunded through an automated process, to his bank account from which he made the payment transaction. Such refund will take place within T+2 Bank Working Days where T will mean the date on which information on Award of Contract (AOC) to the L1 bidder is uploaded to the e-Procurement portal by the tender inviting authority.
- v) As soon as the L1 bidder is awarded the contract (AOC) and the same is processed electronically in the e-Procurement portal–
 - a) EMD of the L1 bidder for tender of State Government offices will automatically get transferred from the pooling account to the State Government deposit head 1/8443-0 -103-001- 07" through GRIPS along with the bank particulars of the L1 bidder.
 - b) EMD of the L1 bidder for tenders of the State PSUs/Autonomous Bodies/Local Bodies/PRIs, etc will automatically get transferred from the pooling account to their respective inked bank accounts along with the bank particulars of the L1 bidder. In both the above cases, such transfer will take place within T+1 Bank Working Days where T will mean the date on which the Award of Contract (AOC) is issued.
- vi) The Bank will share the details of the GRN No. generated on successful entry in GRIPS with the E-Procurement portal for updation.
- vii) Once the EMD of the L1 bidder is transferred in the manner mentioned above, Tender fees, if any, deposited by the bidders will be transferred electronically from the pooling account to the for Government tenders and to the respective linked bank accounts for State PSU/Autonomous Body/Local Body/PRIs, etc tenders.
- viii) All refunds will be made mandatorily to the bank A/c from which the payment of EMD & Tender Fees (if any) were initiated.

ANNEXURE-II

CHECK LIST

| Sl. No. | Description of Criteria | COMPLIANCE: (Yes/No) |
|---------|---|-------------------------|
| 1. | Whether signed in all pages | |
| 2. | Whether name of Manufacturer is mentioned for each of quoted items | |
| 3. | Whether bidder is a Manufacturer/Authorized Agent for each of quoted items. | |
| 4. | Whether Proof of Manufacturer is enclosed for each of quoted items. | |
| 5. | Whether Model No is mentioned for each of quoted items. | |
| 6. | Whether the printed original Literature is enclosed for each of quoted items. | |
| 7. | Whether Bid validity is mentioned. | |
| 8. | Whether Delivery Period is mentioned. | |
| 9. | Whether agreed to purchaser's Mode of payment. | |
| 10. | Whether FOR, JGEC | |
| 11. | Whether inclusive of all taxes. | |
| 12. | Whether inclusive of Installation, P & F Charges. Installation Certificate has to be provided along with Bill. If applicable, calibration certificate has to be provided with the equipments. | |
| 13. | Whether Credentials are enclosed. Credentials are to be in the form of Challan, Purchase order copy and certificate from buyer. | |
| 14. | Whether valid Letter of Authorization for authorized agent/ distributorship from manufacturer for each of quoted items is attached. | |
| 15. | Whether Warranty is given for the specified period. If order is given, Warranty Certificate has to be delivered with the Bill. | |
| 16. | Whether warranty is given by manufacturer for each of quoted items. | |
| 17. | Whether recent ST/VAT clearance Certificate is enclosed. | |
| 18. | Whether recent Professional Tax Clearance Certificate is attached. | |
| 19. | Whether copy of Trade License is attached. | |
| 20. | Whether Certificate of manufacturer in the form of ISO9001 and/or Excise Registration is attached. | |
| 21. | Whether recent IT Clearance Certificate/ recent IT Return is attached. | |
| 22. | Whether details of nearest Service Center and its address is enclosed (to be mentioned for each item) | |
| 23. | Whether Format of Quotation is as per the format given above | |
| 24. | Proof of EMD Deposit, if any. | |

Signature of the Supplier

Date: _____

NB: Due to Incomplete Checklist and discrepancies between check list and submitted document, the bid will be declared cancelled without further proceedings.

Signature Not Verified

Digitally signed by

Location: WestBengal

JGEC/SG/2018-19/ 01/CE Dated: 14.08.2018

Details
of
Procurement of Goods
for
Civil Engineering Department

Item description in JGEC Etender 2018 Goods CE
and
corresponding
BOQ is JGEC BOQ 2018 CE Dated: 14.08.2018

| Sr. No. | Item Descriptions | Item Code | Quantity | Unit |
|---------|--|-----------|----------|------|
| 1 | Triaxial Test set up [including Triaxial cell and Load frame for testing of 38 mm (dia) x 76 mm (length) and 100 mm (dia) x 200 mm (length) soil samples] with digital data acquisition system. The system should be equipped with all necessary accessories, such as rubber membrane, porous stones etc. for both types of soil-specimen and should be according to IS: 2720-12 and compatible with ASTM D7181-11. | CE-1 | 1.0000 | Sets |
| 2 | Le Chatelier Flask for specific gravity test of cement: All features should be as per IS: 4031(part-11); Class A accuracy including calibration certificate. Made of borosilicate glass having good thermal resistance, chemical resistance and mechanical strength; Capacity of bulk 250ml approx. | CE-2 | 6.0000 | Nos |
| 3 | Blaine air permeability apparatus to determine fineness of cement: All features should be as per IS 5516 and IS: 4031(part-2); Complete with all accessories including calibration certificate, installation and operating / instructional manual. Permeability Cell: Made of brass; Perforated Disc: Made of brass ;Plunger: Made of brass; Manometer: Made of borosilicate glass tube; mounted firmly with arms vertical on the steel manometer stand. Manometer liquid ; 250ml dibutylphthalate liquid. | CE-3 | 1.0000 | Nos |
| 4 | Pensky-Martens (Open & Closed) (Determination of Flash and Fire point of bituminous materials): All features should be as per IS:1209. The Pensky-Martens (Close type) apparatus should consist of the followings with proper dimension and requirements as per Indian standard: A cup with proper dimension; A lid including 1) stirring device, 2) cover proper, 3) shutter, and 4) flame-exposure device; A stove having 1) an air bath, and 2) a top plate on which the flange of the cup rest; A thermometer with proper requirements as per code; A proper clip for Pensky-Martens open type(which will replace the cup); Electrically Operated Apparatus (220-240 V, 50/60 Hz single phase); Complete with all accessories including installation and operating / instructional manual. | CE-4 | 2.0000 | Sets |
| 5 | Viscometer (Determination of Absolute Viscosity): All features should be as per IS:1206 • Complete with all accessories including installation and operating / instructional manual | CE-5 | 1.0000 | Sets |
| 6 | Viscometer (Determination of Kinematic Viscosity): All features should be as per IS:1206 • Complete with all accessories including installation and operating / instructional manual | CE-6 | 1.0000 | Sets |
| 7 | Ring and Ball Apparatus (Softening point test for bitumen): All features should be as per IS:1205; Two steel balls; each 9.5 mm in dia. And weighing (3.5±0.05) g; Two brass rings: shall be tapered and having the following dimensions: Depth: (6.4±0.1) mm; Inside dia. At bottom: (15.9±0.1)mm; Inside dia. At top: (17.5±0.1) mm and Outside dia.: (20.6±0.1) mm; The ball centering guides and the ring holders are as per IS:1205; Bath: a heat resistance borosilicate glass vessel not less than 85 mm in dia. and 120 mm in depth; Electrically Operated Apparatus (220-240 V, 50/60 Hz single phase); Complete with all accessories including installation and operating / instructional manual | CE-7 | 1.0000 | Sets |
| 8 | Electronic Digital Balance(Type-1):Electronic digital balance with all accessories; <i>Capacity</i> : Not less than 1000 gm; <i>Readability</i> : 0.001 gm; <i>Pan Size (cm)</i> : Not less than 25cm diameter; <i>Repeatability</i> : 0.001 gm; <i>Calibration Weight</i> : 1000 gm including calibration certificate.. | CE-8 | 1.0000 | Sets |

| | | | | |
|----|---|-------|---------|------|
| 9 | Electronic Digital Balance(Type-2): Electronic digital balance with all accessories. Capacity: Not less than 5000gm.; Readability:0.01gm.; Repeatability: 0.01gm.Pan Size (cm): Not less than 25cm diameter; Calibration Weight: 5000 gm including calibration certificate. | CE-9 | 1.0000 | Sets |
| 10 | Standard penetration test accessories: As per IS 2131, IS 9640 (i) Drive pipe assembly with two end caps to give a fall of 75 cm-One No. (ii) Drill rod 1.5 meters long - 10 Nos. and drill rod 1 meter long - 10 Nos including connection couplers/adaptors. The hollow drill rods [SPT Rods] shall have stiffness equal to A-rod outer diameter 41.3mm to 42.5mm and internal diameter (29.0±0.1)mm. | CE-10 | 1.0000 | Sets |
| 11 | Muffle furnace: Size: 6'x6'x12';Maximum Temperature-1400°C [Min.]; Heating Element- Silicon Carbide (SiC);Temperature Accuracy: ±1°C; PID Controller; LED Display; Ceramic wool insulation;Power supply: 220/240V 50/60HZ AC single phase; Complete with all accessories including installation and operating / instructional manual | CE-11 | 1.0000 | Sets |
| 12 | Humidity Chamber: Size: Min. 200 liters; Temp range from 10° C to 60° C controlled by dual display microprocessor based digital temperature controller with +/- 0.5° accuracy; Humidity range from atmospheric humidity to 95 % controlled by dual display Microprocessor based digital temperature Controller with ± 3 % RH; Automatic electronic controller with digital display of Temperature and Humidity; Inner water tank made of stainless steel with ball cock valve; Front door has a full view glass observation window; Complete with all accessories including installation and operating / instructional manual | CE-12 | 1.0000 | Sets |
| 13 | 200mm diameter I. S. Sieves [Type-I]: 200 mm diameter I. S. Sieves made of brass frame with brass wire mesh of apertures: 8mm, 4mm, 3.35mm, 2.8 mm, 2mm, 1.7mm and 1mm | CE-13 | 1.0000 | Nos |
| 14 | 200mm diameter I. S. Sieves[Type-II]: 200 mm diameter I. S. Sieves made of brass frame & Brass wire mesh of apertures 850 micron, 710 micron, 500micron, 355 micron, 300 micron, 210 micron, 180 micron, 150 micron, 90 micron, and 75 micron | CE-14 | 1.0000 | Nos |
| 15 | 300mm diameter I. S. Sieves: 300mm diameter IS sieves made of G. I. frame with square Apertures:150mm, 125mm, 90mm, 80mm, 75mm, 63mm, 53mm, 45mm, and 37.5mm | CE-15 | 1.0000 | Nos |
| 16 | Cube Mould 50 sq. cm face area (70.6mm cube) for Cement mortar cubes: Cube Mould 50 sq. cm face area (70.6mm cube) for Cement mortar cubes: Cube Mould 50 sq. cm face area (70.6mm cube) for Cement mortar cubes made of steel as per IS 516 and IS:10080 with all accessories. Internal size: 70.6mm x70.6 mm x70.6mm the tolerance faces is maintained between at +0.15 or- 0.1mm. The angle between adjacent internal faces and between internal faces and top and bottom planes shall be (90 ±0.5) degree. The interior faces of the mould shall be plane surfaces with a permissible variation of 0.03 mm. Parts (wall plates) of the mould and the base plate when assembled shall be positively and rigidly held together and leakage free. Parts (wall plates) of the mould and the base plate shall be stout enough to prevent distortions. Thickness of wall plates and base plates not less than 10mm. | CE-16 | 12.0000 | Nos |

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|----|--|-------|---------|-------|
| 17 | Cube Mould 150mm for Cement concrete cubes: Cube Mould 150mm for Cement concrete cubes made of steel as per IS 516 and IS: 10080 with all accessories. Internal size: 150mm x150mm x150mm, tolerance ± 0.2 mm. The angle between adjacent internal faces and between internal faces and top and bottom planes shall be (90 ± 0.5) degree. The interior faces of the mould shall be plane surfaces with a permissible variation of 0.03 mm. Parts (wall plates) of the mould and the base plate when assembled shall be positively and rigidly held together and leakage free. Parts (wall plates) of the mould and the base plate shall be stout enough to prevent distortions. Thickness of wall plates and base plates not less than 10 mm | CE-17 | 12.0000 | Nos |
| 18 | Thermometer: Temperature range: 0° to 250 °C. As per relevant IS Code of Practice. Made of borosilicate glass having good thermal resistance, chemical resistance and mechanical strength; Class A accuracy as per appropriate I.S. Code | CE-18 | 6.0000 | Nos |
| 19 | Academic Select subscription Campus Program includes Staad pro, Staad foundation advance MXRoad, Water GEMS, Sewer GEMS, Hammer, Microstation for 5 years with 2 days of training at institute by Bentley | CE-19 | 20.0000 | Users |
| 20 | Beam Mould for Cement concrete beams (150mm x150 mm x700 mm): Beam Mould for Cement concrete beams made of steel as per IS 516 and IS: 10080 with all accessories. Cross-section Internal size: (150 ± 0.2) mm x (150 ± 0.2) mm. Length: 700mm The angle between adjacent internal faces and between internal faces and top and bottom planes shall be (90 ± 0.50) degree. The interior faces of the mould shall be plane surfaces with a permissible variation of 0.02 mm in 150 mm and 0.1mm overall. Each mould shall be provided with a base plate and two loose top plates of 40mm x 6 mm cross section and 50mm longer than the width of the mould. The base plate and top plates shall have plane surfaces with a permissible variation of 0.05 mm. Parts (wall plates) of the mould and the base plate when assembled shall be positively and rigidly held together and leakage free. Parts (wall plates) of the mould and the base plate shall be stout enough to prevent distortions/spreading/warping. Thickness of base plates not less than 15mm. Thickness of wall plates not less than 15mm or (not less than 12mm and reinforced suitably by diagonal ribs on outside faces) | CE-20 | 3.0000 | Nos |
| 21 | Le Chatelier Aparatus for Soundness Testing of Cement: All features should be as per IS: 269 & 4031 Mould :: 21 (P-IX) It should consists of a small split cylinder made of spring brass of 0.5mm thickness forming a mould 30mm internal diameter and 30mm high; split being 0.5mm maximum. On either side of the split cylinder, two parallel indicating arms with pointed ends are attached and the distance from the pointed ends to the centre of the cylinder being 165mm Supplied complete with two glass plates and lead weight (100 ± 10) gms. | CE-21 | 1.0000 | Nos |

| 22 | <p>Vicat Apparatus: All features should be as per IS 5513: 1996 and IS: 4031</p> <p>Frame: Made of Cast iron with smooth surface and with a hydraulic dash pot arrangement for a jerk free lowering of the needle on the test specimen</p> <p>Movable rod with cap: Made of Brass with smooth surface</p> <p>Vicat Mould: Made of brass; An internal diameter of 70 ± 5 mm at the top, 80 ± 5 mm at the bottom and a height 40 ± 0.2 mm. A minimum wall thickness of 4 mm. A plate of glass of at least 2.5 mm thickness</p> <p>Plunger: Polished brass dia. -10 ± 0.05 mm with a projection at the fitting end for insertion in to the movable rod. The lower edge shall be flat. Length: 50 ± 1 mm.</p> <p>Initial setting time Needle: Circular initial setting time Needle of cross section 1 mm sq. x 50 mm long with necessary fitting end for insertion in to the movable rod.</p> <p>Final setting time Needle with brass collar at one end as per IS: 4031 and with necessary fitting end for insertion in to the movable rod.</p> | CE-22 | 2.0000 | Nos | | | | | | | | | | | | |
|--------------------|--|--------------------|--------|------|--------|-----|-------|-----|-------|-----|--------|-----|-------|-------|--------|-----|
| 23 | <p>Direct Shear (Motorised Twelve Speed)</p> <p>Standards: IS 2720 (PART XIII)</p> <p>Specification:</p> <p>The apparatus comprises of the following.</p> <p>Loading Unit:</p> <p>Supplied with load yoke with direct and lever system for applying load.</p> <p>Normal stress capacity 8 kg/sq. cm. Load is applied either directly or through a counter balanced detachable lever. Provision is made for the load to be applied either through a steel ball recessed in the loading pad or direct through a boss on the pre calibrated loading yoke. The loading unit is provided with V strips and roller strips for frictionless movement of shear box housing.</p> <p>Shear Box Assembly:</p> <p>Comprising direct shear box in two halves for a square specimen size 60 x 60 x 25mm one pair of plain gripper plates, One pair of perforated gripper plates, one pair of porous stones, one top of loading pad.</p> <p>Shear Box Housing:</p> <p>Accommodates the direct shear box assembly.</p> <p>Complete with two ball roller strips.</p> <p>Specimen cutter: for cutting 60 x 60 x 25 mm.</p> <p>Specimen form larger samples. Set of weights to give a normal stress of 3kg/sa.cm. Through larger as following :</p> <table data-bbox="261 1283 552 1470"> <thead> <tr> <th>To give kg/cm. sq.</th> <th>Qty.</th> </tr> </thead> <tbody> <tr> <td>0.05</td> <td>4 nos.</td> </tr> <tr> <td>0.1</td> <td>1 no.</td> </tr> <tr> <td>0.2</td> <td>1 no.</td> </tr> <tr> <td>0.5</td> <td>3 nos.</td> </tr> <tr> <td>1.0</td> <td>1 no.</td> </tr> </tbody> </table> <p>Complete set as above but without proving ring. Net weight 140 kg.</p> <p>Essential Accessories:</p> <p>High sensitivity compression proving ring. Cap 200kg. One consolidation dial gauge 0.01mm x 25mm and one strain dial gauge 0.01mm x 25mm</p> <p>Optional Extras:</p> <p>Additional set of weights to give a normal stress of 5 kg/cm². Soil sampler for 60mm x 60mm specimen and test forms pad of 50.</p> <p>Spares:</p> <p>Porous stone for 60mm x 60mm size sample available in pairs.</p> <p>Unit is electrically operated to give the following 12 rates or strains. 1.25, 0.625, 0.25, 0.125, 0.05, 0.025, 0.01, 0.005, 0.002, 0.001, 0.004 and 0.0002 mm/min. The apparatus is suitable for operation on 230 Volts Single Phase A.C. Supply.</p> | To give kg/cm. sq. | Qty. | 0.05 | 4 nos. | 0.1 | 1 no. | 0.2 | 1 no. | 0.5 | 3 nos. | 1.0 | 1 no. | CE-23 | 1.0000 | Nos |
| To give kg/cm. sq. | Qty. | | | | | | | | | | | | | | | |
| 0.05 | 4 nos. | | | | | | | | | | | | | | | |
| 0.1 | 1 no. | | | | | | | | | | | | | | | |
| 0.2 | 1 no. | | | | | | | | | | | | | | | |
| 0.5 | 3 nos. | | | | | | | | | | | | | | | |
| 1.0 | 1 no. | | | | | | | | | | | | | | | |

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|----|---|-------|--------|-----|
| 24 | <p>Marshall Stability Test Apparatus Standards: ASTM: D 1559 T- 62. BS 598-107 Specification: Marshall Apparatus, with digital data aquisition system, Consists Of:</p> <ul style="list-style-type: none"> • Robust construction • 50KN capacity • Rate of travel 50.8mm/min • Safety cut-off switch <p>It consists of body housing, a geared screw jack and motor drive mechanism suitable for operation on 230 V, 50Hz, Single Phase, A.C. supply. A : MARSHALL LOAD FRAME 1 No. B : Breaking Head Stability Mould, with a dial gauge (having 25mm travel and 0.01mm least count), for flow measurement 1 No. C : Compaction Mould, Steel cylindrical 3 Nos. D : Base Plate 3 Nos. E : Extension Collar 3 Nos. F : Compaction Pedestal, Manual Operation, Comprising a steel plate capped on a wooden post. A Mould Clamp is fitted to the top of the plate .1 No. G : Compaction Hammer, satisfies BS 598. The hammer has a 4535 g sliding weight with a free fall of 457 mm 2 Nos. H : Load Transfer Bar 1 No. I : Paper Discs, Non absorbent, 11 cm diameter pack of 100 No. 1 Pkt.</p> | CE-24 | 1.0000 | Nos |
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JGEC/SG/2018-19/ 01/ME Dated: 14.08.2018

Details
of
Procurement of Goods
for
Mechanical Engineering Department

Item description in JGEC Etender 2018 Goods ME
and
corresponding
BOQ is JGEC BOQ 2018 ME Dated: 14.08.2018

| Sr. No. | Item Descriptions | Item Code | Quantity | Unit |
|---------|--|-----------|----------|------|
| 1 | Infrared Thermometer 1) Measurement Range: -50-380 Degree, 2) Celcius Temperature Range upto 380 C,3)Emissivity: 0.95 (fixed), Display Resolution: 0.1°C, Distance To Spot Size: Ratio:- 12:1, 4)Auto power off & Data hold Laser on/off selectable Backlight on/off selectable. | ME-1 | 2.000 | Nos |
| 2 | Lathe Tool Dynamometer Model:UIL-15,Capacity:500 Kg in X,Y & Z direction, Tool Size:20 mm square, Dynamometer Mounting hole:25 mm dia Hole to mount sensor on tool post., Sensor Type: Strain guage based 350Ω bridge,Connection:9 pin D connector with shielded cable.3 meter length, Housing: Metal Enclosure with chrom plating.,Display:3 independent for X,Y & Z force.3½ digit LED display.,Power:230V 50 Hz, Enclosure: Powder coated metal box 400(L)x300(W)x100(H), Accessories:20mm HSS tool bit- 1 No. | ME-2 | 1.000 | Nos |
| 3 | Surface Roughness tester Display : 4 digits, 10 mm LCD, with blue backlight Parameters: Ra, Rz, Rq, Rt Measuring Range Ra, Rq: 0.005-16.00um/0.020-629. 9uinch Rz, Rt: 0.020-160.0um/0.078-6299uinch Accuracy: Not more than 10% Fluctuation of display value: Not more than 6% Sensor : Test Principle: Inductance type Radius of Probe Pin: 5µm Material of Probe Pin: Diamond Dynamo-measurement of Probe: 4mN(0.4gf) Probe Angle: 90° Vertical Radius of Guiding Head: 48mm Maximum driving stroke: 17.5mm/0.7inch Cutoff length (l): 0.25mm / 0.8mm / 2.5mm optional Evaluation length: 1-5L Driving speed: sampling length = 0.25mm Vt=0.135mm/s sampling length = 0.8mm Vt=0.5mm/s sampling length = 2.5mm Vt=1mm/s returning Vt=1mm/s Profile digital filter Filtered Profile: RC Filtered Profile: PC-RC Filtered Profile: Gauss Non-Filtered Profile: D-P Resolution : Evaluation length : 5 cut-off Power Li-ion battery: rechargeable Operating conditions: Temp.0~50°C Humidity. | ME-3 | 1.000 | Nos |
| 4 | Pressure gauge Vacuum manometer is a dial instrument with double scale_x000d_ its measurement range is 0~-30inhg or 0~-1bar_x000d_ broad applications - water, oil, air and more_x000d_ metal outer case, well protect the inner accessories_x000d_ mini size, convenient to carry_x000d_ material: stainless steel_x000d_ color: black_x000d_ size: approx. 5. 1x 4. 8cm/ 2. 01x 1. 89inch_x000d_ measurement range: 0~-30inhg / 0~-1bar_x000d_ _x000d_ package includes: _x000d_ _x000d_ 1x vacuum manometer_x000d_ _x000d_ note: _x000d_ _x000d_ due to the light and screen setting difference, the item's color may be slightly different from the pictures. Please allow slight dimension difference due to different manual measurement. | ME-4 | 5.000 | Nos |

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|----|--|-------|-------|-----|
| 5 | <p>LVDT Transducers (Linear Variable Differential Transformer) Sensitivity for nominal measuring range: 270 mV/V (bridge output per 1 V supply voltage), Supply voltage: 5 Vrms, Linearity error: 2% of the total range (related to the \pm range limits of the transducer), Carrier frequency: 3 to 5 kHz, Permissible environmental temperature: -20 to +120° C (-4 to 248° F), Temperature: Sensitivity 0.1% / K, Nominal inductance: solenoid plunger in middle position: 20 + 20 mH maximum displacement: 7 + 26 mH 50% displacement: 13 + 26 mH, Capacitance: 250 pF (each winding), Standard accessories: connector: cannon MS 3106E10SL-3S Solenoid plunger with M3 threaded rod.</p> | ME-5 | 1.000 | Nos |
| 6 | <p>U tube manometer Available sizes: In-wall mounted stand mounted, Ranges in mm: 50-0-50 to 1000-0-1000 mm WC/hg.</p> | ME-6 | 5.000 | Nos |
| 7 | <p>Sine bar Colour: Silver, silver, Included components: 1 piece sine Bar, Material: Iron, Model Number: 60101S, Size: 130x25x30mm</p> | ME-7 | 2.000 | Nos |
| 8 | Angle gauge | ME-8 | 2.000 | Nos |
| 9 | Thermocouple Temperature Sensor | ME-9 | 2.000 | Nos |
| 10 | Digital pitot tube apparatus | ME-10 | 1.000 | Nos |
| 11 | Digital universal bevel protractor | ME-11 | 1.000 | Nos |
| 12 | Digital height gauge | ME-12 | 1.000 | Nos |
| 13 | Slip gauge block | ME-13 | 2.000 | Nos |
| 14 | Profile Projector | ME-14 | 1.000 | Nos |
| 15 | Digital Outside Micrometer | ME-15 | 2.000 | Nos |
| 16 | Digital Gear Tooth Vernier Caliper | ME-16 | 1.000 | Nos |
| 17 | Digital Vernier caliper | ME-17 | 2.000 | Nos |
| 18 | <p>Hydraulic trainer kits 1) Hydraulic Power Pack - 1no.s The power pack should be of the external gear pump type with a single pump. The motor with the hydraulic power pack should be AC, single phase, 230 V, 0.65 W power rating, frequency 50 Hz, actuation should be manual via ON/OFF switch, the delivery rate at nominal speed should be 2.2 lpm at 1320 min⁻¹, operating pressure should be 6 Mpa (60 Bar), oil tank capacity should be minimum 5 liters, duty cycle should be 50%, weight should be around 20 kg (maximum). 2) Equipment trays - 2no.s The required no. of equipment trays to be supplied. The tray design should be such that the supplied components can be kept in the tray. Also the trays should have space for each individual components. 3) Pressure gauge - 2no.s The pressure gauge should be protected by a glycerin filling against pressure peaks, condensed water and the ingress of water during cleaning. Measurement range 0 – 10 MPa (0 – 100 bar) Accuracy 1.6 % of full-scale value Operating pressure, static 3/4 of full-scale value Operating pressure, dynamic 2/3 of full-scale value Actuation Hydraulic 4) Double-acting cylinder - 3no.s Double-acting cylinder should be with control cam and two barbed fittings. The cylinder should be compatible with a matching potentiometer: This potentiometer should be capable of being mounted on the cylinder with the help of a mounting kit. The mounting kit should also be included in the scope of supply. Piston diameter 16 mm Piston rod diameter 10 mm, with M8 thread Stroke 200 mm Operating</p> | ME-18 | 1.000 | Nos |

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|----|--|-------|-------|-----|
| | <p>pressure 6 MPa (60 bar) Max. Permissible pressure pmax 12 MPa (120 bar)</p> <p>5) Hydraulic motor - 1no.s Design Orbit Geometric displacement 8.2 cm³ Max. permissible pressure in return line Pr max 5 MPa (50 bar) Max. Rotary speed Nmax 1950 min⁻¹ Output shaft with spring Ø 16 x 28, A5 x 5 DIN 6885 Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12MPa (120 bar)</p> <p>6) 4/2-way hand lever valve - 3no.s Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12 MPa (120 bar) Actuation Manual</p> <p>7) 4/3-way hand lever valve with relieving mid-position - 3no.s Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12 MPa (120 bar) Actuation Manual</p> <p>8) 4/3-way hand lever valve with closed mid-position - 3no.s Operating pressure p 6MPa (60 bar) Max. permissible pressure pmax 12 MPa (120 bar) ActuationManual</p> <p>9) 4/3-way hand lever valve with recirculating mid-position - 3no.s Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12 MPa (120 bar) Actuation Manual</p> <p>10) Pressure sequence valve, pressure relief valve - 3no.s The valve should be capable of being used as a pressure relief valve if port T is connected to the tank and as a pressure sequence valve if port T is connected to another power component, such as a cylinder. Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12MPa (120 bar) Adjustment Manual Actuation Hydraulic</p> <p>11) 3-way pressure reducing valve - 2nos Operating pressure p6 MPa (60 bar) Max. Permissible pressure pmax 12MPa (120 bar) Adjustment Manual Actuation Hydraulic</p> <p>12) 2-way flow control valve - 2no.s Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12 MPa (120 bar) Adjustment Manual Actuation Hydraulic</p> <p>13) One-way flow control valve - 4no.s Nominal flow rate 9 l/min Opening pressure 70 kPa (0.7 bar) Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12 MPa (120 bar) Actuation Manual</p> <p>14) Non-return valves - 4no.s Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12 MPa (120 bar) Actuation Hydraulic Opening pressure of one valve 0.1 MPa (1bar) Opening pressure of other valve0.5 MPa (5 bar)</p> <p>15) Shut-off valve- 4no.s Shut-off valve should be with two ports. The valve should be capable of being inserted at any point to enable shutoff of flow. Operating pressure p 6 MPa (60 bar) Max. Permissible pressure pmax 12 MPa (120 bar) Actuation _Manual</p> <p>16) Weight - 1no.s The weight should be for loading of the cylinder and should simulate a driving or tractive load. The weight should be capable of being used vertically with a double-acting cylinder. A cover for safety should be included in the scope of supply. All the necessary accessories for using the weight with the cylinder should be supplied. Mass 9 kg Dimensions, L x W x H 150 x 100 x 80 mm</p> <p>17) 2/2 way plunger / stem actuated - 2no.s 2/2-way stem-actuated valve The valve should be capable of being operated on the hydraulic cylinder being supplied with the kit. The assembly set should also be included in the scope of supply. Operating pressure p 6MPa (60 bar) Max. Permissible pressure Pmax 12 MPa (120 bar) Actuation Mechanical</p> | | | |
| 19 | <p>Wind Tunnel Technical Specification Wind tunnel made out of teak wood and ply wood grade 710, consisting of bell mouth entry, Honey comb, Settle chamber with SS Screens (2 Nos) with provision to be made for cleaning the screens, contraction, test section, transition, diffuser, fan duct, fan assembly (consisting of hub, blades,</p> | ME-19 | 1.000 | Nos |

bearing, bearing housing, shaft and shaft coupling) Motor, Motor stand and M.S. Supports for installing the tunnel.

Test section:

450x450x1200mm long With acrylic windows on either side of the test section, top opening and provision to place the traverse/pitot static tube along the length of the test section. Provision for lighting the test section. A turn table at the bottom of the test section for mounting models. Contraction ratio: 9 Honey comb: 8 7.5Kw AC Motor and controller. Teak wood section 4"x1 1/4" for frames and for straight section. Plywood: 710 grade 30mm thick for curved section ie, for contraction, transition, diffuser and fan duct, 7 or 8mm ply for the both of the tunnel. 18mm plywood to be used for making test section and 18mm acrylic for windows.

AC Motor Controller

Variable frequency drive.

High performance V/F control with both closed & open loop control - State of the art 32bit DSP based drive. - Programmable Acceleration A declaration drive. - Speed control from 0T 400Hz - Two line 16 character LCD display which displays simultaneous RPM. Voltage & current - Display of power O/P in KVA and KW - RS485 serial interface - Feather touch keypad for varying motor RPM, Start & Stop, & Forward/Reverse. - Speed of the motor can be increased/decreased in steps of 1RPM. - Minimum starting speed of the motor is from 30RPM. - AC Motor: 3phase, 440volts, 50Hz, 4pole, 63Amps, 1450RPM, 7.5 KW.

Symmetric and Cambered aerofoil

NACA-662015 150mm chord length, 15% thick With 20 pressure ports.

Cylinder: 50mm dia with 20 pressure ports.And car model.

Smoke generator: consisting of smoke generator using liquid parofin and smoke rake to suit the above tunnel

2D Traverse: - Axis is X-Axis, Y-Axis. X-Axis along the flow.Y-Axis perpendicular to the tunnel

Each Axis

1. Range: 450mm nominated
2. Compact uses linear movement block (LM Block) for rigidity of the movement and ball-screw nut for manual as well as stepper motor controlled movement of the LM block
3. Diameter of the screw 15mm
4. Pitch of the screw 5mm
5. Linear scale fixed to the support gives 1mm readings.
6. Circular disc fixed to the shaft of the screw gives has 100 divisions on the circumference. This gives a movement 0.05mm/division.
7. A disc with a handle is provided for continuously rotating the screw for movement of the traverse when the movement is mechanical.

Projection Manometer:

The SMPM-001 is an instrument for measuring differential pressure, in the range of 0-300mm Water/Alcohol head. The above manometer is used for measurement of wind speeds in wind tunnel and ducts up to a speed range of 0 to nearly 60meter/sec. The projection manometer can also be used for measurement of differential air pressure in the range of 0psi to about 0.45psi. The projection manometer is an accurate instrument, easy to use and rugged. The accuracy of this instrument is 0.1mm height of the liquid used.

Inclined Multi tube Manometer: 30 tube x 400mm ht with centimeter scale at the back of the tubes.

Pitot Static Tube:Prandyl type

Static Tube:Prandyl type

Total Pressure Tube:Prandyl type

Wake rake: 30 ports

Boundary layer rake: 15 ports with surface plate

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| | 3 Component Balance strain gauge with amplifier to measure following, Lift- 10Kg. Drag- 3Kg Pitching Moment- 50Kg | | | |
| 20 | Temperature Measurement Bench' (containing at least five different instruments or tools to Measure Temperature by different methods) | ME-20 | 1.000 | Nos |
| 21 | Apparatus to determine Thermal Conductivity of Metal Rod (Table top good quality apparatus) | ME-21 | 1.000 | Nos |
| 22 | Apparatus to determine Stefan-Boltzmann Constant for radiation (Table top good quality apparatus) | ME-22 | 1.000 | Nos |
| 23 | Apparatus to determine Dryness Fraction of Steam by Calorimeter (Table top good quality apparatus) | ME-23 | 1.000 | Nos |
| 24 | Apparatus (Table top good quality apparatus) to determine Thermal Conductivity of Insulating Powder | ME-24 | 1.000 | Nos |
| 25 | Apparatus to Determine Heat Transfer through Composite Slab (Table top good quality apparatus) | ME-25 | 1.000 | Nos |
| 26 | Apparatus for experiment on Forced Convection Heat Transfer (Table top good quality apparatus) | ME-26 | 1.000 | Nos |
| 27 | Apparatus to Determine Heat Transfer through Lagged Pipe (Table top good quality apparatus) | ME-27 | 1.000 | Nos |
| 28 | Apparatus to Determine Emissivity of a non-Black Body (Table top good quality apparatus) | ME-28 | 1.000 | Nos |
| 29 | Apparatus for Dropwise and Filmwise Condensation (Table top good quality apparatus) | ME-29 | 1.000 | Nos |
| 30 | Apparatus to Study Transient Heat Conduction (Table top good quality apparatus) | ME-30 | 1.000 | Nos |
| 31 | Apparatus to determine Heat Transfer through Extended Surface based on Natural Convection and Radiation (Table top good quality apparatus) | ME-31 | 1.000 | Nos |
| 32 | Temperature Calibration Test Bench Apparatus (Table top good quality apparatus) | ME-32 | 1.000 | Nos |
| 33 | Apparatus to Determine Flash and Fire Point (Table top good quality apparatus) | ME-33 | 1.000 | Nos |
| 34 | Apparatus to Study Heat Pipe and its Demonstration (Table top good quality apparatus) | ME-34 | 1.000 | Nos |
| 35 | Apparatus to Determine Heat Capacity of Nano Fluids (Table top good quality apparatus) | ME-35 | 1.000 | Nos |
| 36 | Bomb Calorimeter Apparatus (Table top good quality apparatus) | ME-36 | 1.000 | Nos |
| 37 | Apparatus to determine Metacentric Height of a Floating Body (Table top good quality apparatus) | ME-37 | 1.000 | Nos |
| 38 | Apparatus (Table top good quality apparatus) to determine Coefficient of Discharge of an Orifice meter | ME-38 | 1.000 | Nos |
| 39 | Apparatus to determine Viscosities of Different Liquids (Table top good quality apparatus) | ME-39 | 1.000 | Nos |
| 40 | Apparatus to determine Loss Through Pipes during Flow (Table top good quality apparatus) | ME-40 | 1.000 | Nos |
| 41 | Apparatus to Flow Visualization : Study of Characteristics of laminar and Turbulent Flow | ME-41 | 1.000 | Nos |

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|----|--|-------|-------|-----|
| 42 | Complete set up of Reciprocating Pump for pump Characteristics Experiments | ME-42 | 1.000 | Nos |
| 43 | Cut Models of Different Valves (1 No of each Valve) | ME-43 | 1.000 | Nos |
| 44 | Rechargeable Ni-MH Battery(VIB 5.425) with Charger (VIB 5.420-INT) for VIBSCANNER (Make Pruftechnik) (1 No. Battery and 1 No. Charger) | ME-44 | 1.000 | Nos |
| 45 | Gas Turbine Test Rig | ME-45 | 1.000 | Nos |
| 46 | Actual Cut Section Model of Four Stroke Single Cylinder Diesel Engine | ME-46 | 1.000 | Nos |
| 47 | Actual Cut Section Model of Four Stroke Single Cylinder Petrol Engine | ME-47 | 1.000 | Nos |
| 48 | Actual Cut Section Model of Four Stroke Four Cylinder Diesel Engine | ME-48 | 1.000 | Nos |
| 49 | Actual Cut Section Model of Four Stroke Four Cylinder Petrol Engine | ME-49 | 1.000 | Nos |
| 50 | Actual Cut Section Model of Two Stroke Diesel Engine | ME-50 | 1.000 | Nos |
| 51 | Actual Cut Section Model of Two Stroke Petrol Engine | ME-51 | 1.000 | Nos |
| 52 | Cut Section Model of Chasis of Car | ME-52 | 1.000 | Nos |
| 53 | Working Model of Disc and Drum Brake Combined | ME-53 | 1.000 | Nos |
| 54 | Working Model of Power Brake | ME-54 | 1.000 | Nos |
| 55 | Working Model of Air Brake | ME-55 | 1.000 | Nos |
| 56 | Working Model of Clutch | ME-56 | 1.000 | Nos |
| 57 | Cut Section Model of Bike Gear Box | ME-57 | 1.000 | Nos |
| 58 | Model of Power Steering System | ME-58 | 1.000 | Nos |
| 59 | Model of Rear Axle Fully Floating Differential | ME-59 | 1.000 | Nos |
| 60 | Self Starter Model | ME-60 | 1.000 | Nos |
| 61 | Mechanical Dynamometer for 4 stroke, single cylinder VCR diesel Engine for 3.5 KW @1500 rpm, cylinder diameter 87.5 mm, stroke length 110 mm, compression ratio 12 - 18:1. The Dynamometer is to be connected to the Engine with necessary equipment. | ME-61 | 1.000 | Nos |
| 62 | Stoke's apparatus specification a) Digital Stokes viscosity apparatus b) time interval measuring clock. This is an IR (infrared) sensor based digital stop clock. Two sensor pairs are used; one of these is fixed on to the upper clamp holding the tube and second pair is fitted on to the lower clamp holding the tube. c) spheres of aluminium, acrylic, marble and Metallic ball. d) digital vernier e) and digital scale f) 5 liters of castor oil | ME-62 | 1.000 | Nos |

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|----|---|-------|-------|-----|
| 63 | <p>Apparatus for Bernoulli's Principle</p> <p>Background: The experimental unit should include a pipe section with a transparent Venturi nozzle and a movable pitot tube for measuring the total pressure. The pitot tube should be located within the Venturi nozzle, where it is displaced axially. The position of the pitot tube should be observed through the Venturi nozzle's transparent front panel. The Venturi nozzle should be equipped with pressure measuring points to determine static pressures. The pressures are displayed on the six tube manometers. The total pressure should be measured by the pitot tube and displayed on another single tube manometer, Energy conversion in divergent/convergent pipe flow, Recording the pressure curve in a Venturi nozzle, Recording the velocity curve in a Venturi nozzle, Determining the flow coefficient, Recognizing friction effects</p> <p>Specifications: learning Bernoulli's principle, Venturi nozzle with transparent front panel and measuring points for measuring the static pressures, Axially movable pitot tube for determining the total pressure at various points within the Venturi nozzle, 6 tube manometers for displaying the static pressures, Single tube manometer for displaying the total pressure, Flow rate determined by the base module.</p> | ME-63 | 1.000 | Nos |
| 64 | <p>Digital Tachometer</p> <p>Measurement & Range: Photo Tachometer : 5 to 99,999 RPM, Operating humidity : Less than 80% R.H,</p> <p>Contact Tachometer: 0.5 to 19,999 RPM, Memory: Last/Max./Min. Value, Battery: 4 x 1.5V AA (UM-3) batteries</p> <p>Surface Speed: m/min. - 0.05 to 1,999.9 m/min, Power Consumption: Approx. DC 10 mA, Contact Type: Dc 10mA,</p> <p>Resolution: RPM-0.1RPM (<1000RPM) 1 RPM(1000RPM), m/min: 0.01m/min. (<100m/min), 0.1m/min(100m/min), size: 195 x 61 x 38.5 mm, weight: 280g (0.61 LB), Display: 5 digits, 10mm(0.4") LCD, Accuracy: $\pm (0.05\% + 1 \text{ digit})$</p> | ME-64 | 2.000 | Nos |
| 65 | <p>CNC Mill Trainer Machine; 3 Axis, Axis Motor is Servo Motor with Servo Drives, X Axis 300 mm, Y Axis 225 mm, Z Axis 250 mm, Feed rate : 0 to 1,200 mm/min, Spindle Speed: 100 to 3000 RPM, Accuracy: 0.015 mm, Resolution 0.010 mm, Automatic Tool Changer.</p> | ME-65 | 1.000 | Nos |
| 66 | <p>CNC Lathe Trainer Machine: Bed Type: Flat, Axis Motor is Servo Motor with Servo Drives Maximum Turning Diameter: 50 mm, Maximum Turning Length: 250 mm, Accuracy: 0.010 mm, Spindle Speed: 100 to 3000 RPM, X Axis Travel: 100 mm, Z Axis Travel: 280 mm, Feed rate : 0 to 1,200 mm/min, Turret Type: Automatic</p> | ME-66 | 1.000 | Nos |
| 67 | Steam Turbine Test Rig | ME-67 | 1.000 | Nos |
| 68 | Computerised Single Cylinder Four Stroke Diesel Engine Test Rig | ME-68 | 1.000 | Nos |
| 69 | Diesel smoke meter with computer interface | ME-69 | 1.000 | Nos |
| 70 | Multi Gas Analyzer for petrol Engine with computer interface | ME-70 | 1.000 | Nos |
| 71 | <p>UV Water Purifier</p> <p>Wall Mounting, Auto Shut Off, Complete 4 Stage Purification System, Environment Protection, Intelligent Purity Sensor System, Mineral Guard Plus, Unique E Boiling Plus, Voltage Stabilizer, Purification modules required- hybrid carbon chemi block cartridge, advanced mineral guard, mineral cartridge, nutritron cartridge, biotron cartridge, Applicable TDS range- 1 -200 mg / litre, Water flow rate- 2 litres/ minute, Life of UV lamp- 5000 burning hours or more, Operating input voltage- 230v AC / 50 Hz, UV lamp- 11 watts, Power consumption - 20 Watts +/- 2 Watts, No Storage, 12 months Warranty from the date of installation. Fixing and installation charge is to be included in the price,</p> | ME-71 | 3.000 | Nos |

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| 72 | Air Conditioner 2.0 TON, at least 3 star split AC . Make- VOLTAS/ BLUE STAR/LG/ WHIRLPOOL | ME-72 | 20.000 | Nos |
| 73 | Air Conditioner 1.5 TON, at least 3 star split AC . Make- VOLTAS/ BLUE STAR/LG/ WHIRLPOOL | ME-73 | 25.000 | Nos |
| 74 | Digital Depth gauge | ME-74 | 2.000 | Nos |
| 75 | Production ERP Software for multiuser (5 User) Latest Version Inventory Management, Production Planning, Material Requirement Planning, Sales & Vendor management, Manufacturing Monitoring | ME-75 | 1.000 | Nos |
| 76 | SOLIDWORKS Software version 17 or later (10 users) | ME-76 | 1.000 | Nos |
| 77 | SOLIDCAM Software - version 17 or later; (10 users) SolidCAM 2.5D, 3D Module , 5 Axis Machining, SolidCAMiMachining, Drilling, Tapping, Facing, Pocketing, Roughing, Finishing, High Speed Surfacing , Simulation (Solid Verify, 2D, Host CAD), Verification (Compare Part and Stock) | ME-77 | 1.000 | Nos |
| 78 | Virtual CNC Software for SIEMEN'S Sinumerik based CNC Model (5 User) Latest Version | ME-78 | 1.000 | Nos |
| 79 | Microsoft Office Home & Student 2016 for Windows PC (5 users) | ME-79 | 1.000 | Nos |
| 80 | Minitab Software Version -18 or later (1 user) | ME-80 | 1.000 | Nos |
| 81 | AUTOCAD Software-2017, Version 21.0 or later (10 users) | ME-81 | 1.000 | Nos |
| 82 | ANSYS Academic Teaching Mechanical + CFD with Space Claim Package (STRUCTURAL 256000 NODES; FLUIDS 512000 NODES) Version 19.0 or later, Perpetual Licenses, 5 Tasks with 1 Year TECS (AMC) | ME-82 | 1.000 | Nos |

JGEC/SG/2018-19/01/EE Dated:14.08.2018

Details
of
Procurement of Goods
for
Electrical Engineering Department

Item description in JGEC Etender 2018 Goods EE
and
corresponding
BOQ is JGEC BOQ 2018 EE Dated: 14.08.2018

| Sr. No. | Item Descriptions | Item Code | Quantity | Unit |
|---------|--|-----------|----------|------|
| 1 | Drive set-up for Speed control of DC motor using dual converter To control speed of the DC Shunt Motor controlling the firing angle of the SCR. Input Voltage : 230V($\pm 10\%$), single phase, 50 Hz for Power circuitry Motor : $\frac{1}{2}$ HP capacity, 220V, 1500 RPM DC Shunt Motor. With built-in Digital RPM meter, Voltmeter, Ammeter etc., Connecting patch cords, operating manual. | EE-1 | 1.000 | Nos |
| 2 | 3 Phase Power Quality Analyzer Number of voltage inputs:4 (3 phase + neutral) dc-coupled Maximum input voltage:1000 Vrms Nominal voltage range: Selectable 1 V to 1000 V Max. peak measurement voltage:6 kV (transient mode only) Input impedance:4 M Ω //5 pF Bandwidth:10 kHz, up to 100 kHz for transient mode Scaling:1:1, 10:1, 100:1, 1,000:1 10,000:1 and variable | EE-2 | 1.000 | Nos |
| 3 | 1MHz Function Generator (1 Ω -1M Ω) Reference output Frequency 10 MHz Amplitude $\geq +4$ dBm, (nom) into 50 Ω load External reference input Input frequency standard 10 MHz Input frequency Option 1ER 1 to 50 MHz (in multiples of 0.1 Hz) Lock range ± 1 ppm (nom) Amplitude 5 dBm ± 2 dB (nom) 3 Impedance 50 Ω (nom) Waveform Sine or square Stability Follows the stability of external reference input signal | EE-3 | 2.000 | Nos |
| 4 | Two nos. each: Experimental set up for operating & switching characteristic of SCR, BJT , GTO , MOSFET , IGBT and VI Charetristics of TRIAC & SCR 1. STUDY OF VI- CHARACTERISTICS OF AN SCR : • Variable DC supply ranging from 0-30V fed from both end • Suitable load resistance • Diode , SCR TYN604/TYN612 • With built-in, Voltmeter, Ammeter etc., • Connecting patch cords, operating manual. 2. STUDY SWITCHING CHARACTERISTICS OF BJT , GTO , MOSFET , IGBT 3. STUDY OF VI CHARACTERISTICS OF TRIAC: • Variable DC supply ranging from 0-30V fed from both end • Suitable resistance • Diode , TRIAC-BT136 • With built-in, Voltmeter, Ammeter etc., • Connecting patch cords, operating manual. | EE-4 | 1.000 | Sets |
| 5 | Tachometer Non-contact type 5 digit display, RPM range: 1 to 99999, Resolution : 0.1 rpm (2-999rpm) & 1 rpm (above 1000 rpm), accuracy : ($\pm 0.05\% + 1$ digit | EE-5 | 5.000 | Nos |

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|---|---|------|-------|-----|
| 6 | <p>Earth Resistivity tester Earth Resistivity tester or equivalent Specifications: Earth Ground Tester 0.020 ohms to 19.99 kΩ, With accessories : Test Leads, 4 Earth Ground Stakes, 3 Cable Reels with Wire, 2 Clamps, Batteries, Manual, Professional Fluke Carrying Case. For 3-and 4-pole Fall-of-Potential, earth resistance loop testing, 4-pole Soil Resistivity testing, IP56 rated for outdoor use</p> | EE-6 | 1.000 | Nos |
| 7 | <p>Clamp meters to interface with power meter: Clamp meters to interface with power meter: AC Current Clamp with a 32mm Diameter for up to 400A AC Measurements or equivalent</p> | EE-7 | 3.000 | Nos |
| 8 | <p>Single phase full controlled AC to DC Converter/ Rectifier Input: Main supply from 220V AC and Supply to Power Circuit should be 24V AC using step-down transformer which also provides isolation to test output signals in CRO/DSO. Power Circuit: Bridge Configured 4 SCRs with RC Snubber in parallel and fuse in series with each SCR; Inbuilt R and R-L Loading facilities must be provided. Control/Firing Circuit: Should have facility to smoothly vary firing angle from 0 to 180 degree. Test points must be provided to see the signal profiles at different points (such as firing pulses, ZCD and comparator output, pulse train etc.) in the control circuit. Circuit Connection and Experimental options: SCR modules (each comprising of Snubber and glass fuse), 24V AC supply terminals, load terminals must be isolated, so that students can make the power circuit connections using patch cords. 4 pairs of triggering/ firing terminals from firing module must remain isolated from gate - cathode terminals of respective SCRs; So that during experiment students can make the connection between power and control circuit.</p> | EE-8 | 2.000 | Nos |
| 9 | <p>Single phase Half controlled AC to DC Converter/ Semi-Converter Input: Main supply from 220V AC and Supply to Power Circuit should be 24V AC using step-down transformer which also provides isolation to test output signals in CRO/DSO. Power Circuit: Bridge Configuration with 2 SCRs and 2 power diodes and necessary Snubbers; Inbuilt R and R-L Loading facilities. Control/Firing Circuit: Should have facility to smoothly vary firing angle from 0 to 180 degree. Test points must be provided to see the signal profiles at different points (such as firing pulses, ZCD and comparator output, pulse train etc.) in the control circuit. Circuit Connection and Experimental options: SCR modules (each comprising of Snubber and glass fuse), 24V AC supply terminals, load terminals must be isolated, so that students can make the power circuit connections using patch cords. 4 pairs of triggering/ firing terminals from firing module must remain isolated from gate - cathode terminals of respective SCRs; So that during experiment students can make the connection between power and control circuit.</p> | EE-9 | 2.000 | Nos |

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|----|---|-------|--------|------|
| 10 | Digital Storage Oscilloscope Bandwidth 70 MHz 2-channel 1.0 GS/s Sample Rate on All Channels 2.5k point Record Length on All Channels Advanced Triggers including Pulse Width Trigger and Line-selectable Video Trigger | EE-10 | 10.000 | Nos |
| 11 | Digital Storage Oscilloscope 200 MHz, 4 isolated Channel, 2GS/s Mains / battery operated, with associated data acquisition software and accessories Digital Storage Oscilloscope 200 MHz, 4 isolated Channel, 2GS/s Mains / battery operated, with associated data acquisition software and accessories Digital Storage Oscilloscope 200 MHz, 4 isolated Channel, 2GS/s Mains / battery operated, with associated data acquisition software and accessories | EE-11 | 4.000 | Nos |
| 12 | Megger 2,3, and 4 terminals digital Earth Ground tester | EE-12 | 2.000 | Nos |
| 13 | ESA 85 microprocessor kit with integral 8255PPI, 8253 PCI and interfacing cards 1) Traffic light, 2) 8 bit ADC, 3) DAC, 3) Stepper Motor, 4) 7-segment display. Associated Assembler & Cross-assembler, Serial cable Software for serial mode programming. | EE-13 | 15.000 | Sets |
| 14 | ESA 86 microprocessor kit with integral 8255PPI, 8253 PCI Assembler & Cross-assembler, Serial cable Software for serial mode programming. (EE-10 nos.+CSE-10nos.) | EE-14 | 20.000 | Nos |
| 15 | Microcontroller • 8051 Kit,• with Universal programmer; Compiler, Debugger | EE-15 | 20.000 | Nos |

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|----|--|-------|--------|-----|
| 16 | <p>Relay test set bench</p> <p>1) a) On Time Delay Relay – Definite time relay (Type VTT) 220 – 230 volt DC Time range – 1 sec to 10 sec Use with external resistor Static relay</p> <p>b) OFF Time Delay Relay – Definite time relay (Type VTT) 220 – 230 volt DC Time range – 1 sec to 10 sec Use with external resistor Static relay Voltmeter – Analog (0 – 300 V AC) moving Iron type</p> <p>2) a) Under Voltage Relay Electromechanical Type (VDG)(voltage operated Disc type IDMT Relay) Auxiliary volt – 24 – 250 volt DC Volt – 110 Volt AC, 50 Hz Tap setting – 55/66/77/88/99 volt</p> <p>b) Earth Fault Relay Electromechanical Type (CDG)(Current operated Disc type IDMT Relay) CT Secondary – 1 A (0.2 to 0.8 A, 50 Hz) Tap Setting – 0.2 to 0.8 A in 0.1 A step setting Ammeter – Digital Voltmeter - Digital Selector Switch – 4 pole MCB Variat – 8 A Transformer load – 1 KVA Arrangements for 110 V AC and 30 V DC in the same bench</p> | EE-16 | 1.000 | Nos |
| 17 | <p>Digital Power Meter Digital Power Meter with accessories and supporting software.</p> <p>Specifications: Preferably Yokogawa WT 333 or equivalent : 3-phase , Low Current Measurement down to 50 micro-Amps and up to 20Amps, 0-600V, DC, 0.5 Hz to 100 kHz Frequency Range, Standard USB, and GPIB or RS232 Interface</p> | EE-17 | 1.000 | Nos |
| 18 | <p>Multimeter 3-1/2 Digits, Backlit LCD, Fully Protected, Data Hold, AC Voltage, DC Voltage, DC Current, Resistance, Diode & Continuity Test.</p> | EE-18 | 30.000 | Nos |
| 19 | <p>Schering Bridge Set-up (Laboratory grade) Built in stable frequency source, null detector, unknown capacitor</p> | EE-19 | 2.000 | Nos |
| 20 | <p>Digital Earth Tester Earth Resistance Range : 0 - 10/100/1000 Ohms, Display : 4 Digits EXTRA LARGE Backlit Dual LCD Display, DC Voltage : 0 - 1000V, AC Voltage : 0 - 750V</p> | EE-20 | 2.000 | Nos |
| 21 | <p>TWISER For removing IC from bread-board</p> | EE-21 | 10.000 | Nos |
| 22 | <p>Infra red Thermal Imager with accessories Fluke Ti 10</p> | EE-22 | 1.000 | Nos |

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|----|---|-------|-------|------|
| 23 | Torque Transducer with Analog output / digital output | EE-23 | 1.000 | Sets |
| 24 | <p>Analytic software NI LabVIEW with accessories Software Platform For Acquisition, Monitoring, Analysis & Control for different lab Using Graphical or text based method (MATLAB Coding/ C Coding/FPGA Program etc.)</p> <p>LabVIEW Software Laboratory Virtual Instrumentation Engineering Workbench, Equipped with Tools for Data acquisition, Instrument control, Communication Technology, Signal Processing and Industrial automation. Includes all required Toolkits & Modules See Annexure – I for details Version:-Latest License:-Perpetual/Permanent Independent Real-Time Data Acquisition & Control Unit System must Include – Integrated Controller and Chassis 667 MHz dual-core ARM Cortex-A9 processor, 512 MB nonvolatile storage, 256 MB DDR3 memory</p> <p>8-slot Artix-7 FPGA chassis for custom I/O timing, control, and processing NI Linux Real-Time OS</p> <p>Program the processor with LabVIEW Real-Time or C/C++ and the FPGA with LabVIEW FPGA 1 Gigabit Ethernet, 1 USB device, 1 USB Hi-Speed host, and 1 serial port for connectivity -20 °C to 55 °C operating temperature range With Below Modules – i) High Voltage Input Module - 3-channel & 1 Neutral, 400 Vrms L-N/690 Vrms L-L, 24 Bit, 50 kS/s/ch -- 1 Nos ii) High Current Input Module – 3-Channel, 50 Arms Continuous, 24-Bit, isolated Analog Input channel with 50 kS/s per channel iii) Multifunction Module – 8-Channel for Analog Input 0 to 5 V 12bit at 20 ks/S, 8-Channel for Analog Output 0 to 5 V 12bit at 20 ks/S , 4-Channel for Digital Input/Output -- 1 Nos iv) Digital I/O Module – 32 Ch, TTL Digital Input/Output Module , with update rate of 7µs. -- 1 Nos Along with Accessories Ethernet Cable, Twisted-pair, 5 m; Power Supply, 24 VDC, 5 A, 100-120/200-240 VAC Input Single users</p> | EE-24 | 1.000 | Sets |
| 25 | <p>POWER ELECTRONICS & DRIVES SIMULATION SOFTWARE (CASPOC) (Developed by Simulation Research Inc.) 5 user Academic Individual License-USB</p> | EE-25 | 1.000 | Nos |
| 26 | <p>Tech Mo and Tech Tran Software for Electrical Systems Design Lab Machine Design Software – Version: Latest and Perpetual Consisting of: Tech Mo- (Motor Design) - 03 Users License (3 Phase Induction Motor Design- Squirrel Cage & Wound Rotor DC Machine Design- Series Motor & Shunt Motor) Tech Tran- (Transformer Design)-02 Users License (Transformer Design software-single and three phase)</p> | EE-26 | 1.000 | Nos |

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| 27 | <p>MAT LAB SOFTWARE</p> <p>Pacakage by MathWorks Inc. will include following toolboxes and each toolbox is for 05 users</p> <p>Simulink Symbolic Math Toolbox Optimization Toolbox Global Optimization Toolbox Ststistic And Machine Learning Toolbox Signal Processing Toolbox DSP System Toolbox Communications System Toolbox Simscape Simscape Electronics Fuzzy Logic Toolbox Control System Toolbox Neural Network Toolbox RF Toolbox Antenna Toolbox Wavelet Toolbox Image Processing Toolbox Computer Vision System Toolbox</p> | EE-27 | 1.000 | Nos |
| 28 | <p>ANALOG METERSFollowing meters are with table top model & 0.5/1% accuracy:</p> <ol style="list-style-type: none"> 1. Moving Iron Voltmeter 0/50/100V 2. Moving Iron Voltmeter 0/150/300V 3. Moving Iron Voltmeter 0/300/600V 4. Moving Iron Ammeter 0/0/1/2A 5. Moving Iron Ammeter 0/5/10A 6. Moving Iron Ammeter 0/10/20A 7. PM Moving Coil Voltmeter 0/50/100V 8. PM Moving Coil Voltmeter 0/150/300V 9. PM Moving Coil Ammeter 0/1/2A 10. PM Moving Coil Ammeter 0/5/10A 11. PM Moving Coil Ammeter 0/10/20A 12. Electrodynamicometer type Wattmeter 1/2A , 50/100V 13. Electrodynamicometer type Wattmeter 1/2A , 0/150/300V 14. Electrodynamicometer type Wattmeter 5/10A , 50/100V 15. Electrodynamicometer type Wattmeter 1/2A , 150/300V 16. Electrodynamicometer type Wattmeter 5/10A , 150/300V <p>Each 5 Nos.</p> | EE-28 | 1.000 | Sets |

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| 29 | <p>Altera DE2 Board</p> <p>The DE2 package includes:</p> <ul style="list-style-type: none"> • DE2 board • USB Cable for FPGA programming and control • CD-ROM containing the DE2 documentation and supporting materials, including the User Manual, the Control Panel utility, reference designs and demonstrations, device datasheets, tutorials, and a set of laboratory exercises • CD-ROMs containing Altera's Quartus® II Web Edition and the Nios® II Embedded Design Suit Evaluation Edition software. • Bag of six rubber (silicon) covers for the DE2 board stands. The bag also contains some extender pins, which can be used to facilitate easier probing with testing equipment of the board's I/O expansion headers • Clear plastic cover for the board • 9V DC wall-mount power supply | EE-29 | 2.000 | Nos |
|----|--|-------|-------|-----|

JGEC/SG/2018-19/01/CSE Dated:14.08.2018

Details
of
Procurement of Goods
for
Computer Science Engineering Department

Item description in JGEC Etender 2018 Goods CSE
and
corresponding
BOQ is JGEC BOQ 2018 CSE Dated: 14.08.2018

| Sr. No. | Item Descriptions | Item Code | Quantity | Unit |
|---------|---|-----------|----------|------|
| 1 | Data Communication Trainer Kit (minimum 6 user support) | CSE-1 | 2 | Nos |
| 2 | Network Lab Educational Software (L-SIM & N-SIM) (minimum 6 user support) | CSE-2 | 2 | Nos |
| 3 | USB Key Board | CSE-3 | 60 | Nos |
| 4 | Water Cooler Cum Purifier Technical Specifications 1. Dimensions in mm (HXDXW) ----- 700 x 430 x 460mm 2. NET WEIGHT (KGS)----- 40 (Approx) 3. Water Flow Rate----- 40 LPH (0.666 LPM) 4. Rated Voltage----- 230 V AC 5. Input Wattage-----575 Watt 6. UV Lamp Wattage-----8 Watts 7. Water Pressure----- MINIMUM--- 0.4 Kg / Cm ² , MAXIMUM--2.0 Kg / Cm ² | CSE-4 | 1 | Nos |
| 5 | Iron Filter and Sediment Filter for Online Water Cooler cum Purifier Accessories: Rawl Plug & Self Tapping Screws 4 Nos. Back Flush Adaptor 1 no. EVA Tube (1.5 mtrs.) with tap attachment 1 no. Outlet spout 1 no. PF Nozzle 1 no. Technical Specification: Dimensions (H X W X D) 305mm x 215mm x 1054mm Net weight of the product 2.4kg Recommended for 5ppm for Iron Recommended Usage 6000 ltrs. Recommended input water pressure 0.3kg/cm ² | CSE-5 | 8 | Nos |
| 6 | ESA 85 microprocessor kit with integral 8255PPI, 8253 PCI . Associated Assembler & Cross-assembler, Serial cable Software for serial mode programming. | CSE-6 | 20 | Nos |
| 7 | USB Mouse | CCC-1 | 40 | Nos |
| 8 | Foxit/Nitro Advanced pdf Editor (3 user licence) | CCC-2 | 1 | Nos |
| 9 | A complete Computer Server consists of the following accessories : Processor: XEON 3.0(Extended Memory 64T)CPU 04 Higher: 1no. RAM:16GB – 24GB: 1no. Raid Support: 5.0: 1no. Backup drive: DVD RW: 1no. Hard Disk : 1TB x 3 SCSI: 03 nos. Operating System: Red HAT Enterprise LYNEX 6.0 OR above: 1no. RDBMS: MYSQL/Post Gre SQL/Oracle/Ms-SQL: 1no. Power Supply: Dual power supply: 1no. LCD Monitor: HP 18’’ – Colour: 1no. Keyboard: TVSE GOLD: 1no. Optical Mouse : Logitech: 1no. | LIB-1 | 1 | Nos |

JGEC/SG/2018-19/ 01/ECE Dated:14.08.2018

Details
of
Procurement of Goods
for
Electronics & Communication Engineering Department

Item description in JGEC Etender 2018 Goods ECE
and
corresponding
BOQ is JGEC BOQ 2018 ECE Dated: 14.08.2018

| Sr. No. | Item Descriptions | Item Code | Quantity | Unit |
|---------|--|-----------|----------|------|
| 1 | CRO: 50 M Hz Dual trace digital storage oscilloscope with component test | ECE-1 | 15.000 | Nos |
| 2 | CRO: 30 M Hz Dual trace oscilloscope with component test | ECE-2 | 10.000 | Nos |
| 3 | Function Generator: 1 M Hz Sine wave, triangular wave, square wave function generator | ECE-3 | 10.000 | Nos |
| 4 | Function Generator: 3 M Hz Sine wave, triangular wave, square wave function generator | ECE-4 | 20.000 | Nos |
| 5 | <p>Reflex Klystron based Microwave Test bench; Specifications:- Klystron Power Supply: 1 Klystron Mount : 1 Klystron Tube 2K25/K27: 1 Isolator : 1 Frequency Meter (Direct Readout) : 1 Variable Attenuator : 1 Detector Mount : 1 VSWR Meter : 1 Radiation Pattern Turn Table : 1 Wave Guide Stands : 4 Waveguide bend, 90o : 1 Precision Movable Short : 1 Waveguide Twist : 1 Accessories : Cooling Fan : 1 Coaxial-W/G Adaptor : 2 Coaxial Cable N to N : 1, Antennas : Standard Gain Horn : 1 Pick up horn : 1 Slotted Broad Wall : 1 Slotted Narrow Wall : 1 Dielectric Antenna : 1 E-Plane Sectoral Horn : 1 H-Plane Sectoral Horn: 1 Pyramidal Horn : 1 Parabolic Dish : 1 ,Klystron Power Supply:Input Voltage : 230 VAC; $\pm 10\%$, 50 Hz Beam Supply : Voltage : 240 - 420 VDC, Variable Current : 50 mA Regulation: 0.5% for 10% I/P variation Ripple : < 5mv RMS Repeller Supply : 10-270 VDC, Variable Regulation 0.25% for 10% I/P variation Filament Supply : 6.3 VDC Over-load Trip Current : 65mA Modulation : A M (Square) FM (Saw-tooth) Frequency Range 500 - 2500 Hz 150 - 300 Hz Amplitude 0 - 110 V 0 - 65 V External Through external Modulating Signal Display : Digital display for (a) Beam voltage, (b) Beam current, (c) Repeller voltage Standby Mode : Only Heater Supply ON</p> | ECE-5 | 2.000 | Nos |

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|----|--|--------|--------|-------|
| | Connectors : (a) 8-Pin Octal Socket, (b) BNC for External Modulation Mechanical Dimensions: 26.5 (L) X 13 (H) X 26.5 (D) cm | | | |
| 6 | Gunn diode based Microwave Test bench:Gunn Power Supply - 1,Gunn Oscillator - 1,PIN Modulator - 1,Isolator : 1,Frequency Meter : 1,Variable Attenuator : 1,Slotted Section : 1,Tunable Probe : 1,Detector Mount : 1,Movable Short : 1,Matched Termination : 1,VSWR Meter : 1,Wave Guide Stand : 4,S. S. Tuner : 1,Fixed Short : 1; Accessories :Cooling Fan : 1,BNC to BNC Cable : 1,BNC to open Cable : 1,Smith Chart : 100; Gunn Power Supply: VoltageRange - 0 to 10 V,Current : 0 to 750 mA (Max.),Regulation : 0.2% for $\pm 10\%$ mains Variation,Ripple : 2mV (rms),Modulation. Frequency : 900 - 1100 Hz, Square wave,Modulation Amplitude : 0 - 10.0 V (peak to peak),Output connector : BNC (F) for Gunn-bias & UHF (F) for Pin-mod,Mains : 230 V, 50 Hz, 25 watts aprox.,Standard Accessories : Main Cable, Coax Cable, BNC to BNC,Coax Cable BNC to UHF, Spare Fuse & Manual | ECE-6 | 2.000 | Nos |
| 7 | Universal Analog and Digital Trainer Kit consists of 0 - 30 Volt DC variable power supply, ± 12 Volt DC Power supply with respect to common Terminal, a + 5 Volt DC supply , An adjustable clock pulse oscillator, eight bouncer and debouncer switches, eight digital probe, two Bread boards ,Three seven segment digital voltmeter and current meters. | ECE-7 | 12.000 | Nos |
| 8 | AM, FM . PM modulator and demodulator trainer kit | ECE-8 | 5.000 | Nos |
| 9 | FSK, PSK, ASK modulator and demodulator trainer kit | ECE-9 | 5.000 | Nos |
| 10 | Delta and Adaptive Delta modulator demodulator trainer kit | ECE-10 | 3.000 | Nos |
| 11 | DSB/ SSB AM trainer kit with modulation and demodulation | ECE-11 | 3.000 | Nos |
| 12 | PAM, PWM, PPM modulator demodulator trainer kit | ECE-12 | 3.000 | Nos |
| 13 | FET characteristic Trainer kit with ammeter and voltmeter and variable supply | ECE-13 | 7.000 | Nos |
| 14 | Rectifier trainer kit with the facility of half wave and full wave rectification experiment | ECE-14 | 6.000 | Nos |
| 15 | VLSI-Lab Bundle-Mentor GraphicsIC Nanometer Design Bundle and universal FPGA trainer kit | ECE-15 | 10.000 | Users |
| 16 | Software: Silvaco | ECE-16 | 1.000 | Users |
| 17 | Circuit components and Wire cutter etc: (50 nos. each) ICs: 7400, 7402, 7408,7432,7486, 741, 555, 556 | ECE-17 | 2.000 | Sets |
| 18 | FET(BFW10, BFW11, 2N3822, 2N3823), diode, zener diode(50 nos. each) | ECE-18 | 2.000 | Sets |
| 19 | Resistors (10ohm, 1Kohm,68 kohm), (500 nos. each) | ECE-19 | 2.000 | Sets |
| 20 | Capacitors(0.001micro farad, 0.01 micro farad, 2.2 micro farad) (20 nos. each) | ECE-20 | 2.000 | Sets |
| 21 | Single strand connecting wire | ECE-21 | 8.000 | Coils |
| 22 | Wire cutter :-Groove Joint:Adjustable; Hand Tool Type:Wire Stripper/Cutter; Handle Material:Plastic; Individual/Set:Individual; Jaw Capacity:8 inch; Jaw Tip Size:0.125 inch | ECE-22 | 30.000 | Nos |
| 23 | Screw Driver set with six blades of following size: 1/4"x 4", 1/4" x 6", 3/16" x 3", 3/16" x 6", 1pt x4", 2pt x 4"with Storage rack, quad lobe handle for torque and comfortable hold, color coded handles to easy scrudriver selection | ECE-23 | 10.000 | Nos |

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| 24 | <p>Anti-virus Specifications: Quick Heal Total Security Antivirus software shall have a 3 – in – 1 protection of Antivirus, Anti spy ware and Firewall. This will continuously protect the PC from viruses, spy wares, and hackers. Antivirus software is protection for PC. Antivirus software shall be upgraded regularly. Most of the computers will be distributed to remote place that do not have internet and hence it is required to update the antivirus OFF LINE with the help of Pen drive. Antivirus:Detects and removes viruses, worms and Trojans automatically. Protects the files, scans and cleans spy wares and blocking their activities of identity theft automatically. Quick Heal Total Security 3 Users, 3 Years</p> | ECE-24 | 100.000 | Nos |
| 25 | <p>Specification for Water Purification System:</p> <ol style="list-style-type: none"> 1. General: Compact, Wall mountable, sleek water purification system for Ultra – Pure Type-I water for molecular biology application. 2. Quality of water:- Should deliver Type I/Ultra –pure as per International specifications as follows: Resistivity: 18.2 M*cm; TOC (typical):< 5ppb; Bacteria:<1CFU/10ml; Endotoxin: <0.001 EU/ml; RNase: 20pg/ml; DNase:0.002ng/ml Important : Should have an ability to deliver Type III water also 3. Volume: 10-12 litre/day. 4. Feed –water: Potable tap water 5. General Essential Features: <ol style="list-style-type: none"> (i) Preferably should start giving pure water immediately after start. (ii) Should have built in RO, Dual Wavelength UV lamp, Purification pack or DI cartridge. (iii) Should have built-in integral tank with minimum 5-7 litre capacity. (iv) Facility to attach external point of use Bio filter or any such filter to control endotoxin. 6. Dispenser: Should have a flexible handle dispenser, preferably, with a facility of : <ol style="list-style-type: none"> a. Variable flow drop by drop up to 2 litre per minute. b. Locked dispense for glassware filling. c. Auto volume dispense from 50ml to 60 liters. 7. Display: TOC TEMPERATURE, conductivity, volume dispensing, alarm and tank water level indicator. | ECE-25 | 1.000 | Nos |

JGEC/SG/2018-19/ 01/ITDated: 14.08.2018

Details
of
Procurement of Goods
for
Information Technology Department

Item description in JGEC Etender 2018 Goods IT
and
corresponding
BOQ is JGEC BOQ 2018 IT Dated: 14.08.2018

| Sr. No. | Item Descriptions | Item Code | Quantity | Unit |
|---------|---|-----------|----------|------|
| 1 | Rational Rose (Latest Edition) for Educational Institute: 10 users | IT-1 | 1 | Nos |
| 2 | Xyling: 40 users | IT-2 | 1 | Nos |
| 3 | FPGA Spartan 3e Kit | IT-3 | 40 | Nos |
| 4 | Visual Studio – 15/ Latest Edition: 15 users | IT-4 | 1 | Nos |
| 5 | Server rack : Power Edge 4220 42U Server Rack Enclosure | IT-5 | 2 | Nos |
| 6 | Red Hat 7.4 (Server version) (Latest Edition) | IT-6 | 2 | Nos |
| 7 | Tripod stand | IT-7 | 2 | Nos |
| 8 | IE3D Mentagraphy Software (EM simulation Software): 5 users | IT-8 | 2 | Nos |
| 9 | Flash (Latest Version) for 30 Users | IT-9 | 4 | Nos |
| 10 | Photo Shop (Latest Version) for 100 Users | IT-10 | 1 | Nos |
| 11 | Vector Network Analyser (VNA)(upto 20 Ghz) with gold plated necessary cable | IT-11 | 1 | Nos |
| 12 | Power Meter (Measurement upto 20 Ghz) with gold plated necessary cable | IT-12 | 1 | Nos |
| 13 | Industrial Water Filter with RO | IT-13 | 1 | No. |
| 14 | Ridge horn Antenna (upto 20 Ghz) with gold plated necessary cable | IT-14 | 2 | Nos |
| 15 | 8051 Microcontroller Kit | IT-15 | 30 | Nos |
| 16 | 8085 Microprocessor Kit | IT-16 | 40.000 | Nos |
| 17 | <p>Server; 01: Make & Model (Specify)</p> <p>02: Market position: The OEM for the proposed server should have been one of the top three server vendors (by market revenue share in IDC or Gartner report) in any of the previous 2 quarters</p> <p>03: Form Factor: 2U Rack</p> <p>04:Configured CPU 2 x Xeon Silver 4108 Processor</p> <p>05: Memory slots 16 DDR4 DIMM slots</p> <p>06: Memory configured 32 GB DDR4 RDIMM, minimum 2400 MT/s</p> <p>07: Disks supported 8 x 3.5 " SAS/SATA HDD</p> <p>08: RAID Controller 12Gbps PCIe 3.0, 2GB NV cache, RAID 1, 5, 10, 50, 6, 60</p> <p>09: Disks configured 3 x 1TB 7.2k rpm NLSAS disks</p> <p>10: Optical drive DVD RW</p> <p>11: I/O slots 3 x PCI 3.0 slots</p> <p>12: 1G Ethernet ports 2 x 1G BaseT</p> <p>13: Certified for Win Server 2016, RHEL, SLES</p> <p>14: Power Supply- Redundant Power Supply</p> <p>15: Power & temperature-Real-time power meter, graphing, thresholds, alerts & capping with historical power counters.Temperature monitoring & graphing</p> <p>16: Pre-failure alert-Predictive failure monitoring & proactive alerts of actual or impending component failure for fan, power supply, memory, CPU, RAID, NIC, HDD</p> <p>17: Configuration & management- Real-time out-of-band hardware performance monitoring & alerting Agent-free monitoring, driver updates & configuration, power monitoring & capping, RAID management, external storage management, monitoring of FC, HBA & CNA & system health Out-of-band hardware & firmware inventory Zero-touch auto configuration to auto deploy a baseline server configuration profile Zero-touch repository manager and self-updating firmware system Virtual IO management / stateless computing Support for Redfish API for simple and secure management of scalable platform hardware SNMP v3 or Redfish eventing for secure alerting Automated hardware configuration and Operating System deployment to multiple servers Directory services (AD, LDAP), HTML5 support -HTML5 support for virtual console & virtual media without using Java or ActiveX plugins</p> <p>18: Cyber security- Should provide effective protection, reliable detection & rapid recovery from cyber attacks Protection against firmware which executes before the OS boots Silicon-based Hardware Root of Trust Signed firmware updates UEFI Secure Boot with custom certificates Secure default passwords Configuration and</p> | IT-17 | 1.000 | Nos. |

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| <p>firmware drift detection Persistent event logging including user activity Secure alerting Automatic secure BIOS recovery Rapid OS recovery to boot a trusted backup OS image from a hidden boot device System erase to securely & quickly wipe all user data from drives, NVRAM Persistent event logging including user activity Configuration upgrades only with cryptographically signed firmware and software</p> <p>19: Intrusion alert Intrusion alert in case of chassis being opened</p> <p>20: Sub-component quality assurance - All subcomponents within the server should be from the same OEM & integrated in the factory</p> <p>21: IO devices- 19.5" monitor, mouse & keyboard of same OEM</p> <p>22: LCD- Server should have LDC panel showing codes</p> <p>23: Warranty- 3years On-site comprehensive warranty with 24x7x365 remote hardware support. Post installation, 3 year product warranty should reflect in the support web site of the OEM.</p> <p>24: Compliance statement- Compliance statement to be provided</p> <p>25: Authorization- Tender specific authorization from server OEM</p> | | | |
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JGEC/SG/2018-19/ 01/WS Dated:14.08.2018

Details
of
Procurement of Goods
for
Workshop Department

Item description in JGEC Etender 2018 Goods WS
and
corresponding
BOQ is JGEC BOQ 2018 WS Dated: 14.08.2018

| | | | | |
|---|---|------|----|-------|
| 1 | Adjustable Wrench, Size:8" | WS-1 | 12 | Nos |
| 2 | Combination cutting pliers, Size:6" | WS-2 | 12 | Nos |
| 3 | AUTOMATIC LATHE MACHINE Specification: Features: All geared headstock type lathe machine equipped with quick change gear box , headstock spindle running in taper roller bearings for correct alignment and cutting, complete with underneath motor drive arrangement suitable for AC, 440V, 3 ph, 50 Hz, 1400 rpm electric motor, reversing switch, center plate, two M.T. centers, 4-way tool post, oil tray and tread dial indicator. Technical specification: Length of bed: 4'.3/4", Width of bed : 9.1/2", Height of center : 7", Admit between centers : 26", Hollow through spindle : 1.5/8", Taper in spindle : MT3, Motor Hp: 2hp. | WS-3 | 4 | Nos |
| 4 | Metal cutting Hacksaw Blade (HSS), Size: 300 x 12.5 x 63 x 1mm, 24 T.P.I. & 18 T.P.I., (High speed) – Each box contains 100 pcs | WS-4 | 5 | Boxes |
| 5 | Electric Gun Drill Machine:, Size: Drill Capacity : Steel – Dia 10mm, Wood – Dia 15mm, Load Speed – 2600 rpm, Rated Input power – 300W. | WS-5 | 10 | Kgs |
| 6 | V-Belt, FENNER/DUNLOP/AR Rubber Make, C/C distance: Width: (As per sample) | WS-6 | 10 | Nos. |
| 7 | 100 pcs multifunctional hardware tools box kit electric maintenance set carpenter hydropower toolbox with drill ;Package Include: (1*Set include 100pcs tools) 6PCSXPrecision screwdriver ,2PCSXSmall Saw Blade 1PCXKnife ,9PCSX1/4 small sleeve 1PCXWire Strippers ,1PCX9 "water pump clamp 20PCSXScrew head,1PCXSmall tape 1PCXScissors ,1PCX3m tape 1PCXPencil ,8PCSXBall head inside hexagonal 2PCSXScrewdriver 6X100mm ,1PCx0.25kg claw hammer 1PCXRatchet handle,1PCXStrong glue 1PCX6 "sharp nose pliers ,20PCSXParts Box 1PCX6 "wire clamp ,6PCSXDual wrench 1PCX8 "package plastic wrench ,1PCXComputer brush 1PCXSiamese pole ,1PCXDrill(13MM) 4PCSXWoodworking drill ,1PCXDrill handle 3PCSXConstruction drill ,1PCXDrill ruler 1PCXAluminum saws ,1PCXPlastic box | WS-7 | 10 | Nos |
| 8 | ARC WELDING GENERATOR Specification: Features: Mobile arc welding generator set consisting sturdy, portable welding power sources for D.C. welding of Mild steel, alloy steel, non ferrous metal using all types of electrodes. Both the generator and the driving motor are built on a common shaft with control box including star delta starter mounted on the top, easily portable on four rubber tiered wheels, the front two are swiveling. Arc welding generator set includes voltmeter, Ammeter with shunt mounted in a separate case or mounted on the machine itself, standard set of welding accessories like welding cable with electrode holder, ear thing cable with clamp, hand shield with colored glass, chisel for slag removal, wire brush, leather hand gloves. Technical Specification: Welding current range 40-350 | WS-8 | 2 | Nos |

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| | amps, Open circuit voltage 80 Volts (Max.), Max. Continuous hand welding current at 60% duty cycle 300 amps, Max. Hand welding current at 40% duty cycle 350amps, Max. Continuous welding current 100% duty cycle 230amps, Operating arc voltage 22-33 Volts, Rated motor capacity 16 kw, Synchronous speed 1500 rpm, Starting: Star-delta, Class of insulation: "E", Supply voltage 415 + 6% Volts, 3phase, 50 cycle, Electrode size 1.5 to 6mm, Gross weight approx. 550kgs, Generator conforms to IS 2635, Motor conforms to IS 325. | | | |
| 9 | WELDING RECTIFIER Specification: Features: Fully electronically regulated Thyristor Controlled double operated welding rectifier unit suitable for manual metal arc welding, carbon air-arc welding and TIG welding. 300 amps capacity fully copper wound, complete with hot start and anti stick facility, confirming to IS 4559 as per following specification. Technical Specification: Welding current range : 20-300 amps, Open circuit voltage: 85 V, Max. continuous hand welding current at 60% duty cycle : 300 amps, Current at 100% duty cycle: 232 amps, Cooling : Forced air cooled type, Insulation class: F, Input supply: 415 V, 3ph, 50Hz including starter, ammeter, voltmeter, remote hot start (with 10m cable), remote switching socket, Remote current control regulator (with 10m cable). | WS-9 | 2 | Sets |
| 10 | MIG WELDING MACHINE Technical Specification: Rated input voltage 3 phase, 415 volts, Frequency/primary current (rated) 50Hz/15 amps, Rated input power 20 KVA (3ph), Rated welding current 250 amps, Rated duty cycle 60%, Output current range 50-250 amps, Output voltage range 14-25 volts, Dimensions shall be approx. 375mm(W) x 560mm(D) x 730mm(H), Weight (approx.) 80 – 100 kgs., Wire feeder: Applicable wire size 0.8mm, 0.9mm, (1.2mm), Wire feed roll system : 2 roll, Approx. wt. 5-7 kgs., Welding Torch : Euro Connection, Rated current/max. current 250 amps, Welding wire 0.8mm, 0.9mm, (1.2mm), Cable length minimum 4 meter, Cooling style: gas cooled. | WS-10 | 1 | Nos |
| 11 | TIG WELDING MACHINE Specification: AS PER ANNEXURE-WS/1 Features: Ideal constant current power source for manual (MMA)/TIG welding. Step less current control, Guaranteed arc striking with any type of electrode upto 100 meters cable length (Electrode cable + Ground cable). Cable length drop compensated. Smooth, stable arc for consistent X-ray quality welding. Compact, lightweight power source for easy maneuverability incorporating latest international design and production technique. Advance quick response protective circuits. Accessories required as Gas cooled or Water cooled TIG torch, High frequency unit with gas preflow / post flow control and gas solenoid valve, Argon gas regulator & flow meter, Interconnecting cables and hoses. Technical Specification: Input supply voltage 415 + 10%, 3ph, 50Hz. Approx. 25 KVA at 60% duty cycle, Rated current 400 A, Rated duty cycle 60%, Welding current range 25-400A, OCV 70V, MCHWC(60%) 400A, MCAWC(100%) 310A, Load voltage 21-36V, Dimensions (Approx. in mm) L x W x H = 835 x 665 x 870. | WS-11 | 1 | Nos |
| 12 | TIG/ARC200 Inverter Welding Machine, 220 VAC, 200 A; Voltage: 220 VAC; Current: 200 A;Material: Steel;Size: 42.5 cm x 27.5 cm x 35 cm;Comes with earthing cable and clampComes with in-built HF unit; Offers 50% less power consumption; To be supplied with all other associated accessories inclusive installation and commissioning in all respect. | WS-12 | 1 | Sets |

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| 13 | I Phase, 220 V ARC / TIG Inverter Welding Machine: Type of Product : ARC / TIG Welding Machine ;Model No. : Mosfet ;Input Voltage : 220 V Phase : Single Phase ;Welding Current Range : 200 A; To be supplied with all other associated accessories inclusive installation and commissioning in all respect. | WS-13 | 2 | Sets |
| 14 | Seam Welding Machine (Longitudinal) : Technical Specification: Rating @ 50% duty cycle : 75 KVA, Max. upper electrode cylinder stroke 50mm, Vertical adjustability of Ram 50mm, Max. available short circuit + 10% at 460 throat depth 15 Kamps, 440 kgf (approx.) Max. electrode force @5.62 kg / sq.cm, Air consumption @ 100 operation with full cyl. Stroke : 500 ltr.(approx.), Approx. machine dimensions excluding throat (for single phase A.C. machine only) : 1500mm plus throat depth, Width 1200mm, Height 2000mm, Weight 800-1000kg (approx.). | WS-14 | 1 | Nos |
| 15 | Slim Taper file 8" & 6" size | WS-15 | 12 | Nos |
| 16 | Oil stone 10" size | WS-16 | 24 | Nos |
| 17 | Nail 2" & 1 1/2", each | WS-17 | 12 | Kgs |
| 18 | Tenon Saw 14" (SAP) | WS-18 | 10 | Nos |
| 19 | Hand Drill (Twin Metal Gears) ; 226 1/4" | WS-19 | 6 | Nos |
| 20 | 10 x 175 mm Carpenters pencils | WS-20 | 2 | boxes |
| 21 | 1/2lb Claw hammer | WS-21 | 10 | Nos |
| 22 | 1/2" full threaded Nut Bolts 4" long with washer | WS-22 | 5 | Kgs |
| 23 | Fevicol adhesive | WS-23 | 5 | Kgs |
| 24 | Adjustable Metal spoke shape | WS-24 | 10 | Nos |
| 25 | Sony VPLDX145 LCD Projector Specs : Display Type: LCD :Light Output: 3200 Lumens: Features: Digital Keystone Correction, HDMI Input, Speakers :Audio: Sterio:Audio Output: 1 Watts Projector Lens: 1.3xManual Zoom/Manual Focus Life of Lamp - Full Usage:3000 Hours: Life of Lamp - Standard Usage: 5000 Hours: Life of Lamp - Eco Usage: 7000 Hours :Screen Coverage: 30 to 300 Inches: Contrast Ratio: 2500:1 Throw Ratio: 1.37 to 1.80:1 ;Aspect Ratio: 4:3 Resolution: XGA(1024 x 768) | WS-25 | 1 | Nos |
| 26 | Dettol | WS-26 | 5 | Bottles |

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| 27 | Silverex lotion | WS-27 | 5 | Bottles |
| 28 | Carbolic Acid | WS-28 | 10 | Bottles |
| 29 | Digital Multimeter | WS-29 | 5 | Nos. |
| 30 | Digital Vernier Caliper - 150mm | WS-30 | 4 | Nos |

JGEC/SG/2018-19/RM/01 Dated: 14.08.2018

Details
of
Procurement of Repairing & Maintenance
for
All Department

Item description in JGEC Etender 2018 RM
and
corresponding
BOQ is JGEC BOQ 2018 RM1 Dated: 14.08.2018

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|----|---|--------|---------|------|
| 1 | Servicing / repairing of computerized digital Compression Testing Machine together with LVDT (200 Ton capacity)(including spare parts)(Make: AIMIL LTD) (2000KN Capacity) | CER-01 | 1.0000 | Sets |
| 2 | Servicing / repairing of hardness testing machine of Mastic Ashphalt (including spare parts) | CER-02 | 1.0000 | Sets |
| 3 | Servicing / repairing of 100kN, 250kN and 500kN compression testing machine(including spare parts) | CER-03 | 1.0000 | Sets |
| 4 | Servicing / repairing including spare parts: Theodolite | CER-04 | 2.0000 | Sets |
| 5 | Servicing / repairing including spare parts:Dumpy Level | CER-05 | 2.0000 | Sets |
| 6 | Projector:Servicing / repairing including spare parts | CER06 | 1.0000 | Sets |
| 7 | UPS:Servicing / repairing including spare parts | CER-07 | 10.0000 | Sets |
| 8 | Ultrapure Water System (Model: Arium 611 DI Make: Sartorius) | CER-08 | 1.0000 | Sets |
| 9 | Ultrasonic Testing Machine: Servicing / repairing including spare parts | CER-09 | 1.0000 | Sets |
| 10 | Universal Automatic Compactor: Servicing / repairing including spare parts | CER-10 | 1.0000 | Sets |
| 11 | Muffle furnace (Temperature limit 1000° C):Servicing / repairing including spare parts | CER-11 | 1.0000 | Sets |
| 12 | Atomic Absorption Spectrometer (Model: WFX-120B, Make :Rayleigh): Servicing / repairing including spare parts | CER-12 | 1.0000 | Sets |
| 13 | Digital pH meter: (Model: PB-11, Make: Sartorius): Servicing / repairing including spare parts | CER-13 | 1.0000 | Sets |
| 14 | Refrigerator, (Model: LFC 110U, Make: Daihan Labtech): Servicing / repairing including spare parts | CER-14 | 1.0000 | Sets |
| 15 | Jar Test Apparatus: Servicing / repairing including spare parts | CER-15 | 1.0000 | Sets |
| 16 | U-tube manometer: Servicing / repairing including spare parts | CER-16 | 1.0000 | Sets |
| 17 | Leak proofing of fumes and painting: Servicing / repairing including spare parts | CER-17 | 1.0000 | Sets |
| 18 | Under ground foot valves 8 inch diameter: Servicing / repairing including spare parts | CER-18 | 1.0000 | Sets |

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| 19 | Valves of pipe network [8” (3 no.), 6” (3 no.) and 4” (1 no.)]: Servicing / repairing including spare parts | CER-19 | 1.0000 | Sets |
| 20 | V-Notch: Servicing / repairing including spare parts | CER-20 | 1.0000 | Sets |
| 21 | Calibration and Servicing / repairing including spare parts: Digital balance (Model: CP225D, Make: Sartorius) | CER-21 | 1.0000 | Sets |
| 22 | Calibration of computerized digital Compression Testing Machine together with LVDT (200 Ton capacity)(Make: AIMIL LTD) (2000KN Capacity) | CER-22 | 1.0000 | Sets |
| 23 | Calibration of Compression Testing Machine (200 Ton capacity) | CER-23 | 1.0000 | Sets |
| 24 | Calibration of Universal Testing Machine(Cap.- 100kN, 250kN, 500kN & 1000 kN)Calibration of Compression Testing Machine | CER-24 | 1.0000 | Sets |
| 25 | Calibration of Compression Testing Machine (Capacity 100kN, 250kN and 500kN) | CER-25 | 1.0000 | Sets |
| 26 | Calibration of Proving Ring (Cap.-50KN) | CER-26 | 1.0000 | Sets |
| 27 | Calibration of Proving Ring (Cap.-5KN) | CER-27 | 1.0000 | Sets |
| 28 | Calibration of Proving Ring (Cap.-2.5KN) | CER-28 | 1.0000 | Sets |
| 29 | Calibration of Proving Ring (Cap.-2.0KN) | CER-29 | 1.0000 | Sets |
| 30 | FFT Analyzer and accessories Servicing / repairing including spare parts | CER-30 | 1.0000 | Sets |
| 31 | Repairing of Turret of CNC Turning Machine with one year warranty Repairing of CNC Turning STAR TURN 2000T (with 808D siemens controller) [1 no] including Repairing of Turret (Pragati Made) and Repairing of Display panel for 808D siemens controller. | MER-1 | 1.0000 | Nos. |
| 32 | Repairing and upgradation of CNC Milling Machine. Repairing and upgradation of HyTech CNC Milling Trainer including Repairing of Hydraulic Chuck, Repairing of one sensor and upgradation of software. | MER-2 | 1.0000 | Nos. |
| 33 | Repairing of Vibration Exciter & Power Oscillator System Power Oscillator Model NO -29 Maximum Power Output – 250VA Exciter Model No- 230 200 Newton Peak Force Make: Syscon Instruments Private Ltd Bangalore | MER-3 | 1.0000 | Nos. |

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| 34 | Repairing of Eddy Current Dynamometer | MER-4 | 1.0000 | Nos. |
| 35 | Repair of Diesel smoke meter with computer interface | MER-5 | 1.0000 | Nos. |
| 36 | Repair of Multi Gas Analyzer for petrol Engine with computer interface | MER-6 | 1.0000 | Nos. |
| 37 | Repairing of "Stefan-Boltzman Constant determination" apparatus from its current position. | MER-7 | 1.0000 | Nos. |
| 38 | Repairing of "Thermal Conductivity of Insulating Powder measurement" apparatus from its current position. | MER-8 | 1.0000 | Nos. |
| 39 | Repairing of Francis Turbine | MER-9 | 1.0000 | Nos. |
| 40 | Repairing of Kaplan Turbine | MER-10 | 1.0000 | Nos. |
| 41 | AMC of Desktop with spares | CSER-1 | 300.0000 | Nos. |
| 42 | AMC of Laptop with spares | CSER-2 | 40.0000 | Nos. |
| 43 | Repairing and replacement of cartridges and Annual Maintenance of Water Purifier Aqua guard Pure Chill RO 80 PSS | CSER-3 | 1.0000 | Nos. |
| 44 | Repairing and Annual Maintenance of HP 1312nfi MFP | CSER-4 | 1.0000 | Nos. |
| 45 | Repairing and Overhauling of Coolant Pump Motor, 1hp, 3Phase | WSR-1 | 2.0000 | Nos. |
| 46 | Repairing and Overhauling of Universal Dividing Head of HMT make; To be checked before quote | WSR-2 | 2.0000 | Nos. |
| 47 | Repairing and Overhauling of TIG Welding Machine | WSR-3 | 1.0000 | Nos. |
| 48 | Repairing and Overhauling of MIG Welding Machine | WSR-4 | 1.0000 | Nos. |
| 49 | Repairing and Overhauling of SEAM Welding Machine | WSR-5 | 1.0000 | Nos. |
| 50 | Maintenance of Acqua Guard Model Classic, e-boiling (1 year AMC) | WSR-6 | 1.0000 | Nos. |
| 51 | Maintenance of Acqua Guard Model Acquasure (1 year AMC) | WSR-7 | 1.0000 | Nos. |
| 53 | Repairing of Xerox Machine e-STUDIO 166, TOSHIBA Make | WSR-8 | 1.0000 | Nos. |

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|----|---|--------|--------|------|
| 54 | Repairing of 20Kva and 25 Kva DG sets. And Servicing of 160 Kva DG sets | PHOR-1 | 1.0000 | Nos. |
| 55 | And Servicing of 160 Kva DG sets | PHOR-2 | 1.0000 | Nos. |
| 56 | Repairing & Maintenance of Ammeters, Voltmeters, Wattmeters | EER-1 | 1.0000 | Nos. |
| 57 | Repairing & Maintenance of CROs, Multimeters, function Generators | EER-2 | 1.0000 | Nos. |

- 01. Agreement: For AMC successful bidder(s) have to sign a Contract Form provided incorporating all agreements between the bidder(s) and Purchaser.**
- 02. For AMC of Computers/ Laptop one on site Engineer has to be posted in college.**
- 03. For Repairing & Maintenance Bidder(s) have to visit the departments or sections to asses the Conditions / States/ positions for appropriate bidding.**