OFFICE OF THE PRINCIPAL GOVT I.T.I. KHAMHARIYA (SEEPAT)
DISTT. - BILASPUR, CHHATTISGARH

Phone No. 9009938475, E-mail - itikhr@rediffmail.com

Tender No. 6423 KHAMARIYA/WB/VTIP/2014, Dated 04/02/2014

RETENDER NOTICE INVITING

Principal, ITI Khamhariya (Seepat), Chhattisgarh invites sealed tender from eligible bidders (Manufacturers, or their authorized dealer) for procurement of various Packages of Tools, Equipments & Machinery under World Bank assisted Vocational Training Improvement Project (VTIP) in Shopping Mode.

The tender form (complete set of bidding documents along with the packages including details of Items with quantity for purchase) is available on the website **www.cg.gov.in**, A complete set of bidding documents may be downloaded free of cost by any interested eligible bidder

The sealed tender should reach the Office of the Principal, ITI Khamhariya (seepat), Chhattisgarh on or before **03.03.2014 by 13.00** hours and will be opened on the same day at 14.00 hours. Any bid received after the deadline for submission of bids as prescribed above will be rejected and returned to the Bidder. The undersigned has all the rights pertaining to the tender.

Principal,
Govt. I.T.I. Khamhariya (Seepat)
Distt.-Bilaspur (C.G.)

OFFICE OF THE PRINCIPAL GOVT I.T.I. KHAMHARIYA
DISTT. - BILASPUR, CHHATTISGARH

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Tender No. 6423 KHAMARIYA/WB/VTIP/2014, Dated 04/02/2014

World Bank Assisted Vocational Training Improvement Project

TERMS & CONDITIONS OF THE TENDER

Tender documents/Qualification requirements should be submitted in **Main envelope** as given below:

1. On the top of Main envelop mention Tender No., Due Date, all package nos. & names for which Bid are submitted.
2. Following documents should be kept inside the envelope :
    1. Covering letter for submission of Bid which should indicate -
        - Index for all the submitted documents for the tender
        - All particulars of Bidders viz address, phone No., e-mail, name of the authorized person(s), TIN/ TAN/ Service Tax No. etc. for correspondence.
        - Package Nos. & name for which Bid is submitted.
    2. Completely filled Form - "A" with signature & seal of authorized person which includes Earnest Money/ Bid security details - @ 5% of total tendered value.**Tender received without form "A" duly signed (As token of acceptance of tender conditions by the tenderer) will not be accepted.**
    3. Demand Draft/ Bank Guarantee (as given in the proforma Annexure-III) for earnest money/ bid security.
    4. All the pages of **Terms & Conditions of Tender** duly signed & stamped by the tenderer in token of his acceptance of tender conditions along with other documents.
    5. Valid certificates related to TIN / TAN / Service Tax No. etc. issued by competent Govt. authority pertaining to tender.
    6. Undertaking for "After Sales Services" on letter head of bidder.
    7. **Affidavit in prescribed format as given in Annexure-V on non judicial stamp paper of Rs. 50/- certified by Notary.**
    8. Manufacturer's Company Profile showing its product range, turn over, web-address and certifications like ISO/ ISI etc. along with the documentary proof of such certificates if company/ products bear such certificate.
    9. All relevant particulars, illustrative catalogue/ broachers etc. which should indicate the products technical specifications for all packages which is submitted in the bid.
    10. Filled Manufacturer's Authorization Form as given in SECTION XII (Annexure-VI) for all the quoted items.
    11. Package wise Commercial Bid in prescribed format (i.e. Annexure-I) should be submitted (separately for each package) in individual envelope along with the soft copy in CD (MS-Excel).
    12. On the top of each envelope of Commercial bid, bidder should clearly mention Tender No., Due Date, Package No. and Package Name with seal & sign of bidder.
3. Complete tender document must be duly singed, stamped, paged & indexed by the bidder. **Unsigned or unpaged bids shall be straightway rejected.**
4. The bid would be evaluated separately for each item.
5. Either a manufacturer or their authorized dealer can bid for a package(s). For each of the quoted items, appropriate documentary evidence for being a Manufacturer or their authorized dealer (Manufacturer's Authorization Form given in SECTION XII as Annexure-VI) must be

submitted necessarily. In absence of above the bid will be treated non-responsive & likely may be rejected.

6. If bided items are manufactured out of India then manufacturer's authorized distributor/agency for India may specially authorize a dealer who may participate in this tender. The relevant certificates in proof of such Authorizations and Manufacturing must be submitted.

7. The bid should be accompanied by Earnest Money/ bid security of @ 5% of total tendered value (for all packages) as part of the bid, in the form of Bank Draft/ Bank Guarantee of Scheduled Bank. Bank Draft should be in favour of Principal, ITI Khamhariya payable at Bilaspur, Chhattisgarh. If the bidder deposits earnest money/ bid security in the form of Bank Guarantee, he/she shall furnish the same to the Principal, ITI Khamhariya for5% of total tendered value through a bank guarantee by a Scheduled bank in the prescribed proforma as Annexure-III. Earnest Money submitted in any other form will not be accepted and the tender will be rejected. Unsuccessful bidder's earnest money will be discharged/ returned as promptly as possible.

8. The bidder should submit the Manufacturer's Make/ Brand name being use for marketing and registration no. of Commercial Tax Department.

9. Prices shall be quoted in Indian Rupees only. All quoted rates should be for **new and unused** items unless and otherwise specified so.

10. The Technical specification of the Items given in the packages are as per the requirements of the curriculum of the related sectors/trades. Bidder may give equivalent / superior specification as manufactured along with the Technical details / catalogue / brochure etc.

11. Complete Tender Documents will be opened on the prescribed date and time in the presence of Bidders / representatives who choose to attend. The Bidders / representatives who are present shall sign a register evidencing their attendance.

12. The rates quoted by the bidder must be inclusive of all the charges (like – transportation, installation charges, delivery charges, inspection charges, training charges, charges for services, excise duty, customs duty etc.) except VAT. The VAT should be mentioned separately.

13. The tender matter including prices should be typed neatly; corrections/ overtyping in prices will not be accepted. However if correction/ overtyping is there, it should be attested by the tenderer with signature, date and their seal. Hand written and xerox tender will not be accepted.

14. The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.

15. Bids shall remain valid for 45 days after the deadline for submission of bids prescribed by the Purchaser. A bid valid for a shorter period shall be rejected by the Purchaser as non-responsive.

16. Tenderer should give all relevant particulars about every item, such as maker's name Country of Manufacture and Specifications and Price etc., "Specifications as given in catalogue" quoted in tender by the tenderer will not be accepted. Full specification must be written in tender positively and should also be supported by technical literature (Catalogue/ Broachers). Purchase Committee's approval/ decision will be final and binding.

17. Vague expression such as "complete with standard accessories" or "as per your specification" will not be accepted. The tenderers must specifically indicate all specification of the items and should mention clearly what item will be supplied under "accessories" with the Equipment/ Machinery in price schedule enclosed as Annexure-I. Any ambiguity or vagueness in tender for item concerned will be liable for rejection.

18. Makers stickers pasted on equipments/tools will not be accepted.

19. Catalogues/ brochures must be clear, specific and should reflect all the essential specifications of the products/ items, otherwise it will not be considered for comparison. It should be clearly indexed to reflect which item is related to which Catalogues/ brochures.

20. Supplies for any particular item in each package of the bid should be from one manufacturer only. Bids from agents offering supplies from different manufacturers, for the same item of the package in the bid, will be treated as rejected.

21. Contracts will be awarded only for those items which have minimum 3 valid rates.

22. The bids will be examined to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are in order.

23. The decision of the Tender Committee will be final in the scrutiny of successful bidders.

24. The tenderer will have to submit samples on demand before the technical team at the purchaser end, in the prescribed time limit. In case the samples are not produced in the prescribed time it shall be open to the undersigned to forfeit Earnest Money Deposited by the tenderers. If the samples sent by the party are approved the same will be adjusted in regular supply and in the case of rejection, they will be returned back to the party at his cost.

25. Since this procurement is financed by a World Bank loan/ credit, bidders/ suppliers/ contractors are required to permit the bank to inspect their accounts and records and other documents related to the bid submission and contract performance and to have them audited by auditors appointed by the Bank.

26. The fact that the tenderer has signed the form “A” will mean that the tenderer has completely accepted Terms & Conditions of the tender and that the tenderer agrees to abide by these Terms & Conditions of the tender. No deviation from Terms & Conditions of the tender will be accepted under any circumstances. The Terms & Conditions of the tender and clause usually printed on the parties tenders or bills will not be binding on this department.

27. The contents of the form “A” should not be changed or amended otherwise will not be acceptable by this office.

28. The Principal, ITI Khamhariya Chhattisgarh reserves the right at the time of Contract award to increase or decrease the quantity of goods originally specified in the Packages without any change in unit price or other terms and conditions.

29. **Contracts for procurement of packages will be awarded as per the priority and availability of budget.** Suppliers has to deliver and complete the task of installation strictly as per the specification of ordered items within stipulated time otherwise above contract may be treated as canceled without any prior notice.

30. **Before executing the awarded contract** the Supplier shall furnish Performance Security to the The Principal, ITI Khamhariya Chhattisgarh for an **amount of 5%** of the contract value through a Bank Guarantee by a Scheduled bank, in the prescribed proforma as Annexure-IV, valid upto 60 days after the date of completion of performance obligations including warranty obligations. If the desired Performance Security is not deposited by the tenderer in the specific period, the Earnest Money already deposited with the tender shall be forfeited. In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected/ replaced material shall be extended to a further period of 12 months and the Performance Bank Guarantee for proportionate value shall be extended 60 days over and above the extended warranty period. In the event of any contract amendment, the Supplier shall, within 21 days of receipt of such amendment, furnish the amendment to the Performance Security, rendering the same valid for the duration of the Contract, as amended for 60 days after the completion of performance obligations including warranty obligations.

31. If the Supplier fails to deliver any or all of the Goods or to perform the services within the stipulated delivery period(s) specified in the Contract, the Principal, ITI Khamhariya Chhattisgarh shall, without prejudice to its other remedies under the Contract, forfeit the Bid Security and the order is liable to cancel.

32. If the supplier/ dealer fails to supply the items as per the specifications, items will not be received by the consignee and supplier/ dealer has to return it back on his/ her own cost. The supplier / dealer may supply the items of higher specifications (due to manufacturing obligations) if accepted by consignee after examination and testing.

33. The one time extension in the delivery period may be granted at the discretion of the undersigned. The liquidated damage at a rate of 2% per month subject to a ceiling of 10% of the contract price of the full cost of the tool/equipment/machine is liable to be charged for the extension of the delivery period. Once the maximum is reached, the Purchaser may consider termination of the Contract. Equipment received after the delivery period or dispatched after the delivery period mentioned in the order will also be subjected to this liquidated damage. Power to extend delivery period would remain reserved with Principal, ITI Khamhariya Chhattisgarh.

34. Loading/ Unloading charges shall be borne by the supplier.

35. The undersigned may get, the items supplied by the successful tenderer, inspected on receipt of the same by such person or persons he deems fit and to reject such of these items as in his opinion do not come up to the specification. The decision of the under signed will be final in such cases. The rejected items will be returned on the tenderer's cost.

36. Warrantee/Guarantee should be for a period of 1 year minimum after delivery for the goods and its accessories. An undertaking shall be given by the bidder for "After Sales Services" (in case of authorized supplier/ dealer it should be given by the Manufacturer).

37. All the equipments shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit/ handling and storage at site till the time of installation/ commissioning. While packing all the materials, the limitations from the point of view of availability of railway wagon sizes, in India should be taken into account. The contractor shall be responsible for any loss or damage during transportation, handling and storage due to improper packing.

38. If any Machines/Equipments require training for users, then supplier/ dealer has to arrange such training program at the destinations free of cost. Installation and working trial is to be given at site at the expenses of supplier.

39. 100% payment will be released after the safe receipt of goods, as per the specifications given in purchase order & and after ensuring successful installation, commissioning and performance of supplied items etc.

40. It must be noted that normally all correspondence and transactions will be made only with the parties whose tenders have been accepted and not with anybody else.

41. The undersigned reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time without assigning any reason prior to contract award, without thereby incurring any liability to the affected bidder or bidders.

42. At any time prior to the deadline for submission of bids, the Purchaser may modify the bidding documents by amendment. All prospective bidders who have purchased the bidding documents will be notified of the amendment by uploading in the website **www.cg.gov.in** or by E-mail or by fax and will be binding on them.

43. If any document given by the bidder is found fake/manipulated, then the entire EMD deposited by the bidder in the tender will be forfeited without assigning any reason and such bidder will not be entitled for future biddings.

44. Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

The decision of the “Tender Committee” will be final & binding to all the bidders. Any dispute arising out of this tender or supply of any other matter will fall under the civil jurisdiction of Chhattisgarh High Court only.

Principal,
Govt. I.T.I. Khamhariya
Distt.- Bilaspur (C.G.)

ANNEXURE-I

Note:- Give Bid Price Item-wise in the following Proforma only. Any deviation will not be accepted.

PRICE SCHEDULE

Package No. ....., Package Name. .....

Name of Bidder .....……

(Amount in Rs)

Item Serial No.	Item Code	Specifications of items, which bidder offers	Name of accessories with specifications (if any)	Make/ Brand of Item	Manufacturer's Name	Catalogue / Brochure Page No. (as indexed by you)	Quantity of Item as per tender With unit	Cost per unit (Inclusive of all Charges) except VAT	VAT	Total value item wise (col. 9 + col. 10)	Total Value in Rs. (col. 8 x col. 11)
1	2	3	4	5	6	7	8	9	10	11	12
Total package Value (in words)											

Note:-

a. The bidding prices shall be for F.O.R. Destination.

b. Rates should be inclusive of all charges (such as charges for Inspection/ Demonstration/ Installation/ Commissioning/ Transportation/ Excise / Custom / Services charges etc. except VAT. VAT should be mentioned separately.

c. Conditional rates will not be accepted.

d. Comparison will be done item wise on the basis of total value as mentioned in column 11.

e. Rates will be finalized for purchase on the basis of individual items having 03 valid rates.

f. Specifications of the items which bidder offers as per the catalogue/ brochure/ Technical details etc. will be considered for comparison and selection. Incomplete details will not be considered for comparison.

g. Price Schedule given in other form will not be accepted and bid will be rejected.

ANNEXURE- II

FORM - A

(To be signed and returned along with the tender)

I/We (Full Name) …….....

Address …….....

…….....

have read the Terms and Conditions of the tender for the supply of various stores as per your tender notice for supply of Package of _____ for INDUSTRIAL TRAINING INSTITUTES ..... of Chhattisgarh under World Bank assisted VTIP Scheme in Shopping Mode due on _____ and I/we fully accept the Terms and Conditions of the Bid supplied to me / us with the Bidding Documents.

I/We also undertake to permit the World Bank to inspect our accounts and records and other documents related to the bid submission and contract performance and to have them audited by auditors appointed by the Bank.

It is further noted that if any manipulation is found at any stage, the tender/ Contract / Supply order shall be rejected and the Principal, ITI ....., Chhattisgarh may take any action against me/us, as she/he deems appropriate.

Details of Earnest Money/bid security in the form of DD/BG (@ 03% of the total tendered value for the package(s) for which bid is submitted) :

(a) DD/BG no. ----------

(b) Value Rs. ----------

(c) Name of Bank ----------

Date: …….....

Signature
(Name & full Address of the firm)

ANNEXURE- III

EARNEST MONEY / BID SECURITY FORM

To: **The Principal, Industrial Training Institute**

_____,

Distt.-_____ Chhattisgarh

WHEREAS ..... (Name of Supplier) hereinafter called "the Bidder" has undertaken, in pursuance of Tender No. ..... dated ..... 20..... to bid in the said tender.

AND WHEREAS it has been stipulated by you in the said Tender notification that the Supplier shall furnish you with a Bank Guarantee by a Scheduled bank for the sum specified therein as Earnest Money/ Bid Security for compliance with the Bidders obligations in accordance with the Tender terms and conditions.

AND WHEREAS we have agreed to give the Bidder a Guarantee:

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

This guarantee is valid until the .....day of.....20.....

Signature and Seal of Guarantors

.....

.....

.....

Date.....20.....……

Address:.....

.....

.....

.....

(Signature of the Bank)

Note : The bank guarantee (submitted by Indian Bidder) should be executed on stamp paper in accordance with stamp Act. The stamp paper should be in the name of executing bank.

ANNEXURE- IV

PERFORMANCE SECURITY FORM

To. The Principal, Industrial Training Institute

_____,

Distt.-_____ Chhattisgarh

WHEREAS ..... (Name of Supplier) hereinafter called "the Supplier" has undertaken , in pursuance of Contract (Notification of Award) No. ..... dated ..... 20..... to supply..... (Description of Goods and Services) hereinafter called "the Contract".

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

AND WHEREAS we have agreed to give the Supplier a Guarantee:

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

This guarantee is valid until the .....day of.....20.....

Signature and Seal of Guarantors

.....

.....

.....

Date.....20.....……

Address:.....

.....

.....

Note : The Bank Guarantee [submitted by Indian Supplier] should be executed on stamp paper in accordance with stamp paper act. The stamp paper should be in the name of executing bank.

ANNEXURE- V

On Non Judicial Stamp Paper of Rs. 50/-

निविदाकर्ता द्वारा Bid के साथ दिये जाने वाला
शपथ–पत्र

निविदाकर्ता फर्म मेसर्स ..... की ओर से मुझे/हमें अधिकृत किया गया है और मैं/हम निम्नलिखित कथन शपथपूर्वक कहता हूँ/कहते हैं कि :–

1. मैंने/हमने निविदा की सारी शर्तें ध्यानपूर्वक पढ़ी हैं और उनसे सहमत हैं तथा उन्हें मानने के लिये वचनबद्ध हैं।
2. मेरे/हमारे द्वारा संलग्न किये गये सभी दस्तावेज सही है और उनमें किसी प्रकार की कांट–छांट नहीं किया गया है एवं गलत जानकारी नहीं दी गई है।
3. मेरे/हमारे द्वारा कामर्शियल बिड में सामग्रियों के लिये जो स्पेशिफिकेशन दिया गया है और उनके सपोर्ट में जो भी संबंधित दस्तावेज, कैटलॉग/ब्रोशर्स आदि संलग्न किये गये हैं उनमें लिखा विवरण निर्माता द्वारा जारी किया गया है एवं मूल रूप में हैं और उनमें कोई फेरबदल या कांट–छांट नहीं किया गया है।
4. मेरे/हमारे द्वारा निर्माता से मुझे/हमें जारी आथॉराइजेशन प्रमाण पत्र जो कि बिड के साथ संलग्न किये गये हैं वे सही एवं मूल रूप में हैं और उनमें कोई फेरबदल नहीं किया गया है।
5. मैं/हम दिये गये क्रयादेशानुसार सामग्रियों को निर्धारित समय सीमा में स्पेशिफिकेशन के अनुसार सप्लाई करने के लिये बाध्य हैं। देर होने या सामग्रियों के स्पेशिफिकेशन में अन्तर होने पर मुझे/हमें दिये गये क्रयादेश को निरस्त किया जा सकता है एवं शासन को होने वाले नुकसान की भरपाई मेरे/हमारे द्वारा की जायेगी।
6. मेरे/हमारे द्वारा दी गई जानकारी असत्य पाये जाने पर मुझे/हमें एवं हमारी फर्म को निविदा में भाग लेने से वंचित किया जा सकता है।

दिनांक .....

हस्ताक्षर : .....

नाम : .....

धारित पद : .....

फर्म का नाम : .....
(सील सहित)

ANNEXURE- VI

SECTION XII

MANUFACTURERS' AUTHORIZATION FORM*****

No. _____ Dated

To

Principal / Head of the Institution
Government ITIs
Under Directorate of Employment & Training
Chhattisgarh

Dear Sir:

Tender no _____ Dated _____

We _____ who are established and reputable manufacturers of *(name and description of goods offered)* having factories at _____ (*address of factory)* do hereby authorize M/s _____ *(Name and address of Agent)* to submit a bid, and sign the contract with you for the goods manufactured by us against the above IFB.

No company or firm or individual other than M/s _____ are authorized to bid, and conclude the contract for the above goods manufactured by us, against this specific Tender. *(This para should be deleted in simple items where manufacturers sell the product through different stockists.)*

Yours faithfully,

(Name)

(Name of manufacturers)

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

* Modify this format suitably in case where manufacturer's warranty and guarantee are not applicable for the items for which bids are invited.

Principal Industrial Training Institute khamariya, Distt.-Bilaspur (C.G.)

Details of Proposed Procurement under Shopping Mode

S.No.	Package No.	Package Name
1	1	Valves / Valve positioners
2	2	Hydraulic & Pnumatic Items
3	3	Welding Transformer
4	5	PID Controller trainer
5	6	Pneumatic Equipments
6	8	Humidity sensors, Temprature Recorders & Transmitters
7	9	Thermocouples & Thermometers
8	10	Motor/ Diesel Related
9	13	UPS
10	14	Electric/ Electronic/ Controlers/ Actuator
11	21	Volt Meter, Ammeter, Wattmeter, Energy Meter
12	22	Pressure Gauge
13	23	Deflecting/ Helical/ Rotating vane Flow Meter
14	27	Coriolis/ Turbine/ Ultrasonic/ Vertex Flow Meters
15	28	Level Indicator
16	31	Flow Meters
17	32	Surface Plate-V Block-Angle Plate
18	35	Air Conditioner
19	36	Vices, Pipe bending machine
20	37	Pump
21	42	LCD/Overhead Projector
22	44	Motor Generetor
23	46	Electric Motor Starter
24	47	Soldering / Desoldering Items
25	48	Multimeter/Ohmmeter/AVO Meter
26	50	Battery / Charger
27	51	Growler

Schedule of Requirements

Package - 1

Valves / Valve positioners

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UIM276, NIM276	Various types - Different types of control valves such as gate valves, globe valves, ball valves, diaphragm valves, butterfly valves etc electrically actuated. Technical Specifications : (1) Globe Valve : (Pneumatically Operated) (2) Gate Valve : (Hydraulica A) Type : Globe 2-way Size (mm) : 25 mm Rating : 150# Body MOC : A 216 Gr. WCC Trim MOC : SS 316 B) Type : Ball Valve Size (mm) : 25 mm Rating : 150# Body MOC : A 216 Gr. WCC Trim MOC : SS 316 + PTFE C) Type : Knife edge gate valve Size (mm) : 80 mm Rating : 150# Body MOC : A 216 Gr. WCC Trim MOC : SS 316 + PTFE D) Type : Butterfly valve Size (mm) : 100 mm Rating : 150# Body MOC : A 216 Gr. WCC Trim MOC : SS 316 + PTFE E) Type : Diaphragm valve Size (mm) : 125	1	**1**
		Total		

Schedule of Requirements
Package - 2
Hydraulic & Pnumatic Items

S.N.	Code No.	Details of Specification	Khamariya	Total
1	U515, UIM266, NIM266	Pnematic and electronic recorders (single point and multipoint) both circular and strip chart types a) 2 PEN POTENTIOMETER STRIP CHART RECORDER (ELECTRONIC) Dial Marking : 0 - 10; Chart Speed : 60 mm/ht. Linears for both inputs.; Scale Length : 120 mm.; Accuracy : 0.5 % A.C. 230 V mains operated panel. Mountable type with cutout 180 w x 260 H mm. **b) SINGLE PEN CIRCULAR CHART RECORDER (ELECTRONIC)** Input : 4 - 20 mA.; Chart Speed : 24 hrs.; Accuracy : ± 0.5 span. **c) Pneumatic Circular Chart Recorder :** No. of Pens : One ; Chart : 9.5 dia. chart. Chart Drive : Electric Motor 230 V., 50 Hz AC. Chart Speed : 1 Rev./day.; Range : 0 - 12 Kg/Cm2.; Accuracy : ± 0.5 span. **d) Pneumatic Strip Chart Recorder :** No. of Pens : One; Chart : 0.2 - 1 Kg/Cm2.; Chart Drive : Electric Motor 230 V., 50 Hz AC. Chart Speed : 1 Rev./day.; Chart Width : 100 mm.; Accuracy : ± 0.5 span. e) MICROCONTROLLER BASED CIRCULAR CHART RECORDER Specification:- Input : 4 – 20 mA of PID Controller Output; Display Range : 0 – 100% Resolution : 0.1%; Accuracy : + 0.5% Recording : Steeper Motor Controlled 0.5% resolution & repeatability Pen : Ball Point of Red Color; Power : 180 - 260 V AC, 50 Hz Chart Speed : Rotation per Shift (8 hrs.); No. of Charts : 30 pics. f) MICROCONTROLLER BASED STRIP CHART RECORDER Specification:- Input : ma; Number of Input: minimum 4; Input Sampling : 10 s;	3	**3**

Schedule of Requirements
Package – 3
Welding Transformer

S.N.	Code No.	Details of Specification	Khamariya	TOTAL
1	PMA201, UW60, NW60	CO2 welding machine complete 400 amps.(set) max. output at 100% duty cycle A 250 OCV 68-88 current range 4 to 400 amp. With accessories regulator flow meter, gun holder, earthing clamp cable, gloves, sleeve appron head screen	1	**1**
Total				

Schedule of Requirements

Package - 5

PID Controller trainer

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UIM267, NIM267	Pneumatic controller trainer consisting of instrument panel digital computer and interface system (Configuration as P, PI, PD, or PID) Prop. Band : 5% to 50% (Gain 2-20) Integral time : 10msec-100msec Derivative time : 2-200msec Built-in signal sources. Set Valve of -1V to +1V Square wave of 1V p-p (min) at 40Hz. Triangular of 1V p-p (min) at 40Hz Built-in 3 ½ digit DVM for DC measurements. Interconnections All interconnections are made using 2mm banana Patch cords. Test points are provided to analyze signals at various points. All ICS are mounted on IC Sockets. Bare board Tested Glass Epoxy SMOBC PCB is used. In-Built Power Supply of +5V/1.5A, +12V/250mA with Power ON indication Attractive Wooden enclosures of Light weight Australlan Pine Wood. Set of 2mm Patch cords for interconnections User Manual.	1	1

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Schedule of Requirements
Package - 6
Pneumatic Equipments

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UIM206, NIM206	Differential pressure transmitter (Pneumatic) for training purpose Diaphragm Type : Range:2.5to250mbar,Max.perm. Test Pressure:160, Power Supply:10.5 to 45 VDC, Working temperature : 85 Deg C Max, OutPut:4 4-20mA, Hart, 2-wire system, Stability:0.25% every 5 years, Accuracy : 0.075% of span, Rangebility : 100, 1 Bulit in Digital Indicator with LCD Display.	2	2
Total				

Schedule of Requirements

Package - 8

Humidity sensors, Temprature Recorders & Transmitters

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UIM306, NIM306	Hygromete (sensor : humidity sensor capacitive for 90% RH non condensed, display :- 3 1/2 digital display, Humidity chamber :- PVC chamber for creating controlled humidity)	2	**2**
2	UIM 260 NIM 260	Temperature transmitter pneumatic)input, RTD, TC or Bulb) Input : Thermocouple S, B, T, R, K, E, J, N, and PT100 RTD, 2 wire, 3 wire, 4 wire Output : 4 to 20 ma, Two wire Mounting : Head mounted, Ambient Temperature : -40 to 85 deg. C Measuring Accuracy : ± 0.1% per deg C Protection : IP40 Parameterization : Through SIPROM T Software or PDM Software with test protocol in 5 measuring the transmitter modem USB for Sitrans TH200 and SIPROM T Software. Hardware/Software requirement for SIPROM T Hardware/software requirement for SIPROM T	2	**2**
Total				

Schedule of Requirements

Package - 9

Thermocouples & Thermometers

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UIM251, NIM251	Stem and dial type bimetallic thermometer (various ambient air temperature ranges) for training purpose	2	**2**
2	PMB 302, U502, UIM250, U509, NIM250	Alcohol in glass thermometer low temperatures range (-120 to 320° C) for training purpose	2	**2**
Total				

Schedule of Requirements
Package - 10
Motor/ Diesel Related

S.N.	Code No.	Details of Specification	Khamariya	Total
1	U401, UDM65, NDM65, NMM67	Double open ended ignition spanner of B.A. 0x1 to 8x9 set of 5 high carbon steel forge hard & temperd	1	1
2	U432, UDM107, NDM107	Dynamo and voltage regulator (This model should be made out of original used parts, shell be suitably sectioned to demonstrate the internal construction details showing the minute information, and working of the same, the model shell be suitably painted and mounted on a navopan wooden base.)	1	1
3	U427, UDM98, NDM98, NMM98	Filling jig for adjusting the piston ring gap	1	1
4	U446, UDM121, NDM121	Injector testing set (hand operated) 0 - 400 kg/cm2	1	1
5	U434, UDM109, NDM109	Injectors different type multi hole for P6/P4 engine	1	1
6	U414, UDM82, NDM82, NMM82	Valve spring lifter C type	1	1
7	U420,UDM89, NDM89, NMM132	Piston ring expender & remover high carbon steel forge hard & temperd	1	1
8	U415, UDM83, NDM83, NMM83	TOOL VALVE GRINDING, SUCTION TYPE (CONSUMABLE TOOL) for training purpose	6	6
9	U756, U445, UDM116, NDM116, NMM128	Valve key inserter	1	1
10	U416, UDM84, NDM84, NMM84	Valve seat cutting tool complete with guides & pilot bar (all angles) in a box for training purpose	1	1
Total				

Schedule of Requirements

Package – 13

UPS

S.N.	Code	Details of Specification	Khamariya	Total
1	UELE109, NELE109	Inverter 1 KVA Input 12 Volt DC, output 220 volt AC with 12 Volt battery	1	1
Total				

Schedule of Requirements
Package – 14
Electric/Electronic/Controlers/Actuator

S.N.	Code	Details of Specification	Khamariya	Total
1	UIM207, NIM207	Differential pressure transmitter (electronic) PC-020. FLOW CONTROL UNIT (ORIFICE-DPT SENSING) CONTROL : Micro controller based P I D controller with PC interface SENSOR : Differential Pr. transmitter with Orifice. Range : 2.5 to 250 mbar Type : Smart Max. Perm. test Pressure : 160 bar Power Supply : 10.5 to 45 V DC Package No. 14 Working temperature : 85 Deg C max Output : 4-20mA, HART, 2-Wire system Stability : 0.25% every 5 years Accuracy : 0.075% of span Rangebility : 100:1 Programming : Locally using inbuilt Push Buttons on Tranmitter and also using Hand Held HART Communicator Overload Limit : better than 1.5x of max span Built in Digital indicator with LCD Display and selectable engineering units at Diagnosis : Self Diagnosis type With : built-in drain and vent plug Flange material : SS316	2	2
Total				

Schedule of Requirements
Package - 21
Volt Meter, Ammeter, Wattmeter, Energy Meter

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UIM184, NIM184	Voltmeter dynamometer type AC&DC for training purpose	3	3
2	UIM185, NIM185	Voltmeter induction type for training purpose	3	3
Total				

Schedule of Requirements
Package - 22
Pressure Gauge

S.N.	Code No.	Details of Specification	Khamariya	Total
1	IMA78, IM225, PMB308, UIM201, NIM201	Bourdon type pressure gauges of various ranges(0-28,40,70,100,150kg) Dial Size : 100 MM (4") Case & Bezel : ss 304 Bayonet Lock Type to IP 65 Bourdon : SS 316 Movement : SS 304 Socket : SS 316 Entry : Bottom Connection : 1/2" BSP (M) Window Glass : Toughened Joints : Argon Arc Welded Blow Out disc : will be provided Pointer : Micro Zero adjustable Accuracy : 1% Over range : 130% of FSD	each 2	2
2	PMB 310, UIM202, NIM202	Capsule type pressure gauge pan : 0 to 6 bar g Max. Overload limit 15 bar g Power Supply : 7 to 33 V DC Working temperature : 100 Deg C max Output : 4-20 mA, two wire system Accuracy : 0.25% of full scale valve Protection : IP65 Process Connection : 1/2" -14 NPT female with manufactures test certificate Remote indicator : For display	3	3
3	UIM217, NIM217	Low pressure measuring gauges such as thermal conductivity - 0.0001 torr upto 0.01 torrs , pirani-0.00001 to 1 torr gauges, melody guage-0.001m bar 10m bar	1	1
4	UIM220, NIM220	Vacuum guage, 100 mmdial, (1000m to 10m bar) Bourdon tube type for training purpose	2	2
Total				

Schedule of Requirements

Package - 23

Deflecting/ Helical/ Rotating vaneFlow Meter

S.N.	Code No.	Details of Specification	Khamariya	Total
1	PMB 286, UIM227, NIM227	Rotating vane flow meter for training purpose	2	2
Total				

Schedule of Requirements
Package - 27
Coriolis/Turbine/Ultrasonic/Vertex Flow Meters

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UIM238, NIM238	CORIOLIS MASS FLOW METER For fluids (e.g. pu components, paints) & gases of high density Suitable for aggressive & contaminated media Measurement of mass flow, density, temperature & volume flow up-to +125O C medium temperature Individual 8 point calibrations including report. Ex protected as per ATEX & EMC Tested High rotation frequency range : 4.5 Kg/h ; Max pressure 350 bar 1. Type : Mass Flow 2. Output : (4-20)mA 3. Supply : 24V DC (or) 230V AC 4. Connection : 1" Flanged (or) Screwed 5. Display Provided 6. Reservoir tank : below 50litre 7. Suitable pump provided 8. Mounted on a powder coated frame	1	1
2	IMA94, PMB 288, UIM228 PMB 306, NIM228	turbine flow meter,TThe Setup Consists of : 1. Water Sump : 150 Ltr Capacity for close circuit system. 2. Measuring Tank : 300 x 300 x 450 mm size with drain valve & gauge glass fittings. 3. Manometer : 1 mtr. height differential manometer without mercury. 4. Turbine Flow meter of capacity 10-15 Lit/min having following specifications • Size : ½" – 2" • Accuracy : ± 1% of FSD • Service : Clear Liquids, Gases, Air, Solvents etc • End Connections : Screwed, Flanged as per PN 10/16 • Maximum Temp. : 150O C • Options : Flow Rate Indicator in Local / Remote Panel / Pr. - Temp Compensation • Out-put : Pulse / 4-20 mA / Relay • Calibration : Liters, m3, Kg etc • Mounting : In Line / Insertion 5. Water pump : ½ HP for water circulation. 6. Instruction Manual : 1 Copy.	1	1
3	IM258, UIM236, NIM236	Vortex tube flow meter This Setup should Consists of : 1. Vortex tube flow meter with LCD display 0-10LPM 2. Rotameter : 1" size with 4.2 - 42 LPM. 3. Water Sump : 150 Ltr Capacity for close circuit system. 4. Measuring Tank : 300 x 300 x 450 mm size with drain valve & gauge glass fittings. 5. Water pump : ½ HP for water circulation.	1	1
Total				

Schedule of Requirements

Package - 28

Level Indicator

S.N.	Code No.	Details of Specification	Khamariya	Total
1	PMB 295, UIM243, NIM243	Float type level indicator for training purpose sump tank, process tank SS 304 with view glass and scale for level indication FHP centrifugal pump for fluid circulation manual control & Drain valve to manage level in process tank	2	2
2	PMB 296, UIM244, NIM244	Static pressure level indicator for Range : 0-1000 mm of WC UIM238, Output : 4-20mA Supply : 24 V DC Mounting : Field mounting type	2	2
3	UIM245, NIM245	Level transmitter (inter face), Level Transmitter : Range : 0 - 1000 mm of WC Output : 4 - 20 mA. Supply : 24 V DC. Mounting : Field mounting type.	1	1
Total				

Schedule of Requirements
Package - 31
Flow Meters

S.N.	Code No.	Details of Specification	Khamariya	Total
1	PMB 291 UIM 230, NIM 230	Orifice type flow meter	1	1
Total				

Schedule of Requirements

Package - 32

(Surface Plate-V Block-Angle Plate-Universal Scribing Block)

S.N.	Code No.	Details of Specification	Khamariya	Total
1	U346, UFIT177, NFIT177, IAA 275	Surface roughness Comparision plates N1-N12 grade (set), made of high carbon steel ground and hardened	1	1
2	UIM48, NIM48	Clamp toolmaker 65 x 12 x 25 mm opening made of high carbon steel with hardened and tempered	2	2
Total				

Schedule of Requirements

Package - 35

Air Conditioner

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UCOPA25	Spilt type Air Conditioners 1.5 tons.	3	3
Total				

Schedule of Requirements

Package - 36

Bench Vices, Machine Vice, Pipe bending machine, Pipe Cutter

S. N.	Code No.	Details of Specification	Khamariya	Total
1	RAC82, CE53, UELE71, UELE73, NELE71	Vice hand 50 mm jaw, made of high carbon steel body cast iron	6	6
Total				

Schedule of Requirements

Package - 37

Pump

S.N.	Code No.	Details of Specification	Khamariya	Total
1	U426,U730, UDM97, NDM97, NMM97	WATER PUMP (Engine Ass.) This model should be made out of original used parts, shell be suitably sectioned to demonstrate the internal construction details showing the minute information, and working of the same, the model shell be suitably painted and mounted on a navopan wooden base.	1	1
Total				

Schedule of Requirements

Package – 42

LCD/Overhead Projector

S.N.	Code	Details of Specification	Khamariya	Total
1	UIM304, ULIB22, NIM304	Digital LCD projector with all accessories	1	1
Total				

Schedule of Requirements

Package – 44

Motor Generetor

S. N.	Code No.	Details of Specification	Khamariya	Total
1	UELE120, NELE120	Motor generator (AC to DC) consisting of Motor induction squirrel cage. 7HP 440 Volts, 50 cycles. 3-phase with star delts starter and switch directly coupled to DC shunt generator 5KW 440 volts and switch board mounted with regulator, air circuit breaker.	1	1
2	UELE121, NELE121	Motor generator (DC to AC) set consisting of motor shut 5HP, 440 Volts with starting compensator and switch directly coupled to generator AC. 35 KVA, 400/230 Volts, 3 phase , 4wire, 0.8 PF 50 cycles with exciter and 1 switch board mounted with regulator & Starter,	1	1
3	UELE151, NELE151	Thyristor/IGBT controlled DC motor drive 1 HP with tachogenerator Thyristor/IGBT controlled DC motor drive 1 HP with tachogenerator feedback arrangement : The DC Drive Demonstrator should be a versatile standalone unit useful in the study & demonstration of the principle & working of a DC drive. The circuit should consist of a ramp generator, comparator, pulse transformer trigger circuit, dynamic breaking resistor, contactor, short circuit, overload & field failure protection. The unit should be operated in five modes, namely, Forward, Reverse armature feedback, open loop, tacho feedback. A 3 pin socket for CRO should be provided for isolation. It should be housed in an elegant metal cabinet with a well spread intelligently designed circuit layout on front panel. Multicoloured test points should be provided at various stages in the circuit to observe voltages & waveforms. Approx Technical Specifications should be as under Input : 230V, 50Hz AC 1f. Output : Variable DC (0 - 230V). Circuitry : Ramp Generator, Comparator, Pulse transformer trigger circuit, Dynamic breaking resistor, Contactor, Short circuit, Overload, & Field failure protection. Power Circuit : Using 2 Thyristor (1200V, 25A) (i.e. Half bridge). Feedback : 1. Armature. 2. Tacho. Protection : 1. Overload. 2. Short Circuit. 3. Field Failure. Controls : 1. Speed. 2. Direction (Forward / Reverse) selector switch. 3. Feedback (Armature - open loop - Tacho feedback) selector switch. Indicator : 1. Drive ON. ; 2. +12V.; 3. -12V.; 4. Trip.; 5. Mains ON. Socket : 1. 8 pin socket for connecting motor & tacho.; 2. 3 pin socket for CRO. Display : 1. 3 ½ digit to indicate armature current. ; 2. 3 ½ digit to indicate armature voltage.; 3. 3 ½ digit to indicate RPM. Motor : 1 HP DC Motor with tacho & loading arrangement. Experiment : 1. Study of firing circuit.; 2. Speed control of DC motor with armature feedback.;3. Speed control of DC motor with tacho feedback.;4. Forward reverse operation with dynamic breaking	1	1
4	UELE152, NELE152	Thyristor/IGBT controlled AC motor drive VVVF control 3 phase 2HP. The AC Motor Drive Demonstration Unit should be versatile stand alone unit useful in the study & demonstration of the principle & working of an AC motor drive using IGBT. The circuit should work on the principle of PWM with frequency & voltage control. A Three phase 2HP AC motor coupled with a tacho generator & loading arrangement should be provided. A 3 pin mains socket for connecting the CRO should be provided for isolation. It should be housed in an elegant metal cabinet with a well spread intelligently designed circuit layout on front panel. Multi - coloured test points should be provided at various stages in the circuit to observe voltages & waveforms. Approx Technical Specifications should be as under Input : 230V, 50Hz A.C 3f. Output : Variable AC (0 to 230V.) Output Freq. : Approx. 10Hz to 50 Hz. Circuitry : PWM based circuitry with voltage & frequency control. Power Circuit : Using IGBT. V / F Ratio : Constant. Load : 2HP, 3 phase AC motor with tacho generator coupled to it & loading arrangement. Controls : 1. Frequency Control. 2. Voltage Control. 3. START / STOP Switch. 4. Fault Reset Switch. Indicator : 1. Mains ON. 2. Run. 3. Fault. Socket : 1. 8 pin socket for connecting motor & tacho.; 2. 3 pin socket for CRO. Display : 1. 3 ½ digit to indicate AC voltage. ; 2. 3 ½ digit to indicate speed in RPM. Motor : 2HP AC motor 3 phase 230V, 50Hz with tacho generator & loading arrangement. Experiments : 1. Study the PWM firing circuit of an AC drive. Speed 2. Control of AC motor with Variable voltage. 3. Speed control of AC motor using variable Frequency.	1	1
Total				

Schedule of Requirements

Package - 46

Electric Motor Starter

S.N.	Code No.	Details of Specification	Khamariya	TOTAL
1	UELE118, NELE118	Starters for 3-phase, 400V, 50 cycle, 3 HP A.C. Motors Direct on line starter	1	1
Total				

Schedule of Requirements
Package - 47
Soldering / Desoldering Items

S.N.	Code No.	Details of Specification	Khamariya	Total
1	U52, U397, UELE69, NELE69, NMM62	Copper bit soldering iron 0.25 kg fire headed	4	**4**
2	ITA12, UELE70, NELE70	Desoldering gun	4	**4**
3	IAA 199, U51, ELA126,25, UELE68, NMT274, NELE68	Iron soldering, 25 W	4	**4**
4	U249, UFIT62, NFIT62	Iron soldering 350 gm	2	**2**
5	U51, ELA127, 25, UELE68, NMT275, NELE68	Iron, soldering 65 watt	4	**4**
7	ELA87,ITA11, UELE68, NELE68	Soldering Iron 125 watt.	4	**4**
9	ELA125,UDM58, NDM58	Soldering iron copper 225 gms(fire heated) 150 mm& 200 mm	1	**1**
10	UDM75, NDM75, NMM75	DRIFT, COPPER 10mm*150mm	2	**2**
11	UIM34, NIM34	Electric soldering iron 6 watt pencil tip	4	**4**
12	UIM75, NIM75	Temperature controlled soldering station 80W Soldering Station, temperature range 200-480ºC, Password lock, selection mode ºC- ºF, Sesor fail Notification, Heater fail notification, LED display for temperature.	2	**2**
Total				

Schedule of Requirements
Package - 48
Multimeter/Ohmmeter/AVO Meter

S.N.	Code No.	Details of Specification	Khamariya	Total
1	U444, UDM120, NDM120, NMM134	A.V.O. meter measuring range DC current 0-250 mA, AC/DC vottage 0-10 V, 0-50 V, 0-250 V, 0-1000 V	1	1
Total				

Schedule of Requirements

Package - 50

Battery / Charger

S.N.	Code No.	Details of Specification	Khamariya	Total
1	U129, UELE147, NELE147	Battery charger with variable output 1KW	1	1
2	ITB 24, IM227, PMB404, IAA 72, U130, UELE148, UDM147, ELE148, NDM147, NMT50, NMM144, UIM305, NIM305	Hydrometer to measure specific gravity scale range 1100-1280	10	10
Total				

Schedule of Requirements
Package - 51
Growler

S.N.	Code No.	Details of Specification	Khamariya	Total
1	UELE95, UDM144, NDM144, NELE95, NMM141	Growler single phase supply testing for armature resistance	1	**1**
Total				