

مولانا آزاد نیشنل اردو یونیورسٹی

मौलाना आज़ाद नेशनल उर्दू यूनिवर्सिटी

MAULANA AZAD NATIONAL URDU UNIVERSITY

(A Central University established by an Act of Parliament in 1998)

Gachibowli, Hyderabad – 500 032

No: MANUU/Purchase/F.22/T.N.01/2017-18

Date: 15.05.2017

Cost of tender form: **Rs. 10,000/-** through DD favoring MANUU payable at Hyderabad

TENDER DOCUMENT

**FOR SUPPLY AND INSTALLATION OF VARIOUS TOOLS, EQUIPMENTS
& FURNITURE FOR FIVE TRADES OF VTC / ITI, HYDERABAD
OF THE UNIVERSITY**



Last date & time of submission of technical and financial bids : 06.06.2017 at 3:00 p.m.

Date and time of opening of technical bids : 06.06.2017 at 3:30 p.m.

Chapter-I : INTRODUCTION

1. **Preface:** Maulana Azad National Urdu University (MANUU) is a Central University, established by an Act of Parliament in 1998 with headquarter at Hyderabad and other campuses, colleges and Regional Centres located all over India.
2. **Call for tender:** MANUU invites sealed tenders from original manufacturer / Govt. organizations / authorized dealers / reputed firms to supply and install best quality equipments for the university.
3. **Submission of tender:** The sealed tenders are invited for supply and installation of various items for VTC / ITI of the University at Hyderabad under **two bid system** viz. 1) 'Technical bid (*Annexure-II A, B, C, D & E categories of trades*) *duly signed and stamped, consisting all technical details along with commercial terms and conditions and relevant documents, tender cost and EMD. The details of tender cost and EMD are given at S.No.6/Chapter-II: Terms & Conditions.* 2) *Financial bid (indicating items-wise price for each category of the respective trade category in Annexure-III for A, B, C, D & E). These two separate sealed covers should be kept in a third envelope on which it should be super scribed 'Tender for various tools, equipments & furniture for VTC/ITI, Hyderabad of the University' addressed to the Assistant Registrar, Purchase & Stores Section, Maulana Azad National Urdu University, Gachibowli, Hyderabad.*
4. **Quoting of items:** The vender may quote for all the items / part of items of Annexure-II A to E and should agree to accept the part supply order as per the criteria of lowest bid. Unit prices are to be quoted both in figures and in words. In case of discrepancy, price quoted in words or figures whichever is less will be taken as valid.
5. **Opening of bids:** The Technical bids will be opened and scrutinized; the firm, who meets the basic specification requirement as per documents furnished, may be invited for full fledge display / demonstration. The committee of the University may visit the firm / show room items supplied at other organizations to ascertain the quality. The University may also ask the firm to submit the samples before opening of financial bid / execution of order. The University may shortlist and considers only three to four best quality equipments firms. The University will not bear any expenses for presentation of samples. The financial bid will be opened for those firms who qualify technically and whose samples fulfills all the specification and agreed up to the satisfaction of the University. The decision of the University will be final in this regard.
6. **Selection of firm:** The lowest quoted firm will be selected on item wise basis subject to satisfaction of the quality of the product. The decision of the committee will be final in this regard.
7. **Alteration in the bid:** Bidders will not be permitted to alter or modify their bids after expiry of the deadline of receipt of bids.
8. **Availability of tender form:** The tender document can be had from Purchase Section on furnishing of DD (non refundable) for the required amount depend upon the category of trades chosen for furnishing the quotations ranging from Rs.1,000/- to 10,000. Alternatively, tender document can be downloaded from the University's web site (www.manuu.ac.in). If downloaded, the DD drawn on MANUU, payable at Hyderabad towards the cost of tender document for the required amount should be enclosed to the Technical bid.
9. **Cost:** The rates quoted should be inclusive of all taxes, levies, freight, insurance, transportation, installation etc. Rates are to be quoted in the financial bid as per tender document (Annexure-III A, B, C, D & E), else it shall not be considered. The element of taxes is required to be shown separately and distinctly.
10. **Offices location:** The firm should have its office within GHMC limit of Hyderabad / Secunderabad to provide service after sale and to furnish the addresses of service centre with telephone number

along with technical bid. The bidder may be required based on necessity to supply items to MANUU campus, colleges etc all over India at same rate basis.

11. **Repair and maintenance:** The firm selected to supply the items will be required to undertake the repair and maintenance as and when required or at a regular intervals during the warranty period. The firm has to identify one single point for effective services and to attend within 24 hours from the time of booking the complaint.
12. **Validity period of quotation:** Firms tendering should note that their offers should remain open for acceptance up to 120 days; if the 120th day falls on holiday then last date will be the next working day from the date of opening of tender.
13. **Acceptance of tender:** The University does not pledge itself to accept the lowest or any tender and reserves to itself, the right to accepting the whole or any part of the tender or rejecting completely.

Chapter-II: Terms and Conditions

1. **Rejection of tender:** The conditional tenders, unsigned bids, without required EMD and cost of tender form (if downloaded form is used) shall not be accepted and any query / intimation will not be entertained on such bids.
2. **Specification:** The desired specifications and allied technical details are placed at Annexure-I A, B, C, D & E. If required the same may be amended / up graded at the time of placing purchase order. These are basic specifications; the firm may quote the same or higher specifications as per enclosed Annexure only.
3. **Technical bid:** The technical bid must mention the specifications as per the Annexure-II A, B, C, D & E and indicate that the firm is ready to supply items of the required specifications or upgraded by mentioning "Yes / No" in against each item. The firm has to quote as per the required specifications. However higher configuration / technically up graded can be considered by the University. Detailed specifications, catalogue / literature, of all the items quoted may be supplied with the technical bids. Incomplete Bid / in adequate specification etc., in any respect are liable to be rejected. In case, the firm intends to supply the item with a different specification, it should be specified invariably. The firm should do indicate the make / model / manufacturer of the item against each item.
4. **Date and place of submission of form:** The technical and financial bids should be submitted to the Purchase Section, Maulana Azad National Urdu University, Gachibowli, Hyderabad-500032 by **3:00 p.m.** on **06.06.2017** Tenders received after due date and time will not be considered. The technical bid will be opened on the same day at **03:30 p.m.** in presence of vendors or their authorized representative. The representative should bring the authorization letter from their vendor for attending the tender opening committee meeting.
5. **Bid security / EMD:** The Bid security / EMD for the required amount depend upon the category of trades chosen for the furnishing the quotations ranging from Rs.10,000/- to Rs.45,000. The D.D. of EMD (refundable) drawn in favor of MANUU, Payable at Hyderabad should be enclosed to the Technical bid (The DDs of tender cost and Bid security/EMD shall not be clubbed). The Security bid of the successful bidder will be converted into Security Deposit and will be returned without interest after successful completion of warranty period / after submission of Bank guarantee / supply of items. Further, in case any firm is L-1 in some of the items, then the firm will be required to deposit the bid security / EMD amount equal to 10% amount of P.O. and the full bid security / EMD amount will be returned without interest. The cost of tender form and security bid / EMD amount is as follows:

1.	<p>Tender cost for the categories of trades chosen for furnishing the quotations (Annexure – wise)</p> <p>(i) Annexure – I (A) : Rs. 2,000/- (ii) Annexure – I (B) : Rs. 3,000/- (iii) Annexure- I (C) : Rs. 2,000/- (iv) Annexure- I (D) : Rs. 2,000/- (v) Annexure - I (E) : Rs. 1,000/-</p> <p style="text-align: center;">-----</p> <p>All categories of trades: Rs.10,000/-</p>
2.	<p>Bid security / EMD for the category of trades chosen for furnishing the quotations (Annexure-wise)</p> <p>(i) Annexure-I (A) : Rs. 32,000/- (ii) Annexure-I (B) : Rs. 45,000/- (iii)Annexure-I (C) : Rs. 25,000/- (iv)Annexure-I (D) : Rs. 30,000/- (v) Annexure-I (E) : Rs. 10,000/-</p> <p style="text-align: center;">-----</p> <p>All categories of trades : Rs.1,42,000/-</p>

Note: Exemption of Tender Cost/EMD will be considered as per GOI rules on submission of documentary proof.

6. **Company profile:** The bidders must submit their company profile, make / brand of the items etc. supplying. A list of organizations / agencies to which items have been supplied may be submitted along with copies of supply order, with the technical bid.
7. **Bidders shall have to meet the following pre-qualification criteria:-**
- a) Should have achieved the Average Annual Turnover of 30% of the value for which the quotations are furnished, during the last three years.
- b) In addition to this, the firm should have achieved any one of the following criteria, during the last 7 years.
- (i) Should have supplied similar products of the three purchase orders worth 40% of the value for which the quotations are furnished
- or**
- (ii) Should have supplied similar products of the two purchase orders worth 50% of the value for which the quotations are furnished.
- or**
- (iii) Should have supplied similar products of the one purchase order worth 80% of the value for which the quotations are furnished.
8. **Repeat order:** This is a tender cum rate contract for a period of one year and the item offered in the tender can be re-ordered at the same rate, terms & conditions within a period of twelve (12) months.
9. Orders of different organizations booked during the last two years preceding may be attached.
10. **Delivery and Installation:** The firm shall deliver the softwares and equipments at ITI, Hyderabad of the University and install the same within **30 days** from the date of issue of Purchase Order.

11. **Warranty:** All the items should be with onsite comprehensive warranty for a minimum period of one year (as per OME warranty period, whichever is later) after satisfactory installation and acceptance by the University. The firm should repair / replace the faulty items free of cost during the warranty period.
12. The firms should submit OEM/authorization certificate specific to this open tender or copy of authorized dealership Certificate.
13. **Payment terms:** No advance payment will be considered, The payment will be released in Indian rupees in the following order:
 - (i) **90% payment of purchase order:** After supply of items and installation, subject to certification by the concerned officials of the University.
 - (ii) **10% payment of purchase order / security deposit:** After availing the warranty period of one year or on receipt of Bank Guarantee of any nationalized bank of equal amount for a period of warranty.
14. **Quantity:** The quantity mentioned in the tender can be increased or decreased at the discretion of the University and the decision of the University shall be final in all respects.
15. **Quality:** All steel parts shall be given antirust treatment and shall be coated with epoxy powder.
16. **Registration:** The firm should be registered with the government agency for sales tax, service tax and income tax, incorporation firm and the certificate of registration issued by appropriate government authority for required items.
17. **Submission of Integrity Pact:** The selected firm may be required to furnish the Integrity Pact as per the office Memorandum No.14 (12)/2008-E-II (A) dated 19.07.2011, Ministry of Finance, Government of India; the form is available with the University.
18. **Right of the University:** The University reserves the right to reject or accept any tender without assigning any reason or cancel before issuing Purchase Order. In case of cancellation of the tender the EMD will be returned without interest.
19. **Acceptance of terms and conditions:** All pages of the tender document are to be signed and stamped by the tendering firm as agreed by the terms and conditions of the tender and to be attached along with the technical bid.
20. **Penalty clause:** The supply and installation of items has to be completed within stipulated time period indicated in Purchase Orders, in case of delay the University reserves the right to impose penalty, as follows:
 - (i) **Liquidated Damages:** If the firm fails to supply and install the items of desired quality and quantity or part of it or unable to perform the service within specified periods for reasonable cause, the University shall, without prejudice to its other remedies under the contract / order may deduct from the contract price, as liquidated damages, a sum equivalent to 2% per week of the value of undelivered service of the goods or unperformed services limited to a maximum of 10% value of the purchase order / left over cost. Once the maximum is reached, the University may consider termination of the contract / order without any notice and further serious action may be initiated. Late supply to the maximum of 10% will be deducted from the bill after which the order will remain cancelled and Bid Security / Earnest Money deposit will be forfeited.
 - (ii) **Termination for default:** The University may, without prejudice to any other remedy for breach of contract / order, by written notice of default sent to the firm, terminate the contract / order in whole or part at the risk and cost of the defaulting firm.
 - (a) If the firm fails to execute the supply of all the material specified in the order with in the period(s) of desired quality and quantity specified in the order, or within any extension therefore granted by the University, or
 - (b) If the supplier fails to perform any other obligation(s) under the contract / order.

(c) If any defects are observed in the items, the University will have the right to reduce the payment to be made to the firm and take any other suitable action against the firm, and the University decision will be final in this regard.

21. **Settlement of Dispute:** In case of any dispute, Hyderabad will be the Jurisdiction and the Registrar, Maulana Azad National Urdu University, Hyderabad shall decide the issue and his decision will be final and shall be binding on the parties as per following terms:

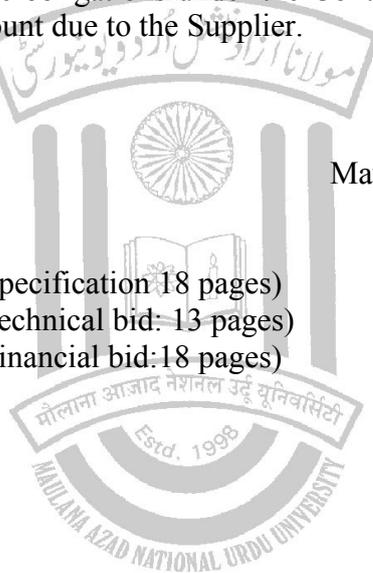
- (i) The Purchaser and the Supplier shall make every effort to resolve by direct negotiation any disagreement or dispute arising between them under or in connection with the contract.
- (ii) If the parties have failed to resolve their dispute of difference by such consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to settle the issue by arbitration, as herein provided, as to the matter in dispute. No arbitration in respect of the matter be commenced unless such notice is given in accordance with this clause for the final settlement of the matter. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.
- (iii) All questions, disputes and differences arising shall be referred by the Vice Chancellor, MANUU to the sole arbitrator for arbitration under the provision of the Arbitrations and Conciliation Act, 1996.

22. **Obligation during Arbitrations:** Notwithstanding any reference to arbitration (a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and (b) the Purchaser shall pay any amount due to the Supplier.

Place: Hyderabad
Date: 15.05.2017

Sd/-
Registrar
Maulana Azad National Urdu University
Hyderabad

- Encl:** (i) Annexure –I (A to E) (Specification 18 pages)
(ii) Annexure-II (A to E) (Technical bid: 13 pages)
(iii) Annexure-III(A to E) (Financial bid: 18 pages)



Chapter – III: Requirement and specification of the all items**Annexure – I (A)****(i) Requirement Draughtsman Civil:**

Sl. No.	Items	Qty Reqd.
1.	Box drawing instrument containing one 15cm compass with pin point, & lengthening bar, one pair spring bows, rotating compass with interchangeable ink and pencil point, drawing pens with plain point & cross point, screw driver and box of leads. (0.2,0.3,0.4mm).	2
2.	Protractor celluloid 15 cm semi - circular	2
3.	Scale card board - metric set of eight A to H in a box 1:1, 1:2, 1:2.5, 1:5, 1:10, 1:20, 1:50, 1:100, 1:200, 1:500, 1:1000, 1:2000,1:1250, 1:6000, 1:38 1/3, 1:66 2/3	2
4.	Scales plotting box wood 6 metric scales 30cm long with offset scales.	2
5.	Set square transparent 20 cm, 2 mm thick with beveled edges 45 degree.	2
6.	Set square celluloid 25 cm, 2mm thick with beveled edges 60 degree.	2
7.	T- Square 1250mm/Mini Drafter/Parallel Bar	11
8.	Template- Architects and Builders	6

(ii) General Machinery Shop Outfit:

Sl. No.	Items	Qty Reqd.
1.	Geometrical models(Wooden/plastic) as per given below:	
	i). Cube 08 cm sides.	2
	ii). Rectangular parallel piped 8 cmX 15 cm	2
	iii). Sphere 8 cm dia.	2
	iv). Right circular cone 8 cm dia base and 15 cm vertical height	2
	v). Square pyramid 8cm side base and 15cm vertical height	2
	vi). Cylinder 8 cm dia. 15 cm height.	2
	vii). Prisms triangular 8 cm sides triangle and 15cm length	2
	viii). Prism hexagonal 8cm side's hexagon and 15 cm lengths.	4
2	Template - Circle & Ellipse, furniture, etc.	4

(iii) List of Survey Instruments:

Sl. No.	Items	Qty Reqd.
1.	Digital Theodolite latest model With all accessories (Features: - Based on laser technology, Two large LCD panel with easy to read, Automatically compensates tilt in two directions and compensates vertical angles. High integrated electronic board and IC elements)	2
2.	Instruments for total station with latest model, With all accessories (Graphic LCD display on both sides. Multi function key board on both sides. Able to interchange data between GPS and Total station without any data conversion. Minimum 8 hours rechargeable li-ion battery. Poles and Prism 2Nos each)	2
3.	Hand held GPS (latest model) with standard specification	2
4.	Auto level With all accessories	2

(iv) List of Tools & Equipments for Computer Lab (Auto CAD):

Sl. No.	Items	Qty Reqd.
1.	Plotter A1 size	1
2.	Air Conditioner 2.0 Ton (specification 5 star rating, copper coil, stabilizer, deluxe: 20v boosting and 20v bucking, condensing Unit stand, heavy duty/iron/powder coated, standard installation, 3 mtr. Copper pipe + thermal installation, warranty (1 yr on full machine and 4 yrs on compressor on or higher)	2
3.	Document Camera / Visualizer	2
4.	Smart Board / Inter Active Board	2

Continued Annexure – I (A)

Digital Theodolite latest model With all accessories (Features:- Based on laser technology, Two large LCD panel with easy to read, Automatically compensates tilt in two direction and compensates vertical angles. High integrated electronic board and IC elements)

Builder Specifications	
Full Power Site Software	should be available
Wireless Communication	should be available
Prism Measurement Mode	should be available
Full alphanumeric keyboard	should be available
Volumes Calculation	should be available
Data Im/Export to USB Stick	should be available
PC/Handheld Interface	should be available
Laser Distance Measure	should be available
Control Line Setup	should be available
3 Languages	should be available
Leveling Aid	should be available
Dual Axis Compensator	should be available
Laser Plummet	should be available
Li-Ion Batteries	should be available
Internal Memory [points]	50'000
Angular Accuracy	3"
Distance without reflector (90% reflective)	250 m
Distance to reflective tape (60mm x 60mm)	250 m
Distance to glass prism	500 m

2. Total station

Instruments for **total station** with latest model, with all accessories (Graphic LCD display on both sides. Multi function key board on both side. Able to interchange data between GPS and Total station without any data conversion. Minimum 8 hours rechargeable li-ion battery. Poles and Prism 2Nos each).

Specifications for 1sec Total Station:**Telescope**

Magnification	:	30X
Focusing Range	:	1.7 m to infinity

Angle Measurement

Accuracy	:	1" (0.3 mgon)
Method	:	Absolute, Continuous, Diametrical.
Angle Least Count	:	0.1"

Compensator

Compensator setting accuracy	:	0.5"/1"/1.5"
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Distance measurement with reflector

Prism Mode	:	3.5 km and Long Range up to 7.5km or more
Accuracy	:	1mm + 1.5ppm

Distance measurement without reflector

Non Prism Mode	:	500m
Accuracy in Non Prism Mode	:	2mm +2ppm

Keyboard and Display

Display & Keyboard	:	Full Alpha-numerical keyboard with high resolution Black& White display, Graphics, 160x288 pixels, display illumination,5 brightness levels
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Trigger Key : **Should be available**

Hard Friction Movement : **Should be available**

Data storage /communication

Internal Memory	:	Max: 1, 00,000 fixed points Max: 60,000 Measurements
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External Memory	:	- USB type A and mini B
Interfaces	:	-Serial (baud rate up to 115200) – Bluetooth Wireless, Class 1, 150m
Data Formats (On Board)	:	GSI/DXF/Land XML/CSV/user definable ASCII formats

Operating System

Windows CE	:	5.0 Core
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Laser Plummet

Type	:	Laser point, 5 brightness levels.
Centering Accuracy	:	1.5 mm at 1.5 m Instrument height..

Environmental

Operating Temperature	:	-20 ° C to +50 ° C
Dust/Water (IEC60529) Humidity	:	IP55, 95% non-condensing

Battery

Type	:	Lithium-Ion
Operating Time	:	Approx. 30hours

Included application Programs

Topography; Stake Out; Station Setup Including: Resection, Orientation (Angle& Coordinates),Height Transfer; Area (Plan & Surface);DTM Volume Calculation; Tie Distance (MLM);Remote Height; Hidden Point; Back sight Check; Offset; Reference Line; Reference Arc; Reference Plane; Road 2D; COGO;

Supplied With Standard Accessories Such As:

- 1 No's Of Rechargeable Batteries, Quick Charger With Power Cable, Lens Hood, Tool Kit, Wiping Cloth, Operator's Manual, Carrying Case.
- 1No.Heavy Duty Wooden Tripod.
- 1 No.s Tilting Range Pole Prism Assembly Complete With Prism, Mounted With Target Plate Range pole with Level.
- Interface Cable to Connect Instrument and PC.
- Communication Software for Downloading.

Specifications for 3 sec Total Station:

Telescope

Magnification	:	30X
Focusing Range	:	1.7 m to infinity

Angle Measurement

Accuracy	:	3" (1 mgon)
Method	:	Absolute, Continuous, Diametrical.
Angle Least Count	:	0.1"

Compensator

Quadruple Axis Compensation

Compensator setting accuracy	:	0.5"/1"/1.5".
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Distance measurement with reflector

Prism Mode	:	3.5 km and Long Range up to 7.5km or more
Accuracy	:	1mm + 1.5ppm

Distance measurement without reflector

Non Prism Mode	:	500m
Accuracy in Non Prism Mode	:	2mm +2ppm

Keyboard and Display

Display & Keyboard : Simple Alpha-numerical keyboard with high resolution Black& White display, Graphics, 160x288 pixels, display illumination,5 brightness levels

Trigger Key : **Should be available**

Hard Friction Movement : **Should be available**

Data storage /communication

Internal Memory	:	Max: 24,000 fixed points Max: 13,500 Measurements
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Interfaces	:	-Serial (baud rate up to 115200)
Data Formats (On Board)	:	GSI/DXF/Land XML/CSV/user definable ASCII formats

Operating System

Windows CE	:	5.0 Core
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Laser Plummet

Type	:	Laser point, 5 brightness levels.
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- Centering Accuracy : 1.5 mm at 1.5 m Instrument height..
- Environmental**
- Operating Temperature : -20 ° C to +50 ° C
- Dust/Water (IEC60529) Humidity : IP55, 95% non-condensing
- Battery**
- Type : Lithium-Ion
- Operating Time : Approx. 30hours
- Included application Programs** : Topography; Stake Out; Station Setup
- Including: Resection, Orientation (Angle& Coordinates),Height Transfer; Area (Plan & Surface);DTM
- Volume Calculation; Tie Distance (MLM);Remote Height; Hidden Point; Back sight Check; Offset;
- Reference Line.
- Supplied With Standard Accessories Such As:

- 1 No's Of Rechargeable Batteries, Quick Charger With Power Cable, Lens Hood, Tool Kit, Wiping Cloth, Operator's Manual, Carrying Case.
- 1No.Heavy Duty Wooden Tripod.
- 1 No.s Tilting Range Pole Prism Assembly Complete With Prism, Mounted With Target Plate Range pole with Level.
- Interface Cable to Connect Instrument and PC.
- Communication Software for Downloading.

3. Hand held GPS (latest model) with standard specifications

Technical Details	
Item Weight	Less then 150gram/200 gram
RAM Size	1 GB (Min)
Memory Storage Capacity	1 GB (Min)
Hardware Interface	USB
Screen Size	3.5 Inches Minimum
Total USB Ports	1

4. Auto level With all accessories

Auto level with all accessories topcorn DL 502 (32x) specification		
Model	DL-502	DL-503
Telescope		
Magnification	32x	28x
Objective aperature	45mm	36mm
Resolving power	3"	3.5"
Field of view	1°20'	1°20'
Minimum focus	1.5m	1.5m
Image	Erect	Erect
Stadia ratio	100	100
Compensator		
Type	Pendulum compensator with magnetic damping system	
Working range	±15'	±15'
Accuracy (standard deviation for 1km double run leveling)		
Electronic reading	Invar staff: 0.6mm	Invar staff: 0.8mm
	Fiberglass staff: 1.0mm	Fiberglass staff: 1.5mm
Optional reading	1.0mm	2.0mm
Measuring range	1.6 to 100m (5.3 to 328ft.)	
Measuring time	Fine: 3sec.	
	Tracking: 1sec.	
Least count	0.0001/0.001m, 0.001/0.01ft.,1/8in	
Minimum brightness condition	20lx. at the staff surface	
Distance measurement		
Accuracy	D 10m: ±10mm	
	10m<D 50m:±0.1% x D	
	50m<D: ±0.2% x D	

Least count	0.01/0.1m, 0.1/1ft., 1in.
User interface	
Display	128x32 dot matrix LCD with backlight
Keyboard	8 keys
Circular level sensitivity	10'/2mm
Measurement Program	
Single / Continuous / Average / Elevation / Height difference / Cut & Fill / Stakeout distance	
Data Storage	
Internal memory	2,000 points
Job	Max.20 jobs
Data output format	CSV
Interface	RS-232C
Environmental	
Water resistance	IPX4 (IEC 60529:2001)
Operating temperature	-20°C to +50°C
Storage temperature	-40°C to +70°C
Others	
Power supply	BDC46B (Li-ion battery, 7.2V)
Operating time	Approx. 16 hours
Weight(including battery)	2.4kg (5.31lb.)
Size (D x W x H)	257x158x182 mm

Plotter A1 size

Plotter Specification		
Description	Large format B&W and colour on one productive system	
Speed	B&W:	225 A1/hr (high speed mode)
	Colour:	212 A1/hr (high speed mode)
	* Printed to external output.	
Configuration	Printer or multifunctional with Océ Scanner Express II	
	Colour and B&W printer with default of 2 rolls, Clear Connect multi-touch user panel & Océ Top Delivery Tray	
Roll Options	2 - 4 rolls	
Output Delivery	Top Delivery Tray that can hold 75 Prints and Rear Output	
Certifications	CE, TÜV GS, CETECOM, c-UL-US, RCM, ENERGY STAR, FEMP, EPEAT	
Printer		
Print Resolution	600dpi	
Colour Modes	Colour, grayscale and black & white	
Print Modes	4 selections	
	High Speed mode, Economy mode, Production mode & Quality mode. Océ Print Assistant (OPA) for automatic selection of print quality mode based on optimal balance between quality and productivity per file.	
Toner / Type	Color Wave 500 Toner Pearls, Cyan, Magenta, Yellow and Black Toner Pearls, 500 gram per colour.	
Maximum Roll Length	Maximum roll length 200m per roll, 50m guaranteed	
Maximum Roll Diameter	180mm	
Output Sizes Width	297 to 1067mm, 11 inch - 42 inch, including standard sizes DIN, ANSI, ARCHI	
Output Sizes Length	210mm to roll length (max. 200m)	
Paper Weight	Paper: 60 - 160g/m ² , 16 - 43lbs;	
	Film: 2.5 - 8mil;	

	Maximum thickness: 200µm; 8mil	
Supported Media Formats	All widths between 297 mm - 1067 mm, 11 inch - 42 inch, including standard sizes DIN, ANSI, ARCHI	
	Receiving rack (basket)	
	Delivery Tray	
	Online folder – Full or Fanfold	
Printer Size (W x D x H)	2100 x 900 x 1580mm	
Printer Weight	252kg (printer and 1 drawer)	
Controller Type	POWER sync Controller, with Windows 8 embedded, 64 bits	
Client Operating System Support	Windows® XP / Vista / 7 / 8/8.1/ Server 2012/ 2008 / Server 2003, Novell, Terminal Server, Citrix® MetaFrame, Mac® OS 9 / OS X (Adobe® PostScript® 3 / PDF driver)	
Processor	Intel i3 processor	
Memory	8GB	
Hard Disk	2 x 500GB	
Interface	Ethernet 100 Mbits/s, 1 Gbit/s	
	TCP/IP: DHCP, IPv4, IPv6, https	
	Discovery: WSD, LPD, NetBios	
Page Description Language	TIFF 6.0, JPEG1.02, HPGL, HPGL2, C4, Calcomp 906/907/951, CALS 1, NIRS, NIFF, PS3/PDF1.7/APPE3 (optional)	
Security	E-shredding, IPsec, HTTPS, extended security protection for administrator, audit logging. User authentication on local UI for FTP, SMB and WebDav. Configure HTTPS Certificates, Removable Hard Drives (optional)	
Options	Adobe PS / PDF / APPE (NEW Adobe PDF Print Engine) file interpreter	
	Adobe fonts:	Chinese Traditional / Chinese Simplified / Japanese / Korean
Features	Cloud Support (Unlimited user and or Administrator authenticated cloud support via WebDav and / or third party provider: e.g. Microsoft Sharepoint®, Dropbox®, Box.com, box.net, Google® Drive®, Microsoft SkyDrive®, Amazon®, Cloudsafe®, MyDisk®, ARC® Collaborate)	
	Transformations (Scale-to-fit page, reduce when image too large to avoid clipping or to custom factor, scale page size to standard size), Rotation, Shift (automatic or user defined), Adding / removing trailing / leading edge, Mirror, Area to erase	
	Colour Management	
	Smart Inbox	
Scanner		
Scanner Type	Scanner Express II	
Scan Resolution	600 x 600dpi	
Scan Speed	B&W:	Maximum 14.6m/min
	Colour:	Maximum 4.8m/min.
Scan Format	TIFF, PDF, PDF / A, JPEG, CALS, multi-page PDF, multi-page PDF / A and multi-page TIFF	
Scan Destination	Local USB flash drive, FTP, SMB, Controller, mobile device via Océ Mobile Web Tools, Web Dav Cloud, Collaborate	
Original Width / Length	208 - 914mm / 208mm - 16m (file type depended)	
Original Thickness	Maximum 0.8mm; 0.03" (non-rigid documents)	
Zoom	1:1, Scale to media size, Scale to standard format, Custom: 10 - 1000 %	
Preset Modes	For scanning and copying	
Size Scanner (W x D x H)	1097 x 308 x 140mm	
Weight Scanner	21kg	
Print, Copy and Scan Workflow		
General Workflow	Concurrent print, copy and scan of single documents or sets	
Submission	Publisher Express, Publisher Select 2	
Job Management	Print and history queue, inbox, manage queue, secure user rights management	
	Express Web Tools for remote monitoring and queue management	
	Publisher Mobile & Mobile devices via Océ Express Web Tools	
	USB flash drive	

	Cloud services
Accounting	Account Center
Options	
Hardware	Additional 2 Roll Drawer
	Receiving rack (basket)
	Delivery Tray
	Online folder - Full or Fanfold
Software	OCE Express Web Tools
	Oce Publisher Select 2 submission Tool
	Oce Wide Format Printer Driver for Microsoft® Windows® 2 Adobe Post Script 3 /PDF/APPE (NEW Adobe PDF Print Engine)Interpreter
	Oce Account Centre

Document Camera / Visualizer

Product Specifications		SDP-760		
Optical System	Lens	F=2.0, f=5.0mm		
	Shooting Area	Max : 364 x 257mm (14.3" x 10.1")		
	Zoom	8x zoom (Digital 8x)		
	Focus	Auto focus / Manual		
	Iris	Auto (with fine level adjustment)		
VIDEO	Pick-up Device	1/3" Progressive Scan CMOS Image Sensor		
	Total Number of Pixels	2,144(H) x 1,588(V), 3.40M pixels		
	Number of Effective Pixels	2,096(H) x 1,561(V), 3.27M pixels		
	Frame Rate	Max. 30fps (2M)		
	Output	Native Signal	Full HD (1,920 x 1,080)	
		Converted Signal	UXGA (1,600 x 1,200), SXGA (1,280 x 1,024), WXGA (1,280 x 800) HD (1,280 x 720), XGA (1,024 x 768)	
	NTSC/PAL Video Output	Available (NTSC/PAL)		
Resolution	H : 700TV lines / V : 700TV lines			
LIGHT	Upper	LED illumination system		
Functions	White Balance	ATW / AWB (One-touch) / Manual		
	Aperture Function	Image mode / Text mode / Custom mode		
	Image Freeze	Available		
	Image Rotation	Available (180°)		
	USB I/F	USB 2.0 support (UVC for Web Camera, Twain Driver)		
INTERFACE	Output Port	VGA Out	15 pin DSUB Connector x 1	
		C-VIDEO	RCA Connector x 1	
	I/F Port U	RS-232C	Ø3.5 Jack x 1	
		USB device port	USB2.0 Type B Connector x 1(USB device port)	
	Power Port	Power Input	5V DC In x 1	
ETC	Kensington Lock Hole	Built-in (Kensington lock hole supplied)		
	Security Thread on Base	Built-in		
	Microscope Mode	Available [Microscope adapter supplied (Option)]		
General	Operating Temperature	+5°C ~ +35°C (+41°F ~ +95°F)		
	Operating Humidity	less than 90% RH		
	Power	5V DC (Adaptor input : 100V ~ 240V AC free voltage, 50/60Hz, output : 5V DC, 2.2A)		
		In-use : 235.0 x 430.5 x 115.0 (9.25" x 16.95" x 4.35")		
	Dimensions	Off-use : 235.0 x 115.0 x 290.0 (9.25" x 4.35" x 11.42")		
Weight	2.4Kg (5.29 lb)			

		Supplied Accessories	USB cable, VGA cable, AC adapter, CD (Software, Manual)
	Accessories	Optional Accessories	Microscope adapter, RS-232C cable.

Annexure – I (B)**(i) Requirement of Electrician (Tool Kit):**

Sl. No.	Items	Qty Reqd.
1	Steel Tape, 10 m length	44 Nos
2	Plier Insulated, 150 mm	2 Nos
3	Plier Side Cutting, 150 mm	2 Nos
4	Screw Driver, 100 mm	2 Nos
5	Screw Driver, 150 mm	2 Nos
6	Electrician Connector, screw driver insulated handle thin stem,100 mm	44 Nos
7	Heavy Duty Screw Driver , 200 mm	2 Nos
8	Electrician Screw Driver thin stem insulated handle, 250 mm	2 Nos
9	Punch Centre , 150 mm X 9 mm	2 Nos
10	Knife Double Bladed Electrician	2 Nos
11	Neon Tester	2 Nos
12	Steel Rule 300 mm	2 Nos
13	Hammer, cross peen with handle 300 grams	44 Nos
14	Hammer, ball peen With handle 300 grams	2 Nos
15	Gimlet 6 mm.	2 Nos
16	Bradawl	2 Nos
17	Scriber (Knurled centre position)	2 Nos
18	Pincer 150 mm	2 Nos

(ii) Shop Tools, Instruments & Machinery

Sl. No.	Items	Qty Reqd.
1	C- Clamp	--
	200 mm,	2 Nos
	150 mm	2 Nos
	100 mm	2 Nos
2	Spanner Adjustable 150 mm, 300mm	2 Nos
3	Out Side Micrometer 0 to 25 mm	1 No
4	Rawl plug tool & bit	2 set
5	Pully Puller 3 jaws 7inches	1 No
6	Bearing Puller 3legged 6 inches	1 No
7	Hygrometer	1 No
8	Crimping Tool to crimp upto 4 sq mm	2 No
9	Wire stripper 20 cm	2 Nos
10	Hammer Exeter type 0.40 kg	4 Nos
11	Hacksaw frame 200 mm 300 mm adjustable	2 Nos
12	Divider Calliper	--
	Outside	2 Nos each
	Inside	2 Nos each
13	Pliers round nose 100 mm	4 Nos
14	Drill S.S. Twist block 2 mm, 5 mm 6 mm set of 3	4 set
15	File flat 200 mm 2 nd cut	8 Nos.
16	File half round 200 mm 2 nd cut	4 Nos
17	File round 200 mm 2 nd cut	4 Nos.
18	File flat 150 mm rough	4 Nos.
19	File flat 250 mm bastard	4 Nos.
20	File flat 250 mm smooth	4 Nos.
21	File Rasp, half round 200 mm bastard	4 Nos
22	Soldering Iron	--
	25 watt	4 Nos
	65 wat	4 Nos

23	Table Vice 100 mm jaw	5 Nos
24	Pipe Cutter to cut pipes above 5 cm dia	2 Nos
25	Stock and Die set for 20 mm to 50 mm G.I. pipe	1 set
26	Ohm Meter;	--
	Series Type	2 Nos each
	Shunt Type	2 Nos each
27	Multi Meter (analog) 0 to 1000 M Ohms, 2.5 to 500 V	2 Nos
28	Digital Multi Meter 1000V AC/DC, 20A AV/DC	6 Nos
29	A.C. Voltmeter M.I. 0 –500V A.C (Portable, Laboratory type)	4 No
30	Milli Voltmeter centre zero 100 – 0 – 100 m volt (Portable, Laboratory type)	1 No
31	D.C. Millimeter 0 -500 mA (Portable, Laboratory type)	1 No
32	Ammeter MC (Portable, Laboratory type)	--
	0-5 A	1 No
	0- 25 A	1 No
33	A.C. Ammeter M.I (Portable, Laboratory type)	--
	0-5 A	4 Nos
	0- 25 A	2 Nos
34	Kilo Wattmeter 0-1-3 kw (Portable, Laboratory type)	3 No
35	Power Factor Meter (Portable, Laboratory type)	2 No
36	Frequency Meter (Portable, Laboratory type)	1 No
37	Tachometer with stop watch	1 No
38	Current Transformer (Laboratory type)	--
	i) 230 Volts,50Hz,CT Ratio10/5 A, 5VA	2 No
	ii) 415Volts,50Hz,CT Ratio150/5 Amp, 10VA	1 No
39	Potential Transformer (Laboratory type)	--
	i) Single phase transformer, core type, air cooled (1 KVA 240 / 110V)	2 No
	ii) 415 volts,50Hz,PT Ratio 415V/110V,5VA	2 No
	iii) 415 volts,50Hz,PT Ratio 11KV/110V,10VA	1 No
40	Growler	1 No
41	Contacto r & auxiliary contacts 3 phase, 440 volt, 16 amp.	1 No each
42	Contacto r & auxiliary contacts 3 phase, 440 volt, 32 amp.	1 No each
43	Limit Switch 16A	1 No
44	Rotary Switch 16 A	1 No
45	Load Bank5 KW(Lamp / heater Type)	1 No
46	Brake Test arrangement with two spring balance 0 to 25 kg rating	1 No
47	Knife Switch DPDT fitted with fuse terminals 16 amp	4 No
48	Knife Switch TPDT fitted with fuse terminals 16 amp	4 No
49	Inverter- 1 KVA with 12 V Battery (Input- 12 volt DC, Output- 220 volt AC)	1 No
50	Voltage Stabilizer (Input: 150 – 230 volt AC, Output: 220 volt AC)	1 No
51	Rheostat	--
	0 -1 Ohm, 5 Amp	1 No
	0 -10 Ohm, 5 Amp	1 No
	0- 25 Ohm, 1 Amp	1 No
52	Domestic Appliances	--
	a. Electric Hot Plate 1500 watts	1 No
	b. Electric Kettle, 1500 watts	1 No
	c. Mixture & Grinder	1 No
53	Flux meter	1 No
54	Laboratory Type Induction Coil	1 No
55	Relays	--
	a. Cut out 16A, 230V	1 No each
	b. Reverse current 16A, 230V	1 No each
	c. Over current 16A, 230V	1 No each

	d. Over load 16A, 230V	1 No each
	e. Under voltage 16A, 230V	1 No each
56	Starters for 2 to 5 H.P. A.C Motors	--
	a. Resistance type starter	1 No
	b. Star Delta Starter	1 No
	ii) Semi-automatic: 440V,32A	1 No
	iii) Automatic: 440V,32A	1 No
	c. Auto Transformer type: input 440V:Out put 0 to 500V,32A	1 No
57	Used DC Generators for overhauling practice	--
	a. Series type 220V DC, 2 to 3 KW	1No
	b. Shunt type 220V DC, 2 to 3 KW	1No
	c. Compound type 220V DC, 2 to 3 KW	1No
58	Diesel Generator Set with change over switch, over current breaker and water-cooled with armature, star-delta connections AC 3 phase, 5 KVA, 440 volt	1 No
59	Stepper Motor with Digital Controller	1 No
60	Shaded Pole Motor 230V AC, 1 HP	1 No
61	Single phase Transformer, core type, air cooled (1 KVA,240/415 V, 50HZ)	2 No
62	Three phase transformer, shell type oil cooled with all mounting 3KVA, 415 / 240 V, 50Hz (Delta / Star)	2 No
63	Variable Auto Transformer, input : 3 phase,440V,AC, Out put: 3 phase 0-500V,AC,20 Amps	1 No
64	Bath Impregnating	1 No
65	Battery Charger 3V/6V/12V DC	1 No
66	Hydrometer	1 No
67	Air Breaker 5 KVA	1 No
68	Thyristor / IGBT controlled D.C. motor drive with tacho-generator feedback arrangement. 1 HP	1 No
69	Thyristor / IGBT controlled A.C. motor drive with VVVF control 3 Phase, 2 HP	1 No
70	Working Bench 2.5 m x 1.20 m x 0.75 m	4 Nos
71	Rectifier unit, input: 3 phase 440V AC, output: 220V DC,30AMPS	1 No
72	3 phase 2 element watt meter,440V/10A	1 No
73	3 phase 3 element watt meter 440v/10A	1 No
74	Phase sequence meter	1 No
75	Battery 12V	1 No
76	Magnet Permanent	--
	i) Bar Magnet (Laboratory use)	4 No
	ii) U Shape Magnet (Laboratory use)	2 Nos
77	Air Blower 220V/550W-0-16 oro rpm)	1 No
78	Lux Meter	1 No
79	Voltmeter 0 to 400V AC (Digital)	1 No
80	Ammeter 0 to 10A AC (Digital)	1 No
82	Synchronous Motor 3 phase, 3HP, 415V, 50HZ, 4Pole with accessories (With Break Loading arrangement)	1 No
83	Washing Machine 6.5Kg Semi Automatic	1 No
84	Motor Pump Set 1HP, 1 Phase,240V	1 No
85	Pipe Vice	4 Nos
86	Post Office Box ((plug type)	1 No
87	Insulators	--
	a) Pin Type 440V	2 Nos
	b) Shackle type 440V	2 Nos
	c) Suspension 440V	2 Nos

(iii) Workshop Furniture:

Sl. No.	Items	Qty Reqd.
1	Metal Rack 100cm x 150cm x 45cm 18/16 guage powder coated	4 Nos
2	Lockers with 16 drawers standard size 6'x3'x1.5 each separate lock 18/16 guage powder coated	2 Nos

Annexure – I (C)**(i) Requirement of Electronic Mechanic (Trainees Tools Kit):**

Sl. No.	Items	Qty Reqd.
1.	Soldering iron 25 W. 240 V.	21No
2.	Digital Multimeter (3 ½ digit)	21No
3.	Soldering Iron Changeable bits 10 W	12No
4.	De- soldering pump	16 No

(ii) General Machinery Shop Outfit:

Sl. No.	Items	Qty Reqd.
1	Steel rule 300mm	04No
2	Tools makers vice 100mm (clamp)	02 No
3	Tools maker vice 50mm (clamp)	02 No
4	Magneto spanner set	5 No
5	File flat 200mm bastard	04 No
6	File flat 200mm smooth	04 No
7	100mm flat pliers	06 No
8	100mm round Nose pliers	06 No
9	Tubular box spanner (set of 6Nos)	01Set
10	Magnifying lenses 75mm	04 No
11	Continuity tester	10 No
12	Scissors 200mm	02 No
13	Handsaw 450mm	02 No
14	Hand Drill Machine (300 watts, 2600 rpm)	04 No
15	Fire Extinguisher (ABC type dry powder CO2 type five)	03 No
16	Battery Charger (12 Volts)	02 No
17	Analog multimeter	6 No
18	Dimmer start 3 Amps	04 No
19	POWER ELECTRONICS TRAINER with at least 6 no's of onboard applications	03 No
20	Electronic circuit simulation software with 6 user licenses	2
21	DSO (colour) DSO-100C1G: 100MHz 1GS/s Colour Digital Storage Oscilloscope with FFT	2 No
22	Soldering & De soldering Station	3 No
23	SMD Soldering & De soldering Station with necessary accessories	3 No
24	DOL starter 230V: 16A	2 No
25	AC motor ¼ HP	1 No
26	ELECTRICAL TRAINER FITTED WITH RESOURCES MENTIONED (DOL starter, contactors, relays, MCB, Motor suitable for electrical control circuit exercises)	2 No
27	PAM, PPM,PWM trainer kit	2 No
28	Seven segment DPM	06 No
29	LCD based DPM	06 No
30	SMPS of different make	06 No
31	UPS trainer 1 KVA	2 No
32	Mobile phone (different models) at least one 3G mobile	3 No
33	Smart phones of different make (android/Windows)	4 No
34	Precision set of screw drivers- T5, T6, T7	5 No

35	Tweezers – Bend tip	5 No
36	LCD TV (Trainer kit)	1No
37	LCD TV (21”)	2 No
38	LED TV (Trainer kit)	1 No
39	LED TV (21”)	2 No
40	Home theatre system (5.1 Channel)	01 No
41	Solar Power Inverter 500VA	01 No
42	LED lighting system AC 90 V-240v, 50 Hz power 80 watt	03 No

(iii) Workshop Furniture:

Sl. No.	Items	Qty Reqd.
1	Lockers with 16 drawers standard size 6x3x1.5 ft. each separate lock (18/16 powder coated)	3

Annexure – I (D)**(i) Requirement of Refrigeration and Air-conditioning:**

Sl. No.	Items	Qty Reqd.
1.	File flat rough double cut, Length 200 mm	10
2.	File half round fine double cut, Length 200 mm	14
3.	File round fine double cut, Length 150 mm	36
4.	File flat fine double cut, Length 150 mm	40
5.	File square fine double cut, Length 150 mm	44
6.	File triangular fine double cut, Length 150 mm	44
7.	Scriber, Length 150 mm	44
8.	Try square, Length 150 mm	2
9.	Divider spring joint, Length 150 mm	2
10.	Caliper spring joint inside, Length 150 mm	3
11.	Caliper odd leg spring joint, Length 150 mm	3
12.	Hammer ball pein, Weight 220 gm	40
13.	Cold chisel flat & cross cut, Length 150 mm	2
14.	Engineers rule, Length 300mm	20
15.	Tape Measuring, 10m graduation in mm	43
16.	Surface plate, 45x45cm	1
17.	Surface guage universal, 150mm	8
18.	Snip sheet metal straight nose, 200 mm	18
19.	Snip sheet metal curved nose, 200 mm	20
20.	Anvil, 100 x 200mm	2
21.	Stakes (different types), 100 mm	1
22.	Tin smith, 400 mm	2
23.	Wooden / nylon mallet, 300 gms good finish	3
24.	Round punch, 3mm , 4mm, 6mm each 5mm	30
25.	Grover set, 4mm forming	2
26.	Electrical / portable drill chuck with key, 6.4 mm capacity	9
27.	Screw driver plastic handle, flat tip, Handle 3mm tip length 100-150mm insulated	10
28.	Voltmeter, AC/DC portable precision grade digital panel board type, 0-500V	10
29.	Ammeter AC/DC portable precision grade digital panel board type, 0 – 30amp	10
30.	Megger, 1000V	9
31.	Wattmeter multi range upto, 1 KW	2
32.	Multimeter digital type	10
33.	Tenon saw, 250mm	10
34.	Firmer chisel, 6mm, 12mm, 25mm	4
35.	Rawal plug tool, 6mm	4
36.	KW meter, 0-1kw	8
37.	Fire Buckets with stand, 10 Litre	2
38.	Double Ended spanner, 6-32mm	10
39.	Ring spanner, 6-32mm	10
40.	Tong, close mouth& pick up	4
41.	Welding table for gas/arc welding, 1200 x 760	2
42.	Swaging tool screw type with adapter set of size for tube, 4.7-16mm OD	10
43.	Capillary plug gauge	10
44.	Piercing pliers and reversing valve with SS fitting, 6-18mm	10
45.	Wrench adjustable, Length 150mm	10
46.	Valve key handle, 4.7mm 6.4mm square	10
47.	Pressure gauge digital type, D63mm with recalibration set	10
48.	Compound gauge digital type, D-63mm with recalibration set screw scale vaccum 76mm pressure 15kg/sqcm	10
49.	Serviceman thermometer in metal case (-30°C) – (+30°C)	10
50.	Pipe cutter with build in reamer and space cutter for copper tube, 3mm – 32mm	9

51.	Spanner double ended, 19mm – 31.8mm	10
52.	Pipe wrench, 50mm – 150mm	10
53.	Lapping plate, 250mmX200mm	4
54.	Puller 3 leg with flexible arm, 300mm	8
55.	Hand blower portable complete, 1/10HP	2
56.	Spirit level precision metallic, 200mm	3
57.	Stop watch	4
58.	Tap set with matching drill, 3mm – 16mm dia	6
59.	Tap set with matching drill, ¼”-5/8”φ	6
60.	Refrigerant cylinder, 2.5kg	2
61.	Vernier caliper, Length 250mm	4
62.	Micrometer outside, 0-25mm	3
63.	Heating kit with infrared bulb, 200V capacity	4
64.	Plumbing hammer, 200gms	4
65.	Multimeter analog type	10
66.	Tachometer digital multi range, 0-3000rpm portable small size in leather case	3
67.	Micron vacuum gauge, capable reading upto 20micron	4
68.	Sensor thermometer digital, (-50°C) to (150° C)	4
69.	Fin straightened/fin comb, with strong steel wire based combing on wood	6
70.	Filler gauge, 0.05mm – 1mm	5
71.	Wire gauge metric and whitworth, steel plate embossing converse of British and metric	2
72.	Dial thermometer remote control armor capillary dial, 75mm – 50°C +50°C	6
73.	Anemometer digital type	2
74.	Compressor tester for small hermetic compressor, Fixed with electrical input/output indicating facilities	4
75.	Digital thermometer(consumable), graduated disc analog type	2
76.	Temperature and humidity recorder, capacity to record 24hours record	2

(iii) General Machinery Shop of Outfit:

Sl. No.	Items	Qty Reqd.
1	Split Phase Induction Motor, ¼HP , 230V	1
2	Capacitor Start Induction motor, ½ HP, 230V	1
3	AC 3 phase motor, 400 V/50Hz, 2HP	1
4	Star delta Starter, 2HP	1
5	Auto Transformer Starter, 3HP	1
6	DOL starter, 2HP	1
7	Three / Four door refrigerator, 300L carrying with HC R-600a	2
8	Evacuation & refrigerant charging consist of Manifold with gauges and valves capable of pulling vacuum up to 50 microns of Hg and with provision of connecting to a micron level vacuum gauge. Graduated cylinder with provision for temperature correction and all necessary isolated valves	1
9	Split AC, 1.5 Ton with R-134a or R-22 reciprocating compressor	1
10	Split AC Ductable, 1.5 Ton with R-134a or R-22 reciprocating compressor	1
11	Recovering unit with cylinders, CFC & 134A	1
12	Cassette AC, 4500Kcal/hr with R-404	1
13	Descaling pump set, with stainless steel impeller and housing complete with motor ½HP & accessories	1
14	Fan coil unit, with water valves 2&3 way	1
15	Shell & Tube , DX chillers (Small), 5 Ton with Cu tubing only	1
16	Circulating water pump small, 0.5HP with stainless steel tank capacity 20Lit with inlet/outlet provision	1
17	Shell & tube type condenser, 5 Ton	1
18	Rotary Hermetic compressor, 2 Ton	1
19	Screw Compressor, 5 Ton	1
20	Bottle Cooler visible, 200L carrying with HFC -134A & reciprocating compressor	1
21	Water cooler storage type, 200L carrying with HFC -134A & reciprocating compressor	1

22	Ice candy plant, 2 Ton with capacity to make 32 ice candy at a time with former tray, stainless steel tank on trolley	1
23	Package AC, 7.5 Ton capacity, water cooled type with open type compressor and reciprocating type	1
24	Car AC Tutorial model	1

Annexure – I (E)**(iv) Requirement of Plumbing:**

Sl. No.	Items	Qty Reqd.
1.	Rule Steel 300 mm both in inch and mm	2 Nos
2.	Rule Wooden 4 fold, 600 mm	2 Nos
3.	Scriber 200 mm	2 Nos
4.	Centre punch 100 mm	2 Nos
5.	Chisel Cold flat 20 mm	2 Nos
6.	Hammer ball pein 800 grams	2 Nos
7.	File flat rough 300 mm	7 Nos
8.	Level spirit wooden 300 mm	2 Nos
9.	Plumb bob 50 grams	2 Nos
10.	Trowel C-125-I S: 6013	2 Nos
11.	Stillson wrench 200 & 350 mm	2 Nos

(v) Tools, Measuring Instruments & General Shop Outfit:

Sl. No.	Items	Qty Reqd.
1	Marking Table 900X600X900mm high	1
2	'V' Blocks only clamps 80/7-63A IS 2949	2
3	Combination set 200 mm	1
4	File, Square, Smooth 200 mm	2
5	File Flat Rasp 250 mm	2
6	File Triangular Smooth 200 mm	2
7	Tap and Die set to cut B.S.F. , B.S.W. and metric threads of sizes No.6mm to 15mm total 4 sets	01 SET
8	Screw Pitch gauge to cover above threads	1 SET
9	Stove melting solder	1
10	Snip Straight 250mm	2
11	Snip bend 250 mm	2
12	Tenon saw 600mm	1
13	Hand Saw 600mm	2
14	goggle pair welder 100 mm	2 PAIR
15	Brush Steel Wire 150X 50 mm	1
16	Table welding 1200X 750 mm with fire bricks top and stand	1
17	Mirror 100mm x 150 mm	2
18	Scribing gauge	1
19	Tool caulking set of 2 C	2
20	Chain pipe wrench 90mm -650 mm, IS: 4123	2 Sets
21	Drill Twist (straight shank) 3mm to 6mm	1
22	Portable forge ,450mmwith hand blower	1
23	Steel lockers with 8 drawers Metal rack (1800x1500x450mm)	3
24	Hammering drilling machine 23mm, 720W	1
25	Electric PPR pipe welding machine (Standard size) ½” to 2”.	1
26	Hydraulic pressure machine for testing leakage in GI pipe fittings etc.	1
27	Sight rail and bonning rod	1
28	Doormat, Sickle, Spade, Girmale	1 EACH
29	Pipe bender(Hydraulic type) size ½”, ¾”, 1”	1
30	Solar water heater system 200lit capacity	1
31	Ring guage 15 mm, 20 mm, 25 mm, 32 mm	1

Place: Hyderabad
Date: 15.05.2017

Sd/-
Registrar
Maulana Azad National Urdu University
Hyderabad

Annexure-II**Chapter-IV: Technical bid:**

1.	Name of the firm	M/s.
2.	Details of Tender Cost (Exemption of Tender cost will be considered as per GOI rules on submission of documentary proof)	Tender cost for the categories of trades chosen for furnishing the quotation (Annexure wise) Rs. /- D.D. No. _____ dated: _____ Bank _____
3.	Details of EMD (for.....) (Exemption of EMD cost will be considered as per GOI rules on submission of documentary proof)	EMD cost for the categories of trades chosen for furnishing the quotation (Annexure wise) Rs.....- D.D. No. _____ dated: _____ Bank _____
	Details of EMD (for.....) (Exemption of EMD cost will be considered as per GOI rules on submission of documentary proof)	Rs...../- D.D. No. _____ dated: _____ Bank _____
	Details of EMD (for.....) (Exemption of EMD Cost will be considered as per GOI rules on submission of documentary proof)	Rs...../- D.D. No. _____ dated: _____ Bank _____
	Details of EMD (.....) (Exemption of EMD cost will be considered as per GOI rules on submission of documentary proof)	Rs.-/- D.D. No. _____ dated: _____ Bank _____
	Details of EMD (.....) (Exemption of EMD cost will be considered as per GOI rules on submission of documentary proof)	Rs...../- D.D. No. _____ dated: _____ Bank _____
4.	Contact Details	Postal Address Tel No. Land Line Mobile: E-mail:
5.	Details of Registration with income tax and sales tax authorities <i>Enclose Copy / proof</i>	
6.	The firm should submit OEM and authorization certificate to this Open tender or copy of authorized dealership certificate for the individual items	
7.	PAN Details <i>Enclose Copy / proof</i>	
8.	Documentary proof for Pre Qualification Criteria as mentioned in the Tender (Sl. 7, Chapter II) 1) Average turnover for the last 3 years 2) Proof of documents against Chapter-II, Sl.7, b(i) or b(ii) or b(iii)	
9.	Whether signed copy of tender enclosed	
-	Optional:	
10.	Customer List with nature of work done (Enclose a list of minimum 10 customers)	

Declaration:

It is hereby declared that the firm have carefully read and understood the tender and **agreed with all the clauses**, terms and conditions of the tender, Hyderabad jurisdiction etc and agreed that the decision of the University shall be final in all respect.

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Place

Date:.....2017

Chapter-IV: Technical bid: To be utilized by the firm to indicate that agreed to supply the item wise.

Annexure-II (A)

(i) Requirement Draughtsman Civil:

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1.	Box drawing instrument containing one 15cm compass with pin point, & lengthening bar, one pair spring bows, rotating compass with interchangeable ink and pencil point, drawing pens with plain point & cross point, screw driver and box of leads. (0.2,0.3,0.4mm).	2		
2.	Protractor celluloid 15 cm semi - circular	2		
3.	Scale card board - metric set of eight A to H in a box 1:1, 1:2, 1:2.5, 1:5, 1:10, 1:20, 1:50, 1:100, 1:200, 1:500, 1:1000, 1:2000,1:1250, 1:6000, 1:38 1/3, 1:66 2/3	2		
4.	Scales plotting box wood 6 metric scales 30cm long with offset scales.	2		
5.	Set square transparent 20 cm, 2 mm thick with beveled edges 45 degree.	2		
6.	Set square celluloid 25 cm, 2mm thick with beveled edges 60 degree.	2		
7.	T- Square 1250mm/Mini Drafter/Parallel Bar	11		
8.	Template- Architects and Builders	6		

(ii) General Machinery Shop Outfit:

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1.	Geometrical models(Wooden/plastic) as per given below:			
	i). Cube 08 cm sides.	2		
	ii). Rectangular parallel piped 8 cmX 15 cm	2		
	iii). Sphere 8 cm dia.	2		
	iv). Right circular cone 8 cm dia base and 15 cm vertical height	2		
	v). Square pyramid 8cm side base and 15cm vertical height	2		
	vi). Cylinder 8 cm dia. 15 cm height.	2		
	vii). Prisms triangular 8 cm sides triangle and 15cm length	2		
	viii). Prism hexagonal 8cm side's hexagon and 15 cm lengths.	4		
2	Template - Circle & Ellipse, furniture, etc.	4		

(iii) List of Survey Instruments:

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1.	Digital Theodolite latest model With all accessories (Features:- Based on laser technology, Two large LCD panel with easy to read, Automatically compensates tilt in two direction and compensates vertical angles. High integrated electronic board and IC elements)	2		
2.	Instruments for total station with latest model, With all accessories (Graphic LCD display on both side. Multi function key board on both side. Able to interchange data between GPS and Total station without any data conversion. Minimum 8 hours rechargeable li-ion battery. Poles and Prism 2Nos each)	2		
3.	Hand held GPS (latest model) with standard specification	2		
4.	Auto level With all accessories	2		

(iv) List of Tools & Equipments for Computer Lab (Auto CAD):

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1.	Plotter A1 size	1		
2.	Air Conditioner 2.0 Ton	2		
3.	Document Camera / Visualiser	2		
4.	Smart Board / Inter Active Board	2		

Place:
Date: 2017

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Annexure-II (B)**(i) Requirement of Electrician (Tool Kit):**

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1	Steel Tape, 10 m length	44 Nos		
2	Plier Insulated, 150 mm	2 Nos		
3	Plier Side Cutting, 150 mm	2 Nos		
4	Screw Driver, 100 mm	2 Nos		
5	Screw Driver, 150 mm	2 Nos		
6	Electrician Connector, screw driver insulated handle thin stem, 100 mm	44 Nos		
7	Heavy Duty Screw Driver, 200 mm	2 Nos		
8	Electrician Screw Driver thin stem insulated handle, 250 mm	2 Nos		
9	Punch Centre, 150 mm X 9 mm	2 Nos		
10	Knife Double Bladed Electrician	2 Nos		
11	Neon Tester	2 Nos		
12	Steel Rule 300 mm	2 Nos		
13	Hammer, cross peen with handle 300 grams	44 Nos		
14	Hammer, ball peen With handle 300 grams	2 Nos		
15	Gimlet 6 mm.	2 Nos		
16	Bradawl	2 Nos		
17	Scriber (Knurled centre position)	2 Nos		
18	Pincer 150 mm	2 Nos		

(ii) Shop Tools, Instruments & Machinery

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1	C- Clamp	--		
	200 mm,	2 Nos		
	150 mm	2 Nos		
	100 mm	2 Nos		
2	Spanner Adjustable 150 mm, 300mm	2 Nos		
3	Out Side Micrometer 0 to 25 mm	1 No		
4	Rawl plug tool & bit	2 set		
5	Pully Puller 3 jaws 7 inches	1 No		
6	Bearing Puller 3legged 6 inches	1 No		
7	Hygrometer	1 No		
8	Crimping Tool to crimp upto 4 sq mm	2 No		
9	Wire stripper 20 cm	2 Nos		
10	Hammer Exeter type 0.40 kg	4 Nos		
11	Hacksaw frame 200 mm 300 mm adjustable	2 Nos		
12	Divider Calliper	--		
	Outside	2 Nos each		
	Inside	2 Nos each		
13	Pliers round nose 100 mm	4 Nos		
14	Drill S.S. Twist block 2 mm, 5 mm 6 mm set of 3	4 set		
15	File flat 200 mm 2 nd cut	8 Nos.		
16	File half round 200 mm 2 nd cut	4 Nos		
17	File round 200 mm 2 nd cut	4 Nos.		
18	File flat 150 mm rough	4 Nos.		

19	File flat 250 mm bastard	4 Nos.		
20	File flat 250 mm smooth	4 Nos.		
21	File Rasp, half round 200 mm bastard	4 Nos		
22	Soldering Iron	--		
	25 watt	4 Nos		
	65 wat	4 Nos		
23	Table Vice 100 mm jaw	5 Nos		
24	Pipe Cutter to cut pipes above 5 cm dia	2 Nos		
25	Stock and Die set for 20 mm to 50 mm G.I. pipe	1 set		
26	Ohm Meter;	--		
	Series Type	2 Nos each		
	Shunt Type	2 Nos each		
27	Multi Meter (analog) 0 to 1000 M Ohms, 2.5 to 500 V	2 Nos		
28	Digital Multi Meter 1000V AC/DC, 20A AV/DC	6 Nos		
29	A.C. Voltmeter M.I. 0 -500V A.C (Portable, Laboratory type)	4 No		
30	Milli Voltmeter centre zero 100 - 0 - 100 m volt (Portable, Laboratory type)	1 No		
31	D.C. Milliammeter 0 -500 mA (Portable, Laboratory type)	1 No		
32	Ammeter MC (Portable, Laboratory type)	--		
	0-5 A	1 No		
	0- 25 A	1 No		
33	A.C. Ammeter M.I (Portable, Laboratory type)	--		
	0-5 A	4 Nos		
	0- 25 A	2 Nos		
34	Kilo Wattmeter 0-1-3 kw (Portable, Laboratory type)	3 No		
35	Power Factor Meter (Portable, Laboratory type)	2 No		
36	Frequency Meter (Portable, Laboratory type)	1 No		
37	Tachometer with stop watch	1 No		
38	Current Transformer (Laboratory type)	--		
	i) 230 Volts,50Hz,CT Ratio10/5 A, 5VA	2 No		
	ii) 415Volts,50Hz,CT Ratio150/5 Amp, 10VA	1 No		
39	Potential Transformer (Laboratory type)	--		
	i) Single phase transformer, core type, air cooled (1 KVA 240 / 110V)	2 No		
	ii) 415 volts,50Hz,PT Ratio 415V/110V,5VA	2 No		
	iii) 415 volts,50Hz,PT Ratio 11KV/110V,10VA	1 No		
40	Growler	1 No		
41	Contactora & auxiliary contacts 3 phase, 440 volt, 16 amp.	1 No each		
42	Contactora & auxiliary contacts 3 phase, 440 volt, 32 amp.	1 No each		
43	Limit Switch 16A	1 No		
44	Rotary Switch 16 A	1 No		
45	Load Bank5 KW(Lamp / heater Type)	1 No		
46	Brake Test arrangement with two spring balance 0 to 25 kg rating	1 No		
47	Knife Switch DPDT fitted with fuse terminals 16 amp	4 No		
48	Knife Switch TPDT fitted with fuse terminals 16 amp	4 No		
49	Inverter- 1 KVA with 12 V Battery (Input- 12 volt DC, Output- 220 volt AC)	1 No		

50	Voltage Stabilizer (Input: 150 – 230 volt AC, Output: 220 volt AC)	1 No		
51	Rheostat	--		
	0 -1 Ohm, 5 Amp	1 No		
	0 -10 Ohm, 5 Amp	1 No		
	0- 25 Ohm, 1 Amp	1 No		
	0- 300 Ohm, 1 Amp	1 No		
52	Domestic Appliances	--		
	a. Electric Hot Plate 1500 watts	1 No		
	b. Electric Kettle, 1500 watts	1 No		
	c. Mixture & Grinder	1 No		
53	Flux meter	1 No		
54	Laboratory Type Induction Coil	1 No		
55	Relays	--		
	a. Cut out 16A, 230V	1 No each		
	b. Reverse current 16A, 230V	1 No each		
	c. Over current 16A, 230V	1 No each		
	d. Over load 16A, 230V	1 No each		
	e. Under voltage 16A, 230V	1 No each		
56	Starters for 2 to 5 H.P. A.C Motors	--		
	a. Resistance type starter	1 No		
	b. Star Delta Starter	1 No		
	ii) Semi-automatic: 440V,32A	1 No		
	iii) Automatic: 440V,32A	1 No		
	c. Auto Transformer type: input 440V:Out put 0 to 500V,32A	1 No		
57	Used DC Generators for overhauling practice	--		
	a. Series type 220V DC, 2 to 3 KW	1No		
	b. Shunt type 220V DC, 2 to 3 KW	1No		
	c. Compound type 220V DC, 2 to 3 KW	1No		
58	Diesel Generator Set with change over switch, over current breaker and water-cooled with armature, star-delta connections AC 3 phase, 5 KVA, 440 volt	1 No		
59	Stepper Motor with Digital Controller	1 No		
60	Shaded Pole Motor 230V AC, 1 HP	1 No		
61	Single phase Transformer, core type, air cooled (1 KVA,240/415 V, 50HZ)	2 No		
62	Three phase transformer, shell type oil cooled with all mounting 3KVA, 415 / 240 V, 50Hz (Delta / Star)	2 No		
63	Variable Auto Transformer, input : 3 phase,440V,AC, Out put: 3 phase 0-500V,AC,20 Amps	1 No		
64	Bath Impregnating	1 No		
65	Battery Charger 3V/6V/12V DC	1 No		
66	Hydrometer	1 No		
67	Air Breaker 5 KVA	1 No		
68	Thyristor / IGBT controlled D.C. motor drive with tacho-generator feedback arrangement. 1 HP	1 No		
69	Thyristor / IGBT controlled A.C. motor drive with VVVF control 3 Phase, 2 HP	1 No		
70	Working Bench 2.5 m x 1.20 m x 0.75 m	4 Nos		
71	Rectifier unit, input: 3 phase 440V AC, output: 220V DC,30AMPS	1 No		

72	3 phase 2 element watt meter,440V/10A	1 No		
73	3 phase 3 element watt meter 440v/10A	1 No		
74	Phase sequence meter	1 No		
75	Battery 12V	1 No		
76	Magnet Permanent	--		
	i) Bar Magnet (Laboratory use)	4 No		
	ii) U Shape Magnet (Laboratory use)	2 Nos		
77	Air Blower(220V/550W-O-1600 rpm)	1 No		
78	Lux Meter	1 No		
79	Voltmeter 0 to 400V AC (Digital)	1 No		
80	Ammeter 0 to 10A AC (Digital)	1 No		
81	First AID kit	1 No		
82	Synchronous Motor 3 phase, 3HP, 415V, 50HZ, 4Pole with accessories (With Break Loading arrangement)	1 No		
83	Washing Machine 6.5Kg Semi Automatic	1 No		
84	Motor Pump Set 1HP, 1 Phase,240V	1 No		
85	Pipe Vice	4 Nos		
86	Post Office Box (plug type)	1 No		
87	Insulators	--		
	a) Pin Type 440V	2 Nos		
	b) Shackle type 440V	2 Nos		
	c) Suspension 440V	2 Nos		

(iii) Workshop Furniture:

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1	Metal Rack 100cm x 150cm x 45cm 18/16 gauge powder coated	4 Nos		
2	Lockers with 16 drawers standard size 6x3x1.5 each separate lock 18/16 gauge powder coated	2 Nos		

Place:

Date: 2017

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Annexure-II (C)**(i) Requirement of Electronic Mechanic (Trainees Tools Kit):**

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1.	Soldering iron 25 W. 240 V.	21No		
2.	Digital Multimeter (3 ½ digit)	21No		
3.	Soldering Iron Changeable bits 10 W	12No		
4.	De- soldering pump	16 No		

(ii) General Machinery Shop Outfit:

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1	Steel rule 300mm	04No		
2	Tools makers vice 100mm (clamp)	02 No		
3	Tools maker vice 50mm (clamp)	02 No		
4	Magneto spanner set	5 No		
5	File flat 200mm bastard	04 No		
6	File flat 200mm smooth	04 No		
7	100mm flat pliers	06 No		
8	100mm round Nose pliers	06 No		
9	Tubular box spanner (set of 6Nos)	01Set		
10	Magnifying lenses 75mm	04 No		
11	Continuity tester	10 No		
12	Scissors 200mm	02 No		
13	Handsaw 450mm	02 No		
14	Hand Drill Machine (300 watts, 2600 rpm)	04 No		
15	Fire Extinguisher (ABC type dry powder CO2 type five)	03 No		
16	Battery Charger (12 Volts)	02 No		
17	Analog multimeter	6 No		
18	Dimmer start 3 Amps	04 No		
19	POWER ELECTRONICS TRAINER with at least 6 no's of onboard applications	03 No		
20	Electronic circuit simulation software with 6 user licenses	2		
21	DSO (colour) DSO-100C1G: 100MHz 1GS/s Colour Digital Storage Oscilloscope with FFT	2 No		
22	Soldering & De soldering Station	3 No		
23	SMD Soldering & De soldering Station with necessary accessories	3 No		
24	DOL starter 230V: 16A	2 No		
25	AC motor ¼ HP	1 No		
26	ELECTRICAL TRAINER FITTED WITH RESOURCES MENTIONED (DOL starter, contactors, relays, MCB, Motor suitable for electrical control circuit exercises)	2 No		
27	PAM, PPM,PWM trainer kit	2 No		
28	Seven segment DPM	06 No		
29	LCD based DPM	06 No		
30	SMPS of different make	06 No		
31	UPS trainer 1 KVA	2 No		

32	Mobile phone (different models) at least one 3G mobile	3 No		
33	Smart phones of different make (android/Windows)	4 No		
34	Precision set of screw drivers- T5, T6, T7	5 No		
35	Tweezers – Bend tip	5 No		
36	LCD TV (Trainer kit)	1No		
37	LCD TV (21”)	2 No		
38	LED TV (Trainer kit)	1 No		
39	LED TV (21”)	2 No		
40	Home theatre system (5.1 Channel)	01 No		
41	Solar Power Inverter 500VA	01 No		
42	LED lighting system (AC 90V-240V, 50 Hz power 80 watt)	03 No		

(iii) Workshop Furniture:

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1	Lockers with 16 drawers standard size 6x3x.15 ft. each separate lock 18/16 gauge powder coated	3		

Place:

Date: 2017

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Annexure – II (D)**(i) Requirement of Refrigeration and Air-conditioning:**

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1.	File flat rough double cut, Length 200 mm	10		
2.	File half round fine double cut, Length 200 mm	14		
3.	File round fine double cut, Length 150 mm	36		
4.	File flat fine double cut, Length 150 mm	40		
5.	File square fine double cut, Length 150 mm	44		
6.	File triangular fine double cut, Length 150 mm	44		
7.	Scriber, Length 150 mm	44		
8.	Try square, Length 150 mm	2		
9.	Divider spring joint, Length 150 mm	2		
10.	Caliper spring joint inside, Length 150 mm	3		
11.	Caliper odd leg spring joint, Length 150 mm	3		
12.	Hammer ball pein, Weight 220 gm	40		
13.	Cold chisel flat & cross cut, Length 150 mm	2		
14.	Engineers rule, Length 300mm	20		
15.	Tape Measuring, 10m graduation in mm	43		
16.	Surface plate, 45x45cm	1		
17.	Surface gauge universal, 150mm	8		
18.	Snip sheet metal straight nose, 200 mm	18		
19.	Snip sheet metal curved nose, 200 mm	20		
20.	Anvil, 100 x 200mm	2		
21.	Stakes (different types), 100 mm	1		
22.	Tin smith, 400 mm	2		
23.	Wooden / nylon mallet, 300 gms good finish	3		
24.	Round punch, 3mm , 4mm, 6mm each 5mm	30		
25.	Grover set, 4mm forming	2		
26.	Electrical / portable drill chuck with key, 6.4 mm capacity	9		
27.	Screw driver plastic handle, flat tip, Handle 3mm tip length 100-150mm insulated	10		
28.	Voltmeter, AC/DC portable precision grade digital panel board type, 0-500V	10		
29.	Ammeter AC/DC portable precision grade digital panel board type, 0 - 30amp	10		
30.	Megger, 1000V	9		
31.	Wattmeter multi range upto, 1 KW	2		
32.	Multimeter digital type	10		
33.	Tenon saw, 250mm	10		
34.	Firmer chisel, 6mm, 12mm, 25mm	4		
35.	Rawal plug tool, 6mm	4		
36.	KW meter, 0-1kw	8		
37.	Fire Buckets with stand, 10 Litre	2		
38.	Double Ended spanner, 6-32mm	10		
39.	Ring spanner, 6-32mm	10		
40.	Tong, close mouth& pick up	4		
41.	Welding table for gas/arc welding, 1200 x 760	2		
42.	Swaging tool screw type with adapter set of size for tube, 4.7-16mm OD	10		
43.	Capillary plug gauge	10		
44.	Piercing pliers and reversing valve with SS fitting, 6-18mm	10		
45.	Wrench adjustable, Length 150mm	10		
46.	Valve key handle, 4.7mm 6.4mm square	10		
47.	Pressure gauge digital type, D63mm with recalibration set	10		

48.	Compound gauge digital type, D-63mm with recalibration set screw scale vacuum 76mm pressure 15kg/sqcm	10		
49.	Serviceman thermometer in metal case (-30°C) - (+30°C)	10		
50.	Pipe cutter with built in reamer and space cutter for copper tube, 3mm - 32mm	9		
51.	Spanner double ended, 19mm - 31.8mm	10		
52.	Pipe wrench, 50mm - 150mm	10		
53.	Lapping plate, 250mmX200mm	4		
54.	Puller 3 leg with flexible arm, 300mm	8		
55.	Hand blower portable complete, 1/10HP	2		
56.	Spirit level precision metallic, 200mm	3		
57.	Stop watch	4		
58.	Tap set with matching drill, 3mm - 16mm dia	6		
59.	Tap set with matching drill, 1/4"-5/8"φ	6		
60.	Refrigerant cylinder, 2.5kg	2		
61.	Vernier caliper, Length 250mm	4		
62.	Micrometer outside, 0-25mm	3		
63.	Heating kit with infrared bulb, 200V capacity	4		
64.	Plumbing hammer, 200gms	4		
65.	Multimeter analog type	10		
66.	Tachometer digital multi range, 0-3000rpm portable small size in leather case	3		
67.	Micron vacuum gauge, capable reading upto 20micron	4		
68.	Sensor thermometer digital, (-50°C) to (150° C)	4		
69.	Fin straightened/fin comb, with strong steel wire based combing on wood	6		
70.	Filler gauge, 0.05mm - 1mm	5		
71.	Wire gauge metric and whitworth, steel plate embossing converse of British and metric	2		
72.	Dial thermometer remote control armor capillary dial, 75mm - 50°C +50°C	6		
73.	Aneometer digital type	2		
74.	Compressor tester for small hermetic compressor, Fixed with electrical input/output indicating facilities	4		
75.	Digital thermometer(consumable), graduated disc analog type	2		
76.	Temperature and humidity recorder, capacity to record 24hours record	2		

(ii) General Machinery Shop of Outfit:

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1	Split Phase Induction Motor, 1/4HP , 230V	1		
2	Capacitor Start Induction motor, 1/2 HP, 230V	1		
3	AC 3 phase motor, 400 V/50Hz, 2HP	1		
4	Star delta Starter, 2HP	1		
5	Auto Transformer Starter, 3HP	1		
6	DOL starter, 2HP	1		
7	Three / Four door refrigerator, 300L carrying with HC R-600a	2		
8	Evacuation & refrigerant charging consist of Manifold with gauges and valves capable of pulling vacuum up to 50 microns of Hg and with provision of connecting to a micron level vacuum gauge. Graduated cylinder with provision for temperature correction and all necessary isolated valves	1		

9	Split AC, 1.5 Ton with R-134a or R-22 reciprocating compressor	1		
10	Split AC Ductable, 1.5 Ton with R-134a or R-22 reciprocating compressor	1		
11	Recovering unit with cylinders, CFC & 134A	1		
12	Cassette AC, 4500Kcal/hr with R-404	1		
13	Descaling pump set, with stainless steel impeller and housing complete with motor 1/2HP & accessories	1		
14	Fan coil unit, with water valves 2&3 way	1		
15	Shell & Tube , DX chillers (Small), 5 Ton with Cu tubing only	1		
16	Circulating water pump small, 0.5HP with stainless steel tank capacity 20Lit with inlet/outlet provision	1		
17	Shell & tube type condenser, 5 Ton	1		
18	Rotary Hermetic compressor, 2 Ton	1		
19	Screw Compressor, 5 Ton	1		
20	Bottle Cooler visible, 200L carrying with HFC -134A & reciprocating compressor	1		
21	Water cooler storage type, 200L carrying with HFC -134A & reciprocating compressor	1		
22	Ice candy plant, 2 Ton with capacity to make 32 ice candy at a time with former tray, stainless steel tank on trolley	1		
23	Package AC, 7.5 Ton capacity, water cooled type with open type compressor and reciprocating type	1		
24	Car AC Tutorial model	1		

Place:

Date: 2017

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Annexure – II (E)**(i) Requirement of Plumbing:**

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1.	Rule Steel 300 mm both in inch and mm	2 Nos		
2.	Rule Wooden 4 fold, 600 mm	2 Nos		
3.	Scriber 200 mm	2 Nos		
4.	Centre punch 100 mm	2 Nos		
5.	Chisel Cold flat 20 mm	2 Nos		
6.	Hammer ball pein 800 grams	2 Nos		
7.	File flat rough 300 mm	7 Nos		
8.	Level spirit wooden 300 mm	2 Nos		
9.	Plumb bob 50 grams	2 Nos		
10.	Trowel C-125-I S: 6013	2 Nos		
11.	Stillson wrench 200 & 350 mm	2 Nos		

(ii) Tools, Measuring Instruments & General Shop Outfit:

Sl. No.	Items	Qty Reqd.	Make & model	Agreed by firm (Yes / No)
1	Marking Table 900X600X900mm high	1		
2	'V' Blocks only clamps 80/7-63A IS 2949	2		
3	Combination set 200 mm	1		
4	File, Square, Smooth 200 mm	2		
5	File Flat Rasp 250 mm	2		
6	File Triangular Smooth 200 mm	2		
7	Tap and Die set to cut B.S.F. , B.S.W. and metric threads of sizes No.6mm to 15mm total 4 sets	01 SET		
8	Screw Pitch gauge to cover above threads	1 SET		
9	Stove melting solder	1		
10	Snip Straight 250mm	2		
11	Snip bend 250 mm	2		
12	Tenon saw 600mm	1		
13	Hand Saw 600mm	2		
14	Gas Welding set with cylinder (Oxygen Acetylene cylinders with complete accessories, oxygen two stage regulator, acetylene two stage regulator, welding torch with different three sizes, hose pipe 5 metres etc.)	1		
15	goggle pair welder 100 mm	2 PAIR		
16	Brush Steel Wire 150X 50 mm	1		
17	Table welding 1200X 750 mm with fire bricks top and stand	1		
18	Mirror 100mm x 150 mm	2		
19	Scribing gauge	1		
20	Tool caulking set of 2 C	2		
21	Chain :pipe wrench 90mm -650 mm, IS: 4123	2 Sets		
22	Drill Twist (straight shank) 3mm to 6mm	1		
23	Portable forge ,450mmwith hand blower	1		
24	Steel lockers with 8 drawers Metal rack (1800x1500x450mm)	3		
25	Hammering drilling machine 23mm, 720W	1		
26	Electric PPR pipe welding machine (Standard size) ½” to 2”.	1		
27	D.E. PEDESTAL GRINDER WITH TWO WHEELS 175MM ROUGH AND SMOOTH	1		
28	Hydraulic pressure machine for testing leakage in GI pipe fittings etc.	1		
29	Sight rail and bonning rod	1		
30	Doormat, Sickle, Spade, Girmale	1		
31	Pipe bender(Hydraulic type) size ½”, ¾”, 1”	1		
32	Solar water heater system 200lit capacity	1		
33	Ring guage 15 mm, 20 mm, 25 mm, 32 mm	1		

Place:

Date: 2017

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Chapter–V: Financial bid: To be utilized by the bidder to quote their prices item wise.

Annexure – III (A)

(i) Requirement Draughtsman Civil:

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1.	Box drawing instrument containing one 15cm compass with pin point, & lengthening bar, one pair spring bows, rotating compass with interchangeable ink and pencil point, drawing pens with plain point & cross point, screw driver and box of leads. (0.2,0.3,0.4mm).	2			
2.	Protractor celluloid 15 cm semi - circular	2			
3.	Scale card board - metric set of eight A to H in a box 1:1, 1:2, 1:2.5, 1:5, 1:10, 1:20, 1:50, 1:100, 1:200, 1:500, 1:1000, 1:2000,1:1250, 1:6000, 1:38 1/3, 1:66 2/3	2			
4.	Scales plotting box wood 6 metric scales 30cm long with offset scales.	2			
5.	Set square transparent 20 cm, 2 mm thick with beveled edges 45 degree.	2			
6.	Set square celluloid 25 cm, 2mm thick with beveled edges 60 degree.	2			
7.	T- Square 1250mm/Mini Drafter/Parallel Bar	11			
8.	Template- Architects and Builders	6			

(ii) General Machinery Shop Outfit:

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1.	Geometrical models(Wooden/plastic) as per given below:				
	i). Cube 08 cm sides.	2			
	ii). Rectangular parallel piped 8 cmX 15 cm	2			
	iii). Sphere 8 cm dia.	2			
	iv). Right circular cone 8 cm dia base and 15 cm vertical height	2			
	v). Square pyramid 8cm side base and 15cm vertical height	2			
	vi). Cylinder 8 cm dia. 15 cm height.	2			
	vii). Prisms triangular 8 cm sides triangle and 15cm length	2			
	viii). Prism hexagonal 8cm side's hexagon and 15 cm lengths.	4			
2	Template - Circle & Ellipse, furniture, etc.	4			

(iii) List of Survey Instruments:

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1.	Digital Theodolite latest model With all accessories (Features:- Based on laser technology, Two large LCD panel with easy to read, Automatically compensates tilt in two direction and compensates vertical angles. High integrated electronic board and IC elements)	2			
2.	Instruments for total station with latest model, With all accessories (Graphic LCD display on both side. Multi function key board on both side. Able to interchange data between GPS and Total station without any data conversion. Minimum 8 hours rechargeable li-ion battery. Poles and Prism 2Nos each)	2			
3.	Hand held GPS (latest model) with standard specification	2			
4.	Auto level With all accessories	2			

(iv) List of Tools & Equipments for Computer Lab (Auto CAD):

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1.	Plotter A1 size	1			
2.	Air Conditioner 2.0 Ton	2			
3.	Document Camera / Visualizer	2			
4.	Smart Board / Inter Active Board	2			

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Annexure–III (B)**(i) Requirement of Electrician (Tool Kit):**

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1	Steel Tape, 10 m length	44 Nos			
2	Plier Insulated, 150 mm	2 Nos			
3	Plier Side Cutting, 150 mm	2 Nos			
4	Screw Driver, 100 mm	2 Nos			
5	Screw Driver, 150 mm	2 Nos			
6	Electrician Connector, screw driver insulated handle thin stem, 100 mm	44 Nos			
7	Heavy Duty Screw Driver, 200 mm	2 Nos			
8	Electrician Screw Driver thin stem insulated handle, 250 mm	2 Nos			
9	Punch Centre, 150 mm X 9 mm	2 Nos			
10	Knife Double Bladed Electrician	2 Nos			
11	Neon Tester	2 Nos			
12	Steel Rule 300 mm	2 Nos			
13	Hammer, cross peen with handle 300 grams	44 Nos			
14	Hammer, ball peen With handle 300 grams	2 Nos			
15	Gimlet 6 mm.	2 Nos			
16	Bradawl	2 Nos			
17	Scriber (Knurled centre position)	2 Nos			
18	Pincer 150 mm	2 Nos			

(ii) Shop Tools, Instruments & Machinery

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
	C- Clamp	--			
1	200 mm,	2 Nos			
	150 mm	2 Nos			
	100 mm	2 Nos			
2	Spanner Adjustable 150 mm, 300mm	2 Nos			
3	Out Side Micrometer 0 to 25 mm	1 No			
4	Rawl plug tool & bit	2 set			
5	Pully Puller 3 jaws 7 inches	1 No			
6	Bearing Puller 3legged 6 inches	1 No			
7	Hygrometer	1 No			
8	Crimping Tool to crimp upto 4 sq mm	2 No			
9	Wire stripper 20 cm	2 Nos			
10	Hammer Exeter type 0.40 kg	4 Nos			
11	Hacksaw frame 200 mm 300 mm adjustable	2 Nos			
	Divider Calliper	--			
12	Outside	2 Nos			
	Inside	2 Nos			
13	Pliers round nose 100 mm	4 Nos			
14	Drill S.S. Twist block 2 mm, 5 mm 6 mm set of 3	4 set			
15	File flat 200 mm 2 nd cut	8 Nos.			
16	File half round 200 mm 2 nd cut	4 Nos			
17	File round 200 mm 2 nd cut	4 Nos.			
18	File flat 150 mm rough	4 Nos.			
19	File flat 250 mm bastard	4 Nos.			
20	File flat 250 mm smooth	4 Nos.			
21	File Rasp, half round 200 mm bastard	4 Nos			
	Soldering Iron	--			
22	25 watt	4 Nos			
	65 wat	4 Nos			

23	Table Vice 100 mm jaw	5 Nos			
24	Pipe Cutter to cut pipes above 5 cm dia	2 Nos			
25	Stock and Die set for 20 mm to 50 mm G.I. pipe	1 set			
26	Ohm Meter;	--			
	Series Type	2 Nos			
	Shunt Type	2 Nos			
27	Multi Meter (analog) 0 to 1000 M Ohms, 2.5 to 500 V	2 Nos			
28	Digital Multi Meter 1000V AC/DC, 20A AV/DC	6 Nos			
29	A.C. Voltmeter M.I. 0 –500V A.C (Portable, Laboratory type)	4 No			
30	Milli Voltmeter centre zero 100 – 0 – 100 m volt (Portable, Laboratory type)	1 No			
31	D.C. Milliammeter 0 -500 mA (Portable, Laboratory type)	1 No			
32	Ammeter MC (Portable, Laboratory type)	--			
	0-5 A	1 No			
	0- 25 A	1 No			
33	A.C. Ammeter M.I (Portable, Laboratory type)	--			
	0-5 A	4 Nos			
	0- 25 A	2 Nos			
34	Kilo Wattmeter 0-1-3 kw (Portable, Laboratory type)	3 No			
35	Power Factor Meter (Portable, Laboratory type)	2 No			
36	Frequency Meter (Portable, Laboratory type)	1 No			
37	Tachometer with stop watch	1 No			
38	Current Transformer (Laboratory type)	--			
	i) 230 Volts,50Hz,CT Ratio10/5 A, 5VA	2 No			
	ii) 415Volts,50Hz,CT Ratio150/5 Amp, 10VA	1 No			
39	Potential Transformer (Laboratory type)	--			
	i) Single phase transformer, core type, air cooled (1 KVA 240 / 110V)	2 No			
	ii) 415 volts,50Hz,PT Ratio 415V/110V,5VA	2 No			
	iii) 415 volts,50Hz,PT Ratio 11KV/110V,10VA	1 No			
40	Growler	1 No			
41	Contacto & auxiliary contacts 3 phase, 440 volt, 16 amp.	1 No each			
42	Contacto & auxiliary contacts 3 phase, 440 volt, 32 amp.	1 No each			
43	Limit Switch 16A	1 No			
44	Rotary Switch 16 A	1 No			
45	Load Bank5 KW(Lamp / heater Type)	1 No			
46	Brake Test arrangement with two spring balance 0 to 25 kg rating	1 No			
47	Knife Switch DPDT fitted with fuse terminals 16 amp	4 No			
48	Knife Switch TPDT fitted with fuse terminals 16 amp	4 No			
49	Inverter- 1 KVA with 12 V Battery (Input-12 volt DC, Output- 220 volt AC)	1 No			
50	Voltage Stabilizer (Input: 150 – 230 volt AC, Output: 220 volt AC)	1 No			
51	Rheostat	--			
	0 -1 Ohm, 5 Amp	1 No			

	0 -10 Ohm, 5 Amp	1 No			
	0- 25 Ohm, 1 Amp	1 No			
	0- 300 Ohm, 1 Amp	1 No			
52	Domestic Appliances	--			
	a. Electric Hot Plate 1500 watts	1 No			
	b. Electric Kettle, 1500 watts	1 No			
	c. Mixture & Grinder	1 No			
53	Flux meter	1 No			
54	Laboratory Type Induction Coil	1 No			
55	Relays	--			
	a. Cut out 16A, 230V	1 No each			
	b. Reverse current 16A, 230V	1 No each			
	c. Over current 16A, 230V	1 No each			
	d. Over load 16A, 230V	1 No each			
	e. Under voltage 16A, 230V	1 No each			
56	Starters for 2 to 5 H.P. A.C Motors	--			
	a. Resistance type starter	1 No			
	b. Star Delta Starter	1 No			
	ii) Semi-automatic: 440V,32A	1 No			
	iii) Automatic: 440V,32A	1 No			
	c. Auto Transformer type: input 440V:Output 0 to 500V,32A	1 No			
57	Used DC Generators for overhauling practice	--			
	a. Series type 220V DC, 2 to 3 KW	1No			
	b. Shunt type 220V DC, 2 to 3 KW	1No			
	c. Compound type 220V DC, 2 to 3 KW	1No			
58	Diesel Generator Set with change over switch, over current breaker and water-cooled with armature, star-delta connections AC 3 phase, 5 KVA, 440 volt	1 No			
59	Stepper Motor with Digital Controller	1 No			
60	Shaded Pole Motor 230V AC, 1 HP	1 No			
61	Single phase Transformer, core type, air cooled (1 KVA,240/415 V, 50HZ)	2 No			
62	Three phase transformer, shell type oil cooled with all mounting 3KVA, 415 / 240 V, 50Hz (Delta / Star)	2 No			
63	Variable Auto Transformer, input : 3 phase,440V,AC, Out put: 3 phase 0-500V,AC,20 Amps	1 No			
64	Bath Impregnating	1 No			
65	Battery Charger 3V/6V/12V DC	1 No			
66	Hydrometer	1 No			
67	Air Breaker 5 KVA	1 No			
68	Thyristor / IGBT controlled D.C. motor drive with tacho-generator feedback arrangement. 1 HP	1 No			
69	Thyristor / IGBT controlled A.C. motor drive with VVVF control 3 Phase, 2 HP	1 No			
70	Working Bench 2.5 m x 1.20 m x 0.75 m	4 Nos			
71	Rectifier unit, input: 3 phase 440V AC, output: 220V DC,30AMPS	1 No			
72	3 phase 2 element watt meter,440V/10A	1 No			

73	3 phase 3 element watt meter 440v/10A	1 No			
74	Phase sequence meter	1 No			
75	Battery 12V	1 No			
76	Magnet Permanent	--			
	i) Bar Magnet (Laboratory use)	4 No			
	ii) U Shape Magnet (Laboratory use)	2 Nos			
77	Air Blower (220V/550W-o-16 oro rpm)	1 No			
78	Lux Meter	1 No			
79	Voltmeter 0 to 400V AC (Digital)	1 No			
80	Ammeter 0 to 10A AC (Digital)	1 No			
81	First AID kit	1 No			
82	Synchronous Motor 3 phase, 3HP, 415V, 50HZ, 4Pole with accessories (With Break Loading arrangement)	1 No			
83	Washing Machine 6.5Kg Semi Automatic	1 No			
84	Motor Pump Set 1HP, 1 Phase,240V	1 No			
85	Pipe Vice	4 Nos			
86	Post Office Box	1 No			
87	Insulators	--			
	a) Pin Type 440V	2 Nos			
	b) Shackle type 440V	2 Nos			
	c) Suspension 440V	2 Nos			

(ii) Workshop Furniture:

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1	Metal Rack 100cm x 150cm x 45cm (18/16 guage powder coated)	4 Nos			
2	Lockers with 16 drawers standard size 6x31.5 ft each separate lock 18/16 guage powder coated	2 Nos			

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Annexure–III (C)**(i) Requirement of Electronic Mechanic (Trainees Tools Kit):**

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1.	Soldering iron 25 W. 240 V.	21No			
2.	Digital Multimeter (3 ½ digit)	21No			
3.	Soldering Iron Changeable bits 10 W	12No			
4.	De- soldering pump	16 No			

(ii) General Machinery Shop Outfit:

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1	Steel rule 300mm	04No			
2	Tools makers vice 100mm (clamp)	02 No			
3	Tools maker vice 50mm (clamp)	02 No			
4	Magneto spanner set	5 No			
5	File flat 200mm bastard	04 No			
6	File flat 200mm smooth	04 No			
7	100mm flat pliers	06 No			
8	100mm round Nose pliers	06 No			
9	Tubular box spanner (set of 6Nos)	01Set			
10	Magnifying lenses 75mm	04 No			
11	Continuity tester	10 No			
12	Scissors 200mm	02 No			
13	Handsaw 450mm	02 No			
14	Hand Drill Machine (300 watts, 2600 rpm)	04 No			
15	Fire Extinguisher (ABC type dry powder CO2 type five)	03 No			
16	Battery Charger (12 Volts)	02 No			
17	Analog multimeter	6 No			
18	Dimmer start 3 Amps	04 No			
19	Power Electronics Trainer with at least 6 no's of onboard applications	03 No			
20	Electronic circuit simulation software with 6 user licenses	2			
21	DSO (colour) DSO-100C1G: 100MHz 1GS/s Colour Digital Storage Oscilloscope with FFT	2 No			
22	Soldering & De soldering Station	3 No			
23	SMD Soldering & De soldering Station with necessary accessories	3 No			
24	DOL starter 230V: 16A	2 No			
25	AC motor ¼ HP	1 No			
26	Electrical Trainer Fitted with Resources Mentioned (DOL starter, contactors,	2 No			

	relays, MCB, Motor suitable for electrical control circuit exercises)				
27	PAM, PPM,PWM trainer kit	2 No			
28	Seven segment DPM	06 No			
29	LCD based DPM	06 No			
30	SMPS of different make	06 No			
31	UPS trainer 1 KVA	2 No			
32	Mobile phone (different models) at least one 3G mobile	3 No			
33	Smart phones of different make (android/Windows)	4 No			
34	Precision set of screw drivers- T5, T6, T7	5 No			
35	Tweezers – Bend tip	5 No			
36	LCD TV (Trainer kit)	1No			
37	LCD TV (21”)	2 No			
38	LED TV (Trainer kit)	1 No			
39	LED TV (21”)	2 No			
40	Home theatre system (5.1 Channel)	01 No			
41	Solar Power Inverter 500VA	01 No			
42	LED lighting system (AC 90 V-240v, 50 Hz power 80 wattt)	03 No			

(iii) Workshop Furniture:

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1	Lockers with 16 drawers standard size 6x3x1.5 ft. each separate lock 18/16 guage powder coated	3			

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Annexure – III (D)**(i) Requirement of Refrigeration and Air-conditioning:**

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1.	File flat rough double cut, Length 200 mm	10			
2.	File half round fine double cut, Length 200 mm	14			
3.	File round fine double cut, Length 150 mm	36			
4.	File flat fine double cut, Length 150 mm	40			
5.	File square fine double cut, Length 150 mm	44			
6.	File triangular fine double cut, Length 150 mm	44			
7.	Scriber, Length 150 mm	44			
8.	Try square, Length 150 mm	2			
9.	Divider spring joint, Length 150 mm	2			
10.	Caliper spring joint inside, Length 150 mm	3			
11.	Caliper odd leg spring joint, Length 150 mm	3			
12.	Hammer ball pein, Weight 220 gm	40			
13.	Cold chisel flat & cross cut, Length 150 mm	2			
14.	Engineers rule, Length 300mm	20			
15.	Tape Measuring, 10m graduation in mm	43			
16.	Surface plate, 45x45cm	1			
17.	Surface guage universal, 150mm	8			
18.	Snip sheet metal straight nose, 200 mm	18			
19.	Snip sheet metal curved nose, 200 mm	20			
20.	Anvil, 100 x 200mm	2			
21.	Stakes (different types), 100 mm	1			
22.	Tin smith, 400 mm	2			
23.	Wooden / nylon mallet, 300 gms good finish	3			
24.	Round punch, 3mm , 4mm, 6mm each 5mm	30			
25.	Grover set, 4mm forming	2			
26.	Electrical / portable drill chuck with key, 6.4 mm capacity	9			
27.	Screw driver plastic handle, flat tip, Handle 3mm tip length 100-150mm insulated	10			
28.	Voltmeter, AC/DC portable precision grade digital panel board type, 0-500V	10			
29.	Ammeter AC/DC portable precision grade digital panel board type, 0 - 30amp	10			
30.	Megger, 1000V	9			
31.	Wattmeter multi range upto, 1 KW	2			
32.	Multimeter digital type	10			
33.	Tenon saw, 250mm	10			
34.	Firmer chisel, 6mm, 12mm, 25mm	4			
35.	Rawal plug tool, 6mm	4			
36.	KW meter, 0-1kw	8			
37.	Fire Buckets with stand, 10 Litre	2			
38.	Double Ended spanner, 6-32mm	10			
39.	Ring spanner, 6-32mm	10			
40.	Tong, close mouth& pick up	4			
41.	Welding table for gas/arc welding, 1200 x 760	2			
42.	Swaging tool screw type with adapter set of size for tube, 4.7-16mm OD	10			
43.	Capillary plug guage	10			
44.	Piercing pliers and reversing vlve with SS fitting, 6-18mm	10			

45.	Wrench adjustable, Length 150mm	10			
46.	Valve key handle, 4.7mm 6.4mm square	10			
47.	Pressure guage digital type, D63mm with recalibration set	10			
48.	Compound guage digital type, D-63mm with recalibration set screw scale vaccum 76mm pressure 15kg/sqcm	10			
49.	Serviceman thermometer in metal case (-30°C) - (+30°C)	10			
50.	Pipe cutter with build in reamer and space cutter for copper tube, 3mm - 32mm	9			
51.	Spanner double ended, 19mm - 31.8mm	10			
52.	Pipe wrench, 50mm - 150mm	10			
53.	Lapping plate, 250mmX200mm	4			
54.	Puller 3 leg with flexible arm, 300mm	8			
55.	Hand blower portable complete, 1/10HP	2			
56.	Spirit level precision metallic, 200mm	3			
57.	Stop watch	4			
58.	Tap set with matching drill, 3mm - 16mm dia	6			
59.	Tap set with matching drill, 1/4"-5/8"φ	6			
60.	Refrigerant cylinder, 2.5kg	2			
61.	Vernier caliper, Length 250mm	4			
62.	Micrometer outside, 0-25mm	3			
63.	Heating kit with infrared bulb, 200V capacity	4			
64.	Plumbing hammer, 200gms	4			
65.	Multimeter analog type	10			
66.	Tachometer digital multi range, 0-3000rpm portable small size in leather case	3			
67.	Micron vaccum guage, capable reading upto 20micron	4			
68.	Sensor thermometer digital, (-50°C) to (150°C)	4			
69.	Fin straightened/fin comb, with strong steel wire based combing on wood	6			
70.	Filler guage, 0.05mm - 1mm	5			
71.	Wire guage metric and whithworth, steel plate embossing converse of British and metric	2			
72.	Dial thermometer remote control armor capillary dial, 75mm - 50°C +50°C	6			
73.	Anemometer digital type	2			
74.	Compressor tester for small hermetic compressor, Fixed with electrical input/output indicating facilities	4			
75.	Digital thermometer(consumable), graduated disc analog type	2			
76.	Temperature and humidity recorder, capacity to record 24hours record	2			

(ii) General Machinery Shop of Outfit:

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1	Split Phase Induction Motor, 1/4HP , 230V	1			
2	Capacitor Start Induction motor, 1/2 HP, 230V	1			
3	AC 3 phase motor, 400 V/50Hz, 2HP	1			
4	Star delta Starter, 2HP	1			
5	Auto Transformer Starter, 3HP	1			

6	DOL starter, 2HP	1			
7	Three / Four door refrigerator, 300L carrying with HC R-600a	2			
8	Evacuation & refrigerant charging consist of Manifold with guages and valves capable of pulling vaccum up to 50 microns of Hg and with provision of connecting to a micron level vaccum guage. Graduated cylinder with provision for temperature correction and aii necessary isolated valves	1			
9	Split AC, 1.5 Ton with R-134a or R-22 reciprocating compressor	1			
10	Split AC Ductable, 1.5 Ton with R-134a or R-22 reciprocating compressor	1			
11	Recovering unit with cylinders, CFC & 134A	1			
12	Cassette AC, 4500Kcal/hr with R-404	1			
13	Descaling pump set, with stainless steel impeller and housing complete with motor 1/2HP & accessories	1			
14	Fan coil unit, with water valves 2&3 way	1			
15	Shell & Tube , DX chillers (Small), 5 Ton with Cu tubing only	1			
16	Circulating water pump small, 0.5HP with stainless steel tank capacity 20Lit with inlet/outlet provision	1			
17	Shell & tube type condenser, 5 Ton	1			
18	Rotary Hermetic compressor, 2 Ton	1			
19	Screw Compressor, 5 Ton	1			
20	Bottle Cooler visible, 200L carrying with HFC -134A & reciprocating compressor	1			
21	Water cooler storage type, 200L carrying with HFC -134A & reciprocating compressor	1			
22	Ice candy plant, 2 Ton with capacity to make 32 ice candy at a time with former tray, stainless steel tank on trolley	1			
23	Package AC, 7.5 Ton capacity, water cooled type with open type compressor and reciprocating type	1			
24	Car AC Tutorial model	1			

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Annexure – III (E)**(i) Requirement of Plumbing:**

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1.	Rule Steel 300 mm both in inch and mm	2 Nos			
2.	Rule Wooden 4 fold, 600 mm	2 Nos			
3.	Scriber 200 mm	2 Nos			
4.	Centre punch 100 mm	2 Nos			
5.	Chisel Cold flat 20 mm	2 Nos			
6.	Hammer ball pein 800 grams	2 Nos			
7.	File flat rough 300 mm	7 Nos			
8.	Level spirit wooden 300 mm	2 Nos			
9.	Plumb bob 50 grams	2 Nos			
10.	Trowel C-125-I S: 6013	2 Nos			
11.	Stillson wrench 200 & 350 mm	2 Nos			

(iii) Tools, Measuring Instruments & General Shop Outfit:

Sl. No.	Items	Qty Reqd.	Make & model	Unit cost	Total (Including taxes & all charges etc)
1	Marking Table 900X600X900mm high	1			
2	'V' Blocks only clamps 80/7-63A IS 2949	2			
3	Combination set 200 mm	1			
4	File, Square, Smooth 200 mm	2			
5	File Flat Rasp 250 mm	2			
6	File Triangular Smooth 200 mm	2			
7	Tap and Die set to cut B.S.F. , B.S.W. and metric threads of sizes No.6mm to 15mm total 4 sets	01 SET			
8	Screw Pitch gauge to cover above threads	1 SET			
9	Stove melting solder	1			
10	Snip Straight 250mm	2			
11	Snip bend 250 mm	2			
12	Tenon saw 600mm	1			
13	Hand Saw 600mm	2			
14	Gas Welding set with cylinder (Oxygen Acetylene cylinders with complete accessories, oxygen two stage regulator, acetylene two stage regulator, welding torch with different three sizes, hose pipe 5 metres etc.)	1			
15	goggle pair welder 100 mm	2 PAIR			
16	Brush Steel Wire 150X 50 mm	1			
17	Table welding 1200X 750 mm with fire bricks top and stand	1			
18	Mirror 100mm x 150 mm	2			
19	Scribing gauge	1			
20	Tool caulking set of 2 C	2			
21	Chain :pipe wrench 90mm -650 mm, IS: 4123	2 Sets			
22	Drill Twist (straight shank) 3mm to 6mm	1			
23	Portable forge ,450mmwith hand blower	1			
24	Steel lockers with 8 drawers Metal rack (1800x1500x450mm)	3			
25	Hammering drilling machine 23mm, 720W	1			
26	Electric PPR pipe welding machine (Standard size) ½" to 2".	1			
27	D.E. PEDESTAL GRINDER WITH TWO WHEELS 175MM ROUGH AND SMOOTH	1			
28	Hydraulic pressure machine for testing leakage in GI pipe fittings etc.	1			

29	Sight rail and bonning rod	1			
30	Doormat, Sickle, Spade, Girmale	1			
31	Pipe bender(Hydraulic type) size 1/2", 3/4", 1"	1			
32	Solar water heater system 200lit capacity	1			
33	Ring gauge 15 mm, 20 mm, 25 mm, 32 mm	1			

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