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TROPICAL FOREST RESEARCH INSTITUTE
(Indian Council of Forestry Research & Education)
(An Autonomous Council under the Ministry of Environment,
Forests & Climate Change Govt. of India)
P.O. – R.F.R.C, Mandla Road, JABALPUR – 482 021 (M.P)



No. 15-1(27-II)/e-procurement/2019-20 /pur/TFRI/JBP

dt. /03/2020

NOTICE INVITING TENDER FOR : SUPPLY OF EQUIPMENTS
No. 19-20/TFRI/JBP/01

Tropical Forest Research Institute, Jabalpur invites online tenders for the supply of **equipments and Tissue Culture Castor rack with LED lights** from eligible bidders. Details may be obtained online at CPPP web site <http://eprocure.gov.in/eprocure/app/> and <http://tfri.icfre.org>. Last date for submission of bids is **13/04/2020**. Bids shall be submitted online only at CPPP web site. Manual bids will not be accepted.

Under Secretary, TFRI, Jabalpur

Chapter-1
NOTICE INVITING TENDER FOR: SUPPLY OF EQUIPMENTS
No. /2019-20/TFRI/JBP/01

Tropical Forest Research Institute, Jabalpur invites online bids (Technical & Financial) from eligible bidders which will be valid for a minimum period of 90 days from the date of opening (i.e 13/04/2020) for **equipments and Tissue Culture Castor rack with LED lights**. Tender documents may be downloaded from TFRI web site <http://tfri.icfre.gov.in/>. (for reference only) and CPPP site <http://eprocure.gov.in/eprocure/app/> as per the schedule as given in CRITICAL DATE SHEET as under:

SNO	Activity	Date	Time
1.	Date of Publishing	16/03/2020	--
2.	Last date for receipt of bids	13/04/2020	15.00 hrs.
3.	Date of Opening of Technical bids at TFRI Jabalpur	20/04/2020	15.30 hrs.
4.	Date of Opening of Financial bids at TFRI Jabalpur	Will be decided after technical evaluation	

Bids shall be submitted **online only** at CPPP web site <http://eprocure.gov.in/eprocure/app-> Manual bids shall not be accepted. Tenderers are advised to follow the instructions provided in the “Instructions to the Tenderer for the e- submission of the bids online through the Central Public Procurement Portal for e-Procurement at <http://eprocure.gov.in/eprocure/app->

Intending tenderers are advised to visit again at CPPP web site <http://eprocure.gov.in/eprocure/app/> frequently prior to closing date of submission of tender for any corrigendum/addendum/amendment.

Bids will be opened as per date and time as mentioned in the critical date sheet. After online opening of technical bid the result of their qualification as well as price bid opening result will be intimated online only.

Under Secretary, TFRI, Jabalpur

Chapter-2
Conditions of Contract

2(a)The proposals must consist two bid systems as follows:
“QUALIFYING DOCUMENTS & EMD”

Sl. No.	Document
1.	Scanned copy of original catalogue of the instrument, Vender should have sufficient capacity to give application support,
2.	Scanned copy of users' list and satisfactory report of quoted model from reputed institute preferably Government institute,
3.	Scanned copy of supportive documents from the users for the satisfactory performance and after sales service. Manufacturer quoted by vender should have own office in India preferably at Jabalpur for better after sales and service support.
4.	Certificate from principle for availability of spares/parts for next five years
5.	Online Receipt in respect of Tender Form Fee and EMD/Exemption document/CSPO registration certificate.
6.	Proof of registration of firm PAN & GST
7.	Valid Income tax certificate of unit till the date of tender.
8.	Sale tax clearance/exemption certificate till March/2019
9.	The bidding firm must process an experience of at least five (05) years, in the field of supply, support and maintenance of the equipment. (Enclose copies of the supportive documents or supply orders.

EMD will be as follows (liable to be forfeited if wrong information is furnished)

S. No.	Name of equipment	Tender No.	EMD (in Rs.)
1.	Portable Photosynthesis System	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP /	Rs. 175000/-
2.	Automatic Weather Station	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 60,000/-
3.	Soil CO ₂ flux chamber/ Soil respiration chamber	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 27500/-
4.	Water Purification System	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 50000/-
5.	Microwave Digestion System	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 100000/-
6.	UV-VIS Spectrophotometer for chemical and biochemical analysis	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 35000/-
7.	Hot Plate	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 898/-
8.	Rangefinder- Nikon Forestry Pro II	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 1700/-
9.	Canon EOS 200D II	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs.2444/-

10.	Mobile/Portable Deep Freezer	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 3000/-
11.	Room Heater	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 450/-
12.	Flame photometer	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 3255/-
13.	Combined pH conductivity meter	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 1268/-
14.	Elix 3 UV Water Purification System	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 26550/-
15.	Sap flow instrumentation	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 162400/-
16.	Automatic Weather Station	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 16000/-
17.	Leaf-water potential pressure chamber	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 25000/-
18.	Soil moisture sensor	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 9000/-
19.	Nikon coolpix P1000	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 4982/-
20.	GARMIN GPSMAP 64s Handheld GPS	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 3250/-
21.	Centrifuge Machine	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 3750/-
22.	Tissue Culture Castor rack with LED lights	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 7500/-
23.	Hanging Balance -Meter	No. 15-1(27)/e-procurement/2019-20 /pur/TFRI/JBP	Rs. 1534/-
24.	Honda Electronic Weighing Scale		
25.	Digital Varneer Caliper		

Two bid systems TECHNICAL & FINANCIAL PROPOSAL”.

(2b) TECHNICAL PROPOSAL

During the preparation of technical proposal, in addition to technical details of the equipment along with **original catalogue**, the tenderer must give particular attention to the following:

- i) Users list and supportive documents from the users for the satisfactory performance and after sales service.
- ii) Information about suitably trained technical staff along with well established service network must be furnished.
- iii) All specifications should be self certified
- iv) Availability of spares/parts for next five years to be ensured.

(2c) FINANCIAL PROPOSAL

The financial proposal must be submitted in the format as per the price schedule . Full details of business terms and conditions, e.g. packing and forwarding, delivery period, GST/Sales Tax/Trade Tax (whether provincial or Central), other Taxes/Charges, if any, the validity period of quotation, discount, free delivery, packing or any other information relevant to the items may please be indicated clearly. Prices must be quoted F.O.R. at T.F.R.I. Jabalpur in Indian Rupees.(INR) only. The bid shall be inclusive of all duties and levies except for excise duty/customs and sales tax at the prevailing concessional rates, applicable against declaration of form 13. In case of imported equipment, if the bidder is the authorized dealer/distributor of foreign company and wants the order to be placed upon the parent company through the bidding firm for custom purposes, the same should be clearly mentione0d in the bid along with an authorization from the parent company to this extent. TFRI would in any case be liable to pay to the Indian bidder only to the extent of the bid amount in Indian Rupees or its equivalent foreign currency as per official exchange rate prevailing as on the date of bid opening i.e. 13/04/2020 TFRI, Jabalpur would not be liable for increase or any variation in foreign exchange rate and differences if any, should be borne by the bidder. However, the payment would be effected only after satisfactory commissioning of the equipment in TFRI, Jabalpur and no request for any advance payment would be entertained.

(2d) SUBMISSION OF PROPOSAL

Financial and Technical Proposals containing the qualifying documents and EMD self attested scanned copy should attached.

(2e) PROPOSAL EVALUATION

Two bid systems procedure will be adopted in evaluating the proposals

- (i) Checking of qualifying documents. This will be the documents, which shall be checked, and disqualification amongst these documents will lead to rejection of the proposal *in toto*,
- (ii) A technical evaluation of the qualified firm on the basis of the qualifying documents will be carried out prior to opening the financial proposal,
- (iii) A financial evaluation. Firms will be ranked using a combined technical / financial score as indicated below.

(2f) Technical Proposal

The evaluation committee appointed by the client will carry out its evaluation on the basis of technical specifications

Total Mark

100

The technical proposal should score at least 70 points out of 100 to be considered for financial evaluation.

(2g) Financial Proposal

The evaluation committee will determine if the financial proposals are complete and without computational errors. The lowest financial proposals (F_m) will be given a financial score (S_f) of 100 points. The financial scores of other proposals will be computed as follows $S_f = 100 \times F_m / F$ (Where F is amount of financial proposal).

Proposal will finally be ranked according to their combined technical (S_t) and financial (S_f) scores using the formula $S = S_t \times T\% + S_f \times F\%$.

The weight (T%) given to the Technical Proposal is 60%

The weight (F%) given to the Financial Proposal is 40%

General Terms & Conditions

The offer will be subject to the following terms and conditions: -

1. Please note that TFRI, Jabalpur has Custom Duty Exemption and Excise Duty Exemption Certificate. This may be kept in consideration while quoting the rates.
2. The stores are required to be delivered in full and within 20 days after acceptance of the offer.
3. Full details of business terms and conditions, e.g. packing and forwarding, delivery period, GST/Sales Tax/Trade Tax (whether provincial or Central), other Taxes/Charges, if any, the validity period of quotation, discount, free delivery, packing or any other information relevant to the items may please be indicated clearly.
4. Full specifications, details and information regarding the articles to be supplied, such as make, size, etc. along with **original catalogue**, etc. to be furnished with the offer. The list of users of goods of similar or same nature in the country should also be enclosed.
5. Normal terms of payment will be 100% payment within 30 days after receipt and acceptance of goods in satisfactory working condition after installation. Other terms of payment should be clearly spelt in the offer.
6. The tender should accompany a DEMAND DRAFT of **value as specified in Clause of Chapter 2 (EMD)** as Earnest Money, payable to the Director, Tropical Forest Research Institute, Jabalpur , which will be refunded, without interest, if the offer is not accepted. In case the offer is accepted but not honoured by the tendere the Earnest Money will be forfeited. The Earnest Money will also be forfeited, if wrong information is given in the tender to influence the tender cost . To the successful bidder, the EMD will be released only after satisfactory installation of the equipments and submission of performance bank guarantee.
7. The tenderer should also specify regarding Dealership/Proprietary item.
8. Freight, forwarding charges, if any, should be mentioned in the offer.
9. The stores are required to be delivered to the consignee concerned and the consignee will do inspection and verification of the goods.
10. The tenderer should quote on their printed letter-head paper, indicating thereon Sales Tax/Trade Tax No.& GST, Registration No., Fax No., Telex No., Telephone No., E-mail, etc.
11. Any or all tenders can be rejected by the Director, TFRI without assigning any reason. It cannot be challenged in any court.
15. Disputes, if any, will be under the jurisdiction of Jabalpur Court, M.P., India.

Under Secretary, TFRI, Jabalpur

**1. Item Name : Portable Photosynthesis System.
As per the specifications given below:-**

S. .No.	Specification	Qty.
1.	<p>Portable Photosynthesis System</p> <p>CO₂ Range : 0-2000µmol/mol Precision : <1% at 300ppm H₂ O Range : 0 to Dew point Precision : <1% at 100%RH Stability (CO₂ Analysis) : The system should be capable of automatic zero at regular interval to remove the sample cell contamination Control Range : Response time : 0.5 seconds Air sampling : 100cm³/min Power Supply : 12V rechargeable battery up to 8 hours continuous use. Leaf Cuvette : 2.5cm² with IR filter Air temperature : Sensor : Precision Thermistor Range : 0-60deg C Accuracy : ±0.3deg C PAR Sensor : Cosine Corrected Response : 400-700nm Range : 0-3000 µmol/m²/s Light Control : LED Light Control Unit to control light up to 2000 µmol/m²/s The system should be capable of measuring soil respiration simultaneously and independently with photosynthesis. The system should be supplied with all accessories such as soil respiration chamber, Soil Temperature sensor and oxygen sensor etc. Fully programmable microclimate environmental control system System console with or without console holding legs. Display of different-parameters having 4 to 7 inches colored/normal LCD graphic display. Keypad should be sealed from dust and moisture with membrane overlay Power requirement 7.0 to 12V. Inbuilt data storage capacity should be provided not less than 800 to 100 dat. User Cleanable Optics Automatic temperature control through software. Standard leaf chamber suitable for broad and narrow. Inclusive of Software, Spare parts (field stand, carrying case, manual, etc.) Accessories compatible to the instrument</p> <p>The training on operation/demonstration should be provided at experimental site by the provider among various chambers.</p> <ul style="list-style-type: none"> • Annotated Training DVD should be given with the system. • Data availability to the full satisfaction. • The supplier should be able to tackle any instrumental related problems within 5 days. • On site comprehensive warranty for two years. <p><u>ISO certificate of the manufacturer:</u> Bibliography of published papers should be submitted with the quotation. Enclose copies of orders without price during last two years. Original Printed Brochure should be enclosed with the quotation. The bidders should be competent enough to supply the Portable photosynthesis system and must have all kinds of registrations under appropriate authorities. They should also produce enough documents to prove their good track records in the field of manufacturing and supply of similar</p>	01 No.

equipments.	
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2. Item Name : Automatic Weather Station.

As per the specifications given below:-

S.No.	Specification	Qty.
1.	<p>Automatic Weather Station It should be portable, light in weight, weather proof, easy to install in field, In-built rechargeable battery with following specifications</p> <p>1. Data-logger</p> <ul style="list-style-type: none"> ➤ Data-logger should be portable, water proof with inbuilt rechargeable battery. ➤ No. of Channel: 12 or more ➤ Response Time: 1 sec ➤ Sampling Frequency: 10 Hz ➤ Data Storage: Micro SD card ➤ Memory Capacity:>2GB /expandable ➤ Battery/Power: Inbuilt, Rechargeable, Lithium-ion 12 VDC ➤ Wireless data Communication: GPRS/GSM/3G /CDMA ➤ Operating Temperature Range: -40°C to 80°C: ➤ RH range: 0-100% ➤ Air Temperature Sensor ➤ Range: -40°C to +120°C ➤ Resolution: 0.010C ➤ Accuracy: ±0.30C <p>2. Humidity Sensor</p> <ul style="list-style-type: none"> ➤ Measuring Range: 0 to 100% ➤ Resolution: 0.05% ➤ Accuracy: ±2% <p>3. Solar Radiation Sensor</p> <ul style="list-style-type: none"> ➤ Range: 0-1750 W/m2 ➤ Resolution: 1 W/m2 ➤ Accuracy: 1 W/m2 <p>4. Rain Fall- Tipping Bucket Rain Gauge</p> <ul style="list-style-type: none"> ➤ Range: 0-500 mm/hr ➤ Resolution: 0.2mm ➤ Accuracy: ±3% ➤ Rim Diameter: 20cm ➤ Material: Stainless steel, powder coated paint <p>5. Wind Speed Sensor (Anemometer)3cup, Digital / Pulse</p> <ul style="list-style-type: none"> ➤ Unit : m/s or km/hr ➤ Range: 0-58 m/s (0-209 km/hr) ➤ Resolution: 0.45 m/s (1.6 km/hr) ➤ Accuracy: ±5% <p>6. Wind Direction Sensor (Digital)</p> <ul style="list-style-type: none"> ➤ Operating Range: 0 to 360° ➤ Resolution: 1° (0 to 355°) ➤ Accuracy: 7° ➤ Excitation Voltage: None passive <p>7. Soil Moisture Sensor (Quantity- 3)</p> <ul style="list-style-type: none"> ➤ Measuring principal: TDR/FDR ➤ Range: 0 – 100% VWC ➤ Accuracy +/- 3% ➤ Cable:>3m <p>8. Soil Temperature Sensor (Quantity- 3)</p> <ul style="list-style-type: none"> ➤ Range: -20°C to - 60°C ➤ Resolution: 0.1°C 	01 No.

	<ul style="list-style-type: none"> ➤ Accuracy: +/- 0.10C ➤ Cable Length: 4 m <p>9. Soil Heat Flux plate-heat flux</p> <ul style="list-style-type: none"> ➤ Unit: Wm-2 ➤ Range: -2000 to +2000 W/m2 ➤ Sensitivity: 50 μV/W m2 ➤ Accuracy: +/- 5% FSD ➤ Cable Length: 1 m <p>10. PAR-Quantum sensor with 2m cable</p> <ul style="list-style-type: none"> ➤ Range: 2000m mol/m²/sec ➤ Resolution: 0.01m mol/m²/sec ➤ Accuracy: ± 5% FSD ➤ Excitation Voltage: None passive ➤ Quantum PAR Cosine Corrected (PAR; 400 to 700nm) ➤ Cable Length: 5 meter <p>11. Automatic Evapotranspiration Calculation logged as a Virtual Sensor</p> <p>System should be supplied with all above sensors, solar panel, mast/tripod and required accessories</p>	
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**3. Item Name : Soil CO₂ flux chamber/ Soil respiration chamber
As per the specifications given below:-**

S. No.	Specification	Qty.
1.	<p><u>Soil CO₂ flux chamber/ Soil respiration chamber</u></p> <p>Bowl Diameter : 20 cm chamber or standard size Volume : 4244.1 cm³ Soil surface area : 317.8 cm² (49.3 inches²)</p> <p>Operating air temperature range Operating Range : -20 to 72 °C Accuracy : ± 0.5 °C over 0 °C to 72 °C</p> <p>Barometric pressure sensor of chamber/analyser Operating Range : 50 - 110 kPa Accuracy : +/- 0.4 to 0.5 kPa Resolution : 1.45 to 1.55 Pa Operating Temperature Range: -20 to 55 °C</p> <p>GPS enabled with accuracy : Circular error probable (CEF) 2.5 meters</p>	01 No.

**4. Item Name : Water Purification System
As per the specifications given below:-**

S. No.	Specification	Qty.
1.	<p>Water Purification System</p> <p>Specification for Type – II water Resistivity = 5-15 MΩ.cm@ 25⁰C TOC<30PPb Bacteria <0.1 cfu/ml* Pyrogens (endotoxins)<0.001 EU/ml** RNases <0.01 ng/ml** DNases <4pg/μl** Flow rate – 3 Litres/Hour</p>	01 No.

	<p>Specifications for Type – I Water</p> <p>Resistivity : >18MΩ.cm Conductivity: <0.05μS/cm Bacteria level : <0.1 cfu/ml Endotoxins : <0.001EU/ml TNAase : <0.01 ng/ml DNAase : <4 pg/μl TOC : <9ppb Particulate matters : <1/ml Flow rate = 1.5L/min The instrument should be supplied with pro-guards, 50 litre PE storage tank, pre- filtration units, 2 set extra cartridges. The instrument should have minimum 1 year warranty, with successful installation and commissioning.+</p>	
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**5. Item Name : Microwave Digestion System
As per the specifications given below**

S. No.	Specification	Qty.
1	<p>Microwave Digestion System Microwave Digestion System is required to digest soil, flyash and plant samples for ICP Spectrometer analysis.</p> <ol style="list-style-type: none"> 1. The instrument should be supplied with atleast 24 No. of high pressure vessel rotors for quick dissolution of soil, flyash and plant samples without loss of heavy metals from sample solution. The system should have metal body and should have solid steel door for safety. 2. The microwave system should have dual Magnetron system with good diffuser for homogenous microwave power distribution in the cavity. Microwave frequency should be 2450MHZ and installed power should be 1900W minimum (two magnetrons minimum 950W each).System must have a device to protect the magnetron from back reflected energy. Having an Isolator. Microwave Absorbing devices in the cavity itself are not acceptable. 3. System should have high-grade 316 solid-steel and multilayered Teflon coated cavity. Should have wave guides to deliver microwave energy directly to the centre of the cavity and disperse it uniformly across the vessels not requiring motor driven attenuator. 4. The software should automatically reduce the microwave power in case of over temperature avoiding sample loss. 5. Minimum 24 position rotor should b e offered. Liner Material : TFM Max Temp that vessel should withstand: 300⁰C or more Pressure capacity: 1500 psi or more Material: PTFE or equivalent non-corrosive in HF Volume of Vessel – 100ml or more 6. System must be equipped with temperature sensors. 7. Warranty : One year or more from the date of Installation. 8. The system must conform to all international safety and emission norms 	01 No.

	<p>applicable.</p> <p>9. Pre Installation requirements : Complete technical details of pre-installation requirements should be furnished along with the technical bid TFRI, Jabalpur will only provide the installation room, air-conditioning units and required electrical outlets. Vendors are expected to supply all-other installation accessories, infrastructures, facilities and services required for successful installation and smooth operation of the equipment. Vendors must conduct the site survey before installation at no additional cost.</p> <p>10. Training : The manufactures/supplier should provide minimum two-days onsite trainings on hardware, software and application to the laboratory personnel in the installation operation and maintenance of the instruments.</p>	
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6. Item Name : UV-VIS Spectrophotometer for chemical and biochemical analysis.

As per the specifications given below:-

S. No.	Specification	Qty.
1	<p>UV-VIS Spectrophotometer for chemical and biochemical analysis</p> <p>Specifications</p> <ul style="list-style-type: none"> - Optical System : Double beam - Wavelength Range : 200 – 900nm - Spectral Bandwidth : ≤ 4nm - Light Source: Xenon flash Lamp with 3 years warranty - Wavelength Accuracy : ± 0.8nm or better - Wavelength Repeatability: ≤ 0.1nm - Photometric Display Range : -0.3 to 4 A - Scanning Speed : <1 to 6000 nm/min - Scan modes :Absorbance, % Transmittance, % Reflectance, intensity - Detector: Silicon Photodiodes - Output : USB Host/USB Drive/RS 232/SD Card - Temperature Range : 15⁰C to 40⁰C - The instrument should be supplied with instrument control software, Two pairs of Quartz Cuvette, HP computer printer and UPS. - Warranty : One year or more from date of installation. - Pre Installation requirements : Complete technical details of pre-installation requirements should be furnished along with the technical bid. TFRI, Jabalpur will only provide the installation room, air-conditioning units and required electrical outlets. - Training: The manufacturer/supplier should provide minimum two-days, onsite training on hardware, software and application to the laboratory personnel in the installation, operation and maintenance of the instrument. 	01 No.

7. Item Name : Hot Plate

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Hot Plate Make JSGW, Cat. No. 1197/12, Rectangular 45*60cm NABL, Laboratory Glassware	01

8. Item Name : Rangefinder- Nikon Forestry ProII

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Rangefinder- Nikon Forestry Pro II - Laser light to measure the targets - Required range : 7.5-1, 600m - Monocular vision atleast 6 x, with LCD display panels - Storage of atleast 250 measurement results - Multi-targets switch system - Temperature and water proof	1 No.

9. Item Name : Canon EOS 200D

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Canon EOS 200D II 24.1MP Digital SLR Camera + EF-S 25-250mm f/4-5.6 IS STM Lens + Memory Card + Bag (Black)	1 No.

10. Item Name : Mobile/Portable Deep Freezer

As per the specifications given below:-

S. No.	Specification	Qty.
1.	- Dimension (LxWxH) :Should not be more than mm 500mmx825mmx635mm - Capacity : 100 Ltr. (Should not be more than 100 Ltr., should not be less than 80 Ltr. - Weight : Should be less than 35 kg. - Temperature range : -20 ⁰ C to +24 ⁰ C - Body construct : Powder coated CRCA Steel exterior & AL inner lining. - Voltage : Operations with options of AC/DC power, DC: 12/24V - Onsite Warranty : 2 Years - Supply includes installation and demonstration of instrument	1 No.

11. Item Name : Room Heater**As per the specifications given below:-**

S. No.	Specification	Qty.
1.	Cool touch body with one year warranty Two heat Settings : 1000 W & 2000 W Peak Air Velocity : 3.0 m/s Power input : (220-240)V Power consumption : 1000 W, 2000W Frequency (Hertz) : AC 50Hz	3 Nos.

12. Item Name : Flame Photometer**As per the specifications given below:-**

S. No.	Specification	Qty.
1.	Flame photometer KLiNaCa with Na, K, Li filters and Compressor product code 151206, Type-120Li	1 No.

13. Item Name : Combined pH conductivity meter**As per the specifications given below:-**

S. No.	Specification	Qty.
1.	Combined pH conductivity meter, Model -1611, Make E.I (JSGW)	1 Nos.

14. Item Name : Water Purification System**As per the specifications given below:-**

S. No.	Specification	Qty.
1.	Elix 3 UV Water Purification System (12 V/60 Hz), Millipore	1 No.

15. Item Name : Sap flow Instrumentation**As per the specifications given below:-**

S. No.	Specification	Qty.
1.	Sap flow Data logger with GPRS modem, Minimum 20 Sap flow probes recording channels. Weather-resistant enclosure while collecting data under extremely harsh conditions	4 Nos.
	Sap flow probes (10-15 mm) in measurement length, (Weather – resistant enclosure while collecting data under extremely harsh conditions, Thermal dissipation method or Heat Ratio Method-based)	4 Nos.
	Sap flow probes (20-30 mm) in measurement length (Thermal dissipation method or Heat Ratio Method-based)	36 Nos.
	Sap flow probes (30-50 mm) in measurement length (Thermal dissipation method or Heat Ratio Method-based)	4 Nos.
	Extension Cable (30-50 ft) in length	44 Nos.
	Solar Panel with mounts, charge regulator and 12 V battery for data logger (Connecting Sap flow probes with data logger)	4 Nos.
	Sap flow Installation material (Suitable for maintaining power supply)	4 Nos.

	in extreme climatic conditions (-5 to 50 0C)	
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16. Item Name : Automatic weather station (with data logger, GPRS modem, solar-power supply)

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Datalogger store 6,00,000 data sets or more with option of recording from 1 sec to 24 hrs Sensors include: <ul style="list-style-type: none"> • Air temperature: • relative humidity: • solar radiation: • wind speed & direction: rainfall	2 Nos.

17. Item Name : Leaf-water potential pressure chamber

As per the specifications given below:-

S. No.	Specification	Qty.
1.	<ul style="list-style-type: none"> • Accuracy: ± 0.05 MPa from 0 to -5 MPa 1% from -5 to -300 MPa • Range: 0.1 to -300 MPa • Maximum Operating Pressure: 40 bar / 4 MPa or better 	1 Nos.

18. Item Name : Soil moisture sensor

As per the specifications given below:-

S. No.	Specification	Qty.
1.	<ul style="list-style-type: none"> • Up to 1 m in length with 5 depths measurements, data logger included. • Measurement: Volumetric water content • Accuracy: 4% or better • Soil moisture measurement range: Full range (0-1 m³ m⁻³) with full accuracy. • Temperature range with full accuracy: 0 to 40 °C or better 	1 Nos.

19. Item Name : Nikon coolpix P1000

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Nikon coolpix P1000, black 4K, 125X optical zoom camera with accessories	1 no.
	1. Nikon EN-EL 23 Rechargeable Lithium- Con battery	2 nos.
	2. Nikon EN-EL 23 battery charger	1 no.

	3. Yuntang VCT-690 Digital Camera Tripod	1 nos.
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20. Item Name : GARMIN GPSMAP 64s Handheld GPS

As per the specifications given below:-

S. No.	Specification	Qty.
1.	GARMIN GPSMAP 64s Handheld GPS Navigator box pack with 1-Year Birds Eye Satellite Imagery subscription Carabiner clip USB cable Manual	1 Nos.

21. Item Name : Centrifuge Machine

As per the specifications given below:-

S. No.	Specification	Qty.
1.	R24 research centrifuge, 17300 rpm with R244 rotor head 12x15ml, Digital speed Indicator, Imbalance detector with cutoff, Safety lid interlock to prevent cover opening during centrifugation, 0-99 minutes digital countdown timer, Dynamic brake, Stepless speed regulator with zero start interlock	1 No.

22. Item Name : Tissue Culture Castor rack with LED lights

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Should be ISO & amp; CE Certified Equipment Height: 5'18", Width: 50" and depth: 18" Shelves: 5, Lighting facility in 4 Shelves. Shelf of Shelf Distance: 16" Shelf to LED light distance: 28cm Ground level to bottom shelf distance : 6cm Shelf surface made up of hylem of 3mm thickness, Rack Frame: 2.5cm x 2.5cm sq. CRC pipe of mild steel, subsequently painted with anticorrosive humidity resistant treatment and structured powder coating. Provision for Four LED tube lights 18 watt in single illuminated shelf with individual ON/OFF switches for added flexibility for light control. Minimum light intensity 8 to 10 Klux at self surface area. Self protected pipe support to protect the culture bottle tray. Directly connected to programmable digit Photoperiodic controller for growth room. Rack should be installed in series of 4 without gap Supply and installation of wiring for LED fixtures (16 no. for each rack) Directly connected to Programmable digit Photoperiodic controller for growth room Racks.	2 No.

23. Item Name : Hanging Balance Meter

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Hanging Balance Meter 50Kg Iron Hanging Weighing scale for gas cylinder and Agriculture	1 No.

24. Item Name : Honda Electronic Weighing Scale

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Honda Electronic Weighing Scale Capacity – 500Kg. (Gray)	1 No.

25. Item Name : Digital Varneer Caliper

As per the specifications given below:-

S. No.	Specification	Qty.
1.	Digital Varneer Caliper Code No. 13503, 0-12" Basco	1 No.

Agreement

The Supplier _____ agrees to accept the terms and conditions of this bidding document in letter and spirit.

Name/Seal of the Tenderer

Frmat for Bank Guarantee

To

Tropical Forest Research Institute
P.O. R.F.R.C., Mandla Road,
Jabalpur.

Your Order No. _____ for the supply and delivery of _____ has been accepted by M/s _____.

In accordance with the terms of payment of the said order, we have agreed to pay the balance of 5% of the contract price of the supplier, furnishing you with an acceptable Performance Bank Guarantee for 10% of the total contract value, viz Rs. _____ for the due performance by the Supplier of all its contractual obligations and to be valid for a period of 24 months for the date of bank guarantee for this purpose you have agreed to accept our guarantee.

In consideration thereof, we hereby guarantee payment of and undertake to pay Rs. __ and remit to you on demand and without demur the sum of Rs. _____ being 10% of the total value of the contract on receipt of your intimation that the Supplier has committed a breach of any of its contractual obligations.

This guarantee shall be valid for a period of 24 months from the date of Installation of the equipment in satisfactory condition or 27 months from the date of dispatch of the last lot of consignment whichever is earlier, and in any event shall expire on _____, you shall have the right to file/make your claim on us under the guarantee for a period of sixty days from the said date of expiry.

This guarantee shall not be revoked without your express consent and shall not be affected by your granting time or any other indulgence to the supplies or by any change in the constitution of the Bank or the supplies or for any other reason whatsoever.

Not with standing anything, contained herein above our liability under this guarantee is restricted to Rs. _____ and this guarantee will remain in force up to and inclusive of _____ - unless an action to enforce a claim under the guarantee is filed against us within sixty days from the date of expiry i.e. on or before _____, all rights under the guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there under.

Signatory Bank with Seal

