Two Bid Tender Document

Purchase of Medical and Scientific equipments for FRI

Forest Research Institute

P.O. New Forest

Dehradun-248006

Sl.**No.----------**

Forest Research Institute

(Indian Council of Forestry Research & Education)

Post- New Forest, Dehra Dun – 248006, Uttarakhand, India

Phone: 0135-2224205; Fax: 0135-2756865
Website: http://fri.icfre.gov.in Email: po_fri@icfre.org

TENDER NO: X- 63 /12-13/Purchase

DUE DATE FOR PRE-BID CONFERENCE : February, 12th, 2013 at 11:00 A.M. venue Purchase Section, FRI (Main Building)

DUE DATE FOR SUBMISSION OF TECHNICAL & FINANCIAL BIDS: 26th Feb, 2013 at 11.00 A.M.

DUE DATE FOR OPENING OF TECHNICAL BIDS : 26th Feb, 2013 at 11.30 A.M.

OPENING DATE FOR FINANCIAL BIDS : 4th March,2013 at 11.00 A.M.

CONTENT OF TENDER PAPER

THIS PAPER INCLUDES THE FOLLOWING DOCUMENTS:-

1. Tender Notice (Chapter I)
2. Terms & conditions (Chapter -II)
3. Description of the items, specification (Chapter III)
4. Schedule of Price(Chapter IV)
5. Agreement (Chapter V)
6. Format for Bank Guarantee (Chapter VI)

Issued to M/S

(DEEPAK MISHRA)
Purchase Officer

Forest Research Institute
(Indian Council of Forestry Research & Education)
Post- New Forest, Dehra Dun – 248006 Uttarakhand, India

Phone: 0135-2224205; Fax: 0135-2756865
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TENDER No. X-63 /12-13/Purchase

BIDDING DOCUMENTChapter-1 Instructions to Bidders

Sealed Tenders are invited from the reputed firms for the purchase of following item for this Institute:-

Sl.	Name of equipment	Tender No.	EMD
1.	Portable Photosynthesis system (IRGA based)	X-63/12-13/Pur	36,000
2.	Humidity chamber with temperature and light controls		12000
3.	Lab Disc Refiner		10000
4.	Image Analyser		12000
5.	B.O.D Incubator		3000
6.	Refrigerated Ultracentrifuge		6000
7.	Trincocular stereoscopic Microscope with digital photographic system3 MP with software		7000
8.	Stereoscopic Trincocular Microscope with digital Photo micrographic system 3 MP		6000
9.	Laminar Air Flow		5000
10.	Power Pac 5000V , 500 mA		3000
11.	Deep Freezer (-20 degree C)		4000
12.	Mini Spin		2000
13.	Refrigerated Centrifuge 24 place rotor		6000
14.	HPLC (High Pressure Liquid Chromatograph)		40,000
15.	Ultrasound Machine		20,000
16.	Digital X-ray Machine		48,000

The details of the above items and other Terms and Conditions, etc. are available in the tender documents, obtainable from the Purchase Officer, Forest Research Institute, Dehradun-248006, on payment of **Rs.227.00** (Rs.277.00, if tender is required by Speed post) (**including 13.5% Uttarakhand Trade Tax),** by CROSSED DEMAND DRAFT in favour of the Accounts Officer, FRI. **Pre-bid Conference** for finalization of technical specifications has been arranged at Purchase Section, FRI on **February, 12th, 2013 at 11:00 A.M. The Tenders (both technical and financial bids) should reach this office on or before 26th February, 2013 up to 11.00 AM., out of which the technical bids will be opened on the same day at 11.30 AM.** in the presence of the tenderers or their authorized representatives, if any. **The financial bids will be opened on 4th March, 2013 at 11.00 AM** at Purchase office, FRI Main Building. Any or all tenders can be rejected by the Director, FRI without assigning any reason. The tender forms and specifications are also available at web site http://fri.icfre.gov.in/. The tender form downloaded from above web sites must include Rs.227/- as tender fee along with the tenders submitted**.**

(DEEPAK MISHRA)
PURCHASE OFFICER

To,

M/s

Chapter-2: Conditions of Contract

Terms and Conditions

Pre-bid conference: A pre-bid conference has been arranged with the users for finalization of technical specifications of the equipment. Bidders are requested to take part in the Pre-bid conference at scheduled date and time. The modified specifications, if any, after Pre-bid conference will be available at the websites and also can be obtained from the office of Purchase officer. After Pre-bid conference no changes will be accepted in the desired specifications. If no party attends the Pre-bid conference then listed specifications will be considered as final.

The proposals must consist of three separate sealed envelopes as follows:

The F**irst envelope** must enclose following documents and must be marked in bold letter as "QUALIFYING DOCUMENTS & EMD"

a. A brief description of the organization and an outline of recent experience in assignments of a similar nature.
b. Proof of registration with Directorate of Industries or equivalent,
c. Proof of Sales Tax Registration,
d. PAN.
e. EMD will be as follows (liable to be forfeited if wrong information is furnished)

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1.	Portable Photosynthesis system (IRGA based)	X-63/12-13/Pur	36,000
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7.	Trincocular stereoscopic Microscope with digital photographic system3 MP with software		7000
8.	Stereoscopic Trincocular Microscope with digital Photo micrographic system 3 MP		6000
9.	Laminar Air Flow		5000
10.	Power Pac 5000V , 500 mA		3000
11.	Deep Freezer (-20 degree C)		4000
12.	Mini Spin		2000
13.	Refrigerated Centrifuge 24 place rotor		6000
14.	HPLC (High Pressure Liquid Chromatograph)		40,000
15.	Ultrasound Machine		20,000
16.	Digital X-ray Machine		48,000

f. The bidding firm must possess 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).

The **Second envelope** must enclose the Technical proposal and must be marked in bold letter as "TECHNICAL PROPOSAL".

The **Third envelope** must enclose the Financial proposal and must be marked in bold letter as "FINANCIAL PROPOSAL".

TECHNICAL PROPOSAL

During the preparation of technical proposal, in addition to technical details of the equipment along with **original catalogue and other literature**, 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) On hand training proposal for the staff of the Institute at site.
iv) All specifications should be certified and guaranteed for genuineness and that the model of the equipment is not going to be obsolete in near future (supportive documents from the Principal to be enclosed).
v) Availability of spares/parts for next five years to be ensured (supportive documents from the Principal to be enclosed).
vi) In absence of original catalogue and other literature the tender would be considered as invalid.

FINANCIAL PROPOSAL

The financial proposal must be submitted in the format as per the price schedule (chapter 4). Full details of business terms and conditions, e.g. packing and forwarding, delivery period, VAT/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. Dehradun.

SUBMISSION OF PROPOSAL

Financial and Technical Proposals and an envelope containing the qualifying documents and EMD should be sealed in three separate envelopes and then sealed in a counter envelope. The proposals should be clearly distinguished by writing on the cover "Qualifying Documents", "Financial Proposal" and "Technical Proposal". The outer envelope must be clearly marked "DO NOT OPEN EXCEPT IN PRESENCE OF THE EVALUATION COMMITTEE" and "TENDER FOR EQUIPMENT".

The proposal must contain no interlineations or overwriting except as necessary to correct errors made by the concerned themselves, in which cases such corrections must be initialled by the person or persons signing the proposal. Your completed proposal must be delivered on or before the stated time and date.

PROPOSAL EVALUATION

A three-stage procedure will be adopted in evaluating the proposals

(i) Checking of qualifying documents. This will be the first envelope, 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.

Technical Proposal

The evaluation committee appointed by the client will carry out its evaluation applying the evaluation criteria and point system as specified below. Each responsive proposal will be attributed a technical score (St.).

The points given to technical evaluation criteria are

i)	Firms relevant experience (including similar jobs in hand)	15
ii)	Technical specifications of the equipment	70
iii)	After sales Service /spares availability	15
	Total	**100**

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

Financial Proposal

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

Proposal will finally be ranked according to their combined technical (St) and financial (Sf) scores using the formula S = St x T% + Sf x 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 FRI, Dehra Dun 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 90 days after acceptance of the offer.
3. The offer should be firm and open for acceptance till 120 days from the stipulated date of opening. Price escalation will not be allowed.
4. Full details of business terms and conditions, e.g. packing and forwarding, delivery period, VAT/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.
5. 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. The offer would not be considered fit if these details are not provided.
6. 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.
7. The tender should accompany a DEMAND DRAFT/FDR of **value as specified in Clause of Chapter 2 (EMD**) as Earnest Money, payable to the Accounts Officer, Forest Research Institute, Dehradun, which will be refunded, without interest, if the offer is not accepted. In case the offer is accepted but not honored by the tendered; 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.
8. The Tenderer should also specify regarding Dealership/Proprietary item and copy of the latest certificates from the principal should be produced with the tender.
9. Freight, forwarding charges, if any, should be mentioned in the offer. In case of import being done by this institute, the FOB prices should be mentioned.
10. The stores are required to be delivered to the consignee concerned and the consignee will do inspection and verification of the goods.
11. The tenderer should quote on their printed letter-head paper, indicating thereon Sales Tax/Trade Tax No., Registration No., Fax No., Telex No., Telephone No., E-mail, etc.
12. **Two year on site comprehensive WARRANYTY** for all the items and works to be given OR **(as specified in specifications)**
13. **Performance Bank Guarantee**: The supplier will have to submit a PBG or Performance security in the form of Bank Guarantee or FDR @ 5% of total order value from a commercial bank in an acceptable form within 21 days of issue of supply order. Performance security should remain valid for a period of 24 months beyond the date of completion of all contractual obligations of the supplier including the warranty obligations. Failure to abide by the contractual obligation will liable to forfeit the Performance Bank Guarantee.
14. Any or all tenders can be rejected by the Director, FRI without assigning any reason. It cannot be challenged in any court.
15. Disputes, if any, will be under the jurisdiction of Dehradun Court, Uttranchal, India.

(Deepak Mishra)
PURCHASE OFFICER

CHAPTER III (Description of the items and specifications)

Tentative specification for Pre-bid conference

Sl. No		Description of the items and specifications
1.		**Portable Photosynthesis System (IRGA based)**
	*	Fully programmable microclimate environmental control system
	*	System console with console holding legs with 128 MB RAM (or more) memory for data processing
	*	Display of different parameters having LCD graphic display (8 linex40 characters)
	*	Full ASCII keypad, scaled from dust and moisture with membrane overlay.
	*	Flash memory < 64 MB or more for data storage; Additional Data Storage on
	*	Flash Card < 512 MB Flash Card supplied with System.
	*	Power requirement 12 VDC. Four batteries & charger to be supplied with system
	*	Two Dual CO_2 and H_2O Analyzers in the sensor Head (TOTAL 4 analysers)
	*	Response Time: < 0.1 sec.
	*	PROCESSOR SPEED: 400mhz (Very Fast Response Processor)
	*	USER CLEANABLE OPTICS.
	*	ETHERNET CONNECTVITY.(ETHERNET ADAPTER CARD TO BE SUPPLIED)
	*	REMOTE CONTROL THROUGH INTERNET
	*	FLASH CARD OF 512 MB Or More
	*	Training DVD to be supplied with the System.
	*	CO_2 analyzer (0 – 5000 umol/mol, with ☐1
	*	H_2O analyzer 0-about 75 m mol/mol, with ☐1 m mol/mol accuracy.
	*	Band Width: 10 Hz
	*	Air Flow: 150-1000 umol/S without injector and 0 – 700 umol/s with CO_2 injector.
	*	Automatic temperature control through software
	*	Standard leaf chamber 6cm^2 with PAR sensor along with leaf holding stand
	*	Four rechargeable Batteries with charger, RS232 Cable for DTE & DCE devices CD with
	*	software, Spare parts (Leaf temperature thermocouple, field stand, carrying case, manual, etc.)
	*	8 Spare Channels for connecting External Sensors.
	*	Accessories compatible to the instrument:
	*	External PAR Sensor for Ambient PAR conditions.
	*	CO_2 injector system having CO_2 source assembly, CO_2 controller, CO_2 cylinder (150 Nos)
	*	Integrated Fluorescence Attachment for Simultaneous Measurement of Fluorescence & Gas Exchange on the same Leaf Are
		(The complete System should be manufactured by one company along with fluorescence analysis

		OPTIONAL: Chamber for conifers, additional Chambers for Whole Plant Arabidopsis with RED/BLUE LED LIGHT SOURCE, Narrow Leaf Chamber, Chamber Hardware Kit. **ISO certificate of the manufacturer**: **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 equipments.
2.		**Humidity Chamber with Temperature & Light Controls**
	*	Controlled Temperature range : 10°C to bove 40°C
	*	Controlled Humidity Range : 30% t0 90% RH
	*	Light provisions : At least four points with separate switches
	*	Attached light : At least one UV and one white light
	*	Power : Single phase 220-240 V AC
	*	Minimum Chamber interior size : 200x60x60cm^3
	*	Multiple detachable racks Humidifier :Vapour based Reflective powder coating
3.		**Lab Disc Refiner**
	*	Refiner Disc Dia : 304 mm or 12" in Six Segments
	*	Speed : 1500 – 3000 rpm
	*	Gap Adjustment : 0 – 20 mm
	*	Motor : 7.5 to 40 kw
	*	Power Supply : 440V, 3PH, 50 Hz
4.		**Image Analyser**
	*	The system should include both software for image analysis and hardware for capturing high resolution images for microscopic and macroscopic studies. The software for analysis of digital image should include wide applications for forestry and plant science research area. The system should have application modules for following applications such as morphological observation such as floral / seed characters, area measurement, quantification of colour, Karyotyping and other cellular measurements etc.
5.		**B.O.D. Incubator**
	*	An ISO Certified company (9000:2008): 5°C-50°C±1°C,
	*	Double walled cabinet; Epoxy powder; anodized aluminium inner chamber with inner acrylkc door (unbreakable); electronic digital temp. controller fitted with F.H. motor fan with CFCfree compressor; Automatic voltage stabilizer (220V/230V AC; 50 cycle) with automatic cut off with interior illumination.
	*	Size : 12 CuFt; 336L
	*	W 650mm x 680mm x H 900mm: Along with customer list; Service providing record of last three years

6.		**Refrigerated Ultracentrifuge**
	*	Compact centrifuge for speed of 15000 rpm and RCS value of 21000g
	*	Should have temp. range-10 to+ 40C
	*	Option for Knob version for faster setting of parameters of Foil Version for easier cleaning of the display
	*	Dials and digital display for easy setting
	*	Rpm/rcf setting as required
	*	Separate short spin function
	*	Should have certified aerosol – tight metallic rotor for 24 x 1.5, 2ml tubes, with PTFE- coating for increased chemical resistance
	*	Metallic autoclavable rotor
	*	Motorized lid latch-automatic lid opening following application sequence
	*	Timer 30 s to 9:59 hr and continuous mode
	*	Acceleration time to max rpm of 15 sec.
	*	Braking time to max rpm of 16 sec.
	*	Brushless motor to provide maintenance free drive
	*	Automatic rotor recognition
	*	Approx weight without rotor 2d1 Kg
	*	Noise level < 48 dB(A) extremely silent technology
	*	Guaranteed temperature of 4°C at maximum speed
	*	Fast temp. function for quick pre-cooling of the centrifuge
	*	ECO shut off function to deactivate the compressor after 8 hours of Inactivity to reduce energy consumption & extend compressor life
	*	Should be appro9ved from *IVD* (in Vitro diagnostic)
	*	Should be ISO-9001 & certified
	*	Dimension (W x D x H) 29 x 48 x 25 cm
7.		**Trincocular Stereoscopic Microscope with Digital Photographic system3 MP with Software**
	*	Trinocular Stereoscopic Microscope with Digital Photographic system3 MP with Software, along with zoom ratio of between 1:7- 1:8
	*	TrinoculaR tube viewing angle between 30° to 40°
	*	Bright field/Dark Field transmitted light illumination base. course and fine focusing knobs
	*	Click stop magnification knob
	*	Plan apo chromatic objective lens 0.75x
	*	Wide field eye pieces 10x & 20x
	*	Incidental light LED/fiber optics with dual guide
		Optional:
	*	Plan Apo chromatic objective lens 0.5x, 01x
	*	Eyepieces (wide field) 15x
8.		**Stereoscopic Trincocular Microscope with Digital Photomicrographi System 3 MP**

	*	Trinocula tube 30° to 45° inclined; zoom ratio 1:7 or1:8, coarse and fine focusing knobs, powerful incidence (LED/fiber optics with dual guide) and bright -/ dark field transmitted lightillumination systems; wide field paired eye piece EF 15x with eye guards; objective Plan apochromatic 1x;digital camera with resolution of at least 3 MP; imaging software for image capturing, processing, measurement and reporting
		Optional
	*	Plan apochromatic objective 1.5x
	*	Wide field eye piece WF 20x
9.		**Laminar Air Flow**
	*	Size : 48-24-24 (4'x2')
	*	Overall dimensions:1302x915x1425(Wx Dx H)
	*	Dimensions are in Millimeters
	*	ULPA filter area: 1220x610 (WxH)
	*	Workspace: 1186x610 x 577 (Wx Dx H)
	*	Overall dimensions:1302x915x1425(Wx Dx H)
	*	Wood Melamine body construction
	*	EU-13 ULPA Filter & EU – 6 Pre-Filter
	*	Supply Motor Blower Assembly
	*	Anti Vibrator & Flexible Connector
	*	Adjustable Floor Aligner
	*	Stainless Steel 304 Work Table
	*	Glass Side Panels
	*	UV light which aids in decontamination of the work area
	*	Fluorescent lights (in excess of 200 lux)
	*	Air / Gas Regulator
	*	Pressure Monitor from 0 to 25 mm to indicate differential pressure
	*	across ULPA filter with respect to ambient
	*	across ULPA filter with respect to ambient
	*	across ULPA filter with respect to ambient
	*	Electrical outlet with ON / OFF Switches
	*	D.O.P. entry port for filter test.
10.		**Power Pac (Biorad) 5000V, 500 mA**
	*	**Output** (programmable) Voltage: 20–5,000 V
	*	**Current:** 0.01–500 mA
	*	**Power:** 1–400 W
	*	**Type of output:** Constant voltage, constant current, constant power, or constant temperature (with automatic crossover)
	*	**Timer control**: 1 min–99 hr 59 min, fully adjustable
	*	**Volt-hour control**: 99,999 V-hr
	*	**Programmable,** Stores up to 9 basic and 9 IEF methods, each with up to 9 steps
	*	**Must have automatic recovery after power failure**: which should be user-selectable and setup values to be maintained
	*	Must have **safety features** such as, No-load detection, sudden load change detection, ground leak detection, overload/short circuit protection, overvoltage protection

	*	Number of output jacks: 4 sets in parallel
	*	Should have Pause/resume function
	*	**Display functions:** 128 x 64 pixel, yellow-green backlit graphics LCD
	*	Real-time editing possible
	*	Real-time clock possible
	*	Should have Data transfer/archiving feature
	*	Temperature control feature via temperature probe; 30–90°C ±2°C
	*	Should have microampere readout and control feature
	*	Operating conditions: 0–40°C, 0–90% humidity in the absence of condensation
	*	Input power (actual) 90–120 or 198–264 VAC, 50/60 Hz, autoswitching
	*	Should have Regulatory EN-61010, CE IQ/OQ protocols
11.		**Deep Freezer (-20° C)**
	*	Vertical type with temperature -20 or below
12.		**Mini Spin**
	*	Power supply:230 V/50-60 Hz
	*	Max. rotational speed: 14,500 1/min
	*	Relative centrifugal force (rcf): **14,100 x g**
	*	Power requirement: **85 W**
	*	Acceleration time to max. speed:**13 s**
	*	Braking time from max. speed: **12 s**
13.		**Refrigerated Centrifuge. 24 place rotor**
	*	Max. rcf25,000 × g
	*	Max. rpm16,220 rpm
	*	Acceleration time to max. speed: 18 s Braking time from max. speed18 s
	*	Temperature settings–11 °C to 40 °C
	*	Time settings:10 s to 9:59 h
	*	Power requirement: 550 W
	*	Max. capacity48 × 1.5/2.0 mL
	*	**1. Rotors** Rotor for 24 × 1.5/2.0 mL tubes (max. 25,000 × g / 16,220 rpm), Aerosol-tight and Quick Lock-sealing
		Optional
	*	**2. Rotors** Standard rotor for 48 × 1.5 / 2.0 mL tubes (max. 18,210 × g / 14,000 rpm), Aerosol-tight and Quick Lock-sealing
	*	**3. Rotors** PCR strip rotor for up to 48 × 0.2 mL PCR tubes, (max. 11,710 × g / 10,500 rpm)

14.		HPLC
		A workable HPLC system providing highest speed, resolution and sensitivity, with quaternary gradient pump, autosampler, RI and Diode Array detectors with full compatibility to all detectors, columns, column heater and cooler, and software for complete control and data evaluation. **Pump** Quaternary gradient with 4 channel online degasser providing maximum flow rate of 10 ml/min, Hydraulic system comprising of dual piston in series with floating pistons with controlled variable stroke drive, and active inlet valve. **Gradient formation** should be at low-pressure with quaternary mixing **Gradient composition precision**: < 0.20 % SD, at 0.2 and 1 ml/min **Software programmable operating Pressure**: 0 – 8000 psi or more **Operating flow range programmable**: 0.001 – 10.0 ml/min @ 0.001 ml/min increments **Flow precision:** <0.07% RSD, or < 0.02 min SD whatever is greater, based on retention time at constant room temperature.: **Flow accuracy**: ± 1% or 10 µl/min whatever is greater **Delay volume**: 650 µl **Electronic pulsation suppression system to monitor and compensate for solvent compressibility** **Compatible pH range**: 1.0 – 12.5 **Should be provided with Active seal wash facility.** **Must be** a stackable, self-contained module with solvent resistant material used in all areas which may have contact with the mobile phase. **Safe leak handling must be provided together with leak sensors**. **<u>B. Diode array based detector:</u>** 1) **Wavelength range:** 190 – 950 nm 2) **Detector type:** 512 - 1024-element diode array 3) **Light source:** Deuterium and tungsten lamp 4) **Short-term noise:** +/-0.8 x 10-5 AU at 254 nm and at 750 nm 5) **Drift:** <0.9 x 10-3 AU/h at 254 nm 6) **Linearity:** > 2 AU upper limit 7) **Slit width:** Programmable: 1, 2, 4, 8, 16 nm 8) **Diode width:** < 1 nm 9) **Spectral tools:** Stop-flow wavelength scan (i) **Resolution**: An electromechanical slit with programmable optical slit width from 1 to 16 nm must be available for easy method and performance optimization in terms of sensitivity and selectivity.

10) Safe leak handling must be provided together with leak sensors

11) Must have electronic records of maintenance and errors

12) Should accommodate leak detection and safe leak handling design in the module housing.

C. <u>Refractive Index Detector</u>

1. **Refractive index range** : 1.00 - 1.75 RIU
2. **Measurement range** : +/- 600 x 10-6 RIU
3. **Optical zeroing via set screw**
4. **Optics temperature control:** 5°C above ambient to 55°C
5. **Sample cell volume**: 8uL
6. **Maximum pressure**: 5 bar (0.5Mpa)
7. **Maximum flow rate**: 5mL/minute
8. **Short term noise**: < +/- 2.5 x 10^{-9} RIU
9. **Drift** : < 200 x 10^{-9} RIU/hour

D. <u>Auto sampler</u> :

1) **Sample capacity**: 100 × 2 ml vials in 1 tray, 40 × 2 ml vials in 1/2 tray, 15 × 6 ml vials in 1/2 tray

2) **Injection volume**: 0.1–100 µl injection range, in 0.1 uL increments Up to 1500 µl with multiple-draw

3) **Precision**: < 0.25% RSD from 5–100 µl, typically < 1% RSD from 1–5 µl, variable volume

4) **Carry over** : < 0.05%

E. <u>Column heater / cooler:</u>

1. 10 °C below ambient to 80 °C.
2. Column capacity : 3 columns of 30 cm length
3. Temperature stability : +/-0.15 °C
4. Temperature accuracy : +/- 0.8 °C

F. <u>Column</u>

C-18 column (4.6mmX250mm).
C-8 column (4.6mmX 250mm)
Column for the analysis of polysaccharides & other carbohydrates

G. <u>Software for Chromatographic Data Management :</u>

The software

(ii) should provide single point control for process and data evaluation in the above mentioned modules

(iii) should be able to calculate the system suitability

(iv) should have customized reporting and GLP complaint

H. The system should be provided with suitable PC, Printer and UPS of 5KVA.

I. Tool kit for self maintenance of the system

J. Demonstrable relevant experience of the firm supported by relevant documents.

		K. The system should be compatible with the other detectors such as ELSD, MALLS, Fluoresecnce etc. as and when requited, and also upgradable in future as and when necessary. **L. The supplier must offer:** (a) Free installation and two year warranty (b) Free training onsite as well as their application / research laboratory (c) Support in form of literature survey, application notes, laboratory, method development, frequent training, and standard substances, wherever possible. **Optional items:** Fraction collector, GPC software along with necessary GPC columns with Mol. Wt. range from 1,00,000 Da to 6,00,000 Da
15.		**Ultrasound machine**
	*	Whole Body Color Doppler
	*	It should be a state of the art Digital Technology System & should be capable of performing Imaging applications of Abdomen, Obstetrics, Gynaecology, cardiac, Paediatric, foetal cardiac, small parts, Vascular.
	*	The system should incorporate facility for High-resolution 2D, M Mode, PW, CW, Colour Flow Imaging, Colour Power Angio Imaging, directional Colour Power Doppler Imaging modes, System should have Triplex Mode simultaneity, all three modes (2D, Colour & Doppler Modes simultaneously).
	*	The system should have HPRF mode, anatomical M mode, trapezoid imaging on linear probe, B & C live, Quad display, Duplex for simultaneous B & Spectral Doppler.
	*	System should have Hydraulic Movement with Height adjustment facility.
	*	Should have powerful multi beam parallel imaging
	*	All transducers should have broad bandwidth Beam former technology for extreme High resolution 2D Imaging, Frequency range of transducers should be 2 to 11 MHz or more.
	*	System should support Trapezoidal imaging on linear probe or equivalent.
	*	Endocavity Probe should have minimum angle of 140 degree
	*	System should support extended field of view imaging or equivalent.
	*	It should have panoramic imaging at least up to 100 cm
	*	System should have a High resolution CRT/LCD Monitor of medical grade 15 inches or more, anti glare and maximum viewing angle
	*	Monitor should be rotatable
	*	Facility for independent steering of B mode and colour beam on liner probe. The system should provide 100 dB or more full time input dynamic range, this should be supported by technical data sheet
	*	System should have Pan Zoom facility on live and freeze image.
	*	Should have one touch image optimization and automatic real-time Doppler tracing.
	*	System should have 3D/4D upgradability
	*	System should have Paranomic view

	*	Machine should have 4 ports, out of which one should be parking port.
	*	System should have Image Management facility with facility for direct storage of Images and loops in the Hard Disk Drive and also thumbnail review to view & edit Images, loops and also reports
	*	Equipment should have in built 160 GB HDD to store images and cine loops.
	*	Equipment should have the facility to store Cine loops.
	*	Archive-should have inbuilt CDRW, MO drive, USB Drive with the facility to transfer images
	*	Should have direct connectivity to Inkjet printer for printing images and report
	*	The system should have automatic quantification of Doppler parameters to display user-selected measurements
	*	System should have full screen imaging (image should come on full screen in online and offline mode)
16.		**Digital x-ray machine**
	*	Camera should be of Minimum 650 pixels per inch
	*	Compatible with Memography, CT Scan & MRI Systems.
	*	Compatible to all sizes of films at least for four sizes.
	*	Should be connected to various chambers of doctors for direct viewing.
	*	Internet compatibility for online reporting.
	*	& above all the CR System should be supplied with 300ma X-Ray unit of renowned co.

(DEEPAK MISHRA)
PURCHASE OFFICER

Chapter-4: Price Schedule

(To be utilized by the bidders for quoting their prices)

Item with detail specifications	Cost per unit	Taxes, if any	Total cost in figure and words

Name/Seal of the Tenderer

Chapter-5: Agreement

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

Name/Seal of the Tenderer

Chapter-6: Format for Bank Guarantee

To

Forest Research Institute

P.O. New Forest

Dehradun

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 5% 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 5% 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 any thing, 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