MAHARSHI DAYANAND UNIVERSITY, ROHTAK
RESEARCH PROJECT CELL,
M.D.UNIVERSITY , ROHTAK

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STANDARD BIDDING DOCUMENT FOR PURCHASE OF EQUIPMENTS FOR THE ESTABLISHMENT OF CIL ON BEHALF OF REGISTRAR ,M.D. UNIVERSITY, ROHATAK

PART1 : COMPLETE BIDDING DOCUMENT

Name of work: Purchase of equipments for the establishment of CIL, in MDU, Rohtak.

PRESS NOTICE

M.D. UNIVERSITY, ROHTAK
Notice Inviting E-Tender

Name of work	**Purchase of equipments for the establishment of CIL, in MDU, Rohtak.**
Tender Docs Fee+ E Service Fees	**Rs. 4000 + 1000 = Rs. 5000/**
Earnest Money **Time Limit**	**2 % of the quoted rate of Equipment** **08 to 12 Weeks**
Tenders to be received till: 05.00 PM on dated 28.10.2015	

i) The tenders will be received only through E-tendering for further details visit website https://haryanaeprocurement.gov.in

(ii) Cost of Bid document (to be paid Manual) is Rs. 4,000/- (non refundable) for each bid to be deposited through Demand Drafts in favour of "Finance Officer", M.D.U., Rohtak, payable at Rohtak.

(iii) Willing Contractors shall have to pay is Rs. 1000/- the e- Service Fees in form of Demand Draft in favor of „Society for IT initiative fund for e - Governance" payable at Chandigarh.

Director Research
M.D.U., Rohtak

The Bidders can download the tender documents from the Portal: https://haryanaeprocurement.gov.in. Earnest Money and Document Fee Deposit have to be deposited through **Demand Drafts in favor of "Finance Officer, M.D.U., Rohtak, payable at Rohtak respectively.**

Willing Contractors shall have to pay the e- Service Fees of Rs.1000/- in form of **Demand Draft in favour of „Society for IT initiative fund for e - Governance" payable at Chandigarh**.

However, the details of the EMD, Tender document Fee & E – Service Fee are required to be filled/ provided scan copies at the time of online Bid Preparation Stage; the Bidders are required to keep the EMD, Tender document fee & E- Service fee details ready beforehand. The contractual Agencies can submit their tender documents as per the dated mentioned in the key dates below:-

Key Dates

Sr. no.	M.D.U., Rohtak Stage	Contactor Stage	Start Date and Time	Expiry Date and Time
1		Tender Document Download and Bid Preparation & Submission	08.10.2015 (10.00 A.M.)	28.10.2015 (05.00 PM)
2		Manual submission of Specification of Equipment , Tender Document fee, EMD and E-Service fee, etc.	08.10.2015 (10.00 A.M.)	28.10.2015 (05.00 PM
3	Technical Opening		29.10.2015 (10.00 AM)	30.10.2015 (05.00PM)
4	Technical Evaluation		29.10.2015 (10.00 AM)	30.10.2015 (05.00PM)
5	Opening of Financial Bid		29.10.2015 (02.00 PM)	30.10.2015 (05.00PM)

Important Note:

1) The bidders have to complete „Bid Preparation & Submission" stage on scheduled time as mentioned above. If any bidder failed to complete his/her aforesaid stage in the stipulated online time schedule for this stage, his/her bid status will be considered as „bids not submitted".

2) Bidder must confirm & check his/her bid status after completion of his/her all activities for e-bidding.

3) Bidder can rework on his/her bids even after completion of „Bid Preparation & submission stage" (Bidder Stage), subject to the condition that the rework must take place during the stipulated time frame of the Bidder Stage.

Instructions to bidder on Electronic Tendering System

These conditions will over-rule the conditions stated in the tender documents, wherever relevant and applicable.

1. **Registration of bidders on eProcurement Portal:-**

All the bidders intending to participate in the tenders processed online are required to get registered on the centralized e - Procurement Portal i.e. https://haryanaeprocurement.gov.in. Please visit the website for more details.

2. **Obtaining a Digital Certificate:**

2.1 The Bids submitted online should be encrypted and signed electronically with a Digital Certificate to establish the identity of the bidder bidding online. These Digital Certificates are issued by an Approved Certifying Authority, by the Controller of Certifying Authorities, Government of India.

2.2A Digital Certificate is issued upon receipt of mandatory identity (i.e. Applicant"s PAN Card) and Address proofs and verification form duly attested by the Bank Manager / Post Master / Gazetted Officer. Only upon the receipt of the required documents, a digital certificate can be issued. For more details
please visit the website – https://haryanaeprocurement.gov.in.

2.3 The bidders may obtain Class-II or III digital signature certificate from any Certifying Authority or Sub-certifying Authority authorized by the Controller of Certifying Authorities or may obtain information and application format and documents required for the issue of digital certificate from:
M/s Nextenders (India) Pvt. Ltd.
O/o. DS&D Haryana,
SCO – 09, IInd Floor,
Sector – 16,
Panchkula – 134108
E - mail: Chandigarh@nextenders.com
Help Desk: 1800-180-2097 **(Toll Free Number)**

2.4 Bid for a particular tender must be submitted online using the digital certificate (Encryption & Signing), which is used to encrypt and sign the data during the stage of bid preparation. In case, during the process of a particular tender, the user loses his digital certificate (due to virus attack, hardware problem, operating system or any other problem) he will not be able to submit the bid online. Hence, the users are advised **to keep a backup of the certificate** and also keep the copies at safe place under proper security (for its use in case of emergencies).

2.5 In case of online tendering, if the digital certificate issued to the authorized user of a firm is used for signing and submitting a bid, it will be considered equivalent to a no-objection certificate/power of attorney /lawful authorization to that User. The firm has to authorize a specific individual through an authorization certificate signed by all partners to use the digital certificate as per Indian Information Technology Act 2000. Unless the certificates are revoked, it will be assumed to represent adequate authority of the user to bid on behalf of the firm in the department tenders as per Information Technology Act 2000. The digital signature of this authorized user will be binding on the firm.

2.6 In case of any change in the authorization, it shall be the responsibility of management / partners of the firm to inform the certifying authority about the change and to obtain the digital signatures of the new person / user on behalf of the firm / company. The procedure for application of a digital certificate however will remain the same for the new user.

2.7 The same procedure holds true for the authorized users in a private/Public limited company. In this case, the authorization certificate will have to be signed by the directors of the company.

3 Opening of an Electronic Payment Account:
For purchasing the tender documents online, bidders are required to pay the tender documents fees online using the electronic payments gateway service shall be integrated with the system very soon till then it will be submitted manually**.** For online payments guidelines, please refer to the Home page of the etendering Portal https://haryanaeprocurement.gov.in.

4 Pre-requisites for online bidding:
In order to bid online on the portal https://haryanaeprocurement.gov.in , the user machine must be updated with the latest Java & DC setup. The link for downloading latest java applet & DC setup are available on the Home page of the e-tendering Portal.

5 Online Viewing of Detailed Notice Inviting Tenders:
The bidders can view the detailed N.I.T and the time schedule (Key Dates) for all the tenders floated through the single portal eProcurement system on the Home Page at https://haryanaeprocurement.gov.in
6 Download of Tender Documents:
The tender documents can be downloaded free of cost from the eProcurement portal https://haryanaeprocurement.gov.in
7 Key Dates:
The bidders are strictly advised to follow dates and times as indicated in the online Notice Inviting Tenders. The date and time shall be binding on all bidders. All online activities are time tracked and the system enforces time locks that ensure that no activity or transaction can take place outside the start and end dates and the time of the stage as defined in the online Notice Inviting Tenders.
8 Bid Preparation (Technical & Financial) Online/offline Payment of Tender Document Fee, eService fee, EMD fees.
8.1 The online payment for Tender document fee, eService Fee & EMD can be done using the secure electronic payment gateway. The Payment for Tender Document Fee and eService Fee can be made by eligible bidders/ contractors online directly through Debit Cards & Internet Banking Accounts and the Payment for EMD can be made online directly through RTGS / NEFT.
The secure electronic payments gateway is an online interface between contractors and Debit card / online payment authorization networks.
The electronic payments gateway service shall be integrated with the system very soon till then it will be submitted manually.
Hence, the bidders have to provide information and credentials related to manual payment submission at single portal e - Procurement system, under Technical Envelope of the respective tenders
8.2 The bidders shall **upload** their technical offer containing documents, qualifying criteria, technical specification, schedule of deliveries, and all other terms and conditions except the rates (price bid).
The bidders shall **quote** the prices in price bid format.
NOTE:-
(A) Bidders participating in online tenders shall check the validity of his/her Digital Signature Certificate before participating in the online Tenders at the portal https://haryanaeprocurement.gov.in.
(B) For help manual please refer to the „Home Page" of the eProcurement website at https://haryanaeprocurement.gov.in, and click on the available link „How to...?" to download the file.

Director Research,
M.D.U., Rohtak

TERMS AND CONDITIONS GOVERNING THE TENDERS FOR THE SUPPLY

1. Every tender shall be accompanied by the earnest money equal to 2% of the involved value and separate draft of Rs.4000/- as tender fee. The earnest money should be deposited through Bank Draft in favor of the Finance Officer, M.D. University, Rohtak, payable at the State Bank of India, Maharshi Dayanand University, Rohtak.

2. The tender received without earnest money or after the due date shall not be entertained except with the special approval of the competent authorities.

3. The supplies shall be executed within the time specified in the supply order which may be extended by the Registrar on other application of the supplier explaining reasons/circumstances due to which time limit could not be adhered to. In the event of the supplier failing to supply the material within time, he shall be liable to pay as compensation an amount equal to one percent or such small amount as the Registrar may decided on the said amount of the contract, for every day that the quantity remains incomplete, provided that the entire amount of compensation shall not exceed 10 percent of the total amount of the contract. An appeal against these orders shall however lie with the Vice Chancellor whose decision shall be final.

4. In case the contractor backs out of his contract, the earnest money deposited by him shall be forfeited besides any other action as may be considered necessary by the Vice-Chancellor.

5. All the charges including packing, forwarding and installation, taxes and other levies should be specified in the tender. The charges etc. not specified in the tender shall not be paid.

6. The quantity of material/supplies shall be subject to increase or decrease on the tendered rates. This increase or decrease shall be communicated by the University within 30 days of acceptance of the tender.

7. Supplies shall be made as per the schedule and within such time as is indicated in the supply order.

8. 100% payment will be made on receipt and inspection of goods to ensure the specifications and their good condition.

9. The rates accepted by the University shall be applicable up to 31.3.2016 and the supplier shall have to make supply during the period as and when required.

10. **The tenders shall be opened in the office of Director Research, Department of Chemistry, M.D. University, Rohtak on 29.10.2015 at 10.00 a.m. by the Purchase Committee in the presence of contractor/supplier and the Committee reserves the right for negotiation thereafter if considered necessary.**

11. The Registrar reserves the right to reject or accept any offer without assigning any reasons.

12. All disputes subject to **Rohtak jurisdiction**.

13. Guarantee/warrantee of items must be mentioned.

14. **The University stands exempted from the payment of Central Excise Duty/Custom Duty. The rates be quoted keeping that fact in view, Necessary certificate will be provided by the University.**

15. No tender documents will be issued and rates are to be offered on company's letter pad.

16. If a holiday occurs on the opening day, the tenders will be opened on the next working day.

17. Technical documents, tender fee demand draft and EMD must reach up to 28.10.2015 05.00 PM.

List of Equipment

Sr. No.	Name of Equipment	
1	Potentiostate/Galvanostate with software EIS measurements	
2	QIAxc advanced system/bioanalyzer	
3	Forensic Tool Kit (latest version)	
4	Rheometer	
5	UV/VIS/NIR Spectrophotometer	
6	FT-IR/FIR Spectrophotometer	
7	GC-MS/FID/ECD/TCD	
8	Trimble R4 GNSS GPS RKT ROVER	
9	Impedance analyzer	
10	Automated flash chromatography system	
11	Average Evoked Potential (Zerband or Nikoley)	

List of Technical Documents

Sr.No	**Discreption**	**Bidders Response (Yes/No)**
1	**Authrization certificate from the manufacturer of equipment**	
2	**Copy of PAN card.**	
3	**Copy of latest income tax return.**	
4	**List of institutions where equipment has been installed**	
5	**Satisfactory report regarding the equipmrent from institution**	
6	**specification of Equipment**	

Specifications of Equipments

Equipment at Sr .No 1

Potentiostat/Galvanostat with EIS module, soft ware and accessories

Computer controlled Potentiostat & Galvanostat. The system should have following specifications:
Maximum Compliance Voltage: ±30Volts at ±2A
Maximum Output Voltage: ±10 Volts
Measured Voltage Resolution: 0.3μV
Maximum output current: ±2A at ± 30Volts
Measured current resolution at 10nA range: 30 fA
Potentiostat bandwidth (at 1 kOhm, 1mA): 1 MHz
Potentiostat rise/fall time (1 V step, 10-90%): 1TOhm // 8 pF
Input bias Currnet @ 25°C: 4 MHz
A/D converter: 16 bit gains of 1, 10,100 & 1000; D/A converter: 16 bit 4 ch.
External input/output signals: 2; Digital I/O lines: 48

EIS module

Hardware and software for EIS measurements in potentiostatic and galvanostatic control, over a wide frequency range of 10 μHz to 1 MHz. It should be possible to perform EIS measurements over entire frequency range from 10
μHz to 1 MHz upto 2A currents. Signal generator frequency range 10 μHz - 30 MHz, Frequency range in 10 μHz – 1 MHz combination with potentiostat galvanostat. Frequency resolution 0.003%, Input range ± 10 V, AC amplitude 0.25 mV to 0.30 Vrms in potentiostatic mode, 0.0002 - 0.3 times current range in galvanostatic mode. Data presentation: Nyquist, Bode, Admittance, Dielectric, Mott-Schottky, Data analysis: Fit and Simulation (Possibility to use different circuit element such as resistance, capacitance, constant phase element, Inductance, Warburg, Gerischer impedance element for circuit description), Find circle, Element subtraction, Kramers-Kronig.

Basic Electrochemical Cell Setup

Base plate with stand rod
Cell Vessel jacketed (50-150ml)
Cell vessel lid with sleeve Stoppers
Faraday cage 2 mm diameter Pt Electrode Tip M3 Thread
Electrode Tip Holder for tips 6.1204.1xx consisting of following two items: Electrode Tip Holder, Contact Pin M3
Thread for tips 6.1204.1xx
Aq. Ag/AgCl Reference Electrode with double junction Pt Wire Counter Electrode
Polishing Set (0.3 μ grain size) Al2O3

Corrosion Cell jacketed (400 mL capacity) Electrochemical Software:

Software should have facility to record additional signal viz EQCM, bi-potentiostat etc.
Import/export ASCII. Ready-to-use Vis & Generic interface for .Net applications should be included. It should have facility to display up to 4 plots simultaneously. Comparison with previous experiments should be possible while experiments are in progress. The software should support following basic electrochemical measurements: Cyclic Voltammetry with scan rates from 10 μV/Sec to 200V/Sec, Sampled DC Voltammetry. Taffel Plots, Differential Pulse Voltammetry, Square Wave Voltammetry. Electrochemical methods like Chrono-Amperometry, Chrono- Coulometry & Chrono-Potentiometry.

Other Optional Accessories

(i) **Computer & Printer:** A suitable branded Computer like Dell or Compaq or equivalent for system control & data acquisition should be offered with the system. It should have following minimum specs: i3 processor or better, 2 GB SD RAM, 300 GB HDD, 52 x CDD read/write combo drive, 2 USB Ports, 17” TFT Colour Monitor, 101 Keys Keyboard, Optical mouse, Laser Printer model HP 1020 or equivalent.

(ii) Programmable Magnetic stirrer
(iii) Ultrasonic bath (5 litre)
(iv) High precession water bath for controlling temperature (1-80 °C)

Equipment at Sr .No 2

QIAxcel advanced system /Bioanalyser

•The system should enable fully-automated and sensitive, high-resolution capillary electrophoresis of up to 96 samples per run. The system should use ready-to-run gel cartridges containing 12 separation microchannels with a built-in gel matrix for fast high-resolution DNA fragment, RNA separation.

Qualitative analysis and quantitation of total RNA and m RNA & DNA. Starter gel cartridge Protein DNA and RNA Analysis should be provided to go get quickly about system functioning .

• In the system, samples be accepted in both 12-well strip format as well as 96-well plate format.

• The gel cartridge should be reusable for more than 1000 samples per cartridge.

• The system should consists of the advanced analyzer, based on a unique multiplexed fluorescence detection design including an array of light-emitting diodes and micro-optical collectors, gel cartridges,and Software.

• The resolution capability of the system should have down to 3–5 bp

• Sample consumption should be less than 0.1 µl per analysis and robust detection sensitivity of 0.1 ng/µl DNA in undiluted PCR solution.

• The analysis workstation must have the powerful and intuitive software solution which will support compliance with 21 CFR part11 regulations, enabling use of an electronic records system.

System should come with standard computer with 2GB RAM, compatible hard disk, processor as per requirement of system

• The software should provide user-friendly tool for data collection, data analysis, generation of comprehensive reports, and easy data export. The software should provide flexibility to view data in electropherogram and gel image format. All-in-one analysis for multiple data set with simplified sample evaluation and a unique software algorithm allowing a variety of peak properties calculations, including

peak number, peak height and width, as well as the peak area, which should be displayed in result tables.

• The system should offer a broad range of applications. Preprogrammed methods in combination with the suitable gel cartridge allow separation and analysis of single or multiplex PCR fragments, restriction digested DNA or plasmid inserts, synthesized oligonucleotides, total RNA, and single stranded cDNA, as well as cRNA quality checking.

• Vendor should provide at least three year warranty and one hand on training after instrument installation.Eq

Equipment at Sr .No 3

Name of the instrument: Forensic Toolkit-FTK (Latest Version)

Specifications

- Should support gallery view option to quickly reveal all photographs and graphics files stored on hard drives and other media
- Should support timeline view option to provide an easily adjustable, graphical calendar like display for the activity of particular interest.
- Should contain full Unicode support to allow users to search text and fonts from any foreign country and in any language
- Should support acquisition Restart facility: continue a windows-based acquisition from its point of interruption.
- Should have Inbuilt LinEn utility to acquire evidence via boot disk
- Should have Inbuilt WinEn utility to acquire RAM evidence
- Should do Image verification by cyclical redundancy checksum (CRC) and MD5
- Should have Inbuilt support for writing scripts & should contain pre-built scripts
- Should Support more than 150 Filters and Conditions
- Should Support combining filters to create complex queries using simple "OR" or "AND" logic
- Should have Inbuilt Active Directory Information Extractor
- Should be able to automatically rebuild the structure of formatted NTFS and FAT volumes.
- Should support Recovery of deleted files/folders
- Should have inbuilt windows event log parser
- Should have Inbuilt Link file parser to search in unallocated space
- Should have Inbuilt support for Compound (e.g., zipped) document and file analysis.
- Should support file Signature analysis
- Should have native viewing support for ~400 file formats
- Should have built-in Registry Viewer
- Should Meet the below mentioned criteria for searching:
- Unicode index search - search extracted text of docs
- Binary search - search raw binary data
- Proximity Search
- Internet and email search
- Case Sensitive o GREP o Right to Left Reading
- Active Code Page: keywords in many languages.
- Big Endian/Little Endian, UTF-8/UTF-7
- Search file slack and unallocated space
- Should Support Internet and Email Investigation for:
    - Browser History Analysis
    - Internet artifacts
    - WEB History & cache analysis
    - HTML carver
    - HTML page reconstruction
    - Kazaa toolkit
    - Instant Messenger toolkit - Microsoft® Internet Explorer, Mozilla Firefox, Opera and Apple Safari
- Should Include Email Support for:
    - Outlook PSTs/OSTs ('97-'03)
    - Outlook Express DBXs
    - Microsoft Exchange EDB Parser

- Lotus Notes v6.0.3, v6.5.4 and v7
    - AOL 6.0, 7.0, 8.0 and 9.0 PFCs
    - Yahoo
    - Hotmail
    - Netscape Mail
    - MBOX archives

- Should Include System Support for:
    - Hardware and software RAIDs.
    - Dynamic disk support for Windows 2000/XP/2003 Server
    - Interpret and analyze VMware, Microsoft Virtual PC, DD and SafeBack v2 image formats.
    - File systems: Windows FAT12/16/32, NTFS; Macintosh HFS, HFS+; Sun Solaris UFS, ZFS; Linux EXT2/3; Reiser; BSD FFS, FreeBSD's Fast File System 2 (FFS2) and FreeBSD's UFS2; Novell's NSS & NWFS; IBM's AIX jfs, JFS and JFS with LVm8; TiVo Series One and Two; CDFS; Joliet; DVD; UDF; ISO 9660; and Palm
- Should support reporting facility with:
    - Listing of all files and folders in a case
    - Detailed listing of all URLs and corresponding dates and times of web sites visited
    - Document incident response report
    - Log Records
    - Registry
    - Detailed hard drive information about physical and logical partitions
    - View data about the acquisition, drive geometry, folder structures and bookmarked files and images.
    - Export reports in Text,RTF (opens in Microsoft Office), HTML,XML or PDF formats.
    - Smartphone and Tablet support: Acquire data from devices running the following operating systems:

A. Apple's iOS
B. Google's Android™ OS
C. Rim's Blackberry™ OS
D. HP's Palm™ OS
E. Nokia Symbian
F. Microsoft's Windows Mobile OS

Equipment at Sr .No 4

RESEARCH GRADE RHEOMETER SYSTEM	
MAIN INSTRUMENT	
MOTOR TECHNOLOGY	SYNCHRONOUS MOTOR /BRUSHLESS DC MOTOR / DYNAMIC MOTOR
AIR BEARING	AIR BEARING
TORQUE RANGE	5 nNm to 200mNm OR BETTER
MOTOR BEARING	DUAL AIR BEARING – RADIAL & AXIAL
SPEED RANGE	10E-5 to 300 rad/s OR BETTER
FREQUENCY RANGE	10E-6 to 600 rad/s OR BETTER
STRAIN SENSOR	HIGH RESOLUTION OPTICAL ENCODER
MEASUREMENT TYPES	ROTATIONAL , OSCILLATORY & TRANSIENT
NORMAL FORCE	0.01 to 50N
NORMAL FORCE RESOLUTION	0.001N
GAP CONTROL	AUTOMATIC GAP CONTROL
TEMPERATURE CONTROL SYSTEM WITH SOLVENT TRAP	
TEMPERATURE CONTROL	PELTIER TEMPERATURE CONTROL
TEMPERATURE RANGE	-5 TO 200 DEG C
MEASURING SYSTEMS	
SHEAR VISCOMETRY/RHEOLOGY	MEASURING PLATE WITH DIAMETER 50 MM -01 MEASURING PLATE WITH DIAMETER 25MM -01 NO MEASURING CONE WITH DIAMETER-50 MM & ANGLE 1 DEG, 25mm & Angle 2 Deg STARCH CELL WITH ELECTRICAL HEATING (0 TO 160 DEG C) AND STIRRER ST24 AND CUP
UTILITIES	
AIR COMPRESSOR	100PSI, 5CFM OILFREE SYSTEM
AIR DRYER	MULTISTAGE MEMBRANE TYPE WITH MICROFILTERS
RHEOLOGY SOFTWARE	
TESTING PROTOCOLS	ROTATIONAL WITH RATE/CONTROL STRESS/COMBINATION OF CSR+CSS, OSCILLATORY WITH STRAIN / DIRECT STRAIN AMPLITUDE / CONTROL STRESS / COMBINATION OF STRAIN+CSS TRANSIENT WITH CREEP(SINGLE/MULTI-LEVEL)/STEP-STRAIN(STRESS RELAXATION) COMBINATION WITH ANY MODES ABOVE – FOR E.G. TRANSIENT+ROTATIONAL OR OSCILLATORY+ROTATIONAL

Equipment at Sr .No **5**

Technical Specifications of UV-Vis-NIR Spectrophotometer

1	Optics	Double beam
2	Monochromator	Double monochromator with Czerny-Turner/Littrow mounting, Blazed Holographic grating
3	Wavelength range:	185 nm to 3300 nm or Better
4	Wavelength reproducibility:	± 0.08 nm or better in UV-Vis, ± 0.4 nm or better in NIR
5	Spectral bandwidth:	0.1 nm to 5 or better nm in UV-VIS 0.2 nm to 20 nm or more in NIR
6	Resolution:	0.1 nm or better
7	Stray light:	0.00008% or lesser in UV (220 & 340 nm) 0.0005% or lesser in VIS-NIR (1420 nm)
8	Photometric accuracy:	± 0.002 A (0.5 Abs) with NIST930D Filter or better
9	Noise:	0.00005 A or lesser (500 nm) 0.00003 A or lesser (1500 nm)
10	Baseline Flatness:	± 0.001 A (200 to 3,000 nm)
11	Detector:	PMT for UV-Vis, Cooled PbS & InGaAs for NIR region for better S/N ratio
12	Scan Speed	4,000 nm/min or better
13	Accessories:	Quartz cells 10 mm pathlength 3.5 ml with stopper (02 Pairs)
14	PC, Printer:	HP make PC with i3 Processor, 2 GB RAM, 1 TB HDD, USB, Serial Port, Optical mouse, Keyboard, 18" Monitor, Laserjet Printer
15	UPS:	Compatible Online UPS for Spectrophotometer and PC with 30 min backup
16	Software	Windows 7 based Operating software should have built in features like real time concentration display, Time scan, Photometric mode Single/multi-wavelength, Enzyme Kinetics calculation, Tm experiments, event recording such as Addition of reagents during measurement, DNA/protein quantification etc.
17	Warranty:	One year warranty

18	Annual maintenance Charges	Annual maintenance Charges to be quoted separately for 4th and 5th year
	Optional:	
1	Solid State/Diffuse Reflectance Attachment	Integrating sphere attachment for diffuse reflectance and transmittance measurement of opaque, colloid, Powder and solid samples with appropriate sample holders, Film Holder. Integrating Sphere should have built-in detectors like PMT and Cooled PbS & InGaAs to cover Wavelength range: 220-2600 nm or better Integrating sphere diameter: 60 mm or more, BaSO4 or spectralon or better reflectance surface.

Equipment at Sr .No 6

Specifications for FT-IR/ FIR spectrometer

- The FTIR must be capable to analyze sample of various matrix like liquids, solid samples
- Spectrometer should be capable of Spectral range ≥ 7800 to ≤ 30 cm-1.
- Spectral resolution : 0.10 cm-1 or better
- Wave number precision : 0.01 cm-1 or better

Signal-to-Noise

- **Minimum SNR Peak to Peak minimum of 55,000:1 for 1 minute scan at 4 cm-1**
- **SNR Peak to Peak minimum of 12,500:1 for 5 sec scan at 4 cm-1**

Detector:

The spectrometer must have provision to be equipped with 3 detectors upon up gradation. Detectors like DTGS/DLATGS to be offered only.

Source:

- Ceramic source for Mid & far IR or equivalent . Instrument must be capable of holding mid nir far and visible sources in the same system upon upgradation.
- The source should be stabilized to prevent hot spots forming.
- Interferometer must be rock solid permanently aligned/dynamically aligned/dyna scan and highly stable.
- Optics: All mirrors must be gold coated or alumina or equivalent coating for high throughput and to give sensitivity of 55,000:1 for 1 minute scan peak to peak at 4cm-1
- Source and Beam splitter should be capable of going up to FAR IR of the mentioned range.
- Connectivity with computer through Ethernet cable and indication of the source, laser & other parts of instrument are operational.
- Critical components must be checked prior to every scan with ability to automatically accessories recognition is essential.

• System must be supplied with suitable cell and accessories needed to analyze liquid, solid and sample. Vendor has to provide the technical details of these accessories in the bid.

• The FT-IR must have the provision to be upgraded to TGA system for Evolved gas analysis in future.

• Instrument should be capable of upgrading to NIR in the same instrument in future.

• Instrument should be offered with ATR with monolithic diamond crystal with warranty of 5 years on diamond crystal and ATR optionally.

• Library should be offered

SOFTWARE:

• Manufacturer has to provide latest version of window based software for instrument control, basic and advanced data manipulation, Spectral calculator, quantification, data acquisition & their statistics etc.

• **ACCESSORIES AND SPARES**: Vendor has to provide the details of Mandatory spares, consumables and tools & tackles needed for installation, commissioning and operation of the system for one year separately with bid

Equipment at Sr .No 7

Gas Chromatograph with Mass Spectrometer

Specifications GC- Mass Spectrometer

Ion Source:

The source should be made of solid, non-coated, inert material or quartz gold
The Source block heater control should have user-selectable temperature set points up to 350°C.
The User definable electron energy should be adjustable from 0-120eV.
The GC transfer line temperature should be programmable up to 350°C or better.
It should have a dedicated EI source.

Quadrupole Mass Analyzer:

Mass Range: 2 –1000u
Resolution: Unit mass resolution maintained over the entire mass range.
Scan Rate: up to 10000 u/sec or better
Dual-stage mass filter with off-axis ion guide pre-filter for noise reduction and solid, homogeneous non-coated, maintenance-free quadrupole rods.
Independently heated zones for: transfer line, ion source, and ion optics/mass analyzer

Detection System:

It should utilize new generation discrete dynode electron multiplier integrated with linear-log electrometer with maximum linear output.

Vacuum System:

It should have 66 L/s or better capacity single turbo-molecular pump with air-cooled high vacuum pump, with control and safety interlocks integrated into the system. It should have Standard rotary-vane pump.

Instrument Control:

It should have ability to acquire data in centroid or profile mode.
It should have scan modes like full scan, SIM, and alternating full scan/SIM.
It should have ability to alternate between full scan MS and SIM target analysis on successive scans.
Ability to acquire more than 240 scans/s in SIM
Ability to acquire more than 73 scans/s in FS when scanning over a range of 125 u (ISQ QD GC-MS)
The system should be supplied with original licensed NIST Library.

Installation Specifications using helium as carrier gas:
EI full scan specs: 1 µL injection of 1 pg/µL OFN while scanning from 50-300u gives for mass 272 an S/N ≥ 600:1
IDL (Instrument Detection Limit)-24fg or less (in EI SIM mode)
All the specs should be clearly mentioned in the specification sheet
GC Control
- Fully PC controlled and provides all needed data, including all temperature and pressure/flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameters.
- **User replaceable Detector and injector Modules**
- • Detectors in future upgradable to Flame Ionization Detector, Thermal Conductivity Detector, Electron Capture Detector, Nitrogen Phosphorus Detector
- Shoulld have features or ability to add, swap, or replace entire detector
- assembly in less than 2 minutes
- • Fast Data Acquisition Rate: up to 300 Hz

Column oven
• Operating Temperature Range: ambient +3 °C to 450 °C
• Cryogenic Option Minimum Temperature: -100 °C with liquid Nitrogen; -50 with liquid CO2
• Temperature Set Point Resolution: 0.1 °C
• Number of Ramps/Plateaus: 32/33
• Maximum Heating Rate: 125 °C/min
Oven Cool-Down (22 °C ambient): 450 °C to 50 °C in <4 minutes
• Ambient Rejection: <0.01 °C per 1 °C
- Compatible with standard capillary columns and should have provision to install minimum two columns.
- GC system should be able to accommodate in future with other detectors and injectors also.
- The column oven must have an operating range from near ambient to 450°C.
- System should have provision to install minimum two numbers of injectors and two numbers of detectors simultaneously apart from MS.

Pneumatic compartment
- The digital pressure and flow controller must be able to control and program pressures and flows up to 1000 Kpa. All gas flows should be controlled through software with no manual control
- Pressure increment set point: 0.001psi

Injector – 02no's
Suitable for all capillary columns (50 µm to 530 µm i.d.)
• Compatible with 1/8" and 1/16" packed column using adapters. Supports P&T/TD/HS by special adapter. Compatible Merlin Microseal™ septum.
• Dedicated split/splitless injector with integrated backflush capabilities
• Maximum Temperature: 400 °C
- The injector must be able to operate with capillary columns in split/splitless mode
- Temperature range: up to 400°C

Detector: FID
- Detection Limit: < 1.8 pg C/s
- Linear Dynamic Range: > 107
- Temperature range: up to 400°C
- FID ignition should be through software
- Fast Data Acquisition Rate: up to 300 Hz for FID, TCD, ECD,
- Optional Detectors like TCD and ECD to be offered in Bid.

Autosampler
GCMS Should be Supplied with Autosampler with capacity of 8 vials or more

Sample Loading Capacity • 8 or more , with vial capacity of 2ml, and option for 300ul vials number of injection vials 0-99
Syringes : • Standard: 10 µL, •with an option for 5 µL and 0.5 µL
Injection Parameters: • Maximum & Minimum 5 µL& 0.01 µLwith • Increments 0.01 µL steps
Syringe Rinsing : • Pre and/or Post injection, Solvent selection:,Single or combined mode,, Sample pre-washes Bubble elimination, Solvent bottles: 4 x 4 mL, Waste bottle capacity: 40 mL
Should operate on preset injection Mode like partial penetration mode and full penetration modes
Reproducibility for Chromatographic performance: < 0.3 RSD % for C12, C16, C24 (C12-C24 alkane mix inhexane). Data obtained on 10 subsequent Splitless analyses, 1µL injected volume using "Standard" needle depth option.
Accessories to be quoted

Consumable for one year Operation for GCMS and GC Installation Kit, two nos of capillary column to be quoted.Should include, gas cylinder& regulator, for Hydrogen,helium, Argon,Nitrogen, zero Air, gas purification panel for all gases, PC and printer, suitable UPS

Equipment at Sr .No 8

1. Specifications for Item at Sr. No. 1.

TRIMBLE R4 MULTY FREQUENCY GNSS DGPS Base and Rover capable of RTK

Sr. No.	***TRIMBLE R4 MULTY FREQUENCY GNSS DGPS Base and Rover capable of RTK***		
			QTY
		BASE SETUP	
1		**R4 Multi Frequency GNSS Receiver (Base)** Trimble Maxwell chip with 220 channels **GPS: L1C/A, L1C, L2C, L2E** **– GLONASS1** **: L1C/A, L1P, L2C/A, L2P, L3** **– SBAS: L1C/A** **Capable of Tracking GAGAN and upgradable to GALILEO and COMPASS**	**1**
		ROVER SETUP	

2		**R4 Multi Frequency GNSS (Rover)** Trimble Maxwell chip with 220 channels **GPS: L1C/A, L1C, L2C, L2E** **– GLONASS1** **: L1C/A, L1P, L2C/A, L2P, L3** **– SBAS: L1C/A** **Capable of Tracking GAGAN and upgradable to GALILEO and COMPASS**	**1**
3.		**TSC 3 Lite - Trimble Slate Controller with Windows 6.5**	2
		with inbuilt camera, GPS, Compass, Accelerometer	
		1 Ghz processor	
		Trimble Slate bracket	
		ACCESSORIES FOR BASE AND ROVER SET UP	
4		Carbon Fiber telescopic range pole with Bipod for range pole support	1
5		Tribrach 3 Pin type with Optical Plummet	2
6		Adapter - Tribrach to 5/8, Fixed Head	2
7		Wooden Tripod	2
8		**GPS POST PROCESSING SOFTWARE**	
		Trimble Business Center Survey	1

Equipment at Sr .No 9

Impedance Analyzer Specifications

PARAMATERS	REQUIRED SPECTIFICATION
Frequency	20 Hz to 120 MHz
Accuracy	±0.08%
Resolution	1 mHz or better
Impedance parameters	|Z|, θz, |Y|, θy, Cp, Cs, Lp, Ls, Rp, Rs, D, Q, R, X, G, B,Complex Z, Complex Y
Level Monitor	Vac, Iac, Vdc, Idc
Voltage Range & Resolution	minimum 5 mVrms to 1 Vrms with 1 mV resolution or better
Current Range & Resolution	200 µArms or less to 20 mArms or more with 20 µA resolution or better
DC voltage bias Range & Resolution	0 to ± 40 V & 1mV or more & minimum 1mV or better
DC Current bias Range & Resolution	0 to ± 100 mA or more & 40 µA minimum
Sweep Parameters	Frequency, signal voltage, signal current, DC bias voltage, DC bias current
Sweep type	Linear frequency, log frequency, OSC level (voltage, current), DC bias (Voltage, current), log DC bias (voltage, current)
Number of measurement points	min.2 to 1601 points or more
Segment Sweep	More than 200 segments.
Traces	4 data trace & 4 memory trace per channel
Markers	min. 10 markers with reference & delta marker
Marker Search	Maximum value, minimum value, multi-peak, multi-target, peak, peak left, peak right, target, target left, target right, and width parameters with user defined bandwidth values.

Interface	GPIB, LAN, USB, VGA
Frequency upgradability	System should be upgradable for future applications
Operating Environment	+5°C to 40°C
Non Operating Environment	-10°C to 60°C
Display type	10.4" Color LCD (TFT)
Test Lead	Test Lead (BNC Connector with BNC Connector Board)

The Impedance Analyzer should be compatible with High Temperature set up for Dielectric measurement. A high temperature set up, equipped with the attachment for the Dielectric measurement with the above mentioned Impedance Analyzer. The temperature control and dielectric

Measurement should be automatic and controlled by the computer.

Temperature Range	Room temperature to 500ºC
Computer software should be capable of following measurements	➢ All the primary and secondary parameters will be measured and recorded with respect to frequency, temperature and time ➢ Software will display primary and secondary parameter online graph of the property to be measured.
Data will be recorded in ascii file for following	a. Parameter Vs frequency at fix temperature b. Parameter Vs temperature at fix frequency. c. Z plot software
Temperature Controller should have with interface card and cable and Thruster power supply	
Personal Computer	Core i3 or above Ram 4GB, HDD 500 GB, with 19" or 20Inch LED Monitor
Warranty	Three Years warranty for Impendence Analyzer & One Year Warranty for Temperature furnace
User Manual & Calibration Certificate	Required

Equipment at Sr .No 10

Specifications for Automated Single Channel Flash Chromatography Purification system

1. Compact bench top model.
2. Capable of computer controlled delivery of **four solvents** for binary gradient mode and isocratic mode, 2 step Gradient and Rf gradient.
3. Solvent flow rate: 1 to 80 mL/min or above.
4. Pumping system with pumping capacity of 10 Bars/ 145 psi or more.

5. The system to have the facility to use Inject / sample loading column with pre packed adsorbent to trap high polar solvent without affecting the sample separation.
6. Variable Wavelength UV Visible Detector range from 190-380nm. The detector should have detection range of 0.04 to 4 AUFS and facility to upgrade with the **external detector, ELSD or RI** as and when requires.
7. Automatic fraction collection. Fraction tracking facility with peak to tube graphical interface.
8. Touch-screen controlled software for operation of the machine.
9.

Application software :
• Eluting position controllable
• Simple & easy change of method parameters on the fly
• Automatic method set-up based on TLC Rf value for the single target compound and/or multiple targets
• Visual indication to predict where and when the target compound will elute
• Automatic sample loading scale up & down from one size column to another based on RF value
• Real time monitoring
• Branded PC All in ONE Touch Pad with latest windows based operating system, minimum 2 GB RAM, hard disk 300 GB (minimum)

10. The system & software should have facility to upgrade **OR** connect the TLC Image Reader and **calculate the Rf value Automatically and create the chromatography Gradient method automatically**.

11. System supplied with Racks for 18x150 mm test tubes.

12.Safety features like automatic stop of flow if collection tray is full or unavailable, pressure moderating system

13.The system and software have facility to connect 2 columns in Series/ Tandem Mode to separate the very close TLC spot compound and to increase the sample loading capacity and set the method automatically.

14.The System have capable to use from 4 gm to 300gm Disposable pre packed Silica / RP Columns

15.Empty self packing glass columns and pre packed Silica columns having different dimensions supplied by the principal manufacturer should be quoted under optional accessories.

16.Operating voltage : 230V/50Hz

17.TWO years warranty .

Equipment at Sr .No 11

Repitative Transcraninal Magnetic Stimulator (r-TMS) along with Evoked Potential (MEP) monitoring should have following Technical Specifications:-

- Liquid cooled /Air cooled coil. And Multiple Pulse mode.

- Should have Nerve Conduction Studies MCS, NCS,F wave ,H reflex, Collision, Blink reflex, EP studies & with Room temperature displayed on Main Console.
- Detect motor response threshold by a 2-4 channel electromyography system s
- Should have provision of MEP, NCV, Evoked Potential data review in the electromyography system
- EP Unit should be synchronized with r-tms.
- Main Unit should be connected to the Computer through the latest and powerful USB 2.0 interface.
- Should have Brain stem auditory evoked potentials, Visual Evoked potential & Somatosensory Evoked potential
- Have a placebo/sham stimulation coil.
- Sweep mode with variable repetition rate.
- All stimulus parameters displaced on TFT Screen.

- Automatically sequence setup and user define Flexible Protocol storage in built in computer
- R-TMS for biphasic rapid rate magnetic stimulator for painless cortical or peripheral nerve stimulation.
- Integrated colored screen display stimulus parameter.
- Able to deliver single pulse, Repetitive or train of sessions programmable.
- Maximum power output 100% output and 15Hz, 80% output in 18 Hz, 50% output at 30Hz and 30% output at 50Hz.
- Pulse train interval user selectable with 0.1 sec. increment and pulse width of 400µ sec.
- r-TMS will be supplied with two double 70 mm air cool coiled, coils stand holder System can be operated on 220 volts 50Hz.
- Systems have facility paired- pulse stimulation, dual- pulse stimulation
  - Flexible protocol storage in built-in computer.

  - Based on the “Biphasic (Full Sine)” technology.

  - Repetitive, single and inhibitory treatment modes available.

* Settings for Frequency, ITI (Inter Train Interval), NT

* (No. of Trains), PIT (Pulses in Train) and IPI(Inter Pulse Interval).

  - Supplied with two stimulation coils (butterfly), two sham placebo coil, two circular coil.

  - High power design for deep Train cranial stimulations. (32KT at coil surface)

  - Inbuilt sample protocols for Psychiatric and neurology Disorders.

  - User configurable protocols.

  - Inbuilt continuous core temperature monitoring for safe operation.

  - Biphasic pulse width up to 320 micro seconds.

  - Stimulation rates from 0.5pps to 100pps.

  - Color TFT screen with complete parameters for easy operation.

  - Internal memory for storage of user defined protocols.

  - Real-time MEP monitoring software.

  - External trigger and USB interface for MEP monitoring.

- Comprehensive patient database storage in PC for MEP monitoring.
- Electrical Stimulator: 2 channels monophasic / biphasic, constant current with artifact compensation.
- Automatic analysis and monitoring of fault conditions.
- The system should operate on 220 v 50Hz.
- Warranty/gurantee will be Three years.
- The cooled coil should be able to at least stimulate 4000 pulse at 1 Hz with 755 power

- S**hould be IEC 60601 -1 approved for electrical safety of Medical Equipment and should have ISO – 13485- 2003 certified**
- Should have facility of exporting data to csv or any other suitable format for analysis with MATLAB or any other third party software
- Good quality pc with strict in- house quality checks by manufacturer to comply with medical equipment standard. A PC should be with 3rd generation 13 processor, 2GB RAM, 500 GB Hard Disk, 4USB ports or better b. Built in DVD Super Multi Drive c. With 18.5" colour TFT LCD display d. Suitable latest Windows operating system e. Supplied with laser Printer/Coloured Inkjet supplied with min. 30 minutes back up.