

**MAHARSHI DAYANAND UNIVERSITY, ROHTAK
CENTRAL INSTRUMENTATION LABORATORY**

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**MAHARSHI DAYANAND UNIVERSITY, ROHTAK
CENTRAL INSTRUMENTATION LABORATORY**

E- TENDER NOTICE

E-tender on behalf of Director, Central Instrumentation Laboratory, is invited subscribed as "Tender for Instruments for CIL" for the purchase of Instruments for CIL, latest by 24-10-2017, up to 3.00 pm, as per details given on website, along with Earnest Money (EMD) equal to 2 % of the quoted rates (for each specific instrument) on the total amount, paid through online mode, and a fees of Rs. 4000/- as Tender Fees, in the account of Finance Officer, M.D. University, Rohtak, through online mode only. The E-tender shall be opened on 24-10-2017 at 4.00 pm. Bidders shall have to pay the E-service fees of Rs. 1000/ through online mode, in favour of "Society for IT initiative fund for e-Governance", payable at Chandigarh. For more details, please visit website www.mdurohtak.ac.in / <https://haryanaeprocurement.gov.in>.

Last date of receipt of tender bids	:	24-10-2017 up to 3.00 pm
Tenders complete in all aspects be addressed to	:	Director Central Instrumentation Laboratory M.D. University, Rohtak.
Date of opening of technical bids	:	24-10-2017, at 04.00 pm.

Note: The tenders will be received only through e-tendering and offline tender documents received in University, without filling / completing the E-tendering online applications, will be instantly rejected.

**Director
Central Instrumentation Laboratory**

**MAHARSHI DAYANAND UNIVERSITY, ROHTAK
CENTRAL INSTRUMENTATION LABORATORY ,**

Phone:-01262-393224

Email: dir.cil@mdurohtak.ac.in

**STANDARD BIDDING DOCUMENT FOR PURCHASE OF INSTRUMENTS FOR CENTRAL
INSTRUMENTATION LABORATORY, M.D. UNIVERSITY, ROHTAK**

PART 1: COMPLETE BIDDING DOCUMENT

Name of work: Purchase of instruments for CIL, MDU, Rohtak.

PRESS NOTICE

M. D. UNIVERSITY, ROHTAK Notice Inviting e - Tender	
Name of work:	Purchase of instruments for Central Instrumentation Laboratory, M.D.U., Rohtak.
Tender Docs Fees + E – service Fees	Rs. 4000/- + Rs. 1000/- = Rs. 5000/-
Earnest Money	Please see table below, for the name & quantity of instruments. Specifications are given separately. EMD to be deposited as 2 % of the quoted rate of instruments.
Time Limit	15 days
Tender to be received till: 03.00 pm on dated 24-10-2017	
1.	The tenders will be received only through E-tendering. For further details please visit website https://haryanaeprocurement.gov.in / www.mdurohtak.ac.in
2.	Tender Fees is (to be paid through online) Rs. 4000/- (non-refundable) in favour of “Finance Officer, M.D. University, Rohtak”, payable at Rohtak.
3.	Willing bidders shall have to pay Rs. 1000/- as e-Service Fees , to be deposited through online, in favour of “Society for IT initiative fund for e-governance”, payable at Chandigarh.
4.	The Earnest Money of the tender (to be paid through online) is 2 % of the rate quoted by the bidder, for each specific equipment.

S. No.	Name of the item	Quantity (number)
1.	Flexiwave (Advanced Flexible Microwave Synthesis Platform)	01
2.	Surface area and pore size analyzer	01
3.	Milli Q Water Purification System	01
4.	High Intensity Ultrasonic Liquid Processor with accessories	01
5.	High Shear Homogenizer	01
6.	Portable Photosynthesis System (IRGA)	01

**Director, Central Instrumentation Laboratory,
M.D.University, Rohtak.**

**MAHARSHI DAYANAND UNIVERSITY, ROHTAK
CENTRAL INSTRUMENTATION LABORATORY.**

DETAILED NOTICE INVITING TENDER

E-Tender is invited for purchase of below mentioned instruments, in single state two cover system, i.e., Request for Technical Bid (Online BID under PQQ / Technical Envelope) and Request for Financial Bid (Comprising of price bid proposal under online available / Commercial Envelope):

S. No.	Name of work	EMD to be deposited	Tender Document Fees and E-service Fees (Rs.)	Start Date & time of Bid Preparation & Submission	Expiry Date & Time of Bid of EMD submission	Expiry Date & Time of Bid preparation and Submission
1.	Purchase of instruments for Central Instrumentation Laboratory, M.D.U., Rohtak.	Please see table below, for the name & quantity of instruments. Specifications are given separately. EMD to be deposited as 2 % of the quoted rate of each specific instrument.	Rs. 4000/- + Rs. 1000/- = Rs. 5000/-	09-10-2017 (10.00 am)	24-10-2017 (02.00 pm)	24-10-2017 (03.00 pm)

S. No.	Name of the item	Quantity (number)
1.	Flexiwave (Advanced Flexible Microwave Synthesis Platform)	01
2.	Surface area and pore size analyzer	01
3.	Milli Q Water Purification System	01
4.	High Intensity Ultrasonic Liquid Processor with accessories	01
5.	High Shear Homogenizer	01
6.	Portable Photosynthesis System (IRGA)	01

1. Detailed notice inviting tender can be seen in the office of the undersigned during office hours.
2. Bidding documents are available on website www.mdurohtak.ac.in / <http://haryanaprocurement.gov.in>
3. Newly enlisted supplier / manufacturer should bring proof of enlistment in appropriate class.
4. The bidders would submit bid through e-tendering only on the website <http://haryanaprocurement.gov.in>

Under the process, the Pre-qualification / Technical online bid application, as well as the Online Price Bid shall be invited at single stage, under two covers, i.e., PQQ / Technical & Commercial Envelope. Eligibility and qualifications of the applicant will be first examined, based on the details submitted online under first cover (PQQ or Technical) with respect to eligibility and qualifications criteria prescribe in the tender document. The Price Bid under the Second cover shall be opened only for those applicants, whose PQQ / Technical Bids are responsive to eligibility and qualifications requirements as per Tender documents.

1. The payment for Tender Document fees and E-Service Fees shall be made by eligible bidders online directly through Debit Cards & Internet Banking Accounts and the payment for EMD can be made online directly through Net Banking / RTGS / NEFT or OTC. Please refer to "Online Payment Guideline" available at the Single e-Procurement portal of GoH (Govt of Haryana) and also mentioned under the Tender Document..
2. Intending bidders will be mandatorily required to online sign – up (create user account) on the website <https://haryanaprocurement.gov.in> to be eligible to participate in the e-Tender. They will be required to make online payment of 2 % of the bid cost (2 % of the quoted rate of specific instrument) toward EMD fees under the stipulated time frame.
3. The interested bidders must remit the funds at least T + 1 working days (Transaction day + One working day) in advance, i.e., on or before 24-10-2017, up to 02.00 pm, and make payment via Net Banking / RTGS /NEFT or OTC to the beneficiary account number specified under the online generated challan. The intended bidder thereafter will be able to successfully verify their payment online and submit their bids on or before the expiry date & time of the respective events / Tenders at <https://haryanaprocurement.gov.in>

The interested bidders shall have to pay mandatorily e-Service Fees (Non- refundable) of Rs. 1000/- (Rupees one thousand only) online by using the service of secure electronic gateway

The bidders can submit their tender documents (Online) as per the dates mentioned in the key dates:

Key Dates

S. No.	Department stage	Bidder's stage	Start date & time	Expiry date & time
1.		Tender Document Download And Bid Preparation / Submission	09-10-2017	24-10-2017 (03.00 pm)
2.	Technical Bid Opening		24-10-2017 at 04.00 pm	
3.	Financial Bid Opening		24-10-2017 at 04.00 pm	

NOTE: Hard copy of the Technical Documents should be submitted (sealed cover) in the office of the Director, Central Instrumentation Laboratory, M.D. University, Rohtak, before the Technical Bid Opening.

Important Notice:

1. The Applicants / bidders will have to complete "Application / Bid Preparation & Submission" stage on scheduled time, as mentioned above. If any applicant / bidder failed to complete his

/ her aforesaid stage in the stipulated online time schedule for this stage, his / her application / bid status will be considered as "Application / Bids not submitted".

2. Applicant / bidder can rework on his / her bids even after completion of "Application / Bid Preparation & Submission Stage" (Application / bidder stage) subject to the condition that the rework must take place, during the stipulated time frame of the applicant / bidder stage.
3. In the first instance, the online payment details of tender document fees + E-service fees and EMD & PQQ / Technical Envelope shall be opened. Henceforth, Financial Bid quoted against each of the item by the shortlisted bidder wherever required, shall be opened online, in the presence of such bidders, who either themselves or through their representatives, choose to be present. The bidders can submit bids online in two separate envelopes:
Envelope 1: Technical Bid
The bidders shall upload the required eligibility & technical documents online in the Technical Bid.
Envelope 2: Commercial Bid
The bidders shall quote the prices in the price bid format under Commercial Bid.

Conditions:

1. DNIT and related documents can be seen on any working day during office hours in the office of the undersigned.
2. Conditional tenders will not be entertained and are liable to be rejected.
3. In case the day of opening of tenders happens to be holiday, the tenders will be opened on the next working day. The time and place of receipt of tenders and other documents will remain unchanged.
4. The M.D. University, Rohtak, reserves the right to reject any tender or all of the tenders, without assigning any reasons.
5. The tender without earnest money / bid security will not be opened.
6. The jurisdiction of court will be at Rohtak.
7. The tender of the bidder who does not satisfy the qualifications criteria in the bid documents are liable to be rejected summarily without assigning any reason and no claim whatsoever on this account will be considered.
8. The bid for the work shall remain open for acceptance during the bid validity period, to be reckoned from the last date of submission of the tender. If any bidder / tenderer withdraws his bid / tender before the said period or makes any modifications in the terms and conditions of the bid, during the fixed validity period, the earnest money shall stand forfeited. **Bids shall be valid for the financial year 2017-18.** In case the last day to accept the tender happens to be holiday, validity to accept the tender will be the next working day.

**Director
Central Instrumentation Laboratory,
M.D. University, Rohtak.**

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 e Procurement 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.

2.2 A 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**)

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).

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.

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.

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 e Procurement 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:- 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>.

For help manual please refer to the "Home Page" of the e Procurement website at <https://haryanaeprocurement.gov.in>, and click on the available link "How to...?" to download the file.

Director, Central Instrumentation Laboratory,
M.D.University, Rohtak

TERMS AND CONDITIONS :

1. Please specify price, exclusive of all taxes, levies, etc. All applicable taxes / levies should be mentioned separately.
2. Please quote the price of the instrument (as per demanded specifications) separately, and costs of all accessories separately. Please also specify the cost of warranty / guarantee AMC yearwise as a separate head. The price of all items / accessories, offered as free of cost, should also be mentioned separately. The quoted price shall include free installation. Accessories / pre-requisites for the installation / smooth working of the instrument should be specifically mentioned before hand, by the bidder.
3. The e-tender shall be opened in the Office of the Director, CIL, M.D. University, Rohtak, on 24-10-2017, at 0400 pm, by the Tender Committee, in the presence of the bidder / authorized representative and the Committee reserves the right for negotiation thereafter, at any stage, if considered necessary.
4. Rates should be carefully filled up, both in words and figures, without any cutting, erasing or overwriting.
5. Rates should be quoted in foreign currency / Indian Rupees (as applicable). The payment in foreign currency shall be as per the applicable rates (as approved by the RBI). Price should be quoted FOR CIL, MDU, Rohtak. All clearing / packaging / transportation / insurance charges, etc., shall be borne by the bidder (to be quoted in the bid).
6. In case the bidder quoting the lowest rates declines to accept the offer, the EMD of such bidder shall be forfeited and the bidder shall be blacklisted by the University for any kind of dealing in future.
7. The bidder shall have to submit compliance report, as per ANNEXURE "A", "B" AND "C". In case of non compliance, the bid will be rejected.
8. The EMD of the unsuccessful bidder shall be returned on the completion of all the process.
9. Demonstration of the instrument, along with "USER SATISFACTION REPORT", may be demanded by the Tender Committee, before finalizing the supply order.
10. The price quoted should be valid for the financial year 2017-18. (March 31, 2018)
11. The instrument will be accepted subject to the approval of the Inspection Committee.
12. The supply shall be executed within the time specified in the supply order, which may be extended by the Registrar, on an application of the supplier, explaining the reasons / circumstances due to which time limit could not be adhered to. In the event of the supplier failing to supply the material within the specified time, he shall be liable to pay as compensation an amount equal to one percent or such amount, as the Registrar may decide, on the said amount of the contract, for every day that the quantity remains incomplete, provided that the entire amount of compensation will not exceed 10 percent of the total amount of contract. An appeal against these orders shall however lie with the Vice Chancellor, whose decision shall be final.
13. The University stands exempted from the payment of Central Excise Duty / Customs Duty, and shall provide the necessary certificates to this effect, as applicable. The bidder shall quote the rates accordingly.
14. Goods which do not fulfill the specifications or which are rejected by the Inspection Committee shall be lifted by the supplier at his own cost, and no payments shall be made in lieu of the same.
15. The quantity / number of the instruments may be increased / decreased, within the financial year 2017-18.

16. Bidder must specify the guarantee / warrantee / AMC, along with the break up of the costs of guarantee / warrantee / AMC yearwise. The University shall prefer instruments offered with the maximum guarantee / warrantee / AMC.
17. Payment will be made after delivery. No advance payments will be made. Payments through Bank Guarantee / LC etc., as admissible under the government rules, will be allowed, in particular for foreign currency. Full payment will be made only upon the "Acceptance report" of the Inspection Committee.
18. The University reserves the right to retain part of the payment as "Performance Guarantee", and the same shall be finalized by the Tender Committee, in the course of negotiations.
19. Other terms and conditions are as per the Terms & Conditions specified in the Notice Inviting Tender.
20. Submission of the bid shall be deemed to have prior acceptance of all the terms & conditions, as specified above, by the bidder.

**Director, Central Instrumentation Laboratory,
M.D.University, Rohtak**

ELIGIBILITY CRITERIA

The following criteria must strictly be fulfilled by the bidder. The bidder must submit the documentary evidence in support of their claim for fulfilling the criteria and they should also submit an undertaking on their letterheads to the fairness of these documents while submitting the bid. The bids received without the documentary evidence will be rejected outright.

1. MDU invites bid from the authentic manufacturers / authorized dealers / authorized representatives. The bidder must fill & submit Annexures "A", "B" and "C". Incomplete annexures as specified may result in rejection of the bid.
2. The bidder should be a company / firm / organization, registered in India. In case of foreign manufacturers, the bid must include name & address of its authorized Indian entity, as per Annexure "A", "B", and "C".
3. The bidder shall also append the following declaration with the tender:

DECLARATION

I / We (Name & address of the firm / organization, etc) _____ do hereby solemnly affirm and declare that the facts stated in the technical bid and annexures A, B & C are correct and true to the best of my / our knowledge and belief and nothing has been concealed therein. In case of any concealment or misrepresentation detected at any stage, I / We shall be liable for legal action under Section 182 and Section 415, read with Section 417 and 420 of the Indian Penal Code, as the case may be.

Place:
Dated:

(Signature of the tenderer)
with full name, address, seal & stamp.

ANNEXURE "A"**Manufacturer's Authorization Certificate**

Ref. No. _____

Dated: _____

To

(Name of the supplier / authorized dealer)

Whereas _____ (Name & address of the manufacturer) who are official manufacturer of _____ (Name of the instrument) having factory at _____ (Address of the factory) do hereby authorize _____ (name of the supplier / authorized dealer) indicated above, the purpose of which is to provide the following instrument , viz., _____ manufactured by us _____ and to subsequently negotiate and sign the contract.

Name : _____

In the capacity of : _____

Signed & stamped : _____

Duly authorized to sign the authorization for and on behalf of : _____

Date : _____

ANNEXURE "B"**Undertaking (on official letterhead)**

This is to certify that M/s _____ address _____

has not ever been blacklisted from / any / by University / Organization / Government Agency, etc., for any reason, at any point of time and no legal case / proceedings against the bidder / agency / supplier / manufacturer, etc., is pending, as on date.

(Dated, signed and stamped by the authorized person)

ANNEXURE "C"

Technical details for providing the Instruments

1.	Name and address of the agency / bidder / manufacturer / supplier, etc.	
2.	Contact person, with phone number, mobile number, and e-mail id	
3.	Year and month of establishment	
4.	Type of firm / organization (Proprietary / Private / Public / Govt.)	
5.	Copy of registration if applicable	
6.	Total annual financial turnover in the last three financial years (attach audited copy)	
7.	GST / sales tax registration number	
8.	Income tax number (PAN / TIN)	
9.	Quality certification number / licence, if any	
10.	Since when engaged in providing / manufacturing scientific instruments	
11.	Experience in domain expertise	
12.	Name and address of the Universities / organizations etc. where the said instruments have been supplied and installed (Satisfactory User Report may be demanded by the University)	

Certified that all the terms and conditions of this TENDER are acceptable by us.

(Authorized signatory)

with full name, designation and stamp, contact numbers, e mail id, etc.

Specifications of instruments

F.O.R. – Central Instrumentation Laboratory, M. D. University, Rohtak.

S. No.	Equipment	Specifications																														
1.	Flexiwave (Advanced Flexible Microwave Synthesis Platform)	<p>Focused Monomode Microwave Organic Synthesis System having following technical specifications:-</p> <table border="1"> <thead> <tr> <th>Sr.No</th> <th>REQUIRED SPECIFICATIONS</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Microwave heating system must have a measured minimum focused power output of 280 watts or more with microwave power density of 900 watt /liter or more.</td> </tr> <tr> <td>2</td> <td>System must be capable to perform pressurize reactions</td> </tr> <tr> <td>3</td> <td>System must have facility to achieve maximum temperature up to 280^oC or more.</td> </tr> <tr> <td>4</td> <td>must have a built in operating system with fluorescent Display and alphanumeric keypad for entry of operating parameters.</td> </tr> <tr> <td>5</td> <td>System must operate as stand alone as well as through PC, suitable software for such control should be offered.</td> </tr> <tr> <td>6</td> <td>System software must automatically adjust the power delivery based upon sample Load and pre-programmed control settings. System should have in built magnetic stirring facility.</td> </tr> <tr> <td>7</td> <td>System must have possibility to purge compressed air for reaction quenching.</td> </tr> <tr> <td>8</td> <td>Vessels to conduct pressurized reaction with following specifications should be offer . Vessels Volume : 10 ml or more . Pressure: 300 psi or more . No of Vessels with Cap: 100 nos.</td> </tr> <tr> <td>9</td> <td>Pressure control: The system must have pressure control mechanism to release over pressure</td> </tr> <tr> <td>10</td> <td>Temperature control: System should have sample volume independent temperature control system to control temp of the reaction through IR sensor.</td> </tr> <tr> <td>11</td> <td>System must be quoted with suitable accessories to conduct open vessel reactions with reflux facility in a RBF up to 100ml.</td> </tr> <tr> <td>12</td> <td>System must have possibility to upgrade with Gas addition kit to perform hydrogenation reactions etc and accessory for conducting sub ambient reaction (up to -80^oC).</td> </tr> <tr> <td>13</td> <td>System must also be quoted with 80 ml pressure reaction vial accessory.</td> </tr> <tr> <td>14</td> <td>Warranty - 1 year</td> </tr> </tbody> </table>	Sr.No	REQUIRED SPECIFICATIONS	1	Microwave heating system must have a measured minimum focused power output of 280 watts or more with microwave power density of 900 watt /liter or more.	2	System must be capable to perform pressurize reactions	3	System must have facility to achieve maximum temperature up to 280 ^o C or more.	4	must have a built in operating system with fluorescent Display and alphanumeric keypad for entry of operating parameters.	5	System must operate as stand alone as well as through PC, suitable software for such control should be offered.	6	System software must automatically adjust the power delivery based upon sample Load and pre-programmed control settings. System should have in built magnetic stirring facility.	7	System must have possibility to purge compressed air for reaction quenching.	8	Vessels to conduct pressurized reaction with following specifications should be offer . Vessels Volume : 10 ml or more . Pressure: 300 psi or more . No of Vessels with Cap: 100 nos.	9	Pressure control: The system must have pressure control mechanism to release over pressure	10	Temperature control: System should have sample volume independent temperature control system to control temp of the reaction through IR sensor.	11	System must be quoted with suitable accessories to conduct open vessel reactions with reflux facility in a RBF up to 100ml .	12	System must have possibility to upgrade with Gas addition kit to perform hydrogenation reactions etc and accessory for conducting sub ambient reaction (up to -80 ^o C).	13	System must also be quoted with 80 ml pressure reaction vial accessory.	14	Warranty - 1 year
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14	Warranty - 1 year																															
2.	Surface area and pore size analyzer	Surface area and pore size analyzer (with																														

		<p>Chemisorptions facility)</p> <p>Specifications:</p> <p>Surface Area Range: From 0.1 m² (nitrogen unit), From 0.01 m² (krypton unit)</p> <p>Specific Surface Area: From 0.01 m²/g (nitrogen), From 0.001 m²/g or less (krypton unit)</p> <p>System Capacity: minimum 1 analysis and 2 degas ports</p> <p>Relative Pressure Range: less than 1x10⁻⁴ to 0.999 P/P_o</p> <p>Standard Cryogen Dewar (72 or 72+ hours)</p> <p>Ports can be configured for krypton analysis of low surface area materials</p> <p>Dedicated saturation pressure transducer (1000, 10, 1 torr)</p> <p>Coolant Level Control Method</p> <p>Dry and high vacuum system (turbo pump)</p> <p>Built-in Degasser Stations</p> <p>Degas Cold Trap</p> <p>Dedicated Backfill Gas Input Port</p> <p>Surface area reference material</p> <p>Chemisorptions facility</p> <p>Ambient 10°C to 1100°C Furnace with Auto Lid Closing</p> <p>One analysis station (sample port, three sample pressure transducers)</p> <p>Fan-Assisted Furnace Cooling</p> <p>Built-in Auto Isolation Valve for Flow-Cell</p> <p>Chemisorptions reference material</p> <p>Results Reports required</p> <p>Physisorption</p> <p>Isotherm</p> <ul style="list-style-type: none"> • BET Surface Area (single and multi point) • Langmuir Surface Area • Temkin and Freundlich • t-Plot • Alpha-S Method • BJH Adsorption and Desorption • Dollimore-Heal Adsorption and Desorption • Horvath-Kawazoe • MP-Method • Saito-foley • NLDFT • QSDFT • DFT Pore Size and Surface Energy • Dubinin-Radushkevich • Dubinin-Astakhov • Pore volume and pore size distribution • f- ratio method • Pore size of thin porous films
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		<p>Chemisorption</p> <ul style="list-style-type: none"> • Active Metal Surface Area • Average Crystallite Size • Irreversible and Reversible Sorption • Monolayer Capacity • Active Metal Dispersion <p>Other Accessories required</p> <p>Compatible Computer, Printer, UPS 3 KVA with 30 minutes back up</p> <p>Nitrogen gas (purity 99.99 %) cylinder with two stage regulator 47 Liter</p> <p>Helium gas (purity 99.99 %) Cylinder with Two stage regulator 47 Liter</p> <p>Liquid Nitrogen container with LN2 25 Liter</p> <p>Mass flow controllers (03)</p> <p>Hydrogen gas (purity 99.99 %) cylinder with two stage regulator</p> <p>CO₂ (purity 99.99 %) gas cylinder with two stage regulator</p> <p>Argon gas (purity 99.99 %) cylinder with two stage regulator</p> <p>Krypton gas cylinder with two stage regulator</p> <p>Connectors, Fittings, Ferrules, Pipes etc.</p>	
3.	Milli Q Water Purification System	Application	HPLC and Molecular biology work
		Resistivity	18.2 Ω . cm @25 °C
		Flow rate(Ultra pure water)	12-30 L/h @ 25 °C +/-15%
		Intermediate water flow rate	5LPH
		TOC(with 185/254 nm UV Lamp)	≤5ppb
		Bacteria	≤0.1cfu/ml
		RNases	≤0.01ng/ml
		DNases	≤4pg/μl
		Particulates (size ≥0.22μm)	≤1particulate /ml
		Endotoxin(Pyrogens)	≤0.001EU/ml
		Pre filter 2 depth filter of 10μ and 5μ followed by 1.5 L of activated carbon	
		Double pass RO treatment	Yes
		Built-in reservoir volume	60L-100L
		Warranty	Three year
		Maintenance	Three year zero maintenance (including membrane/UV Lamp /cartridge cost)
4	High Intensity Ultrasonic Liquid	<p>High Intensity Ultrasonic Liquid Processors with Accessories</p> <p>500 and 750 Watt Ultrasonic Processors-VCX Series -</p>	

	<p>Processor with accessories</p>	<p>250microliters to 1liter 750 Watt Ultrasonic Processors-----VCX 750 Net power output: VCX 500 -500 Watt. VCX 750 - 750 Watt Frequency: 20 kHz Remote actuation compatible Dimensions (HxWxD) 91/4" x 71/2"x 131/2" (235x190x340mm) Weight: 15lbs.(6.8kg) Part No. CV 334. Piezoelectric lead zirconate titanate crystals (PZT) Diameter: 21/2" (63.5) Length: 71/4" (183mm) Weight: 2 lbs. (900g) Tip diameter: 1/2" (13mm) with threaded end and replaceable tip Part No. 630-0220 or soild probe with non replaceable tip part No. 630-0219. Please Specify** Processing capability: 10ml to 250ml.** Length: 53/8" (136mm) Weight: 3/4lb. (340g) Titanium alloy Ti-6Al-4V Sample temperature to be monitored up to 100°C. Probe and Boosters 13mmProbe Microtips & Extenders Tapered Microtips, Extender SOUND ABATAING ENCLOSURE Even though ultrasonic vibrations are above the human audible range, Ultrasonic Processing produces a high pitched noise in the form of harmonics which emanate from the vessel walls and the fluid surface. The sound abating enclosure permits extended processing without discomfort by reducing the sound by 35db. The probe/converter assembly is supported by the converter clamps, and the converter cable is fed through the 3/4" (19mm) opening at the top. Side access ports accommodate the tubing delivering the coolant and the simple to the processing the vessel while the door is closed. The unit is faced on the exterior with white laminate, and on the interior with white waterproof polyethylene noise abating material. The transparent access door permits observation during treatment and protects the operator against accidental splashing. Support rod and light duty converter clamp are included. Outside dimension: (HxWxD) 30"x14"x14" (762x355x355mm). Inside dimensions : (HxWxD) 27"x11"x11"(686x280x280mm)</p>
5.	<p>High Shear Homogenizer</p>	<ol style="list-style-type: none"> 1. Electric hydraulic (air cooled) constant high shear homogenizer with stainless steel enclosure to prepare stable nano-emulsions, nano-dispersions, microencapsulation, de-agglomerations as well as to disrupt bacterial cells and yeast. 2. Maximal operating pressure should be 30,000 psi or higher to reduce the number of passes during sample processing.Pump must be of standard make and type (reciprocating) capable of giving constant pressure. 3. System must process product continuously up to at least 4 h

		<p>at maximum operating pressure.</p> <ol style="list-style-type: none"> 4. Flow rate should reach up to 100 ml/min. The instrument should be able to process a sample size of 50 ml to continuous. 5. Stokes per minute: more than 20. 6. The instrument should have fixed geometry (no moving parts) diamond interaction chamber and ceramic (zirconium) plunger. A heat exchanger should control the temperature of the sample & plunger. It should be possible to inter-change the diamond interaction chamber with a ceramic interaction chamber where much lower pressure is required. 7. There should be option for a Ceramic Auxiliary Processing Module to connect with Diamond Interaction Chamber. 8. The instrument should have 7" HMI colour touch screen control to control the process pressure. The system should have an emergency stop switch. 9. System must automatically stop processing product without exceeding set operating pressure upon accidental downstream pipeline closure 10. Pressure piping for reliable cleaning without machine disassembly. 11. System must have provision for CIP 12. Processed Product should have uniform particle size distribution. 13. The homogenization system should have microchannels of fixed orifice which should not change with change in pressure. 14. The system should not require any external compressed gas source for operation. 15. The system should be CE compliant. 16. All processes must be repeatable & preferably guaranteed to scale up to pilot and/or production volumes for the same pressure range. <p>The instrument must be complete in all respect for proper functioning. The rate quoted should be F.O.R. MDU, Rohtak.</p> <p>The warranty period of the Instrument must be quoted.</p> <ol style="list-style-type: none"> 17. Spares and accessories: Please quote additional spares and other need based accessories for standalone functioning of the equipment.
6.	Portable Photosynthesis System (IRGA)	<p>Infrared Gas Analyzer (IRGA) Portable Photosynthesis System Supplying, Installation & Demonstration of Portable Photosynthesis System with following specification: Portable System, fully integrated system for measurement of photosynthesis, chlorophyll fluorescence, soil respiration and net canopy flux</p> <ol style="list-style-type: none"> 1. Should have separate, non-dispersive four (4) IRGA for

		<p>reference and sample CO₂ and H₂O for true differential measurement.</p> <p>2. The instrument based on latest technology with higher CO₂/H₂O range, better accuracy and light weight for better portability is desired.</p> <p>3. Should be able to detect wide range of CO₂ concentration. (CO₂ Measurement Range: 0-3000 ppm and H₂O Measurement Range: 0-75 mb)</p> <p>4. Should have higher precision of CO₂ and H₂O concentration measurements (i.e., a minimum of 0.5 μmol mol⁻¹ at 1500 ppm CO₂ concentration).</p> <p>5. Should be able to set zero automatically at regular intervals during the measurements to reduce the errors from field contaminations.</p> <p>6. Air should be well filtered, at least up to 5 microns, before entering the IRGA's to prevent the IRGA's from contamination and it should have provisions to regulate the air flow.</p> <p>7. The instrument should be based on latest technology, with high speed Processor.</p> <p>8. Console should have provisions to view the data both in numerical and Graphical modes with sufficient memory for data storage.</p> <p>9. The instrument should have large, full colour transfective Display for viewing Data graphically and numerically simultaneously in the field.</p> <p>10. Instrument should be user friendly with more number of inbuilt program Options. Windows based system is preferred as it will be more users friendly.</p> <p>11. Leaf chamber should be able to accommodate a wide range of leaf shapes as far as possible. (i.e., broad leaves, narrow, pod leaves etc).</p> <p>13. Should have provisions to use as open and closed system for measurements.</p> <p>14. Should have options to measure photosynthetic rates at different light Intensities and temperatures.</p> <p>15. Should have software to compute photosynthetic rate, transpiration, internal CO₂ concentration, Stomatal conductance, PAR, H₂O concentration and temperatures.</p> <p>16. Instrument should be rugged and light in weight.</p> <p>17. The instrument should be supplied with soil CO₂ flux chamber.</p> <p>18. The instrument should be supplied with PAM Fluorescence</p>
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		<p>Measurements simultaneously with gas exchange.</p> <p>19. Warranty of at least 3 years or more.</p> <p>20. Additional desiccants with the instrument.</p> <p>21. Bidder with experience of above 5 years in handling such products will be preferred.</p>
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**Director, Central Instrumentation Laboratory,
M.D.University, Rohtak**