

DIRECTOR OF RESEARCH
S. D. AGRICULTURAL UNIVERSITY
S.K. NAGAR - 385506
Tender Notice No.SDAU-DOR-PUR-05-A/2018-19

Online Tenders, as per the schedule given below, are invited from reputed manufacturer / authorized dealers/ distributors **for supply of Laboratory/Farm Instrument(s)/ Equipment(s).**

Separate Tender forms must be submitted for each Laboratory/ Farm Instrument(s)/Equipment(s) advertized in the tenders (from 5-A.1 to 5-A.24). A set of all required documents should be submitted separately for each **Laboratory/Farm Instruments/ Equipments.** Separate Tender fee and separate EMD should be furnished for each Laboratory/Farm Instrument(s)/Equipment(s) advertized in the tenders (from 05-A.1 to 05-A.24), as per instructions given in Table 1, otherwise the tender will be disqualified.

Tender Notice **No.SDAU-DOR-PUR-05-A/2018-19** on the website <https://au.nprocure.com> or www.nprocure.com may be referred for the Tender Form, detailed terms & conditions etc.

1.	Downloading and online submission of the tender documents	Till 15.02.2019 up to 17:00 hrs
2.	Physical submission of Tender Fee, EMD, Manufacturer/ Authorized Dealership Certificate and relevant documents in Separate cover in the office of the Dean, G. N. Patel College of Dairy Technology, S. D. Agricultural University, Sardarkrushinagar, Dist.- Banaskantha, Gujarat-385506 by Registered Post. / Speed Post / Courier only.	Till 22.02.2019 up to 17:00 hrs
3.	Opening of Primary Bid (Tender Form Fee and EMD Cover) (Physically Received)	23.02.2019 10:00 hrs onwards
4.	Opening of Technical Bid (online)	25.02.2019 10:00 hrs onwards
5	Opening of Commercial Bid (online)	02.03.2019 10:00 hrs onwards

Date: 25/01/2019

Director of Research

1. Tenders for Laboratory/Farm Instrument(s)/Equipment(s) from

Company/Firm/Dealers/Distributors has to deposit separate tender fee and separate EMD (in the form of DD in favor of “SDAU Fund Account” drawn on SBI, payable at Dantiwada – 2760.) as mentioned in Table no. 1 for each Laboratory/Farm Instrument(s)/Equipment(s)for which the tender is to be submitted.

**DIRECTOR OF RESEARCH
SARDARKRUSHINAGAR DANTIWADA AGRICULTURAL UNIVERSITY
SARDARKRUSHINAGAR-385 506**

Tender Notice No.SDAU-DOR-PUR-05-A/2018-19

Date: 25-01-2019

TENDER BRIEF

Online Tenders are invited from reputed manufacturer / authorized dealers/distributors **for supply of Laboratory/Farm Instrument(s)/Equipment(s)** as mentioned specifically in the tender details.

INSTRUCTION TO BIDDERS FOR ONLINE TENDER PARTICIPATION

1. The tender documents can be downloaded from the website <https://au.nprocure.com>
2. The bids should be submitted online visiting website <https://au.nprocure.com>
3. The bids should be digitally signed. The details regarding digital signature certificate and related training involved will be available on the below mentioned address:

(n)Code Solutions

(A division of GNFC)

301, GNFC Infotower, Bodakdev,

Ahmadabad- 380 054 (India)

Tel : +91 79 26857316/17/18

Fax: +91 79 26857321.

www.ncodesolutions.com

4. The Bidder can get a copy of instructions for online participation from the website <https://au.nprocure.com>
5. The Bidder should get registration, if required on the website through the link “New Supplier” provided at the home page. The registration on the site should not be taken as registration or empanelment or any other form of registration with the tendering authority.
6. The application for training and issue of digital signature certificates should be made at least 72 hours in advance to the due date and time of tender submission.
7. All the queries regarding use of digital signature certificate should be addressed to personnel in (n) Code Solutions, Ahmadabad.
8. All the queries regarding tender specifications and any other clauses included in tender document should be addressed to personnel in tendering office at the address provided below:

Contact Details:

Director of Research

Sardarkrushinagar Dantiwada Agricultural

University Sardarkrushinagar, Gujarat-385 506.

Telefax: 02748-278889

email:dpp@sdau.edu.in

GENERAL CONDITIONS OTHER THAN INVITATION TO TENDER AND INSTRUCTIONS TO TENDERER (ITIT)

1. Nature of requirements: Laboratory/Farm Instrument(s)/Equipment(s)

Note:- Separate Tender forms must be submitted for each Laboratory/Farm Instrument(s)/Equipment(s) advertised in the tenders (05-A). Attach product catalogue along with all documents separately for each Laboratory/Farm Instrument(s)/Equipment(s), otherwise tender will be disqualified. Bidder interested for quoting more than one Laboratory/Farm Instrument(s)/Equipment(s) should fill in separate tender forms and enclose the required documents and required tender fee and EMD separately, otherwise tender will be disqualified.

Note: The vendor / bidder quoting for multiple items/Brand of for the Laboratory/Farm Instrument(s)/Equipment(s) ought to submit Tender fee & EMD amount separately for each item. Single Demand Draft (DD) of cumulative amount will not be accepted.

2. The Sardarkrushinagar Dantiwada Agricultural University (SDAU) shall in first instance prefer to deal with **manufacturer**. However, the manufacturer may effect delivery through it's authorized dealer/ distributor mentioned in tender form, if desired. The authorized dealer must be Indian (proof for the same must be enclosed here with) for after sale services as well as other correspondences pertaining to it.
3. Authorized dealers/ distributors can quote their rates provided they attach a valid longevity certificate of authorized dealership along with declaration of after sales services liability issued from the Manufacturer/Principal Company.
4. **PRIMARY BID (TENDER FEE AND EMD COVER)**

Separate cover should contain Tender Fee and Earnest Money Deposit (EMD) in form of separate demand drafts as mentioned below. **It may please be noted that Tender form without Tender fee or EMD will not be considered.**

Tender fee, EMD – Uploading on-line as well as physical submission of original tender fee and EMD (in the form of DD) is mandatory, if applicable

Bidder has to submit non-refundable tender fee and refundable Earnest Money Deposit (EMD) in the form of DD in favor of “**SDAU Fund Account**” drawn on SBI, payable at Dantiwada-2760, separately for each Laboratory/Farm Instrument(s)/Equipment(s) advertised in the tenders (05-A.1 to 05-A.24).

Table No. : 1 Tender fee and EMD Details

Tender No.	Name of Laboratory/Farm Instruments/ Equipments	Quantity	Tender fee	EMD in INR
05-A.1	Centrifuge	01	1500	16000
05-A.2	Elisa Processor	01	1500	16000
05-A.3	Plant growth chamber	01	1500	17000
05-A.4	Refrigerated centrifuge (multipurpose compatibility with 96 wall plate and micro-centrifuge tubes)	01	1500	20000
05-A.5	Deep freeze with all accessories	01	1500	21000
05-A.6	– 80 ⁰ C Refrigerator	01	1500	25000
05-A.7	Soxhlet apparatus	01	1500	25000
05-A.8	Deep freeze – 80 ⁰ C	01	1500	32000
05-A.9	Ultra-sonicator	01	1500	32000
05-A.10	Seed bag lifter	01	1500	32000
05-A.11	FTIR	01	1500	60000
05-A.12	Microwave digestion system	01	1500	62000
05-A.13	Gas chromatography ECD/ FID detector with accessories (GCECD)	01	1500	76000
05-A.14	Ultra high performing liquid chromatography with PDA detector with accessories (UHPLC PDA)	01	1500	77000
05-A.15	Gas chromatography FPD/ SPD detector with accessories (GC FPD/SPD)	01	1500	78000
05-A.16	Fluorescence spectrophotometer	01	2500	80000
05-A.17	FT-NIR system	01	2500	93000
05-A.18	Nanoparticle analyzer and zeta potential measurement system (Powder)	01	2500	95000

05-A.19	Nanoparticle analyzer and zeta potential measurement system (liquid)	01	2500	110000
05-A.20	Inductive couple plasma – OES with all accessories (ICP OES)	01	2500	150000
05-A.21	Gas chromatography mass spectrometry quadruple with accessories (GCMS/MS quadruple)	01	15000	450000
05-A.22	Trunkey project on establishment of hardening unit for controlled environment at SDAU SK Nagar	01	15000	500000
05-A.23	Liquid chromatography mass spectrometry quadruple with accessories (LCMS/MS quadruple)	01	15000	600000
05-A.24	Gas Chromatography Mass Spectrometry Q- TOF with accessories (GC-QTOF)	01	15000	6,00000

Refund of Earnest Money Deposit: The earnest money deposit of unsuccessful bidder will be refunded as it is in the form of their own DD.

Forfeiture of Earnest Money: The earnest money will be forfeited in the following cases:

- When bidder withdraws or modifies the offer after opening of tender but before acceptance of tender.
 - when bidder does not execute the agreement if any, prescribed within the specified time.
5. **SECURITY DEPOSIT:** The successful bidder has to deposit 5% of invoice value in the form of Bank Demand Draft in favor of “**SDAU Fund Account**” drawn on SBI, payable at Dantiwada-2760, prior to issue of purchase order to the office placing the order. This money will remain deposited in University as security deposit till warranty period is over.

Refund of Security Deposit: The amount of security deposit will be refunded after the completion of warranty / guarantee period, after writing a letter to the Office where the instrument is installed.

Forfeiture of Security Deposit: The security deposit will be forfeited if,

1. Successful bidder fails to supply the items within the delivery period.
2. Supplier fails to comply specifications of instruments, installation/demonstration of the instruments.
3. Supplier is not providing satisfactory after sale services and support.

6. TECHNICAL BID

The Technical Bid should contain copy of **Tender Form (TF)** including **ITIT** along with self attested copies of prevailing tax structure, Registration Certificate, latest company printed catalogue and other relevant documents as per check list (except Commercial Bid document). **Please note that scanned copy of any document uploaded by the Bidder must tally with physical submission of original. Further;**

- (a) The envelope should be marked as "**Technical Supporting Documents (Technical Bid)**". **It should be noted that technical bid is to be submitted online as well as physically.**
- (b) If the bidder fails to submit the supporting documents physically within time limit, the bidder will be disqualified.
- (c) The bids should be submitted on or before the time stipulated in Tender notice at the website <https://au.nprocure.com>
- (d) Technical bids should be separate for each Laboratory/Farm Instrument(s)/Equipment(s). All documents along with General conditions and ITIT must be filled separately for each Laboratory/Farm Instrument(s)/Equipment(s) advertised in the tenders (5-A.1 to 5-A.24) otherwise tender will be disqualified.

7. COMMERCIAL BID

- (a) The Commercial Bid should contain rates/price of Laboratory/Farm Instrument(s)/Equipment(s) with and without taxes, along with Tax Declaration Certificate duly filled and signed. The bid not accompanying this certificate is liable to be rejected.
- (b) **Sardarkrushinagar Dantiwada Agricultural University is entitled for exemption of Customs Duty as per Government Notification No.51/96-Customs dated 23rd July 1996 and Central Excise Duty exemption as per Government Notification No.10/97-Central Excise dated 1st March 1997. If applicable, certificate will be provided by the University to the successful bidder.**
- (c) Any tax (Central Sales Tax, Excise duty, CST/GST etc) prevailing as per the latest government rules & regulations should be mentioned separately on the items quoted.

- (d) F.O.R destination delivery should be **inclusive of all the charges (eg. insurance, transportation, packaging etc..)**. However, any tax prevailing as per government rules & regulations should be mentioned separately on the Laboratory/Farm Instrument(s)/Equipment(s) quoted. **In case the bidder fails to provide such separate details in its bids, offers will be considered as inclusive of all taxes.**
- (e) The Commercial Bid should be submitted on or before the time stipulated in tender notice **online** only on the website <https://au.nprocure.com>
- (f) The change, addition, alteration in the tender rates on omission / misunderstanding / mistake or any other reasons would not be permitted.

8. VALIDITY OF TENDER

The rate quoted shall initially be valid up to **31st March 2019**. However, it may be extended by the University.

9. COMPREHENSIVE WARRANTY/GUARANTEE inclusive spares and labor for the laboratory/Farm Instrument(s)/Equipment(s) offered should invariably be stated in the tender, failing which standard clause to this effect adopted by SDAU i.e. minimum for 24 months for tender No. 5-A.1 to 5-A.10 and 36 months for tender No. 5-A.11 to 5-A.24 shall apply. Further,

- (a) The Bidder shall guarantee regular and timely supply of all the spare parts required for the normal working of the laboratory/Farm Instrument(s)/Equipment(s) tendered for, for a period of Warranty/Guarantee.
- (b) Bidder shall further guarantee that after completion of Warranty/Guarantee (as per tender conditions). Service & Support (for supply of required parts and consumable) will be provided up to 7 years. Bidder shall also guarantee that the rate of such spare parts will not be exceeding those you might be charging to the Director General of Supplies and Disposals / GEM, New Delhi or any other Government department.

10. DELIVERY PERIOD

The maximum delivery period will be six weeks from the date of order in case of ordinary purchases and two weeks in case of the emergency/urgent purchase.

11. PAYMENT

No advance payment will be made. The final payment shall be made by respective offices after satisfactory receipt of Laboratory/Farm Instrument(s)/Equipment(s), its installation and training of staff, wherever applicable. If the rates are quoted in foreign currency, for conversion in INR exchange rate available on RBI's website on the date of opening of commercial bid of the tender shall be considered for comparison. **SDAU will open relevant amount of LC / CAD incase of Foreign Supply of laboratory/Farm Instrument(s)/Equipment(s).**

12. AUTHORISATION

If the Bidder is not a manufacturer, he should submit a letter from the manufacturer authorizing him to submit quotation on his behalf or attested copy of authorized dealership. Authority letter whenever submitted should be on letter head of the manufacturer with necessary seal and signature and must be inform the validity period for the same. Failing which the tender will be rejected.

The manufacturer should preferably have track record of supply for at least last three years to any Govt. Department / Educational / Agricultural University in the country (Attach relevant list or certificate pertaining to client satisfaction in this regard).

13. TERMS OF SUPPLY

- (a) The packing and the labels of all the items, to be supplied under the order, should be well labeled. If the items are packed in packets which are then placed or repacked within a box/carton/bottle/foil, these details shall be printed/ marked on both the internal/external packs and labels.
- (b) In the event of breakages or loss of stores during transit against requisition order the said quantity will have to be replaced by the A.T. holder. The purchaser will not pay separately for transit insurance and the supplier will be responsible for the intact supply as soon as possible but not later than 15 days from the date of arrival of stores at destinations.

14. Training: Training shall be provided free of cost to the deputed persons of this university by the vendor for each instrument quoted at vendor's application centre and also at University where the instrument is installed , if so desired by the University.

15. The conditional offer/s from bidders is/ are liable to be rejected.

16. No tender will be accepted after prescribed closing time for submission of the same. The delay will not be condoned for any reason whatsoever including postal / transit delay. However, if the last date of submission of tenders is declared as a holiday by the Government, the last date of submission of tenders will be considered as extended to the next working day.
17. The Bidder should read this document and the instructions / terms / conditions therein very carefully. Any Bidder who does not conform to the instruction / terms / conditions herein is liable to be rejected without any reference.
18. No modification should be done by the Bidder in the name of item, and in the specifications grade / quality / packing of the item given in the enquiry document.
19. If Bidder's quoted prices for any other institution/university/ government organization is found less than our university/institution or discount to any other institution/ university/ government organization found more than our university/ institution, the offer will be cancelled and the firm will be put in blacklist.
20. The Accepted Tender (A.T.) holder should supply the equipments in fresh and sound condition meeting with the specification and packing approved. Refurbished or second-hand equipment will not be allowed under any circumstances. If such case is noticed, then the laboratory/Farm Instrument(s)/Equipment(s) will be rejected out rightly and penal action will be taken against the A.T. holder.
21. All supply orders issued by the indenting office on or before the last date of the expiry of the validity of the tender will have to be accepted by the A.T. holder and the delivery for all such orders will have to be effected as per the schedule specified in the order.
22. The software's, operating systems (OS) and user manual for laboratory/Farm Instrument(s)/Equipment(s) and their peripherals should be installed and licensed copy should be provided in the form of DVD & Pan drive/ flash drive with necessary license key.
23. In case of any disputes, the decision of the SDAU in this regard will be final and binding. For all legal matter court jurisdiction will be "Palanpur", Gujarat.
24. All provisions as mentioned in the Gujarat State Purchase Policy – 2016 will be abided to the vendors.

I/We.....(Name of the Bidder/Proprietor/Partner /Director) hereby undertake to supply laboratory/Farm Instrument(s)/Equipment(s) conforming to the Tender Enquiry specification () and abide by all terms and conditions of the tender enquiry as well as invitation to tender and instructions to Bidders.

Place :
Date :

Signature:
Name:
Designation:
Stamp of the firm:

Invitation to Tender and Instructions to Tenderer (ITIT)

1. Bidders or their authorize representative are at liberty to remain present at the opening time of the tender.
2. **Separate Tender forms must be submitted for each Laboratory/farm Instrument(s)/ Equipment(s) advertized in the tenders (from 05-A.1 to 05-A.24) also for each brand/model quoted.** A set of all required documents should be submitted separately for each **Laboratory/farm Instrument(s)/ Equipment(s)**. Separate Tender fee and separate EMD should be furnished for each Laboratory/farm Instrument(s)/Equipment(s) advertized in the tenders (**from 05-A.1 to 05-A.24**), as per instructions given in Table No. 1, otherwise the tender will be disqualified.
3. Bidder should give specification compliance statement point wise showing / highlighting items part no., serial no. as quoted in their quotation for comprehensive technical comparison. Proof of compliance should be mentioned point wise in the catalogue. Failing in compliance and proof of compliance may cause cancellation of the bid without any further notice.
4. Incorrect / fraudulent information submission may lead to disqualification / debar. Please ensure that the data be furnished correctly.
5. (a) The Bidder may quote rate for F.O.R./Free Delivery to the indenting office of SDAU. The SDAU has its Research Stations spread over North Gujarat and Kutch. The Bidder should state the earliest and clear delivery period. The bidder has to confirm receipt of supply order and acceptance thereof immediately. In absence of this no claim shall be considered.
(b) When the analysis or testing of the supplied laboratory/farm Instrument(s)/Equipment(s) has to be undertaken in Laboratories /Test house inside/outside Gujarat State, all kind of expenditure including inspection charge will have to be paid by the bidder.
6. If the demurrage charges occur due to delay in sending the document/air cargo receipt, the amount of the demurrage will be borne by the vendor / supplier. No charges other than customs duty shall be affected by the change in the F.O.R. price. This clause shall remain in operation only up to the date of shipment corresponding to the delivery period specified in the schedule to the agreed terms and not withstanding any extension of time, if any, unless it proves to the satisfaction of the SDAU that the delay in shipment was due to the causes entirely beyond the control of the foreign principal / manufacturer. The decision of the SDAU in this regard shall be final and binding.
7. (a) Ex-stock offers of those on Bidder's own import license will be preferred. It will be Bidder's responsibility to inform this office within the validity period of the tender in the event of the laboratory/farm Instrument(s)/Equipment(s) offered ex-stock being sold elsewhere. Failure to comply with this instruction shall be construed to mean that the laboratory/farm Instrument(s)/Equipment(s) are available ex-stock during the validity period. No cognizance shall be taken of the intimation that the laboratory/farm Instrument(s)/Equipment(s) have been sold out prior to receipt of order if such intimation is received after acceptance of order at the Bidder's end.
(b) Taxes, if leviable and same are being claimed extra should be clearly stated, failing which the rates quoted in the tender will be construed as inclusive of all taxes. Break -up showing the rate and element of taxes should be shown when rates are quoted inclusive of taxes.
(c) Party or their representative may remain present at the time of the opening of Technical Bid.
8. (a) The Bidder should indicate the rates in metric system of weight and measures or in any equivalent weights and measures, thereof showing conversion rates. Non-compliance in this respect will render the tender liable for rejection.
(b) Rates should be quoted per "unit" as specified in the schedule. Non-compliance will render the tender liable for rejection.
(c) The prices should not be negotiable. If needed, parties quoting lowest shall be invited for the negotiations/ clarifications. However, the lowest price is not the criteria and emphasis is placed on quality and specifications of the material.
9. The SDAU does not pledge himself to accept the lowest or any tender and reserves the right to consider or reject any or all tenders and invite fresh tenders if need arise or to accept the tender in full or part or divide the quantity amongst one or more Bidders without assigning any reasons. Further, the SDAU reserves the right of selecting the brand and accepting or otherwise any of the conditions stipulated in the tender.
10. In the event of an order being placed against this tender and if Bidder fail to supply any laboratory/farm Instrument(s)/Equipment(s) in accordance with the terms and conditions of Acceptance of Tender or fail to replace any laboratory/farm Instrument(s)/Equipment(s) rejected within such times as may be stipulated, the SDAU shall be entitled to purchase such laboratory/farm Instrument(s)/Equipment(s), without notice to the Bidder, from any other source and at such price as the university shall in the sole discretion think fit. If such price exceeds the rate set out in the schedule to acceptance of tender, the Bidder shall be responsible to pay the difference of the price at which such laboratory/farm Instrument(s)/Equipment(s) have been purchased by the SDAU, and the price calculated at the rate set out in the schedule.

11. Termination of contract:

If the Bidder fail to deliver the laboratory/farm Instrument(s)/Equipment(s) or any part thereof, within the contract period of delivery or the laboratory/farm Instrument(s)/Equipment(s) are not found in accordance with the prescribed specifications SDAU shall exercise its discretionary power either:

(a) To purchase elsewhere on Bidder's account and at his risk laboratory/farm Instrument(s)/Equipment(s) so undelivered or others of a similar description without canceling the contract in respect of the laboratory/farm Instrument(s)/Equipment(s) not yet due for delivery, or

(b) To cancel the contract:

In the event of action taken under clause (a) above, the Bidder shall be liable for any loss which the SDAU may sustain on that account but he shall not be entitled to any saving on such purchases made against default.

The decision of the SDAU shall be final as regards the acceptability of laboratory/farm Instrument(s)/Equipment(s) supplied by the Bidder and the SDAU shall not be required to give any time or reason for the rejection of the laboratory/farm Instrument(s)/Equipment(s).

12. Extension of time:

(a) As soon as it is apparent that contract dates cannot be adhered to, an application shall be sent to the ordering office of SDAU along with copy to the Director of Research, SDAU before due date.

(b) Without prejudice to the foregoing rights, if such failure to deliver in proper time as aforesaid shall have arisen from any cause which SDAU may admit as a reasonable ground for an extension of the time (and its decision shall be final) it may allow such additional time as considered justified in the circumstances of the case.

13. In addition to these general conditions, if any special conditions mention in respective tenders shall also be applicable.

14. Non-compliance with any of the above conditions shall construe breach of the same and will render the offer liable for rejection.

15. The Bidders are instructed to specify clearly in their tenders as to in which respect their tender deviate from the tender enquiry. If deviations are not specified in detail, it will be presumed that the tendered offer is exactly to the specifications of the tender enquiry.

16. Bidders are required to show detailed breakup of all taxes prevailing at the time separately with the respective amounts, even if their offers are inclusive of all taxes.

17. Bidders should send descriptive literature (**not rates/ price**) along with other documents for item quoted in the tender notice.

18. Bidders are advised to indicate in their offer against each item, whether the item is imported or indigenous.

19. The SDAU may, if found necessary to do so, consider for extension of tender beyond the original validity period, subject to the original terms and condition provided in advertised Tender and the Bidder shall accept the same unless specially stipulated to the contrary in the tender.

20. In the case, rate accepted on "FOR Destination" the date on which the goods are received at destination shall be considered as the date of delivery.

21. Tender should be submitted on-line showing legibly the **tender number, due date, name of company/brand of the item.**

22. Tender Fee / EMD and other relevant documents of the tenders are to be sent in separate sealed cover to '**Dean, G. N. Patel College of Dairy Technology Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, Dist.-Banaskantha, Gujarat-385506**' by the date and time stated in the notice by **Registered Post/Speed Post/Courier only. Late receipt will disqualify the tender and the SDAU will not, in any way be responsible in this regard.** Scan Photo copy submitted along with original tender, if any, must match with physical copies.

23. The tender is liable for rejection if instrument/equipment are not fulfilling as per required specifications.

24. If bidder quotes any special term and condition in the tender which is not found suitable to the authority, those conditions will not be considered.

25. Installation of the laboratory/farm Instrument(s)/Equipment(s) will have to be made **within 6 weeks of supply.**

26. Vendor giving wrong information on specification/documents will be **black listed for a period of 5 years.**

27. All questions, disputes or differences arising under, out of or in connection with the contract shall be subject to the exclusive jurisdiction of the court within the local limits of whose jurisdiction the place situated from which Acceptance of Tender is issued.

Name of the Firm:

Authorized Signature:

Name:

Designation:

Seal of firm:

TECHNICAL BID SUBMISSION FORM

PART-I (Tender Supporting Documents)

Current Tender Details:

Tender Notice No.:

Type of Tender:

Last Date & Time for submission of Bid:

- 1) Name of Laboratory/farm Instrument(s)/Equipment(s):
- 2) Name of **company/brand** :
- 3) Name of the Manufacturer :
- 4) Category (Indigenous / Imported) :
- 5) Required supporting documents :

Sr.No.	Document / Certificate Page No. Of the Tender Document	Remarks
1	Tender Fee Amount, D. D. No. and Date	
2	E.M.D. Amount, D. D. No. and Date	
3	List of Installations/Users/Customers with address, phone No. and email address.(at least 3 purchase order for quoted item preferable)	
4	Copy of GST registration and Copy of TAN of the Bidder – firm	
5	Copy of Permanent account number (PAN)of the Bidder - firm	
6	C.A. Certificate for the manufacturing showing year wise production sales of the quoted item for the last 3 years.	
7	Manufacturing License/Product Permission/Registration Certificate with C.S.P.O./C.M.S.O./ S.S.I./K.V.I.C./ N.S.I.C./D.G.S.& D.	
8	Letter of Authority of Foreign Principal OR its subsidiary company with copy of agreement (In case of Foreign articles) (MUST BE NOTARIZED)	
9	IEC Certificate for imported items	
10	Partnership deed/Memorandum of article/ Registration of firm etc.	
11	Document of 100% Subsidiary Company and provide Affidavit by Subsidiary Company duly attested by Notary public {if applicable}	
12	Confirmation statement for terms and conditions of payment, delivery period and place.	
13	A.E.R.B. Certificate {if applicable}	
14	I.S.O. Certificate. / QCI / B.I.S. Certificate etc or certification issued from internationally acclaimed agency	
15	Technical specification point wise compliance statement	
16	Original Company Printed Product Catalogue	
17	Copy of valid import license for imported items	
18	Guaranty/Warranty obligation	
19	Manufacturer/Authorization certificate showing validity for the current year	
20	Vendor's Profile / Company details	
21	Affidavit as attached on scanned paper of non judicial stamp of Rs 100/-. duly attested by Notary public	
22	Last two (2) financial years income tax returns of the Bidder Firm	
23	Total Pages of the tender document duly stamped & signed by the Bidder - firm	

Note: 1) All photocopied documents must be attested by gazette officer/ self attested.

2) Photocopy of all the documents must be attached physically and scanned copy be with e-tender.

DECLARATION

It is verified that all the certificates/permissions/documents are currently valid as on date and have not been withdrawn/cancelled by the issuing authority. It is further verified that the certificates are as per the format and it is clearly and distinctly understood by us that the tender is liable to be rejected if on scrutiny any of these certificates is found to be not as per the prescribed format.

We further undertake to produce on demand the original certificate/permission / document for verification at any stage during the processing of the tender.

We solemnly declare that we have attached all the documents mentioned here in above and in the tender. We also understand that non-compliance of any documents will be treated as non-respective tender and we will lose our claim to participate in the Tender Enquiry automatically and our tender will be liable to reject.

Name of the Firm:

Authorized Signature:

Name:

Designation:

Seal of firm:

**TECHNICAL BID SUBMISSION FORM
PART-II**

Current Tender Details:

Tender No.:

Type of Tender:

Last Date & Time for submission of Bid:

- 1) Name of Laboratory/farm Instrument(s)/Equipment(s):
- 2) Name of **company/brand** :
- 3) Name of the Manufacturer :
- 4) Category (Indigenous / Imported) :
- 5) (A) Basic facilities/infrastructure such as power supply, installation and commissioning of equipment required mentioned as hereunder:
(B) Details of after sales services station.

1	Address of nearest Manufacturer's Service Centre.	
2	Name of Service Engineer (With Office, Residence Phone/ Cell No. and Email address.)	
3	Address of nearest depot for parts and other Consumable stores (With Office, Residence Phone/ Cell No. and Email address.)	

Note:

1. The specifications available in the item offered shall be mentioned clearly against each tender specification.
2. Detailed specifications chart, designs drawing etc. for equipment offered are to be provided along with original literature.
3. For any imported equipment, part of equipment, valid documentary evidence regarding foreign make as well as import of goods is to be provided by the Bidder along with consignment.
4. Any item, material, consumable required for installation and commissioning of equipment to be brought by supplier at the time of installation of equipment.

Remarks if any:

DECLARATION

We solemnly declare that we have attached all the documents mentioned here in above and in the tender. We also understand that non-compliance of any documents will be treated as non-respective tender and we will lose our claim to participate in the Tender Enquiry automatically and our tender will be liable to be rejected.

Name of the Firm:

Authorized Signature:

Name:

Designation:

Seal of firm:

**COMMERCIAL BID FORM
(Online Submission Only)**

Option –I : INDIGENOUS LABORATORY/FARM INSTRUMENTS/ EQUIPMENTS

Current Tender Details:

Tender No.:

Last Date & Time for submission of Bid:

- 1) Name of Instrument / Equipment:
- 2) Make & Model :
- 3) Name of the Bidder :
- 4) Name of Manufacturing **company/brand**:
- 5) Price of Main Unit:

Sr. No.	Item Description	Item Rate in INR (per unit)
A	i.	
	ii.	
	..	
	Price of Main Unit with all essential accessories ₹ (INR)	
B	Packing Forwarding, Insurance and Installation charges in ₹ (INR) (Enter '0' if not applicable)	
C	GST in ₹ (INR) (Enter '0' if not applicable)	
D	Total F.O.R.D. price in ₹ (INR) (A to C)	

Optional Accessories / Extra Consumables/ other Items

	Name of Optional Accessories/ Consumables/ Items	Price in ₹ of optional accessories	Packing Forwarding, Insurance and Installation charges in ₹ (Enter '0' if not applicable)	Any tax Applicable in ₹ (Enter '0' if not applicable)	Total Price (F.O.R.D.) in ₹ (2 to 4)
	1	2	3	4	5
1					
2					
.					
..					

Remarks if any:

Maintenance contract

Sr No.	Type of contract	Rate for 1 ST year in ₹ (INR)	Rate for 2 ND year in ₹ (INR)	Rate for 3 RD year in ₹ (INR)
1	Comprehensive Maintenance Contract (CMC)			
2	Annual Maintenance Contract (AMC)			

Note:

(1)	Price must be quoted in above format with breakup. Quoting of consolidated price without breakup will not be considered.
(2)	Optional item shown in Technical Bid should be quoted separately for each optional Accessories / Extra Consumables/ other Items and will not be considered for price comparison.
(3)	All terms and conditions of supply shall be applicable as per tender terms. Any terms and condition enclosed with Commercial Bid shall be ignored or in such a case offer is liable to be rejected.
(4)	Please enclose annexure of tax declaration certification.
(5)	The price quoted for AMC & CMC Maintenance contract will be applicable after completion of comprehensive warranty/guarantee period (as per tender condition).

DECLARATION

We solemnly declare that we have attached all the documents mentioned here in above and in the tender. We also understand that non-compliance of any documents will be treated as non-respective tender and we will loose our claim to participate in the Tender Enquiry automatically and our tender will be liable to reject.

Name of the Firm:

Authorized Signature:

Name:

Designation:

Seal of firm:

**COMMERCIAL BID FORM
(Online Submission Only)**

Option –II : IMPORTED LABORATORY/FARM INSTRUMENTS/ EQUIPMENTS

Current Tender Details:

Tender No.:

Last Date & Time for submission of Bid:

- 1) Name of Instrument / Equipment:
- 2) Make & Model :
- 3) Name of the Bidder :
- 4) Name of Manufacturing **company/brand**:

Conversion Rate on the day of opening of commercial bid:

S. N.	Item Description	Description item Rate in above selected currency (per Unit)
1.	For Imported Items (Type Currency :)	
A	i	
	ii	
	..	
	C.I.F. Port Price of Main unit with standard accessories	
B	Custom duty / CVD in % (at concessional rate to Educational Institute) (Enter '0' where not applicable)	
C	Additional custom duty in % (Enter '0' if not applicable)	
D	Excise and other duties in % (at concessional rate to Educational Institute) (Enter '0' if not applicable)	
E	Packing Forwarding, Insurance and Installation charge in % (Enter '0' if not applicable)	
F	Total price (A+B+C+D+E)	
G	Other Charges, if any (Enter '0' if not applicable)	
H	Total price (F+G) (In Foreign Currency)	
I	Total price in ₹ INR . after applying conversion rate	
2.	For Indigenous Items (Type Currency : ₹ (INR))	
	i.	
	ii.	
	
A	Price of Part /Essential accessories for Main Unit ₹ (INR)	
B	Packing Forwarding, Insurance and Installation charges in ₹ (INR) (Enter '0' if not applicable)	
C	GST in ₹ (INR) (Enter '0' if not applicable)	
D	Total price in ₹ (INR) (A to E)	
	*Total F.O.R.D. price in ₹ (INR) (1(I)+2(D))	

Note only * Total F.O.R.D. price in ₹ (INR) (1(I)+2(D)) will be used for price comparison

Optional Accessories / Extra Consumables/ other Items (Imported)

Name of Optional Accessories / Consumables / Items	C.I.F. Port Price of optional item / standard accessories	Custom duty / CVD in % (at concessional rate to Educational Institute) (Enter '0' where not applicable)	Custom duty / CVD in % (at concessional rate to Educational Institute) (Enter '0' where not applicable)	Additional custom duty in % (Enter '0' if not applicable)	Excise and other duties in % (at concessional rate to Educational Institute) (Enter '0' if not applicable)	Packing Forwarding , Insurance and Installation charge in % (Enter '0' if not applicable)	Total price (2 to 7) (In Foreign Currency)	Total F.O.R.D. price in INR after applying conversion rate
1	2	3	4	5	6	7	8	9
1								
2								
...								

Optional Accessories / Extra Consumables/ other Items (Indigenous)

Name of Optional Accessories / Consumables/ Items	Price in ₹ of optional accessories	Packing Forwarding, Insurance and Installation charges in ₹ (Enter '0' if not applicable)	Any tax Applicable in ₹ (Enter '0' if not applicable)	Total Price (F.O.R.D.) in ₹ (2 to 4)
1	2	3	4	5
1				
2				
...				

Sr No.	Type of contract	Rate for 1 ST year in ₹ (INR)	Rate for 2 ND year in ₹ (INR)	Rate for 3 RD year in ₹ (INR)
1	Comprehensive Maintenance Contract (CMC)			
2	Annual Maintenance Contract (AMC)			

Note:

1	Prices with breakup (in %) must be quoted in above format only online. Quoting of consolidated price without breakup may not be considered.
2	Optional item shown in Technical Bid should be quoted separately for each optional Accessories / Extra Consumables/ other Items and will not be considered for price comparison.
3	All terms and conditions of supply shall be applicable as per the tender Document. Any terms and condition intended with Commercial Bid shall be ignored or in such a case offer is liable to be rejected.
4	Tax declaration certificate may be enclosed, if applicable.
5	Sardarkrushinagar Dantiwada Agricultural University is entitled for exemption of Customs Duty and Central Excise Duty as per Government Notifications no.51/96-Customs dated 23rd July 1996 and No.10/97-Central Excise dated 1st March 1997, respectively. Therefore, considering the exemption of custom duty and central excise the rates may be quoted.
6	Local agency commission, if any will not be allowed.
7	If required, custom exemption certificate issued by the concerned authority shall be provided by the consignees.
8	The rates of Custom Duty / C.V.D., transport charges from port to place of consignees, transit insurance within India, installation charges, bank / custom clearance charges, if applicable, should be quoted in Indian currency only.
9	The price quoted for AMC & CMC Maintenance contract will be applicable after completion of comprehensive warranty/guarantee period (as per tender condition).

DECLARATION

We solemnly declare that we have attached all the documents mentioned here above and in the tender. We also understand that non-compliance of any documents will be treated as non-respective tender and we will lose our claim to participate in the Tender Enquiry automatically and our tender will be liable to reject.

Name of the Firm:

Date:

Authorized Signature:

Name:

Designation:

Seal of firm

AFFIDAVIT
(TO BE PHYSICALLY SUBMITTED)

(To be submitted IN ORIGINAL on Non-Judicial Stamp Paper of Rs.100/- duly attested by first class magistrate/Notary Public)

I/We age..... years residing atin capacity ofM/s.....hereby solemnly affirm that

1. All General Instructions, General Terms and Conditions as well as Special Terms and Conditions laid down on all the pages of the Tender Form have been read carefully and understand properly by me which are completely acceptable to me and I agree to abide by the same.
2. I/We have submitted following Certificates/Documents for T.E. as required as per General Terms and Conditions as well as Special Terms and Conditions of the Tender.

Sr. No.	Name of the Document
1.	
2.	
3.	
..	

3. All the Certificates/Permissions/Documents/Permits/Affidavit are valid and current as on date and have not been withdrawn/cancelled by the issuing authority.
4. It is clearly and distinctly understood by me that the tender is liable to be rejected if on scrutiny at any time, any of the required Certificate/Permissions/Documents/Permits/Affidavits is /are found to be invalid/wrong/incorrect/misleading/fabricated/expired or having any defect.
5. I/we further undertake to produce on demand the original Certificate/ Permission/ Documents/ Permits for verification at any stage during the processing of the tender as well as at any time asked to produce.
6. I/We also understand that failure to produce the documents in "Prescribed Proforma" (Wherever applicable) as well as failure to give requisite information in the prescribed Proforma may result in to rejection of the tender.
7. My/Our firm has not been banned/debarred/black listed at least for three years (excluding the current financial year) by any Government Department/State Government/Government of India/Board/Corporation/Government Financial Institution in context of purchase procedure through tender.
8. I/We confirm that I/We have meticulously filled in, checked and verified the enclosed documents/certificates/Permissions/permits/affidavits/information etc. From every aspect and the same are enclosed in order (i.e. in chronology) in which they are supposed to be enclosed. Page numbers are given on each submitted document important information in each document is "highlighted" with the help of "marker pen" as required.
9. The above certificates/documents are enclosed separately and not on the Proforma printed from tender document.
10. I/WE say and submit that the Permanent Account Number (PAN) given by the Income Tax department is which is issued on the name of..... **(Kindly mention here either name of the Proprietor (in case of Proprietor Firm) or name of the tendering firm whichever is applicable).**
11. I/We understand that giving wrong information on oath amounts to forgery and perjury and I/We am/are aware of the consequences thereof. In case any information provided by us are found to be false or incorrect, you have right to reject our bid at any stage including forfeiture of our EMD/PBDG/Cancel the award of contract in this event. University reserves the right to take legal action on me/us.
12. I/We have physically signed and stamped all the above documents along with copy of tender documents (page no. to).
13. I/We hereby confirm that all our quoted items meet or exceed the requirement and are absolutely compliment with specification mentioned in the bid document.
14. My/Our company has not filed any Writ Petition, Court Matter and there is no court matter filed by State Government and its Board Corporation is pending against our company.
15. I/We hereby commit that we have paid all outstanding amounts of dues/taxes/cess/charges/fees with interest and penalty.
16. In case of breach of any tender terms and conditions or deviation from bid specification other that already specified as mentioned above, the decision of Tender Committee for disqualification will be accepted by us.

Date :
Place:

Stamp & Sign of the Bidder

Signature & Seal of the Notary

Instrument specification:

S. No.	Name of laboratory equipment/Instrument	Quantity	Specification
05-A.1	Centrifuge	01	<ul style="list-style-type: none"> • Twin digital display for setting time and speed separately to ensure accuracy. • Unit should be ideal for PPP and PRP production as well as other applications of foodlabs • Unit should operate both on Continuous operation and Timer operation of 30 sec-90 min range. • Six place rotor of 85 ml tubes is required with adapters for 5 , 7, and 10 ml tubes • Unit should be safe and workable under cold room use. • Maximum speed of 15000 rpm is needed that generates 21000 x g. • Unit should be based upon lid lock mechanism to prevent damage of samples.
05-A.2	<u>ELISA Processor</u>	01	<ul style="list-style-type: none"> ➤ UV-Vis absorbance detection modes ➤ Sample reading methods such as endpoint, kinetic, spectral scanning, well area scanning, etc. ➤ It should be capable of reading 6-, 12-, 24-, 48-, 96- and 384-well plates. ➤ It should have automatic calibration before each reading. ➤ Auto path length correction ➤ Xenon flash or advanced light source with high sensitivity and durability ➤ Monochromator wavelength selection ➤ High sensitive detector system ➤ Wavelength range from 200-800 nm with 1 nm increments ➤ Measurement range: 0-4.0 OD ➤ Accuracy resolution: 0.0001 OD ➤ Power supply: 100-240, 50-60 Hz ➤ Certification: CE & TUV ➤ Supply with all necessary accessories ➤ The instrument should run in stand-alone mode OR with computer & software controlled. ➤ System should have USB port for external printer connectivity option for the data printout. ➤ Software CD should have multiple (minimum 5) time installation in different computer system with proper activation of software. ➤ Supply consumables (96 well sterile plate with lid, 100 No.) for initial

			standardization/optimization
			➤ Minimum 2 year unconditional, comprehensive warranty required.
05-A.3	Plant Growth Chamber	01	<ol style="list-style-type: none"> 1. The equipment should be of total internal volume should be >600 litres. 2. The equipment exterior body should be of galvanized steel with corrosion protective epoxy powder Coating and interior should be of stainless steel (SS 304 grade). 3. Instrument should have Microprocessor PID control with touch screen based interface. 4. Temperature range: <ol style="list-style-type: none"> A. Temperature range lights off: 0°C to +55°C B. Temperature range lights on: +5°C to +55°C C. Temperature uniformity: ±1.0°C (lights off), ±2.5°C (lights on) D. Temperature control accuracy: ±0.1°C 5. Humidity range: a. Humidity range lights off: 30% to 95% RH <ul style="list-style-type: none"> • Humidity range lights on: 35% to 90% RH • Humidity uniformity: ± 3% • Humidity control accuracy: ± 1% • Humidity of Ultrasonic humidifier PID control 6. Illumination system: Lighting range: 0 to 20,000 lux via LED light, light intensity adjustable from 0 to 100% and programmable. 7. CO₂ supply system: 0 to 1000 ppm concentration and adjustable 8. It should have 2 to 4 number of polyurethane Coated of Steel Wire Shelves or trays withstand a minimum load of 25 kg/ shelf. 9. Data can be recorded minimum 15 days with 10 minute interval (record must be protected during a blackout). The daily information can be imported with USB. 10. Temperature alarm: High and low temperature limit, Humidity alarm, over current protection, Compressor delay start protection. 11. CFC free refrigeration. 12. It should be quoted with RO system to supply water. 13. Should be quoted with suitable Stabilizer or UPS. 14. The system should be quoted with 3 years comprehensive service and spare parts warranty at free of cost. 15. Instrument should be certified by GMP/CE/ISO.

05-A.4	Refrigerated Centrifuge	01	<p><u>Cooling</u></p> <p>d. Pre-cooling of rotor and chamber function should be present. e. Temperature control range should be $\leq -10^{\circ}\text{C}$ to $+40^{\circ}\text{C}$.</p> <p><u>Speed & Capacity</u></p> <p>a. Speed control range should be 200rpm to ≥ 15000rpm with 1.5 ml or 2ml rotor. b. Maximum speed should be $\geq 10,000$rpm for 50 or 30 ml tubes. c. Maximum speed should be $\geq 12,000$rpm for 10 or 15 ml tubes. d. Speed control range should be 200rpm to ≥ 4500 rpm with 96 well plate rotor. e. Maximum capacity should be 4 X 350 ml or 6 X 250ml or more.</p> <p><u>Compatibility and accessories should be supplied along with instrument:</u></p> <p>b. Fixed angle rotor for 50 or 30 ml tubes (≥ 6 tubes) with speed $\geq 10,000$rpm along with 15 ml adopter. c. Fixed angle rotor for 1.5/2.0 ml tubes (≥ 24 tubes) with speed $\geq 15,000$rpm d. Swing out rotor to run micro plate or 96 well PCR & deep well plate (2 or 4 plate run simultaneously) with speed ≥ 4500 rpm.</p> <p><u>Safety features</u></p> <p>a. Imbalance sensor with safety shutdown mechanism should be present. b. Safety standard should be as per international standard. c. Chambers should be corrosion resistant (made by stainless steel).</p>
05-A.5	Deep Freeze with all accessories	01	<p>Technical Specifications: Deep Freeze with all accessories Deep Freeze should be configured and supply with specified capacity, stands and plug and play operation. Design – vertical/ upright orientation with one outer door and separate inner doors blood bank type Gross Capacity (Litres) > 550 litres or better capacity Temperature range ; Capacity up to -20°C temperature Fully programmable microprocessor control with keypad and control panel Temperature display and It should have alarm of audible and visible Internal freezer storage area should have more than four (4) compartments with individual inner doors to each compartment separate/ individual trays with closed and drawer type It should have Automatic defrost facility</p>

		<p>It should have waste water drainage facility</p> <p>It should have security lock to prevent unauthorized tempering</p> <p>It should have operation chart recorder for hardcopy recoding of temperature during 7x 24hrs</p> <p>Deep freeze must be ISO standards quality Electric safety certifies</p> <p>Compatible stabilizer must be supply with deep freeze</p> <p>Deep freeze must be battery backup in case of power outage for recording of parameters</p> <p>Power supply: 220 V AC 50/60 Hz</p> <p>All accessories necessary for fully function and feasible operations</p> <p>Other term and conditions</p> <ul style="list-style-type: none"> • Point wise compliance sheet with vendor's specifications values must be provided in enclosed with tender, otherwise offer will be technically rejected. • Warranty Complete system including the third party items should be as per general term and conditions (two year) warranty/ guarantee (mean comprehensive servicing maintenance, labors, spare-parts, and replacements etc). (Conditional warranty will not be acceptable) from the date of installation, Spares required during warranty years trouble free operation should be included in the offer and supplied with system. • Vendor should be provide and supply any spare parts, routing replacement items required for tuning/ calibration/ service / maintenance/ repairing to keep system in functional working condition during 2 years warranty/guarantee period required for trouble free operation accept battery . • Servicing: All preventive maintenance as well as break down service should be provided free of cost under guarantee/ warranty period with service schedule. • AMC: Specify separately quote the AMC/CMC charges for 1st, 2nd and 3rd year (3years) after guarantee / warranty period. • Vender should be done installation free of cost at our site and Any other than specified it must be supplied for trouble free operation as and when required for installation, training • Price quoted should be inclusive of all the Equipment/Item/Material with all accessories, packing & forwarding charges (if any), Excise Duty, Custom Duty (if any but as government aided institute has exempted on certificate provided after purchase order), Freight, Transit Insurance, Total delivery cost at S D Agricultural University, Installation & Commissioning cost (if any), including warranty duration and cost (if any) and training to the staff of the Institute OR as specified in tender terms and conditions.
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05-A.6	-80 °C Refrigerator	01	<ul style="list-style-type: none"> a. Temperature capacity should be -80°C or less than -80°C (Instrument should be ISO certified) b. Design: Vertical c. Gross capacity (Liters): ≥ 535 Liters or more. d. Pool down time to -80 °C between 4-6 hrs from ambient temperature (21°C to 23 °C). e. Control Panel: Digital. f. Alarm Type should be audible & visible. g. Refrigerant should be CFC free. h. Inner portions should be contain partition in 3 to 4 chamber and covered by doors. i. Weight without accessories should be between 250 to 300 kg. j. Noise level should not more than 60 dBA. k. Power supply should be 230 V, 50 to 60 Hz. l. Interior portion should be made-up by stainless steel. m. Automatic defrost mode should be present. n. Power consumption should be ranged from 10 to 13.5 kWh/day. o. Compatible stabilizer must be supplied with the instrument. p. Minimum 2 years warranty. q. AMC terms & conditions beyond the warranty period should be specified.
05-A.7	Soxhlet Apparatus Specifications	01	<ul style="list-style-type: none"> • Fully automated solvent extraction system • Microprocessor controlled and fully programmable extraction system • Samples per batch: 6 (Six samples at a time) • Measuring range : 0.1 - 100% Fat with reproducibility of +/- 1% • Auto over temperature protection, Maximum temperature controlled: 200 - 300 °C • Power: 220 – 240 V 50/60 Hz • Inbuilt solvent recovery tank with optical sensor and Solvent recovery should be >75% • Cooling water monitoring, if the cooling water is disconnected or the water flow is interrupted, all processes are must be stopped. • Acoustic and visual warning feature must be present • Spark proof and embedded heating element must be present • Suitable chiller must be supplied along with system

			<ul style="list-style-type: none"> • Easy cleaning and routine maintenance <p>Note:</p> <ul style="list-style-type: none"> • The equipment should be provided with all necessary accessories and spares • Kindly quote break up cost for chiller if not a part of standard model. • Quote cost of additional spares, consumables and accessories separately
5-A.8	Deep freezer -80° C	1	<ol style="list-style-type: none"> 1. Model should be between 400-450 liters capacity. 2. System should have Programmable operating temperature from -50°C up to -86°C (degree Centigrade) with 1°C increment. 3. System should have reduced energy consumption (Power Consumption =below 12 kWh/day or less). 4. System should have pulled down timing of below 6 hours from ambient temperature to -86 ° C. 5. Construction should be of polyurethane foam insulation 6. Freezer should have at least 4 compartments with stainless steel interior to prevent scratches, rust and oxidation. 7. Freezer must use CFC-FREE, HCFC-FREE nonflammable refrigerants, and refrigeration 8. System must be energy efficient and hermetically sealed two stage cascade refrigeration system and Suitable Stabilizer. 9. Freezer must have battery back-up in case power outage and PIN security lock to prevent unauthorized tampering. 10. Compressor should be capable to run any voltage between 210-250V 11. Freezer should have ISO 9001 standard quality test, CE & TUV certification 12. Minimum 2 year unconditional, comprehensive warranty required. 13. Warranty required.
05-A.9	Ultra-sonicator	01	<ol style="list-style-type: none"> 1. Should be Rigid and vibrations free system with over all weight of instrument less than 25 Kg. (approx.) 2. Should be powerful probe ultrasonicator for sonicating liquid with possible application of emulsion preparation, homogenization, dispersion and de agglomeration of nanoparticles, grinding of nano-materials, extraction and sonochemistry.

		<ol style="list-style-type: none"> 3. It should be Compact all-in-one design with processing capability to run 24x7. 4. Should be capable to run in both module: direct (with tip/probe) or Indirect (without tip/probe) 5. Should have Capacity of tip/probe as well as horn type ultrasonication to handle sample volume from 0.20ml to 1000ml 6. Should have capability for both individual and high throughput sample preparation. 7. Should have power output of 700Watt or more with Frequency of 20 KHz and automatic tuning features 8. It should have Digital Wattmeter and should have Integrated Temperature Controller 9. Should capable of simultaneous monitoring and controlling of both the temperature of the sample and the amount of energy that is being delivered 10. It should be able to control independently processing time from 1 second to 10 hours, operate in pulsed and continuous mode both 11. Should have Pulse mode with full function ON and OFF cycle. Continuous mode up to 30 minutes or preferably more 12. System should have Integrated Sound Abating Chamber to reduce sound emitted during processing with transparent door for clear visibility during sonication. 13. System should have amplitude control from 0-100% in increments of 1% or less. 14. System should have LCD screen with clear alphanumeric large display. 15. System should have Piezoelectric based sealed with required converter cable and Height adjustable jack stand should be included. 16. System should have Provision for Integrated temperature control probe and with a temperature sensor Stainless steel suitable to monitor and maintain sample temperature up to 100 °C. 17. System should provide with Standard probe or probe of at least 1/8", 1/4" and 1/2" with replaceable tip and horn and Equipment should be supplied with essential accessories 18. Probe/tip should be of Titanium alloys Ti-6Al-4V. 19. System should have Dimension approximately of 230x200x330mm 20. System should have multi program functionality with at least 10 program memory and also should have enough memory for storage of result and operation of user defined program 21. Miscellaneous: - Dust cover, all wires, cords, connector and standard accessories needed for proper functioning of the instruments 22. The vendor should quote separately for any other accessories that are required for optimum operation of the equipment. E.g. stand, clamp or vibration/absorption shocking table 23. Training and Demonstration: - Training and demonstration of students / staff/ faculty should be done by the certified company engineer and the specifications quoted should be demonstrated on site at the time of installation.
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			<p>24. Installation, commissioning, training etc. free of cost. One additional training session to be done during the three years of warranty period. This training session is in addition to the first training done after installation. The training must demonstrate all the techniques mentioned in the specification or additional if applicable.</p> <p>25. The manufacturer has to guarantee relocation of the system once the permanent research center building gets ready (1-2 years) for operation which will be conveyed at the time by the institute. The dismantling, packing, insurance, transport, material handling, system support, unpacking, reinstallation and commissioning of the system with test running and its conformity must be for free of cost.(if needed)</p> <p>26. Warranty: Three (3) years</p> <p>27. The complete instrument and accessories excluding consumables should be under warranty for a period of three years from the date of installation</p> <p>28. In case of breakdown during the warranty period, service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts. Supplier should provide all spares required for making the instrument operational.</p> <p>29. Vendor should be easily accessible and available on demand within 24 hours of any problem in the instrument.</p> <p>30. Two compulsory visits per year (in addition to instalment of instrument or training) for maintenance must be included for the initial 3 yearsafter installation.</p> <p>31. Annual Maintenance Contract (AMC): Financial involvement for two years on site AMCAfter the expiry of warranty period should be provided.</p> <p>32. A detailed list (contact details, model details) of installations in India should be provided by the vendor. SDAU can approach the listed contact people for any feedback</p> <p>33. The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least five years after the installation of the instrument.</p> <p>34. One set of operating manual, service manual, quality assurance certificates (in English) and copy of CD/DVD of software instalment file should be provided with the instrument. The manual should be presented in both, hard and soft copy</p>
05-A.10	Seed bag lifter	01	<ul style="list-style-type: none"> • The big bag lifter will handle upto 4x600 Kg bags, or 2x1000 Kg bags • Heavy duty construction with twin arms, 90cm fork centres • 1 to 5 tone capacity

05-A.11	FTIR	01	<ol style="list-style-type: none"> 1. Should be Rigid and vibrations free system with over all weight of instrument less than 35 Kg. (approx.) 2. System should be certified for spectrum analysis of following type of application: <ol style="list-style-type: none"> i. variety of samples such as solids, liquids, gels etc ii. spectra of organic, inorganic, organometallic compounds iii. Study of kinetics or structural changes of nano material in exposure to any chemical 3. The system should have a complete range from 6000 to 80 cm⁻¹ (MIR and FAR-IR) using the single source, single beam splitter and single detector without change of any optical components like source, beam splitter and detector. (data should be confirmed using known standards during installation) 4. Should have Michelson/non air bearing/similar type of interferometer based system with stable performance 5. The spectral resolution of system should be better than 0.4 cm⁻¹ or better. 6. The spectrometer cover shall be sealed and desiccated and must be equipped with CaF₂ coated KBr sample compartment for working. 7. The beamsplitters should be moisture resistant and capable of working in high humidity area should be able to work in high humidity area 8. System should have DLaTGS/DTGS detector for MID IR range, DLaTGS/DTGS (or similar) for FAR IR range and InGaAs/similar type detector for NIR Range 9. System should exhibits Signal to noise ratio of the system: better than >35000:1 peak to peak in one minute scan or better 10. System should have Wavelength precision/Wavenumber repeatability: ±0.01 cm⁻¹ or better. (data should be confirmed using known standards during installation) 11. System should have automatic accessory recognition facility to identify, optimize the accessory once it is mounted in the sample compartment 12. System/Software should have facility to minimize the effect of atmospheric water and CO₂ on the sample spectra without the need for reference or calibration spectra. 13. System should not be kept ON when not in use. No nitrogen purging should be required. 14. The spectrometer must be able to scan at a minimum rate of 25 scans per second at a spectral resolution of 16 cm⁻¹ (data should be confirmed during installation) 15. Should include basic and additional accessories for liquid, solid or powder and thin film type of material analysis: <ol style="list-style-type: none"> i. KBr pellet holder, liquid cells. ii. Pelletpress (Indian make) for making KBr pellets with all safety features
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			<p>24. The manufacturer has to guarantee relocation of the system once the permanent research center building gets ready (1-2 years) for operation which will be conveyed at the time by the institute. The dismantling, packing, insurance, transport, material handling, system support, unpacking, reinstallation and commissioning of the system with test running and its conformity must be for free of cost.(if needed)</p> <p>25. Warranty: five (5) years</p> <p>26. The complete instrument including interferometer with source and accessories excluding consumables should be under warranty for a period of five years from the date of installation</p> <p>27. In case of breakdown during the warranty period, service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts. Supplier should provide all spares required for making the instrument operational.</p> <p>28. Vendor should be easily accessible and available on demand within 24 hours of any problem in the instrument.</p> <p>29. Two compulsory visits per year (in addition to instalment of instrument or training) for maintenance must be included for the initial 3 yearsafter installation.</p> <p>30. Annual Maintenance Contract (AMC): Financial involvement for two years on site AMCAfter the expiry of warranty period should be provided.</p> <p>31. A detailed list (contact details, model details) of installations in India should be provided by the vendor. SDAU can approach the listed contact people for any feedback</p> <p>32. The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least five years after the installation of the instrument.</p> <p>33. One set of operating manual, service manual, quality assurance certificates (in English) and copy of CD/DVD of software instalment file should be provided with the instrument. The manual should be presented in both, hard and soft copy</p>
05-A.12	Microwave Digestion System	1	<ol style="list-style-type: none"> 1. Number of Vessel : At least 16 or more vessels in one rotor 2. Power : Un-pulsed Microwave power from 0 to 1700 or more Watts using 1 to 2 magnetrons 3. Built-in cook-book methods 4. Built-in software with screen display for temperature, weight, method search, power profile, method set-up etc. 5. TFM type vessel to work with HF Solution(50 ml or more capacity) to be quoted which can withstand up to 1500 psi working pressure and 300°C temperature. 6. Temperature control system must have a Floor Mounted in situ contactless temperature

			<p>control of every vessel which precisely measures the temperature of liquid inside the vessel it's like having fiber optic probes in vessel.</p> <ol style="list-style-type: none"> 7. Built-in integrated cooling system for removal of gases (vapors) and cooling of vessel without a use of external chiller/thermostat 8. Various safety features to be incorporated in the basic system. 9. Vessels should be guaranteed for at least one year. 10. Additional one set of vessels as per rotor capacity should be provided. 11. Suitable exhaust system should be provided and installed at our site
05-A.13	Gas Chromatography – ECD/FID Detectors with accessories (GC-ECD)	1	<p><u>Technical Specifications for GC-ECD system with accessories</u></p> <p>Bench-top Gas Chromatograph-equipment system for high end sensitively qualitative and quantitative determination for small biomolecules, Pesticides residues, essential oil etc. analysis in natural product and other biological samples with complex matrix along with GC and accessories complete functional system with user friendly software base operation to meet the analysis requirements of global food regulations like EU/USFDA/Japan/FSSAI, etc. The complete system should be fulfill following minimum specifications</p> <p><u>1-Gas Chromatograph :</u></p> <p>The GC must feature an external LED screen to provide easy accessibility to the GC and immediate interactions with it. GC should be configured for oven, gas regulations, split/splitless & PTV injectors, ECD and other essential accessories, The system should be capable of calculating the carrier gas linear velocity and the column void time. Automatic leak testing and unattended and automated system leak simultaneous check. Gas Chromatograph to provide all needed data including Temperature, Pressure/ Flow parameter, type of Carrier Gas, Carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameter with Programmable Electronic Control for complete system. system should have data-station with computer and printer, operating software, etc with specifications</p> <p><u>1.1 Oven</u></p> <p>Operating temperature range: it should be able to operate at ambient + 5 °C to 450 °C with user selectable</p> <ul style="list-style-type: none"> • Maximum heating rate: minimum 30 to 120 °C/min at high to lowest

			<p>temperature ranges Temperature set point resolution: 0.1 °C</p> <ul style="list-style-type: none"> • Temp. Ramping: it should have number of ramp more than 10/11 or more better • Oven cool-down (24 °C ambient): 450 °C to 50 °C in less than 5 minutes • Typical retention time repeatability : <0.0008 min, using multiple solvents peak area repeatability : <0.5 % RSD • Oven Size ; should be capable to accommodate 2 Capillary Columns simultaneously • Must support number two injectors and two detector installation ports/ device or configuration: • Injectors port ; should have Two, SPL/SL and PTV • Two detectors out let port: it should have minimum two for inbuilt detectors ports for ECD and NPD/ any of two and compatible to temperature, gas regulation and programmable each individually • Pneumatics: Programmable Electronic pressure/ flow control for injectors with single point control via software. • It should allow an automated correction of the nominal column parameters and eliminate the use of unknown or unsure values. It should also permits to correctly handle columns with different id connected in series. • it should have programmed pressures/flows with gas saver and septum purge • Total flow setting: – Control of split flow in 0.1 mL/min increments; split flow OFF or from 5 to 1250 mL/min– Purge flow: OFF or from 0.5 to 50 mL/min in 0.1 mL/min increments <p>2.Injectors- 2 nos</p> <p>2.1-Split/Split-less Injector – 01 No.</p> <ul style="list-style-type: none"> • The Split/Split-less injector should be user-installable within a few minutes, and without any special tool with a facility to all capillary columns on any of injector port. • It should have maximum temperature: 400 degree C or better • It should be precise Gas regulation through Electronic/advanced Flow or pressure Control (EFC) / EPC or its equivalent 	
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			<ul style="list-style-type: none"> • The injector should support small volume minimum 0.1 µl to up to 10 µl as well as large volume split-less injection for whole sample and it should be without any further hardware requirement 	
			<ul style="list-style-type: none"> • It should be separate/ integrated /back flush capabilities, 	
			<ul style="list-style-type: none"> • It should have split ration \geq 1:7000 or better 	
			<ul style="list-style-type: none"> • It should be compatible with 1/8" and 1/16" packed column 	
			<ul style="list-style-type: none"> • It should be supports P&T/TD/HS by special adapter. 	
			<ul style="list-style-type: none"> • It should be integrated/ separate back flush capabilities/ device, 	
			<ul style="list-style-type: none"> • It should have programmable gas saver facilities to gas saver and septum purge during operation as well as during idle operation or standby condition 	
			2.2 Programmable Temperature Injector (PTV) Injector–01 No.	
			<ul style="list-style-type: none"> • It should have facility to inject small volume 0.1 to 5µl in split and split-less mode as well as large volume up to 50ul or better up to 200ul injections and On column Injection (OCI) facility 	
			<ul style="list-style-type: none"> • Temperature range with air cooling: Ambient +5 °C up to 450 °C or better 	
			<ul style="list-style-type: none"> • Temperature programming of up to 3 ramps at up to 250 °C/min or better 	
			It should have split ratio 1:7000 and above	
			<ul style="list-style-type: none"> • PTV injector have separate or integrated back flush capabilities, 	
			It should be supports P&T/TD/HS by special adapter.	
			3- Auto Sampler:	
			<ul style="list-style-type: none"> • It should be liquid auto sampler able to injecting in two injectors port without any hardware changes or manual changes or dual injector port injection tower system. 	
			<ul style="list-style-type: none"> • It should inject from 0.1ul to 10ul as standard and up to 50.0 ul or more with variable speed & varying syringe sizes & must be operate and control fully by software as well as manual. 	
			<ul style="list-style-type: none"> • It should have capacity minimum for 96 or more for 1.5-2 ml samples vials occupancy capacity. 	
			<ul style="list-style-type: none"> • It should have a reproducibility of <0.5% RSD. 	
			Auto sampler should have close chamber for 1.5/2ml vial stay / incubation and	

			<p>temperature control incubation temperature range from 4 - 40°C to avoid of evaporation of solvent from vials</p>	
			<ul style="list-style-type: none"> • It should have internal standard addition facilities/auto dilution capacity with high accuracy 	
			<p>4- Detector</p>	
			<p>GC system should be configuration two detectors must be software controlled interchangeable for data acquisition and analysis.</p> <p>Automatic detector changeover/ switching device/ splitter system or facility: It should have minimum two / multiple GC detectors automatic selection system / device for either one or simultaneously two or more detectors selection for data acquisition form ECD or/and NPD. Detector splitter/ change over device should have split ratio; 1:99% or 100% flow towards either detectors and vice versa with software base selection and data acquisition</p>	
			<p>4.1 ECD detector (Electron capture Detector)-01</p> <ul style="list-style-type: none"> • Radioactive source; ^{63}Ni, 370 mBq equal to 10 mCi • Minimum detection limit: less than (\leq) 6 fg/Sec or better against Linden • Linear dynamic range : $> 10^4$ with linden/ γ-BHC • Detector working temperature up to 350 °C • Electronic Controls of the following gases for detector module: 0 to 500 mL/min makeup; Make-up Temperature range 0-350°C. • Data Acquisition Rate: up to 250 Hz or better 	
			<p>4.2 NPD detector (Nitrogen phosphorus detector)-01</p> <ul style="list-style-type: none"> • NPD should be available with ceramic beads and compatible with element-specific sources • Minimum detection limit: less than (\leq): 20 fg P/s and 50 fg N/s or better • Selectivity: gP/gC = 1: 200000; gN/gC = 1 : 80000 or better • Linear Dynamic Range: 10^4 order or better for both P and N using standards • Maximum Temperature: 450 °C • Gas flow Air: 0-500 mL/min in 0.1 mL/min steps, H2: 0-10 mL/min in 0.1 mL/min steps– • Makeup gas (Nitrogen): 0-50 mL/min in 0.1 mL/min steps. 	

			<ul style="list-style-type: none"> • Data Acquisition Rate: up to 250 Hz or better 	
			<p>5- System controlled & application Software and Ethernet Posts, cards etc</p> <ul style="list-style-type: none"> • Licensed application as well as instrument controlling software and compatible to Microsoft latest window bases loaded in latest configured personal computer to control GC, Auto sampler and other accessories. It should be allows to fully automated quantitative and qualitative analysis with standard custom need base reports generation. All application and operative software copy should be provided in DVD and PEN drive with licensed keys for installation in future • System should provide with any hardware need for connection, installation and loading of software, connection and communication to other set up of system • Software able to real time monitoring and diagnosis for notification, counters, chromatogram attributes, leak tests, run, event log etc • Software bases time programming for all parameters to multi method operation and switching to stand-by mode • Desirable to have Automated retention time Adjustment facility or locking facilities thought software 	
			<p>6- Computers system for software installation and instrument operation, data storage and analysis</p> <ul style="list-style-type: none"> • Computer with specifications should be compatible and capable to operation functional working of the complete system with licensed software for 24x7 hrs without interruption and Data station should be compatible to process minimum 300 compound in a single run • Computer with Intel Core i7 Processor Intel original M/B, or better, 32Gb DDR3 RAM, or better, 1 Tb HDD or better configuration with, DVD RW (CD RW capable), graphic card Ethernet ports, internet and USB, HDMI, VGA and Audio in etc ports . Laser 6-button mouse, keyboard and color printer for printing hardcopy of chromatogram. Computer should be along with latest licensed window OS and other necessary softwares. LED monitor screen minimum 27” or better, 3840x2160 UHQ(4K) resolutions with in-built speakers 8W+8W.Working on AC 100-250Vac, 50/60Hz 	

			<p>7-Pre requisite for GC System with accessories for installation and working of the complete system:</p> <ul style="list-style-type: none"> • Vendor should be quote and supply installation kits/any other material/ items requirement as a cost of tender price for instrument fully working status. • Any specific requirements other than above should be mention in tender offer either as standard accessories or separate with specification • Vendor should be supply and installed for the working of the system, all accessories such as gas purification panel units/ panel, module, electric device etc for safe and precursory installation. <p>Gases supply: Vendor should be supply and installed for the working of the system, all accessories such as suitable filled gas cylinders (1Nos. of each, with high 99.9999% pure gas) for all gases as required with test certificates, SS double stage regulators, cylinder opening key, gas pipes with fittings and gas purifiers with control panels, Gas Filter can remove the impurities (hydrocarbons, moisture and oxygen), Oxytraps, etc..Any module, device etc for safe and precursory installation. The gas lining panel work should be done by the supplier for the connection gases to instrument.</p> <p>Power supply: Power supply: 230V, 50/60Hz uninterrupted with equipped with UPS and battery beck up will be available from the University.</p> <p>8- Essential spares to run instruments</p> <ul style="list-style-type: none"> • Vendor should be quote, provide and must be supply any spare parts, routing replacement items with code for future required for tuning/ calibration/ service / maintenance/ repaired to keep system in full functional condition of system for 3 years as following and as purely extra. • These items should not be included as standard items quoted in offer for full functional system. 	
			Specifications	Quantity
			Oxytrap	2 nos
			Low bleed Septa maximum set point 350 °C :	200 nos
			Auto sampler Syringe 10 uL compatible to auto sampler	10 nos
			Vespel / graphite Ferrule for capillary columns of 0.25,0.32,0.53mmID for each	20 no each

			Glass Liners for Split mode :	10 nos
			Glass Liners for Splitless mode :	10 nos
			Quartz /glass wool:	5-10 gm
			O rings :	5 nos
			Capillary adaptor :	2 nos
			Capillary columns-phase-5 low bleed – (30 mtr. X 0.25 mm ID x 0.25um) semi polar for pesticide residues analysis	5 Nos.
			Standard Test Mix for all above mentioned detectors and sensitivity.	Q S
			Any other suggested items : as per required for fully function system for 5 year	Q S
			9-Other term and conditions	
			<ul style="list-style-type: none"> • Point wise compliance sheet with vendor's specifications values must be provided in enclosed with tender, otherwise offer will be technically rejected. 	
			<ul style="list-style-type: none"> • Warranty should be comprehensive Complete system including the third party items should have as per general term and condition (Three years) warranty/ guarantee (mean servicing maintenance, labors, spare-parts, and replacements etc). (Conditional warranty will not be acceptable) from the date of installation. Spares required during warranty years trouble free operation should be included in the offer and supplied with system. Warranty including minimum one visit of application engineer per year. 	
			<ul style="list-style-type: none"> • Written service maintenance schedule with replacement/ spare part items to be submitted along with offer 	
			Vender should be supply any spares parts, routing replacements item required for tuning/ calibration/ service/ maintenance/ repaired to keep system in functional working conditions without trouble free operation during warranty /guarantee period (It should be listed along with offer except consumables)	
			<ul style="list-style-type: none"> • Servicing: All preventive maintenance as well as break down service should be provided free of cost under guarantee/ warranty period. 	
			<ul style="list-style-type: none"> • AMC: Specify separately quote the AMC charges for 1st and 2nd years (2 years) after guarantee / warranty period including calibration of the system. 	
			<ul style="list-style-type: none"> • Vender should install free of cost at our site with analysis of few samples and developed a method with complete report to be printout. 	

			<p>Training: The supplier has to impart ON- site operation immediately after the installation and Application trainings</p> <p>Price quoted should be inclusive of all the Equipment/Item/Material with all accessories, packing & forwarding charges (if any), Excise Duty, Custom Duty (if any but as government aided institute has exempted on certificate provided after purchase order), Freight, Transit Insurance, Total delivery cost at upto S D Agricultural University, Installation & Commissioning cost (if any), including warranty duration and cost (if any) and training to the staff of the Institute OR as specified in tender terms and conditions.</p>	
05-A.14	Ultra High Performance Liquid Chromatography – PDA with accessories (UHPLC –PDA system with accessories)	01	<p>Technical Specifications : UHPLC –PDA system with accessories</p> <p>Bench-top Ultra High Performance Liquid Chromatography with PDA detector equipment system for high end sensitively qualitative and quantitative determination for small biomolecules, Pesticides residues, phytochemicals etc. analysis in natural product and other biological samples with complex matrix along with UHPLC–PDA and accessories complete functional system with user friendly software base operation</p> <p>System Capability: System comprises quaternary or binary solvent system or better, Auto sampler, column oven, and PDA or other detector complete system with software control and operation including all accessories to working condition for analysis</p> <p>Solvent Delivery System (Quaternary/ binary Gradient system)</p> <ul style="list-style-type: none"> • No. of Solvents: to cater total Four mobile phase /solvents or better • Gradient Formation: Low pressure/ high pressure mixing gradients system with high reproducibility • System should have Degasser: Channel Vacuum Degasser with solvent lines • Gradient Profiles: it should have more than ≥ 8 gradient curves/ linear software base programmable • Programmable Flow rate range: 0.01 Up to 2 mL/min. or better • Maximum Operating Pressure tolerance limit; 15000 psi or better at sub 2 micron column with 1ml flow rate. • Delay volume should be as minimum possible to avoid post separation dispersion $\leq -200-400 \mu\text{l}$ or better to have less volume 	

			<ul style="list-style-type: none"> • Composition Accuracy: $\pm 0.5\%$ or better • Composition Precision: $< 0.15\%$ RSD or better • Flow Precision: 0.075% RSD or better • Flow Accuracy: $\pm 1.0\%$ 	
			<p>Auto Sampler</p> <ul style="list-style-type: none"> • No. of Sample Vials: it should have more than 48 vials or more number of 1.5-2.0 ml capacity • Injection vol. range: 0.1 to 10 and upto 50 μL, software base programmable • Injection accuracy : $\pm 0.2 \mu\text{l}$ • Sample delivery precision: $< 1.0\%$ RSD or better • Sample vial compartment Temp Control: Should be 4°C to 40°C in 0.1°C increments and programmable and peltier technology • Sample Carryover: $< 0.003\%$ using vasparine and demonstrated at the time of installation • Special Features: it should have Auto Dilution functionally 2-100 times ability • Should be able to spike the set volume of internal standard or reaction reagent. • Auto samples should have programmable purging ,ringing ,flushing, washing of needle etc. 	
			<p>Column Oven</p> <ul style="list-style-type: none"> • Column Temp Control: Ambient $+5^{\circ}\text{C}$ to 50°C in 0.1°C increments or better. • Occupancy for minimum two or more columns at 25 cm longs, with safety features, high temp. Cut-off, and flow divert valve should be available. • Connector to connect with column chip for tracking and archive column usage history automatically. • HPLC system should have by-pass or change over device to divert flow towards elsewhere 	
			<p>Photo Diode Detector:</p> <ul style="list-style-type: none"> • Wavelength Range: 190-800nm or better • Number of diode elements ; ≥ 512 or better • Light source: Pre-aligned Deuterium lamp or better sources and long life 	

			<ul style="list-style-type: none"> • Wavelength Accuracy: $\leq \pm 1$ nm or better or better • Optical resolution: 1.2 nm or better and additional 6-8 nm (high-sensitivity mode). • Digital resolution: 1.2 nm/pixel • Linearity range: Deviation at 2.0 \leq 5.0% propyl paraben • Base line noise: $\pm 3\mu$ AU or better • Drift: $\leq 1.0 \times 10^{-3}$/AU/Hr or better • Path Length: 10 mm or better • Flow Cell Volume: $\leq 1 \mu$l or better • Data acquisition rate: Up to 80-100 Hz or better • System should be safety and leakage sensors features <p>Software: control and application software</p> <ul style="list-style-type: none"> • Windows based chromatography software should provide complete seamless control of all the modules of UHPLC system. The raw data should be available for processing at any time after modification of 'n' number of times. • The chromatography software should not overwrite any data and should be able to save all the results which are generated after raw data process sing • The quoted software should have the capability of programming at least 1- 8 different gradient curves. • Apex integration & Gaussian skimming should be possible. • Licensed application as well as instrument controlling software and compatible to Microsoft latest window bases loaded in latest configured personal computer to control UHPLC, Auto sampler and other accessories. It should be allows to fully automated quantitative and qualitative analysis with standard custom need base reports generation. All application and operative software copy should be provided in DVD and PEN drive with licensed keys for installation in future • System should provide with any hardwares need for connection, installation and loading of software, connection and communication to other set up of system <p>Computer system with printer and accessories</p> <ul style="list-style-type: none"> • Computer with specifications should be compatible and capable to operation functional working of the complete system with licensed software for 24x7 hrs without interruption and Data station should be compatible to process in a single 	
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			<p>run.</p> <ul style="list-style-type: none"> Computer with Intel Core i7 Processor Intel original M/B, or better, 32Gb DDR3 RAM, or better, 1Tb HDD or better configuration with, DVD RW (CD RW capable), graphic card Ethernet ports, internet and USB, HDMI, VGA and Audio in etc ports . Laser 6-button mouse, keyboard and color printer for printing hardcopy of chromatogram. Computer should be along with latest licensed window OS and other necessary software. LED monitor screen minimum 27” or better, 3840x2160 UHQ(4K) resolutions with in-built speakers 8W+8W.Working on AC 100-250Vac,50/60Hz. 	
			Essential spares to run instruments	
			Vendor should be quote, provide and must be supply any spare parts, routing replacement items with code for future required for tuning/ calibration/ service / maintenance/ repaired to keep system in full functional condition of system for 3 years as following as an purely extra . These items should not be included as standard items quoted in offer for fulfill functional system.	
			Name and specification of items	Quantity
			a) RP C-18, 1.7 μ ,100mm X 2.1mm.	2 no
			b) Mix Mode column (C-8, WCX,WAX)	2 no
			c) Guard column cartridge holder with installation kit	1 nos
			d) Guard column cartridge /frit/inline filter for protect sub 1.7 μ column	20 no
			e) Amide column with particle size of 1.7 μ m	1 nos
			f) Auto sampler needles	3 nos
			g) Peak tubing – suitable match diameter extra	5 meters
			h) Peak nuts and ferrules- compatible to column inlets	5 set
			i) Pump seal for LC system .	5 nos
			j) Tool kit	1 set
			k) Auto sampler tray extra excluding with system	2 no
			l) Plunger seal wash bottle (if available in LC	5 nos.

			m) Light source lamps each for UV and Vis or dual	1 nos
			n) Performance test standard solutions with more than 1 year expiry	1 set
			o) Be specify and supply Any others essential need for trouble free operation for 5 years (Warranty + AMC/CMC)	
			<p>Pre requisite for UHPLC System with accessories for installation and working of the complete system: Accessories</p> <ul style="list-style-type: none"> •Vendor should quote and supply installation kits/any other material/ items requirement as a cost of tender price for instrument fully working status. •Any specific requirements other than above should be mentioned in tender offer either as standard accessories or separate with specification 	
			<p>Power supply: Power supply: 230V, 50/60Hz uninterrupted equipped with UPS and battery back up will be available from the University.</p>	
			<p>Other term and conditions</p>	
			<ul style="list-style-type: none"> • Point wise compliance sheet with vendor's specifications values must be provided in enclosed with tender, otherwise offer will be technically rejected. 	
			<ul style="list-style-type: none"> • Warranty should be comprehensive Complete system including the third party items should have as per general term and condition (TWO years CMC) warranty/ guarantee (mean servicing maintenance, labors, spare-parts, and replacements etc). (Conditional warranty will not be acceptable) from the date of installation and One year AMC warranty/ guarantee after CMC period. Spares required during warranty years trouble free operation should be included in the offer and supplied with system. Warranty including minimum one visit of application engineer per year. • Written service maintenance schedule with replacement/ spare part items to be submitted along with offer. 	
			<ul style="list-style-type: none"> • Vender should be supply any spares parts, routing replacements item required for tuning/ calibration/ service/ maintenance/ repaired to keep system in functional working conditions without trouble free operation during warranty /guarantee period (It should be listed along with offer except consumables) 	
			<ul style="list-style-type: none"> • Servicing: All preventive maintenance as well as break down service should be provided free of cost under guarantee/ warranty period. 	

			<ul style="list-style-type: none"> • AMC: Specify separately quote the AMC charges for 1st and 2nd years (2 years) after guarantee / warranty period including calibration of the system and including minimum one visit of application engineer per year. • Vender should install free of cost at our site with analysis of few samples and developed a method with complete report to be printout. <p>Training: The supplier has to impart ON- site operation and application immediately after the installation and also application training for analysis and application and report generation</p> <p>Price quoted should be inclusive of all the Equipment/Item/Material with all accessories, packing & forwarding charges (if any), Excise Duty, Custom Duty (if any but as government aided institute has exempted on certificate provided after purchase order), Freight, Transit Insurance, Total delivery cost upto S D Agricultural University, Installation & Commissioning cost (if any), including warranty duration and cost (if any) and training to the staff of the Institute OR as specified in tender terms and conditions.</p>	
05-A.15	Gas Chromatography – FPD/SPD with accessories (GC- FPD)	01	<p><u>eTechnical Specifications for GC-FPD/FID system with accessories</u></p> <p>Bench-top Gas Chromatograph-equipment system for high end sensitively qualitative and quantitative determination for small biomolecules, Pesticides residues, essential oil etc. analysis in natural product and other biological samples with complex matrix along with GC and accessories complete functional system with user friendly software base operation to meet the analysis requirements of global food regulations like EU/USFDA/Japan/FSSAI, etc. The complete system should be fulfill following minimum specifications</p> <p><u>1-Gas Chromatograph :</u></p> <p>The GC must feature an external LED screen to provide easy accessibility to the GC and immediate interactions with it. GC should be configured for oven, gas regulations, split/splitless & PTV injectors, FPD and FID detectors with essential accessories, The system should be capable of calculating the carrier gas linear velocity and the column void time. Automatic leak testing and unattended and automated system leak simultaneous check. Gas Chromatograph to provide all needed data including Temperature, Pressure/ Flow parameter, type of Carrier</p>	

			<p>Gas, Carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameter with Programmable Electronic Control for complete system. system should have data-station with computer and printer, operating software, etc with specifications</p>	
			<p>1.1 Oven</p>	
			<p>Operating temperature range: it should be able to operate at ambient +5 °C to 450 °C with user selectable</p>	
			<ul style="list-style-type: none"> • Maximum heating rate: minimum 30 to 120 °C/min at high to lowest temperature ranges Temperature set point resolution: 0.1 °C 	
			<ul style="list-style-type: none"> • Temp. Ramping: it should have number of ramp more than 10/11 or more better 	
			<ul style="list-style-type: none"> • Oven cool-down (24 °C ambient): 450 °C to 50 °C in less than 5 minutes 	
			<ul style="list-style-type: none"> • Typical retention time repeatability : <0.0008 min, using multiple solvents peak area repeatability : <0.5 % RSD using multiple solvents 	
			<ul style="list-style-type: none"> • Oven Size ; should be capable to accommodate 2 Capillary Columns simultaneously 	
			<ul style="list-style-type: none"> • Must support number two injectors and two detector installation ports/ device or configuration: • Injectors port ; should have Two, SPL/SL and PTV 	
			<ul style="list-style-type: none"> • Two detectors out let port: it should have minimum two for inbuilt detectors ports for FPD and FID/ any of two and compatible to temperature, gas regulation and programmable each individually 	
			<ul style="list-style-type: none"> • Pneumatics: Programmable Electronic flow control for injectors with single point control via software. 	
			<ul style="list-style-type: none"> • It should allow an automated correction of the nominal column parameters and eliminate the use of unknown or unsure values. It should also permits to correctly handle columns with different id connected in series. 	
			<ul style="list-style-type: none"> • it should have constant and programmed pressures / flows with gas saver and septum purge 	
			<ul style="list-style-type: none"> • Total flow setting: – Control of split flow in 0.1 mL/min increments; split flow OFF or from 5 to 1200 mL/min– Purge flow: OFF or from 0.5 to 50 mL/min in 0.1 mL/min increments 	
			<p>2.Injectors- 2 nos</p>	

			<p>2.1-Split/Split less Injector – 01 No.</p> <ul style="list-style-type: none"> • The Split/Split less injector should be user-installable within a few minutes, and without any special tool with a facility to all capillary columns on any of injector port. • It should have maximum temperature: 400 degree C or better • It should be Gas regulation through Electronic Pressure/ Flow Control (EFC / EPC • The injector should be support to small volume minimum 0.1 µl to up to 10 µl as well as large volume splitless injection for whole sample, and without any further hardware requirement(concurrent solvent re condensation) • It should have split ration \geq 1:7000 or better • It should be compatible with 1/8" and 1/16" packed column • It should be supports P&T/TD/HS by special adapter. • It should be integrated/ separate back flush capabilities/ device, • It should have gas saver facilities to gas saver and septum purge during operation as well as during idle operation or standby condition <p>2.2 Programmable Temperature Injector (PTV) Injector–01 No.</p> <ul style="list-style-type: none"> • It should have facility to inject small volume 0.1 to 5µl in split and splitless mode as well as large volume up to 40-200ul or better up to 250ul injections and On column • Temperature range with air cooling: Ambient +5 °C up to 450 °C or better • Temperature programming of up to 3 ramps at up to 250 °C/min or better <p>It should have split ratio 1:7000 and above</p> <ul style="list-style-type: none"> • PTV injector with integrated/ separate back flush capabilities/device, • It should be supports P&T/TD/HS by special adapter. <p>3- Auto Sampler:</p> <ul style="list-style-type: none"> • It should be liquid auto sampler able to injecting in two injectors port without any hardware changes or manual changes or dual injector port injection tower system. • It should inject from 0.1ul to 10ul as standard and up to 50.0ul with variable 	
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			<p>speed & varying syringe sizes & must be operate and control fully by software as well as manual.</p>	
			<ul style="list-style-type: none"> • It should have capacity minimum for 96 or more 1.5-2 ml samples vials occupancy capacity. 	
			<ul style="list-style-type: none"> • It should have a reproducibility of <0.5% RSD. 	
			<p>Auto sampler should have close chamber for 1.5/2ml vial tray / incubation and temperature control incubation temperature range from 4 - 40°C to avoid of evaporation of solvent from vials</p>	
			<ul style="list-style-type: none"> • It should have internal standard addition facilities/auto dilution capacity with high accuracy 	
			<p>4- Detector</p>	
			<p>GC system should be configuration two detectors must be software controlled interchangeable for data acquisition and analysis. Automatic detector changeover/ switching device/ splitter system or facility: It should have multiple GC detectors automatic selection system / device for either one or simultaneously two or more detectors selection for data acquisition form FPD or/and FID. Detector splitter / change over device should have split ratio; 1:99% or 100% flow towards either detectors and vice versa with software base selection and data acquisition</p>	
			<p>4.1 FPD Detector (Flame photometric detector) - 01</p>	
			<ul style="list-style-type: none"> • Minimum detectable amount: < 60 fg P/s and < 3 pg S/s (Methyl Parathion) Or Better • Dynamic range: >10⁴ P, >10³ S • Selectivity: phosphorus and sulfur; P/C = 10⁶ :1, and S/C= 10⁶:1 • Maximum temperature: 400 °C base temperature, increment of 0.1 °C. Standard EPC based gas control for Air; 1-200 ml/min, Hydrogen 0-250ml/min and make up gas 0-150 ml per minute or better to save gas consumption. It should have Dual wavelength detection ability 	
			<p>4.2 FID Detector (Flame Ionization Detector) - 01</p>	
			<ul style="list-style-type: none"> • Flameout detection and automatic re-ignition • Minimum detection limit: less than (<): 1.5.0 pg C/s or better • Sensitivity: >0.03 Coulombs/g C 	

			<ul style="list-style-type: none"> • Linear Dynamic Range: $>10^7$ ($\pm 10\%$) or Better over a entire range • Maximum Temperature: 450 °C • Data Acquisition Rate: up to 250 Hz or better 	
			<p>5- System controlled & application Software and Ethernet Posts, cards etc</p> <ul style="list-style-type: none"> • Licensed application as well as instrument controlling software and compatible to Microsoft latest window bases loaded in latest configured personal computer to control GC, Auto sampler Mass analyzer and other accessories. It should be allows to fully automated quantitative and qualitative analysis with standard custom need base reports generation. All application and operative software copy should be provided in DVD and PEN drive with licensed keys for installation in future. • System should provide with any hardware need for connection, installation and loading of software, connection and communication to other set up of system • Software able to real time monitoring and diagnosis for notification, counters, chromatogram attributes, leak tests, run, event log etc • Software bases time programming for all parameters to multi method operation and switching to stand-by mode • Desirable to have retention time locking facilities thought software 	
			<p>6- Computers system for software installation and instrument operation, data storage and analysis</p> <ul style="list-style-type: none"> • Computer with specifications should be compatible and capable to operation functional working of the complete system with licensed software for 24x7 hrs without interruption and Data station should be compatible to process minimum 300 compound in a single run • Computer with Intel Core i7 Processor Intel original M/B, or better, 32Gb DDR3 RAM, or better, 1 Tb HDD or better configuration with, DVD RW (CD RW capable), graphic card Ethernet ports, internet and USB, HDMI, VGA and Audio in etc ports . Laser 6-button mouse, keyboard and color printer for printing hardcopy of chromatogram. Computer should be along with latest licensed window OS and other necessary softwares. LED monitor screen minimum 27" or better, 3840x2160 UHQ(4K) resolutions with in-built speakers 8W+8W. Working on AC 100-250Vac,50/60Hz 	

			<p>7-Pre requisite for GC System with accessories for installation and working of the complete system:</p> <ul style="list-style-type: none"> • Vendor should be quote and supply installation kits/any other material/ items requirement as a cost of tender price for instrument fully working status. • Any specific requirements other than above should be mention in tender offer either as standard accessories or separate with specification • Vendor should be supply and installed for the working of the system, all accessories such as gas purification panel units/ panel, module, electric device etc for safe and precursory installation. <p>Gases supply: Vendor should be supply and installed for the working of the system, all accessories such as suitable filled gas cylinders (1Nos. of each, with high 99.9999% pure gas) for all gases as required with test certificates, SS double stage regulators, cylinder opening key, cylinder cage or Bracket etc , gas pipes with fittings and gas purifiers with control panels, Gas Filter can remove the impurities (hydrocarbons, moisture and oxygen), Oxytraps, etc..Any module, device etc for safe and precursory installation. The gas lining panel work should be done by the supplier for the connection gases to instrument.</p> <p>Power supply: Power supply: 230V, 50/60Hz uninterrupted with equipped with UPS and battery beck up will be available from the University.</p> <p>8- Essential spares to run instruments</p> <p>Vendor should be quote, provide and must be supply any spare parts, routing replacement items with code for future required for tuning/ calibration/ service / maintenance/ repaired to keep system in full functional condition of system for 3 years as following and as purely extra.</p> <p>These items should not be included as standard items quoted in offer for full functional system.</p>											
			<table border="1"> <thead> <tr> <th>Specifications</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>Helium gas filter (tower top)-</td> <td>1 nos</td> </tr> <tr> <td>Low bleed Septa maximum set point 350 °C :</td> <td>200 nos</td> </tr> <tr> <td>Auto sampler Syringe 5/10 uL</td> <td>5 nos</td> </tr> <tr> <td>Vespel Ferrule for capillary columns of 0.25,0.32,0.53mmID</td> <td>10 each</td> </tr> </tbody> </table>	Specifications	Quantity	Helium gas filter (tower top)-	1 nos	Low bleed Septa maximum set point 350 °C :	200 nos	Auto sampler Syringe 5/10 uL	5 nos	Vespel Ferrule for capillary columns of 0.25,0.32,0.53mmID	10 each	
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			for each size	
			Glass Liners for Split mode :	10 nos
			Glass Liners for Splitless mode :	20 nos
			Quartz wool:	5-10 gm
			O rings :	5 nos
			Capillary adaptor :	2 nors
			Capillary columns-phase-5 low bleed– (30 mtr. X 0.25 mm ID x 0.25um)	2 Nos.
			Capillary columns-phase-1 or Wax – (60 mtr. X 0.25 mm ID x 0.25um)	2 Nos.
			Capillary columns-phase-1701 – (30 mtr. X 0.25 mm ID x 0.25um)	2 Nos
			Standard Test Mix for all above mentioned detectors and sensitivity.	Q S
			Any other suggested item : as per required for fully function system	Q S
			9-Other term and conditions	
			<ul style="list-style-type: none"> • Point wise compliance sheet with vendor's specifications values must be provided in enclosed with tender, otherwise offer will be technically rejected. • Warranty should be comprehensive Complete system including the third party items should have as per general term and condition (Three years) warranty/ guarantee (mean servicing maintenance, labors, spare-parts, and replacements etc). (Conditional warranty will not be acceptable) from the date of installation. Spares required during warranty years trouble free operation should be included in the offer and supplied with system. • Written service maintenance schedule with replacement/ spare part items to be submitted along with offer 	
			Vender should be supply any spares parts, routing replacements item required for tuning/ calibration/ service/ maintenance/ repaired to keep system in functional working conditions without trouble free operation during warranty /guarantee period (It should be listed along with offer except consumables)	
			<ul style="list-style-type: none"> • Servicing: All preventive maintenance as well as break down service should be provided free of cost under guarantee/ warranty period. 	

			<ul style="list-style-type: none"> • AMC: Specify separately quote the AMC charges for 1st and 2nd years (2 years) after guarantee / warranty period including calibration of the system. • Vender should install free of cost at our site with analysis of few samples and developed a method with complete report to be printout. <p>Training: The supplier has to impart ON- site operation immediately after the installation and Application trainings</p> <p>Price quoted should be inclusive of all the Equipment/Item/Material with all accessories, packing & forwarding charges (if any), Excise Duty, Custom Duty (if any but as government aided institute has exempted on certificate provided after purchase order), Freight upto S D Agricultural University, Transit Insurance, Total delivery cost at S D Agricultural University, Installation & Commissioning cost (if any), including warranty duration and cost (if any) and training to the staff of the Institute OR as specified in tender terms and conditions.</p>
05-A.16	Fluorescence spectrophotometer	01	<ol style="list-style-type: none"> 1. The system should be Rigid and vibrations free based Compact, Modular, Computer controlled system capable to measure the both Liquids and Solid Samples. 2. System should have measurement mode: absorbance, fluorescence, Fluorescence Polarization, Time-resolved fluorescence, alpha and luminescence 3. Should have Czerny-Turner or quad or equivalent level of monochromator 4. It should have good pulsed xenon lamp or LED with long life as source of light. 5. The system should have capability to cover the range from 250nm to 850nm or better by TE Cooled PMT for low noise level and should have PMT and Silicon photodiode based detector for both excitation and emission. 6. should have grating with accurate focus at all wavelengths and minimum stray light 7. should have operational wavelength range: 250-850 nM or better and should be extended to 190-1100 nM (optional-should be quoted separately) 8. system should show Spectral bandwidth: Excitation and Emission : 1.5 – 20 nm or better 9. System should have Wavelength accuracy: ± 1.0-1.5 nm or better 10. The instrument must have a guaranteed signal-to-noise specification of >700-750:1 or better for the Raman Band of Water. It should have minimum Signal to noise ratio: 10000:1 RMS or better or should have fluorescence sensitivity of 2.5-5.0 pM fluorescein for 96 well plate (at top-bottom) with >5 log fold sensitivity and 20-30 amol or less ATP (flash) for luminescence. 11. It should have scanning with 1 nM increment while scanning speed should be more than 1500

		<p>nM/min or better or less than 1.5-1.0 minute time for 96 well plate study.</p> <ol style="list-style-type: none"> 12. The instrument must be capable to collect at microsecond time intervals for phosphorescence applications. 13. Cuvette ranging from 20 μL, 100 μL to 3mL (2 sets at least) must be provided. 14. Instrument should be compatible with 12-384 well plate accessories and 10 set of 96 & 384 well plate must be provided. 15. System should perform operation for single/multiple reading, endpoint, kinetics, scanning and top-bottom reading 16. Computer and Data storage system:(Itemized price must be quoted) <ol style="list-style-type: none"> a. Processor: Intel 4thgen. or better, core i7 or better processor with 3.0 MHz or more and 8 GB RAM, b. Memory: 1000 GB or more HDD c. Inbuilt Graphic card d. Minimum 4 USB 2.0 or better Ports and an Inbuilt Removable disc drive: DVD RW Drive e. Interface of PC: at least 21 inch or better LED Monitor with wireless Keyboard and Mouse f. Operating System: Window 10 Professional (64 bit) g. UPS (2 KVA, 1 hour backup) back up h. Desktop laser jet printer with duplex option 17. It should provide with Standard, user friendly software based on Microsoft Windows 8 or above or inbuilt with complete control of instrument. It should have facility for scan application, kinetics, life time measurements, concentration etc. Data analysis, Data storage, graphical display includes 3D plotting and deconvolution and other application features must be provided. The software should include instrument validation application and provided with free upgrade of software. 18. Miscellaneous: - Dust cover, all wires, cords, connector and standard accessories needed for proper functioning of the instruments 19. The vendor should quote separately for any other accessories that are required for optimum operation of the equipment. E.g. vibration/absorption shocking table 20. Training and Demonstration: - Training and demonstration of students / staff/ faculty should be done by the certified company engineer and the specifications quoted should be demonstrated on site at the time of installation. 21. Installation, commissioning, training etc. free of cost. One additional training session to be done during the two years of warranty period. This training session is in addition to the first training done after installation. The training must demonstrate all the techniques mentioned in the specification or additional if applicable. 22. The manufacturer has to guarantee relocation of the system once the permanent research center building gets ready (1-2 years) for operation which will be conveyed at the time by the institute. The
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			<p>dismantling, packing, insurance, transport, material handling, system support, unpacking, reinstallation and commissioning of the system with test running and its conformity must be for free of cost.(if needed)</p> <p>23. Warranty: Three (3) years</p> <p>24. The complete instrument and accessories excluding consumables should be under warranty for a period of two years from the date of installation</p> <p>25. In case of breakdown during the warranty period, service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts. Supplier should provide all spares required for making the instrument operational.</p> <p>26. Vendor should be easily accessible and available on demand within 24 hours of any problem in the instrument.</p> <p>27. Two compulsory visits per year (in addition to installment of instrument or training) for maintenance must be included for the initial 3 years after installation.</p> <p>28. Annual Maintenance Contract (AMC): Financial involvement for two years on site AMC after the expiry of warranty period should be provided.</p> <p>29. A detailed list (contact details, model details) of installations in India should be provided by the vendor. SDAU can approach the listed contact people for any feedback</p> <p>30. The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least five years after the installation of the instrument.</p> <p>31. One set of operating manual, service manual, quality assurance certificates (in English) and copy of CD/DVD of software instalment file should be provided with the instrument. The manual should be presented in both, hard and soft copy</p> <p>32. Optional Accessory:</p> <p>a. Accessories of measuring 16-384 well plate and cuvette should be quoted.</p> <p>b. Single cell Peltier accessories with probe, pump/fluid circulator & software (0 to 100 °C).</p> <p>c. Solid sample holder accessory with edge mounting sample holder kit, Powder cell, single crystal holder kit & Cuvette holder kit,</p> <p>d. Any other accessories (if needed)</p>
05-A.17	<u>FT-NIR System Specifications</u>	01	Fourier Transform (FT) Near Infrared Spectrometer based dedicated analyzer for rapid non-destructive measurement of solids (powder, coarse granular material, pellets and flakes) and liquid (translucent and opaque liquids) no need for sample preparation and reagent. System must be capable of analyzing composition or material identification of sample (oilseeds). The system should allow method development, minimize implementation time and ensure seamless method

			<p>transferability and should be complete in all respects.</p> <p>Spectral Range : Dedicated NIR range atleast 11500 to 4000 cm-1</p> <p>IR Source: long life high intensity Tungsten/ Halogen NIR source</p> <p>Beam splitter: Quartz substrate or CaF2</p> <p>Resolution: 4 cm-1 or better.</p> <p>Wave number accuracy ± 0.1 cm-1 or better across the range.</p> <p>Wave number Reproducibility- 0.04 cm-1</p> <p>Detector: InGaAs detector covering the entire NIR wavelength range for both Transmission for Reflectance mode.</p> <hr/> <p>Software: Branded compatible PC (if required) and printer along with licensed software must be included. The complete licensed software with capability for method development, identification, qualitative and quantitative analysis and different calibration methods.</p> <p>Internal standard check: Instrument must have internal NIST traceable standard to automatically measure wavelength accuracy, signal to noise ratio and linearity check.</p> <p>Type of laser: HeNe/diode or equivalent</p> <p>Measurement mode: Integrating sphere for solid and liquid samples. Glass petri dish or high performance cup or Glass Vials. The diameter of the measurement spot should be at least 10 mm. Interferometer: Permanently aligned interferometer, vibration insensitive, high stability, provides accurate and reliable results for multiple parameters simultaneously.</p> <p>Power requirements: 220-240VAC, 50/60Hz</p> <p>Note:</p> <ul style="list-style-type: none"> • Online branded UPS 5KVA with minimum 30 minute battery back up should be quoted separately. • Quote cost of additional spares, consumables and accessories separately
05-A.18	Nanoparticle analyzer and zeta potential measurement system (Powder)	01	<ol style="list-style-type: none"> 1. Should be Rigid and vibrations free system with over all weight of instrument less than 20 Kg. (approx.) 2. Should preferably work on principles of Dynamic Light Scattering or Induced grating (IG) method 3. Should be capable for application like Particle size and zeta-potential of various metal based nano-particles and their formulations in solid/powder form. 4. Should have minimum particle size range (dia.) preferably of 1-10nM or better (with

		<p>sufficient documentary proof attached in terms of analysis report or published report (in peer reviewed) journal must be attached and (data should be confirmed using known standards during installation)</p> <ol style="list-style-type: none"> 5. Should have maximum particle size range (dia.) preferably of 2000-5000 nM or better (with sufficient documentary proof attached in terms of analysis report or published report (in peer reviewed) journal must be attached and (data should be confirmed using known standards during installation) 6. Should have Laser diode based light source 7. Should capable of work with sample volume <u>of less than 200 µl</u> (preferable) to 1000 µl for economics of sample 8. Should have provision to conduct in situ experiments/dynamic experiments through a flow cell. 9. Should have different types of cuvette (made up of quartz, glass or polystyrene) or sample well provided to accommodate sample for aqueous (polar or non polar) or non-aqueous type both. Further, vendor should quote for 200 No. of disposable type and 2 No. of Glass/ Quartz cuvettes and 80 No. of micro cuvettes with sample volume of 50 µl or less. 10. System should work in range of working temperature of 10-80° C or better with precise temperature control mechanism 11. System should capable of measuring zeta potential in range of +/- 200 mV or better 12. Should capable for measuring with conductivity of 180 mS/cm or better 13. Should be sensitive where toluene count should be more than 140kcps or better. 14. Should capable of measuring sample at concentration approx. 30 % (w/v) or more (better) 15. Software for result and analysis should be compatible with Windows OS and following features: <ol style="list-style-type: none"> i. Must allow time dependent study for size and zeta potential with out changing cuvette ii. Must allow exporting of data and in peer review publication level standard with high resolution for figures iii. Should allow re-run analysis using different algorithm iv. It should mentioned quality of data clearly v. It should be capable with provision of conducting auto titration based Isoelectric point (IEP)
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			<p>measurement</p> <p>vi. Moreover, report with customization or modification (like institutional name and logo) should be generated with details for particle size, zeta potential and poly dispersity etc. along with statistical function</p> <p>16. Computer and Data storage system:</p> <p>i. Processor: Intel 4th gen. or better, core i7 or better processor with 3.0 MHz or more and 8 GB RAM,</p> <p>ii. Memory: 1000 GB or more HDD</p> <p>iii. 2 GB Graphic card</p> <p>iv. Minimum 4 USB 2.0 or better Ports and an Inbuilt Removable disc drive: DVD RW Drive</p> <p>v. Interface of PC: at least 21 inch or better LED Monitor with wireless Keyboard and Mouse</p> <p>vi. Operating System: Window 10 Professional (64 bit)</p> <p>vii. UPS (1 KVA, 1 hour backup) back up</p> <p>viii. Desktop laserjet printer with duplex option</p> <p>17. Miscellaneous: - Dust cover, all wires, cords, connector and standard accessories needed for proper functioning of the instruments</p> <p>18. Reference materials and standards must be provided by the vendor for calibration as well as for periodic verification of results.</p> <p>19. The vendor should quote separately for any other accessories that are required for optimum operation of the equipment. E.g. vibration/absorption shocking table</p> <p>20. Training and Demonstration: - Training and demonstration of students / staff/ faculty should be done by the certified company engineer and the specifications quoted should be demonstrated on site at the time of installation.</p> <p>21. Installation, commissioning, training etc. free of cost. One additional training session to be done during the three years of warranty period. This training session is in addition to the first training done after installation. The training must demonstrate all the techniques mentioned in the specification or additional if applicable.</p> <p>22. The manufacturer has to guarantee relocation of the system once the permanent research center building gets ready (1-2 years) for operation which will be conveyed at the time by the institute. The dismantling, packing, insurance, transport, material handling, system</p>
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			<p>support, unpacking, reinstallation and commissioning of the system with test running and its conformity must be for free of cost.(if needed)</p> <p>23. Warranty: Three (3) years</p> <p>24. The complete instrument and accessories excluding consumables should be under warranty for a period of three years from the date of installation</p> <p>25. In case of breakdown during the warranty period, service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts. Supplier should provide all spares required for making the instrument operational.</p> <p>26. Vendor should be easily accessible and available on demand within 24 hours of any problem in the instrument.</p> <p>27. Two compulsory visits per year (in addition to instalment of instrument or training) for maintenance must be included for the initial 3 yearsafter installation.</p> <p>28. Annual Maintenance Contract (AMC): Financial involvement for two years on site AMCafter the expiry of warranty period should be provided.</p> <p>29. A detailed list (contact details, model details) of installations in India should be provided by the vendor. SDAU can approach the listed contact people for any feedback</p> <p>30. The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least five years after the installation of the instrument.</p> <p>31. One set of operating manual, service manual, quality assurance certificates (in English) and copy of CD/DVD of software instalment file should be provided with the instrument. The manual should be presented in both, hard and soft copy</p>
05-A.19	Nanoparticle analyzer and zeta potential measurement system (liquid)	01	<p>1. Should be Rigid and vibrations free system with over all weight of instrument less than 20 Kg. (approx.)</p> <p>2. Should preferably work on principles of Dynamic Light Scattering or Induced grating (IG) method</p> <p>3. Should be capable for application like Particle size and zeta-potential of colloidal suspensions, emulsions & dispersions of various metal based nano-particles and</p>

		<p>their formulations in liquid form.</p> <ol style="list-style-type: none"> 4. Should have minimum particle size range (dia.) preferably of 0.4-0.6 nMor better (with sufficient documentary proof attached in terms of analysis report or published report (in peer reviewed) journal must be attached and (data should be confirmed using known standards during installation) 5. Should have maximum particle size range (dia.) preferably of 5000-6000nMor better (with sufficient documentary proof attached in terms of analysis report or published report (in peer reviewed) journal must be attached and (data should be confirmed using known standards during installation) 6. Should have Laser diode based light source 7. Should capable of work with sample volume <u>of less than 200 μl</u> (preferable) to 1000 μl for economics of sample 8. Should have provision to conduct in situ experiments/dynamic experiments through a flow cell. 9. Should have different types of cuvette (made up of quartz, glass or polystyrene) or sample wellprovided to accommodate sample for aqueous (polar or non polar) or non-aqueous type both. Further, vendor should quote for 200 No. of disposable type and 2 No. of Glass/ Quartz cuvettes and 80 No. of micro cuvettes with sample volume of 50 μl or less. 10. System should work in range of working temperature of 10-80° C or better with precise temperature control mechanism 11. System should capable of measuring zeta potential in range of +/- 200 mV or better 12. Should capable for measuring with conductivity of 180 mS/cm or better 13. Should be sensitive where toluene count should be more than 140kcps or better. 14. Should capable of measuring sample at concentration approx. 30 % (w/v) or more (better) 15. Software for result and analysis should be compatible with Windows OS and following features: <ol style="list-style-type: none"> i. Must allow time dependent study for size and zeta potential with out changing cuvette ii. Must allow exporting of data and in peer review publication level standard with high resolution for figures iii. Should allow re-run analysis using different algorithm iv. It should mentioned quality of data clearly v. It should be capable with provision of conducting auto titration based Isoelectric point (IEP)
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		<p>measurement</p> <p>vi. Moreover, report with customization or modification (like institutional name and logo) should be generated with details for particle size, zeta potential and poly dispersity etc. along with statistical function</p> <p>16. Computer and accessory system:</p> <p>i. Processor: Intel 4th gen. or better, core i7 or better processor with 3.0 MHz or more and 8 GB RAM,</p> <p>ii. Memory: 1000 GB or more HDD</p> <p>iii. 2GB Graphic card</p> <p>iv. Minimum 4USB 2.0 or better ports and an Inbuilt Removable disc drive: DVD RW Drive</p> <p>v. Interface of PC: at least 21 inch or better LED Monitor with wireless Keyboard and Mouse</p> <p>vi. Operating System: Window 10 Professional (64 bit)</p> <p>vii. UPS (1 KVA, 1 hour backup) back up</p> <p>viii. Desktop laserjet printer with duplex option</p> <p>17. Miscellaneous: - Dust cover, all wires, cords, connector and standard accessories needed for proper functioning of the instruments</p> <p>18. Reference materials and standards must be provided by the vendor for calibration as well as for periodic verification of results.</p> <p>19. The vendor should quote separately for any other accessories that are required for optimum operation of the equipment. E.g. vibration/absorption shocking table</p> <p>20. Training and Demonstration: - Training and demonstration of students / staff/ faculty should be done by the certified company engineer and the specifications quoted should be demonstrated on site at the time of installation.</p> <p>21. Installation, commissioning, training etc. free of cost. One additional training session to be done during the three years of warranty period. This training session is in addition to the first training done after installation. The training must demonstrate all the techniques mentioned in the specification or additional if applicable.</p> <p>22. The manufacturer has to guarantee relocation of the system once the permanent research center building gets ready (1-2 years) for operation which will be conveyed at the time by the institute. The dismantling, packing, insurance, transport, material handling, system support, unpacking, reinstallation and commissioning of the system with test running and its conformity must be for free of cost.(if needed)</p>
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			<p>23. Warranty: Three (3) years</p> <p>24. The complete instrument and accessories excluding consumables should be under warranty for a period of three years from the date of installation</p> <p>25. In case of breakdown during the warranty period, service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts. Supplier should provide all spares required for making the instrument operational.</p> <p>26. Vendor should be easily accessible and available on demand within 24 hours of any problem in the instrument.</p> <p>27. Two compulsory visits per year for maintenance (in addition to instalment of instrument or training) must be included for the initial 3 years after installation.</p> <p>28. Annual Maintenance Contract (AMC): Financial involvement for two years on site AMC after the expiry of warranty period should be provided.</p> <p>29. A detailed list (contact details, model details) of installations in India should be provided by the vendor. SDAU can approach the listed contact people for any feedback</p> <p>30. The supplier of the instrument must confirm in writing that the spares for the entire instrument will be available for a period of at least five years after the installation of the instrument.</p> <p>31. One set of operating manual, service manual, quality assurance certificates (in English) and copy of CD/DVD of software instalment file should be provided with the instrument. The manual should be presented in both, hard and soft copy.</p>	
05-A.20	Inductive Couple Plasma – OES with all Accessories		<p>System</p> <ul style="list-style-type: none"> ➤ The ICP spectrometer system should be a bench top model with compact size, able to determine trace and measure elements in diverse kind of samples like soil, sludge, groundwater, waste water samples, plant samples etc. System should be able to determine, major, minor and trace elements in single run measurement. ➤ Spectrometer: fully PC controlled ICP-OES ➤ Complete system should have extensive safety & service diagnostic facility. 	
			<p>Spectrometer</p> <ul style="list-style-type: none"> ➤ The instrument must be equipped with polychromator for the best accuracy and precision. 	

				<ul style="list-style-type: none"> ➤ The instrument must have DUAL VIEW (Radial and Axial) ICP-OES system 	
			Sample Introduction system	<ul style="list-style-type: none"> ➤ ICP system should have Integrated Sample Introduction system with minimum three or more channels peristaltic pump with variable speed from 0.2 ml to 7ml per minute with 0.1 ml/min for maximum flexibility. ➤ Sample Introduction system for Aqueous and HF kit for silica analysis in soil 	
			TDS capability	<ul style="list-style-type: none"> ➤ System should come with required accessories to address high TDS samples >20% TDS 	
			Gas flow control	<ul style="list-style-type: none"> ➤ System should be equipped with MFC/Electronic flow controllers for precise control of variable gas flow rate for all the below gases: <ul style="list-style-type: none"> • Plasma gas Flow: 8-20 L/min in 1 L/min increment. • Nebulizer gas Flow: 0-2 L/min in 0.1 L/min increment. • Auxillary gas Flow: 0-2 L/min in 0.1 L/min increment 	
			Detector and wavelength range	<ul style="list-style-type: none"> ➤ The spectrophotometer must cover full spectral range from 165-770 nm or wider. ➤ The actual resolution (not the pixel resolution) of the system must be ≤ 0.009 nm at 200 nm. ➤ The system should have capability to measure more than 10,000 emission wavelengths. ➤ Instrument should be equipped with Charge Coupled Device (CCD) Detector. Additional detector to be offered 	
			Plasma View	<ul style="list-style-type: none"> ➤ Any wavelength needed can be used in radial, axial, mixed viewing modes or synchronous dual view in a single run. ➤ The system should include complete dual viewing 	

				optics under computer and software control.
			RF generator	<ul style="list-style-type: none"> ➤ Free running solid state RF generator must run at frequency of 27.12 MHz or 40 MHz with suitable power wattage adjustable from 1500W or higher watts for both the views (radial and axial), in 1 watt increment ➤ The power efficiency of RF generator should be greater than 75% with < 0.1% variation in output power stability
			Back Ground correction and Spectral interference	<ul style="list-style-type: none"> ➤ System should have the facility of online/Simultaneous background correction. ➤ The system must be able to read and apply manual or automatic spectral interferences correction in addition to background correction.
			Startup and Gas consumption	<ul style="list-style-type: none"> ➤ System should have < 12 L/min total Argon gas consumption. (Please mention complete Argon consumption in L/min including Plasma, Auxiliary, Nebulizer, purging gas flows) ➤ Argon and/or any other gas required should be clearly mentioned and cylinders should be provided. ➤ System should have the maintenance free provision to remove the tail plume of plasma. If consumables /Spares required that should be quoted for 5000 samples (should include torch, tubings, o-rings and filter mat)
			Hydride Generator	<ul style="list-style-type: none"> ➤ Hydride generator kit should be included for hydride forming elements like As, Hg, Se, etc. in main item. Device such as T or Y kit is not preferred
			Auto Sampler	<ul style="list-style-type: none"> ➤ System should be equipped with auto sampler with minimum 100 or more sample positions.
			Accessories	<ul style="list-style-type: none"> ➤ Compatible computer with laser printer, CPU is 8 GB

				<p>RAM, 64 BIT, 1 TB HDD, 24" LED display. Printer laser B/W, Print/copy/ scan</p> <ul style="list-style-type: none"> ➤ Vendor should supply suitable Chiller re-circulator of appropriate capacity along with the system with warranty ➤ Suitable Fume Exhaust System should be quoted & installed ➤ UPS of 15 KVA with 30 min. working at 230v AC \pm 20% at 50 HZ included ➤ Other accessories like Air Compressor, Argon cylinders (qty 4), Nitrogen cylinders (qty 4), gas manifold for two cylinder capacity having suitable dual stage regulator with stainless steel diaphragm and purification panels should also be included for both argon and nitrogen gases. Optionally vendor should quote for nitrogen gas generator ➤ NIST Traceable Multi Element Standards at 1000 ppm in 100 ml for 21 elements which should also include heavy metals 	
			Others	<ul style="list-style-type: none"> ➤ Pre-installation requirements- Complete technical details of pre-installation requirement should be furnished along with the technical bid. Our institute will only provide the installation room, required electrical outlet and water connections. All other accessories for installation and smooth operation of the equipment should be supplied. ➤ Suitable tool kit, spares and consumables kit should be supplied ➤ Three years warranty followed by three year so Comprehensive Maintenance Contract to be provided by the vendor 	

			<p>Optional Accessories</p> <table border="1"> <tr> <td>Nitrogen Gas Generator</td> <td>➤ For Gas purging optics, please quote for high purity nitrogen gas (>99.996% purity) generator with a flow rate of 10 l/min</td> </tr> </table>	Nitrogen Gas Generator	➤ For Gas purging optics, please quote for high purity nitrogen gas (>99.996% purity) generator with a flow rate of 10 l/min	
Nitrogen Gas Generator	➤ For Gas purging optics, please quote for high purity nitrogen gas (>99.996% purity) generator with a flow rate of 10 l/min					
05-A.21	Gas Chromatography Mass Spectrometry quadrapole with accessories (GC MS/MS Quadraple)	01	<p><u>Technical Specifications for GC-MS/MS system with accessories</u></p> <p>Bench-top quadrupole transmission based Gas Chromatograph-Mass Spectrometer equipment system for high end sensitively qualitative and quantitative determination complete functional system with user friendly software base operation and analysis to meet the analysis requirements of global food regulations like EU/USFDA/Japan/FSSAI, etc.</p> <p>GC should be inbuilt with LED and configured with oven, gas regulations, SP/SPL & PTV injectors, large gas volume injection device, multi injector selection, FID detector, detector splitter and transfer line for GCMS/MS and multi-injectors' auto samples etc complete system. The system should be capable of calculating the carrier gas linear velocity and the column void time. Automatic leak testing and unattended and automated system leak simultaneous check with safe guard. Gas Chromatograph to provide all needed data including temperature, pressure/ flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flows, detector flow rates and all detector parameter with programmable electronic control for complete system. System should have data-station with computer with monitor, color printer, operating software, data base library etc as per specifications with all accessories,</p> <p>1-Triple Quadruple mass spectrometer/ analyzer System</p> <p>Analyzer : Triple Quadrupole Mass Filter</p> <p>Standard Ionization mode: Electron Ionization (EI) and Chemical Ionization (both NCI and PCI) or Dual ionization source</p> <p>Mass Range : 2 to 1000 amu or better</p> <p>Mass resolution: less than(\leq) 0.5 FWHM/ unit mass resolution over a entire range of mass or better</p> <p>Mass scanning speed : more than (\geq) 20000 amu/ sec or better</p>			

			<p>Detection limit (IDL): It should be less than 0.5 fg of OFN or better, statistically derive at 99% confidence level from the area precision of eight or more sequential injection of 1µL.</p> <p>IDL as mentioned should be demonstrated during installation and demonstration</p>	
			Dwell time of scan: minimum SRM/MRM dwell time should be less than (\geq) 0.5 ms or better	
			It should have Scan speed (Mass acquisition rate) > 750 transition/sec (SRM /MRM) or better in entire range of mass.	
			Linearity of Response; it must be more than 6 orders (10^6) of magnitude or better from IDL limit	
			Sensitivity should be as per below or better specifications:	
			EI MRM: S/N ratio >15,000:1 or better for 1 µL of 100fg/µL OFN for the transition of m/z 272 →222) The performance as quoted must be demonstrated during installation. (Documentary and demonstration Proof to be provided for the above as company brochure.)	
			EI Full scan mode S/N Ratio > 1500:1 or better on injection 1pg/µl of OFN (m/z 272)	
			PCI MRM mode S/N Ratio > 2500:1 or better on injection of 1pg/µl BZP	
			PCI Full scan mode S/N Ratio > 100:1 or better on injection of 1pg/µl BZP	
			NCI MRM/SIM mode S/N Ratio > 4000:1 or better on injection of 100fg/µl of OFN	
			NCI Full scan mode S/N Ratio > 5000:1 or better on injection 1pg/µl of OFN	
			Mass stability: +/- 0.1 m/z mass accuracy over 48 hrs or better.	
			Mass transfer line temp.: Variable adjustable upto 350°C temperature, increments of 1°C or better	
			Ionization modes;	
			Ionization: Electron Ionization(EI) and Chemical Ionization (PCI & NCI Mode both)	
			Ion Source Temp: 50°C – 350°C or better	

			<p>Ion source assembly: Dual filament assembly must be compatible EI and CI both ion sources advanced EI ionization or better OR it having simultaneously both ion sources mounting will be preferable</p>	
			<p>ion source energy : Variable adjustable from 10 to 150 eV, increments of 1.0 eV or better</p>	
			<p>ion source guide: System should be capable of reducing excited neutral background signal counts or equivalent or better technique</p>	
			<p>ion source mounting : it must ion sources and cartridge can be remove/ replace quickly and easily. preferable to have without venting/ vacuum break system / facility</p>	
			<p>Collision cell optics: must use high-speed optics for maximum ion transmission.</p>	
			<p>Collision energy: must be adjustable in the range of 0 – 60 eV or better, in user-programmable increments of minimum 1 eV or better.</p>	
			<p>Collision cell dwell time: variable and less than(\leq) 1.0 ms to seconds for acquisitions of SRM/MRM</p>	
			<p>Collision cell Gas: Argon Or Nitrogen is better</p>	
			<p>Vacuum System: Air-cooled high vacuum pump more than sufficient to required vacuum with control. it should be as quick as possible to attend vacuum at run level</p>	
			<p>It should be safety interlocks integrated into the GCMSMS system for interchange ion source without vacuum beak</p>	
			<p>Vacuum leak check : System must have the ability to perform automated leak check using a air as reference</p>	
			<p>Vacuum rough pump : The vacuum system supported with rotary-vane oil fore-pump as stander accessories of the system</p>	
			<p>Detector type: Electron Multiplier or Sealed PMT Or Discrete dynode electrodes or better utilize digital electronic noise discrimination with Software based ability to acquire data in centroid, profile or nominal modes.</p>	
			<p>Instrument Control by software base operation and data acquisition</p>	
			<p>It should have all sort of Scan modes detection</p>	

			<p>a. MS Mode: full scan (FS), SIM and FS/SIM simultaneous within a single sample injection,</p>	
			<p>b. MS/MS Mode: full scan FS,SRM ,MRM and FS/SRM /MRM simultaneous within a single sample injection</p>	
			<p>c. Product ion scan, Precursor ion scan, Constant neutral loss scan</p>	
			<p>d. Ability to alternate between Full Scan MS and SRM/MRM/SIM target analysis on successive scans.</p>	
			<p>e. It should be automated data acquisition window adjustment, method setup, controlling and acquiring all the MS and Conventional detectors</p>	
			<p>f. Automated SRM/MRM method development tool, includes automated retention time adjustment alignment tool that utilizes a single injection and single component for retention time calibration and functions in both constant flow and constant pressure modes or finally in constant linear velocity mode for quick method development</p>	
			<p>g. It should have software base report generation for environmental and food safety market as per international protocols.</p>	
			<p>2-Gas Chromatograph :</p>	
			<ul style="list-style-type: none"> • GC Configuration for Oven, gas regulation and other hardware performance. GC must be feature an external LED screen to provide easy accessibility to GC and an immediate interaction with it. A routine automatic leak checks procedure. The system should be capable of calculating the carrier gas linear velocity and the column void time etc. 	
			<ul style="list-style-type: none"> • Typical retention time repeatability : <0.0008 min, using with multiple solvents peak area repeatability : <0.5 % RSD 	
			<ul style="list-style-type: none"> • Operating temperature range: ambient +5 °C to 450 °C with user selection 	
			<ul style="list-style-type: none"> • Temperature set point resolution: 0.1 °C 	
			<ul style="list-style-type: none"> • Temp. Ramping: it should have number of ramp more than 10/11 or more better 	
			<ul style="list-style-type: none"> • Maximum heating rate: minimum 30 to 120 °C/min at high to lowest temperature ranges 	

			<ul style="list-style-type: none"> • Oven cool-down (24 °C ambient): it should have 450 °C to 50 °C in < 5 minutes or better 	
			<ul style="list-style-type: none"> • Oven Size ; Capable to accommodate 2 or more Capillary Columns simultaneously 	
			<ul style="list-style-type: none"> • It must support to numbers of injectors and detectors installation ports/devices 	
			<ul style="list-style-type: none"> • Injectors ports ; SLP/SL and PTV and head space inlet / large volume (200µl) gas injection 	
			<ul style="list-style-type: none"> • Two detectors out let port: One for inbuilt detector like FID or any one and second facilities for interconnection with Transfer line with MS detector and compatible to temperature control. 	
			<ul style="list-style-type: none"> • Pneumatics: Programmable Electronic /Flow/ Pressure control for injectors with single point control through software. 	
			<ul style="list-style-type: none"> • Automatic leak testing and unattended and automated simultaneous leak check system. 	
			<ul style="list-style-type: none"> • A dedicated automated evaluating and storing the column pneumatic resistance. 	
			<ul style="list-style-type: none"> • Constant and programmed pressures and flows with gas saver and septum purge with gas saver facilities 	
			<ul style="list-style-type: none"> • Total flow setting: – Control of split flow in 0.1 mL/min increments; split flow OFF or from 5 to 1000 mL/min– Purge flow: OFF or from 0.5 to 50 mL/min in 0.1 mL/min increments 	
			<p>2.1 Injectors (2 nos)</p>	
			<p>Injectors ports one PSP/SLP and second PTV both should have with helium gas saver module/ device with software control and programmable</p>	
			<p>2.1.1-Split/Splitless Injector – 01 No.</p>	
			<ul style="list-style-type: none"> • The Split/Splitless injector should be user-installable, without any special tool with a facility to all capillary columns. 	
			<ul style="list-style-type: none"> • It should have maximum temperature: upto 400 degree C or better 	
			<ul style="list-style-type: none"> • It should be gas regulation through Electronic/ advanced- Flow/ Pressure Control (EFC/ EPC) with software controlled 	

			<ul style="list-style-type: none"> • The injector should support small volume minimum 0.5 µl to upto 10 µl as well as large volume splitless injection (50 to 200 µl) / whole sample and without any further hardware requirement 	
			<ul style="list-style-type: none"> • It should be separate/ integrated / back flush capabilities 	
			<ul style="list-style-type: none"> • It should have split ratio \geq 1:7000 or better 	
			<ul style="list-style-type: none"> • It should be compatible with 1/8" and 1/16" packed column with / without using adapters 	
			<ul style="list-style-type: none"> • It should be supports to P&T/TD/HS/LV by special adapter. 	
			2.1.2 Programmable Temperature Injector (PTV) Injector-01 No.	
			<ul style="list-style-type: none"> • It should have facility to inject small volume 0.1 to 5 µl auto sampler as well as possibly with large volume up to 200 ul or better in single stroke 	
			<ul style="list-style-type: none"> • It should have temperature ranged with air cooling: Ambient +5 °C up to 450 °C or better 	
			<ul style="list-style-type: none"> • Temperature programming minimum 3 ramps or more and ramping rate > 250 °C/min or better 	
			<ul style="list-style-type: none"> • PTV injector with integrated / separate, concurrent back flush capabilities. 	
			<ul style="list-style-type: none"> • It should be supports to hot/cold split and splitless injection of small volume 0.1 to 5 µl modes as well as large volume injection up to 200µl (solvent split). 	
			It should have split ratio more than 7000:1 and On Column injection facility through software	
			It should be supports to P&T/TD/HS/LV by special adapter.	
			3- Auto Sampler: liquid as well as gas samples injection	
			<ul style="list-style-type: none"> • Auto sampler should be able to perform injection for injector ports SL-SPL and PTV (liquid sample of low and high volume), On Column injection as well as gas volume samples (Head space) unattended operation and selected as per instrument method. 	
			It should be exchangeable for all type of injection feature and should be software controlled and programmable. Or	
			Dual tower system / two injector for each injection ports individual without manual change over selection Or	
			It should have syringe x-y-z / linear/ axial/ circular motion for selection of	

			<p>injector ports (any of one, SL-SPL/ PTV / On Column//Head space) injection mode set/ programmed in the instrument method.</p> <p>OR It either should be Multimode/ multifunctional/ all-in-one such type of auto sampler for injection ability with software base operation, port selection and all parameters can be setting ability in GCMSMS method itself.</p> <ul style="list-style-type: none"> • It should able to inject from 0.1ul to 10ul as standard as well as minimum up to 200 µl or better with variable speed & varying syringe sizes, auto rinsing/ washing & must be operate and control fully by software as well as manual. <p>It should have a reproducibility of <0.5% RSD.</p> <ul style="list-style-type: none"> • It should have capacity minimum for 80 nos or more samples vials occupancy capacity. • It should have internal standard addition facilities/ auto dilution capacity with high accuracy • Auto sampler should have close chamber for 1.5-2ml vial stay / incubation and temperature control incubation programmable temperature range from 4 - 40°C to avoid of evaporation of solvent from vials <p>If Head space (gas sample) or its equivalent system for sample injection either with high volume syringe or with heated transfer line facility with upto 200oC temperature control for more than 5 vials incubation heating with temperature controlled upto 150°C or better tray with all accessory hardware and software controlled. It should have more than normal 50 vial in carousal/tray/ occupancy</p> <p>4- Detector</p> <p>GC system should be configuration for MSMS as well as additional one detector, that must be software controlled interchangeable for data acquisition and analysis,</p> <p>Automatic detector changeover/ switching device/ splitter system or facility: It should have multiple GC detectors automatic selection system / device for either one or simultaneously two detectors selection for data acquisition form MS MS or/and FID. If detector splitter, it should have spite ratio; 1:99% or 100% flow to either detectors with software base controlled.</p> <p>FID Detector (Flame Ionization Detector) - 01</p> <p>Flameout detection and automatic re-ignition, with alarm, safe guards.</p>	
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			<p>Minimum detection limit: less than (\leq): 1.5 pg C/s or better Sensitivity: >0.03 Coulombs/g C Linear Dynamic Range: >10⁷ (\pm10%) or Better over a entire range of conc. and molecular mass Maximum Temperature: up to 450 °C . Data Acquisition Rate: up to 250 Hz or better</p>	
			<p>5- System control & application Software and Ethernet Ports, cards etc.</p> <ul style="list-style-type: none"> • Licensed application as well as instrument controlling software and compatible to Microsoft latest window bases loaded in latest configured personal computer to control GC, Auto sampler Mass analyzer and other accessories. It should be allows to fully automated quantitative and qualitative analysis with standard custom need base reports generation. All application and operative software copy should be provided in DVD and PEN drive with licensed keys for installation in future. • System should provide with any hardware need for connection, installation and loading of software, connection and communication to other set up of system • Latest and upgradable data based latest NIST/WILEY or/and better library Mass spectrua for data analysis, qualitative, quantitative comparatives and peak identification. It should have all mass spectra and MRM library of more than 500 compounds including pesticides, phytochemicals, veterinary drugs, toxins etc. It should be online upgradable free of cost for upto 7 years or more 	
			<p>6- Computers system for software installation and instrument operation, data storage and analysis</p> <ul style="list-style-type: none"> • Computer with specifications should be compatible and capable to operation functional working of the complete system with licensed software for 24x7 hrs without interruption and Data station should be compatible to process minimum 300 compound in a single run 	

		<p>Computer with Intel Core i7 Processor Intel original M/B, or better, 32Gb DDR3 RAM, or better, 1+1=2 Tb HDD or better configuration with, DVD RW (CD RW capable), graphic card Ethernet ports, internet and USB, HDMI, VGA and Audio in etc ports . Laser 6-button mouse, keyboard and color printer for printing hardcopy of chromatogram. Computer should be along with latest licensed window OS and other necessary softwares. LED monitor screen minimum 27” or better, 3840x2160 UHQ(4K) resolutions with in-built speakers 8W+8W.Working on AC 100-250Vac,50/60Hz</p> <p>One external 42” LED monitor/display, resolution 3840 x 2160 or better, equipped with 4k upscaler, Built -in Wi Fi, 8W +8W or more speaker, miracast in English facilities, LAN port-1, HDMI -2+1, USB-1+1, RF In 1 , one head phone out , power ; can work on 100-240Vac, 50-60 Hz, equipped with Web OS and all apps required for presentation of chromatographs</p> <p>7-Pre requisite for GC MS/ Ms System with accessories for installation and commencing of the complete system:</p> <ul style="list-style-type: none"> • Vendor should be quote and supply installation kits/any other materials/ items requirement as a cost of tender price for instrument fully working status. • Any specific requirements other than above should be mention in tender offer either as standard accessories or separately with specifications. <p>Gases supply: Vendor should be provide and installed gas supply items for the working of the system, all accessories such as suitable filled gas cylinders (2 Nos. of each, with high 99.9999% pure gas) for all gases required with test certificates, SS double stage regulators, cylinder opening key, cylinder cage or Bracket etc, gas pipes with fittings and gas purifiers with control panels, Gas filter to remove the impurities (hydrocarbons, moisture and oxygen), Oxytraps, helium gas filter tower types etc.</p> <p>Any module, device etc for safe and precursory installation. The gas lining panel work installation should be done by the supplier for the connection gases to instrument.</p>	
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			Power supply: Online UPS (ISI mark standards make), 15.0 KVA output capacity, minimum 3 hr uninterrupted back up at full power output with sufficient SMF batteries (Preferably Exide/Luminous/Amaron make), castor mounted rack for batteries. UPS must be capable to supply power quantity and quality to run entire instrument system with all accessories without attendant.	
			8- Essential spares kits to run instruments	
			Vendor should be quote, provide and must be supply any spare parts, routing replacement items with code for future required for service / maintenance/ repaired to keep system in full functional condition of system for 3 years after warranty as following(8.1) as purely extra except-8.2. These all items should not be included as a part of standard items quoted in offer for full functional system.	
			8.1 Name with Specifications of Spared used after warranty /guarantee period	Quantity
			EI ion source dual Filaments for replacement	5 nos
			Ion source volume for EI source for replacement	5 nos
			Filament cartridge for mounting	5nos
			Detector Multiplier/ or its equivalents	1 nos
			CI ion source Filament for replacement	3 nos
			Ion source volume for CI source for replacement	3 nos
			Lenses 1 and 2 or it's equivalents	2 pair
			Repellars or it's equivalents	2 set
			MS transfer line nut pack	2 nos
			O rings :	10 nos
			Capillary adaptor :	2 nors
			Replacement Items such chimney, probe, heat cell etc for FID detector	2 set(each)
			Glass Liners for Split /Splitless injector	10 no
			Glass Liners for PTV injector :	10 no
			Helium gas filter (tower top)-	4 nos
			Oxytrap (tower type)	4 nos

			Replacement items for auto sampler, for 3 years after warranty	SQ
			Any spare will be needed for repair, service and replacement for 3 after warranty	SQ
			8.2-Consumable for spares kits to run and maintenance instruments	
			Low bleed Septa maximum set point 350 oC	300 nos
			Auto sampler Syringe 10 uL or auto sampler compatible	10 nos
			Auto sampler Syringe for gas volume injection/transfer line for head e compatible	5 nos
			Suitable vials for head space/ auto sampler for gas injection	500 nos
			Vespel/ graphite Ferrule for capillary columns of 0.25, size	50 nos
			Vespel/ graphite Ferrule for capillary columns of 0.32 mm, size	30 nos
			Vespel/ graphite Ferrule for capillary columns of 0.53 mm ID for size	20 nos
			Quartz / Glass wool high quality :	5-10 gm
			Pump Oil :	5 litre
			Standard tuning/ calibration solution GCMS /MS (vials/bottle	2 nos
			Aluminum oxide or its equivalents for cleaning of GCMS components	2 nos
			Dehumidifier (room size 250 sq ft /2500 ft3)	1 no.
			Capillary columns-phase-5ms– (30 mtr. X 0.25 mm ID x 0.25um) semi polar for pesticide residues analysis	10Nos.
			Capillary columns-phase-5ms– (30 mtr. X 0.32 mm ID x 3.0um) semi polar (for head space with suitable ferrules)	2 nos.
			Capillary columns-phase-1701ms– (30 mtr. X 0.25 mm ID x 0.25um) semi polar for pesticide residues analysis	2 nos
			Capillary columns-phase-1ms– (60mtr. X 0.25 mm ID x 0.25um)	1 nos
			Capillary columns-FAME (60mtr. X 0.25 mm ID x 0.25um) or Eqv non-polar for fatty acids isomers	1 nos
			Standard Test and validation Mix for all above mentioned detectors and MS sensitivity.	Q S

			Mixture of more than 100 pesticides standards of minimum 1 ppm each with expiry more than 2 years	1set
			Any other suggested item : as per required for fully function and servicing	SQ
			9-Other term and conditions	
			<ul style="list-style-type: none"> • Point wise compliance sheet with vendor's specifications values must be provided in enclosed with tender, otherwise offer will be technically rejected. 	
			<ul style="list-style-type: none"> • Warranty should be comprehensive Complete system including the third party items should have as per general term and condition (Three years) warranty/ guarantee (mean servicing maintenance, labors, spare-parts, and replacements etc). (Conditional warranty will not be acceptable) from the date of installation. Spares required during warranty years trouble free operation should be included in the offer and supplied as and when required for the functional system. Warranty including minimum one visit of application engineer per year. • Written service maintenance schedule with replacement/ spare part items to be submitted along with offer. 	
			Vender should be supply any spares parts, routing replacements item required for tuning/ calibration/ service/ maintenance/ repaired to keep system in functional working conditions without trouble free operation during warranty /guarantee period (It should be listed along with offer except consumables)	
			<ul style="list-style-type: none"> • Servicing: All preventive maintenance as well as break down service should be provided free of cost under guarantee/ warranty period and application support at least once in year. 	
			<ul style="list-style-type: none"> • AMC: Specify separately quote the AMC charges for 1st and 2nd years (2 years) after guarantee / warranty period including calibration of the system and including minimum one visit of application engineer per year. 	
			<ul style="list-style-type: none"> • Vender should install free of cost at our site with analysis of few samples and developed a method with complete report to be printout. 	
			Training: The supplier has to impart ON- site operation and application training immediately after the installation and also OFF-SITE application training to minimum two scientists with vender cost.	

			Price quoted should be inclusive of all the Equipment/Item/Material with all accessories, packing & forwarding charges (if any), Excise Duty, Custom Duty (if any but as government aided institute has exempted on certificate provided after purchase order), Freight upto S D Agricultural University, Transit Insurance, Total delivery cost at S D Agricultural University, Installation & Commissioning cost (if any), including warranty duration and cost (if any) and training to the staff of the Institute OR as specified in tender terms and conditions.
05-A.22	Turnkey project on hardening unit for controlled environment at Bio Research Centre SDAU	01	<p>1 TEMPERATURE CONTROL SYSTEM WITH ALL ACCESSORIES</p> <p>1.1 FAN & PAD COOLING SYSTEM: 100mm thick & G 'house Evaporative CELDEC cooling pad with All necessary framing material of Aluminum required top bottom and side frame distribution & returning piping., Slow Speed Axial Flow Fan: single speed belt driven exhaust fan (01 Complete Set.), each For 8.1,8.2,8.3,8.4,8.5 and 8.6</p> <p>1.2 FERTIGATION SYSTEM: Ferti - Bridge Control System for EC, pH: Supply & Installation of Ferti-Bridge Control System for maintaining EC and pH of nutrient solution. 01 complete set for hydroponic growing channels. Each For 8.1,8.2,8.3,8.4,8.5 and 8.6</p> <p>1.3 WATER CHILLER: for Cold Water Supply. (01 Complete Set), Each for 8.1,8.2,8.3,8.4,8.5 and 8.6</p> <p>1.4 INTERNAL SCREEN: Internal Thermal Screen, Operation with motorized system. Internal Thermal Screen with 60% transparency. (01 complete set), each For 8.1,8.2,8.3,8.4,8.5 and 8.6</p> <p>1.5 AIR CONDITIONED BASED COOLING SYSTEM: Air conditioner units will be provided, which are responsible to maintain temperature range minimum 26⁰C to 33⁰C ±1⁰C throughout the year (during day or night) in all chambers. (Appropriate units as per required). For 8.7.</p> <p>1.6 ELECTRIFICATION WORK: All wires will be of copper and desired load (Make-Havells/Finolex/Equivalent). Complete set with A grade work. (01 Complete Set.), each For 8.1,8.2,8.3,8.4,8.5 8.6 and 8.7</p> <p>1.7 SHADING SYSTEM: External shading system: 75% Monofilament green color shade net with manual rolling arrangement connecting pipe etc. can be rolled when not required. each For 8.1,8.2,8.3,8.4,8.5 and 8.6</p> <p>1.8 COOLING SYSTEM: 100mm thick evaporative CELDEC cooling pad complete with: Water storage Tank (1 Complete Set), with Slow Speed Axial Flow Fan: 36" single speed belt driven exhaust fan. (1 Complete Set). each For 8.1,8.2,8.3,8.4,8.5 and 8.6 as when required</p>

			<p>1.9 VERTICAL AUTOCLAVES (TWO No's.) Chamber Dimensions(408mmWx408mmHx730mmD) Chamber Volume (120Liter)</p> <ol style="list-style-type: none"> 1. The autoclave doors are designed with a number of independent mechanical and digital safety features. 2. A safety device prevents the operator from opening the door when chamber is pressurized 3. Steam is not allowed into the chamber when the door is open 4. A cycle cannot start if the door is open or not properly locked 5. The door cannot unlock until chamber pressure reaches room pressure 6. Sliding Door Safety - The sliding door progress will automatically stop if an obstruction is detected 7. Double Door Safety – interlocks prevent both doors from being 8. Autoclave chambers are constructed of long lasting 316-L grade stainless steel with superior corrosion resistance. The chambers are fully jacketed for uniform heat distribution. The generator and piping are constructed of stainless steel. The pneumatic valves are air pressure operated, significantly reducing maintenance. We work to keep our autoclaves state of the art. 9. Fully automatic vertical Manual Hinged door 10. sterilizing agent with a temperature range of 105 °C (221°F) to 138 °C (280 °F) and a working pressure that meets AMSE and PED requirements. 11. Double Independent Monitoring: The combined digital and mechanical monitoring provides a cross reference and guarantees accurate results. The operator has two independent means to monitor temperature and pressure. 12. Safety Valves: Both the chamber and the jacket are equipped with safety valves – if the pressure exceeds the allowed limit the safety valves will discharge 13. Built-in Steam Generator Safety: A water level monitoring system maintains a constant water level and ensures safe operation of the heaters <p>Emergency shut-off: Easily accessible emergency switches for immediate cycle shut-off</p> <p>1.10 BENCH TOP STERILIZERS (Autoclave) (TWO No's)</p> <ol style="list-style-type: none"> 1. Chamber :- 310mm Diameter x 500mm depth Capacity 40 Liter External 600 x 450 x 695 MM 2. Fully Automatic , Liquid sterilization with various cooling options 3. The chamber is constructed of long lasting 316Ti grade stainless steel with superior corrosion resistance 4. The generator is made from stainless steel 5. The autoclave automatically switches to standby mode if no buttons or switches are
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			<p>operated for four hours The autoclave is designed for easy servicing allowing maintenance access to all components</p> <p>6. Drain Protection: The exhaust drain is mixed with cold tap water that cools the exhaust's temperature before reaching the drain</p> <p>7. High precision control system for perfect sterilization results</p> <p>8. Password protection allows for secure access control Independent temperature and pressure monitoring Cycle information recovery in the case of power failure or cycle interruption</p> <p>9. Fail Alert – Indicates cycle failure or interruption Door Alert – Indicates the door is unlocked RS 232 PC Connection Port for direct software updates and remote maintenance</p> <p>10. The laboratory line can be supplied with a built-in printer to document the performed cycle, in addition to a comprehensive LCD display. This feature is optional. Autoclave must comply with the strictest international directives and standards. Pressure Equipment: PED 97/23 EEC, EN 10028-7, ASME Code Sec VIII , Safety: IEC/UL/EN61010-1, IEC 61010-2-040, EN 61326, Sterilization: DIN 58951 Series, ISO 17665-1:2006, Quality System: ISO 9001:2000, ISO 13485:2003</p> <p>2 HUMIDITY CONTROL SYSTEM WITH ALL ACCESSORIES</p> <p>2.1 FOGGING SYSTEM: Fogging System, pump with screen filter, fogging nozzles, pipes, polymer water tank (1 Complete Set), Each for 8.3, 8.4, 8.5, 8.6 and 9.1</p> <p>2.2 DRIP IRRIGATION SYSTEM: The system is provided with Timer controlled pressurized drip irrigation system with 2" Filter 120 mesh red, Valve/2", Fertilizer pump, Air valve/1.5", Pressure relief valve 2", Pressure gauge, Head unit assembly. Drip supply manifold with Valve/2" Aquanet Valve 2", Lateral 16mm, Drip Net PC 16mm x 30cm x 1lph, RPVC 40mm 6Kg/cm², RPVC 63mm 4Kg/cm², 5HP pump, PVC fitting, Water tanks of 1000ltr. etc. (1 Complete Set). Each for 8.3, 8.4, 8.5, 8.6 and 9.1</p> <p>2.3 MICRO FOGGING SYSTEM (MISTING): with micro filter return gutter control valve assembly pressure gauge. Humidification through micro misting system, Polymer water storage tank- 500 ltr. Capacity with 1hp mono block pump set.</p> <p>2.4 PILTZ TIMER: for humidity For 8.1 to 8.7 and 9.1</p> <p>2.5 FERTIGATION SYSTEM: Ferti - Bridge Control System for EC, pH: Supply & Installation of Ferti-Bridge Control System for maintaining EC and pH of nutrient solution. 01 complete set for hydroponic growing channels. For 8.1to 8.7</p> <p>2.6 HUMIDITY CONTROLLER: Technical Range 32% to 90% ±5%, Technology*. Powered Output can directly control up to 4.4 KW humidifier and 1.5ton de-humidifier. Input: 220VAC (110VAC available on demand), phase-single. Ambient: 10° to 52°C. for the all type of Pre</p>
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			<p>hardening and hardening chambers</p> <p>2.7 LAMINAR AIR FLOW FOR PARTICULATE/ MICROBE FREE AIR:</p> <p>A. Horizontal Laminar Air Flow (Total 7 unit)</p> <p>Size: 6 Unit – 6'×2'×2' (L×W×H) and 1 Unit – 4'×2'×2' (L×W×H)</p> <p>Cabinet creates a particle-free working environment by taking air through a filtration system and exhausting it across a work surface in a laminar or unidirectional air stream. Commonly, the filtration system comprises of a pre-filter and a HEPA filter (0.3 Micron). Because the air within the cabinet does not contain any airborne particles, it is also sterile. The laminar flow cabinet is usually enclosed on the sides and (in working condition) kept under constant positive pressure in order to prevent the infiltration of contaminated room air.</p> <p>Specifications: Executive. Laminar Air Flow Executive Function: It gives you clean air.</p> <p>Body: Mild Steel, duly painted. Air Flow from: Horizontal (air flow from front). Light: Sufficient light by white LED on working platform. 460 LUX > Working top material: Rust free Stainless steel (SS 316 grade) top, anti-glare.</p> <p>Disinfection: 98-99%, through U.V. tube 254nm. Noise: Level below 72dbA. Working Area: 1800mm × 550mm × 670mm, (6'×2'×2') (Width x Height x Depth) 1200mm × 550mm × 670mm, (4'×2'×2') (Width x Height x Depth).</p> <p>Operating Voltage: 220 V ± 9% A/C. Power Cord: 3 meter long power cord with 5 Amp plug.</p> <p>Switch on front panel: One On/Off switch for mains, one switch for tube light, one switch for UV tube. Front Door: Material Polycarbonate, folding type first fold at ¾, ½ inches, hinge stainless steel, next and final fold from ceiling to hold this sheet, two magnetic catchers are provided to hold the front door.</p> <p>Standard Features: Longer lasting, wooden free construction. Large work space, clear view. Product Protection with clean air HEPA filtration and true laminar air flow. Zero Leak Airflow System. Front Filter Removal, Without Removing Large HEPA Filters: 99.99% Efficient On 0.3 Microns View Screen. Totally Polypropylene Enclosed Low-Heat Fluorescent Ballast. Maximum Opening to Fully Closing. Lexan (polycarbonate) View Screen:</p> <p>B. Vertical Laminar Air Flow (Total 2 unit)</p> <p>Size: one unit 4'×2'×2' (L×W×H) and one unit 2'×2'×2' (L×W×H)</p> <p>Cabinet creates a particle-free working environment by taking air through a filtration system and exhausting it across a work surface in a laminar or unidirectional air stream. Commonly, the filtration system comprises of a pre-filter and a HEPA filter (0.3 Micron for 4'×2'×2' (L×W×H) and 0.22 Micron for 2'×2'×2' (L×W×H)). Because the air within the cabinet does not contain any airborne particles, it is also sterile. The laminar flow cabinet is usually</p>
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			<p>enclosed on the sides and (in working condition) kept under constant positive pressure in order to prevent the infiltration of contaminated room air.</p> <p>Specifications: Laminar Air Flow Executive Function: It gives clean air.Body: Mild Steel, duly painted. Air Flow from: Horizontal (air flow from front).Light: Sufficient light by white LED on working platform. 460 LUX >Working top material: Rust free Stainless steel (SS 316 grade) top, anti-glare.Disinfection: 98-99%, through U.V. tube 254nm.Noise: Level below 72dbA.Working Area: 1200mm × 550mm × 670mm, (4'×2'×2') (Width x Height x Depth) 600mm × 550mm × 670mm, (2'×2'×2') (Width x Height x Depth)..Operating Voltage: 220 V ± 9% A/C.Power Cord: 3 meter long power cord with 5 Amp plug. Switch on front panel: One On/Off switch for mains, one switch for tube light, one switch for UV tube.Front Door: Material Polycarbonate, folding type first fold at ¾, ½ inches, hinge stainless steel, next and final fold from ceiling to hold this sheet, two magnetic catchers are provided to hold the front door.</p> <p>Standard Features: Longer lasting, wooden free construction. Large work space, clear view. Product Protection with clean air HEPA filtration and true laminar air flow. Zero Leak Airflow System. Front Filter Removal, Without Removing Large HEPA Filters: 99.99% Efficient On 0.3 Microns View Screen. Totally Polypropylene Enclosed Low-Heat Fluorescent Ballast. Maximum Opening to Fully Closing. Lexan (polycarbonate) View Screen:</p> <p>2.8 Air shower Unit Working size 900x900x1830 (Two nos)</p> <p>Material of Construction : Main Structure do with MS Powder Coated construction/ SS-304 Inside Working Area : MS Powder Coated construction / SS-304. Bottom do with Aluminum Checker Plate (4" above from floor). Both Side Entry / Exit Door : GI Powder Coated duly Double Skinned Cleanliness: Class 1,00,000 / ISO CLASS 8. Velocity at Nozzle : 10 ± 5 M/S . Nos. of Nozzle: 19 - 20 nos for small size and 55 - 60 nos for big air shower Blower Assembly : Statically and dynamically balanced Motor & Blower, designed for supply of sufficient capacity and static pressure to take care of airflow. Doors: Automatic swing, micro-processor controlled electromagnetic inter locking doors with glass panels. (Comprising with Door Closure, 'D' Handle, Ball Bearing Hinges) HEPA Filter : Minipleated HEPA Filters down to 0.3mic. Particulate at an efficiency of 99.999% (H14) duly tested on PAO tested Make-up Air Filter: Pre-Filter down to 5mic. Particulate at an efficiency of 95% (EU6) enclosed in aluminum frame with epoxy sealing (Washable Type) Return Air Filter: Pre-Filter Filter down to 5mic. Particulate at an efficiency of 95% (EU6) enclosed in aluminum frame with epoxy sealing (Disposable Type). Door Interlocking</p>
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			<p>:Door Opening with Solid State Electronic Inter Locking Mechanism Electrical :Feather touch Panel for Door Open (Entry & Exit) Fluorescent Light with On/Off Switch 3) Entry, exit & Inside One Emergency Switch for Door Release Pressure Gauge 1No. Magnahelic Gauge, to check the pressure drop across the HEPA filter (Range : 0-50mm WG) Power supply:440 V, 50Hz, Three Phase. Operation Sequence Detail of logic Sequence First Cycle of operation : When D1 & D2 are Closed (Both Door are in locked condition) Blower in off condition When D1 is Opened (Door D2 gets locked condition) Blower in off condition When D1 is closed (Door D2 still in locked condition) Blower will be on when both doors are in locked condition Blower motor (As per timer setting) gets off and then Door D2 gets opened / unlocked, D1 in locked condition. Door D2 is closed condition. Door D1 / D2 gets opened / unlocked. At a time only one door can open. Emergency Stop/Unlock Button provided at Entry / Exit/ Inside chamber.</p> <p>Documentation : Operation Manual Provided. Warrantee: 01 Year. Noise Level: Max. 65 - 70 db, At 1-Meter distance Less Than 60 db Micro Processor Based Control : Interlocking by Electromagnets, Overload protection by Thermal relay, Shower duration by Electronic timer (5 / 10 / 12/15 Sec.) OR as per requirement, Shower operation – Semi Automatic – By Push Buttons / Non-Contact Switch ,Both the doors controlled by electromagnetic interlocking</p> <p>2.9 PROVIDING AND INSTALLING CLEAN ROOM SYSTEM CLASS 10000 (ISO-7)(AHU SYSTEM) 3.70M X 3.90 M ROOM OF HEIGHT 3.8M</p> <p>2.10 PROVIDING AND INSTALLING CLEAN ROOM SYSTEM CLASS 100000 (ISO-8)(VERTICAL AHU) 6.0M X 8.30M OF HEIGHT 3.8M</p> <p>2.11 AIR CURTAINS <u>Curtain Size of 6 feet (3nos) 5 feet (2Nos) 4 feet (2Nos)</u> Down Flow : Up to 8'-0" Velocity :20.0 m/s @ High Speed / 16.0 m/s @ Low Speed MOC :ALUMINIUM Extra Feature :Ball Bearing Single Phase Motor. (Over Heating Protected) Special Feature: Overheating protection:-When motors temperature goes over (145 c) the Power supply will be automatically cut off and when the motors decline below (145 c) it will start running automatically. Voltage : 220 - 240V, 50Hz</p> <p>2.12 STATIC PASS BOX Outer Dimension : 610 x 610 x 610 Material of Construction :Main Body - SS-304 DOUBLE SKINNED Door - Double Skinned Swing Type Double Door with View Panel; Electrical Feather Touch On/Off Panel Fluorescent Light – - 1 No. U V Light – – 1 No.</p>
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				<p>Special Features Door Opening With Solid State Electronic Inter Locking Mechanism ; When both door closed; both are elec. Magnet locked;For open press touch screen to release the door; At A Time Only One Door OpenedAudio Indication for material is kept inside the pass box; In close condition of both door : UV Light will be on, When open any one door : UV will off and FL will on; Powder supply 230 V, 50Hz, Single Phase</p> <p>2.13 Peristaltic pump unit for media dispensing Reversible Motor 0.1Hp, RPM 6-600; No of channels 1-3; ABS plastic housing is splash resistance; Flow rate 4.8ml/min to 480ml/min; Tube size L/S 13,14,16,17,18,25; Operating voltage 90-260V, 50Hz; Three pump head</p>
			3	<p>LED LIGHTING SYSTEM WITH ALL ACCESSORIES</p> <p>3.1 LIGHT: 50 unit of 200 W or more LED PAR Light for different crops. For 8.1 to 8.7 as and where required</p> <p>3.2 ELECTRICAL WIRING: All wires will be of copper and desired load (Make – Havells/Finolex) with A grade work. (1 Complete Set) as and where required</p> <p>3.3 Color LED Tube lights: seven different 4 Red 2Blue and 1Far Red colors T8 22W or more grow LED tube lights total 40 No.</p> <p>3.4 COLOR LED T8 1200 mm 22W or more lights 30 nos.of this combination (Red620-630nm:Blue455-465nm:Red:InfraRed730-735nm/850nm :Red620-630nm:Blue455-465nm:Red620-630nm).</p> <p>3.5color LED T8 1200mm 22W or more lights of : 20 nos.(Red 620-630nm), 20 nos.(Blue 455-465nm), 20 nos.(Infra Red 730-735nm), 20 nos.(UV 385-395 nm), 20 nos.(Far Red 850 nm).</p> <p>3.6 White LED lights: T8 1200mm 22W or more LED lights 50 nos.</p> <p>3.7 50 unit of full Spectrum 50W or more LED Grow light E27 660nm 460nm 510nm IR UV Lamp which contain 10Red 4Blue 1Orange 1White 1IR 1UV LED.</p>
			4	<p>CO₂ CONTROL SYSTEM WITH ALL ACCESSORIES</p> <p>4.1 CO₂ and O₂ control system having CO₂ and O₂ generator and their regulators in chambers of Underground Pre-hardening unit / as and where required at site with all operational accessories.</p> <p>4.2 PHOTOPERIODIC SIMULATOR: Digital Base Timer for Light (Display Analogue) Specifications: Executive: Switches ON/OFF lights at the time set by user, despite power failures. Being digital, there are less moving parts, hence more reliable. Special feature*. Technical: Photoperiodic repeat cycle 24 hrs minimum ON/OFF period 30 minutes. Backup auto recharging NICAD. Powered output directly drives up to 100 tube lights 22W each. Resolution: Adjustable by 15 minutes' availability. Thermal safety with</p>

			<p>15A cutout. Accuracy ± 10 sec/day. Input: 200-240 VAC. Phase-singles. Ambient: 5° to 45°C, RH up to 85% normally. Weight 2Kg.</p> <p>4.3 Online monitoring system with following accessories : Two set of Wireless Outdoor night vision Security 16 Channel 4K NVR 1920P 5MP WIFI Camera Security System - 16 x 5.0 Megapixel (2592 x 1920) Weatherproof Dome Cameras, Quick QR Code Easy Setup, Pre-Installed 4TB Hard Drive Wireless night vision monitoring system with total 32 no of camera DVR for 6 month recording having attached with All in one PC system i3 , Monitor 32" one complete set , Two 1TB External HDD, Additional Two 42" LED Monitor attached with DVR, Control panel with racks and sitting arrangements</p> <p>4.4 ELEVATOR (Lift) Operating height : 30 feet or more , Doors style: automatic or manual, No of stops : G+15+30, Maximum load : 800kg or more, Max. speed : 1M/s, Overloading alarm must be provided., Automatic rescue device provided. , This elevator should be installed with all accessories and constructions at our site.</p>
		5	<p>AUTOMATED SOFTWARE CONTROLLING SYSTEM WITH ALL ACCESSORIES</p> <p>5.1 MICROPROCESSOR BASED AUTOMATION CONTROL PANEL: includes Temperature, Humidity, and Heating Control system. (01 Complete Set.), <u><i>each for Item no 8.1, 8.2 8.5 8.6 and 8.7</i></u></p> <p>5.2 CONTROL PANEL: For Automation Monitor Panel which includes, Temperature & Humidity Control System., (1 Complete Set), each for item no 8.3, 8.4 and for 8.7</p> <p>5.3 MONITORING SYSTEM : Two - HP 15 Intel Core i5 8th Gen - (8 GB/1 TB HDD, Windows 10 Home with latest office) Laptop having 15.6 inch LED screen), each having Samsung T5 500 GB External Solid State Drive and all in one HP laser jet pro M1136 printer ; One additional 32" LED Monitor for viewing , One USB Key board and Mouse extra , Working table , <u><i>Integrated by software to control units of item No 8.7</i></u> and item No. 1 to 9 as and where required.</p> <p>5.4 TECHNICAL MAN POWER SUPPORT for one year to conduct all the operations only for hardening, Hydroponic and Aeroponics systems as production level.</p>
		6	<p>RO WATER PURIFICATION SYSTEM WITH ALL ACCESSORIES</p> <p>6.1 Providing and fixing TWO SEPARATE UNITS Fully Automatic Institutional RO Plant system for sufficient to supply RO water to above all 1 to 4 units i.e. each unit not less</p>

			<p>than 500 liter per hour RO water capacity input maximum 750 TDs and Output minimum 50 TDS Number Of Filtration Passes >5 Max Water Recovery Rate 50-55 % Types Of Machines Activated Carbon Filter , Reverse Osmosis Unit, UV Sterilizer Number of Membranes in RO more than 4, Material of Construction using Rust proof fully SS304 & SS316, Complete work with Installation Application : Drinking Water grade 500 liter RO storage tank and 2000 liter waste water storage tank for each unit. At least three year comprehensive warranties with spare parts and consumables which are to be supplied in advance with these units.</p> <p>6.2 Providing and fixing (5 X 2 m²= 10 m²) Solar Distillation plant capable of producing Distilled water having 0 TDS and pyrogen free production of 1 liter per hour from 1 square meter , Self sustainable made from SS 316 grade material at least produce 50 liter per day of having 5 hr of direct sun light with food grade UV stable water collecting container with pipings and tubing at the site.</p>
		7	<p>ADJUSTABLE RACK SYSTEM</p> <p>7.1 CASTOR RACK: 2 illuminate shelf's, shelf to shelf distance 3' for 8.3, 8.4 and 8.7 (Total 100 nos. of Racks).</p> <p>7.2 TISSUE CULTURE RACK WITH WHITE LIGHT FOR TISSUE CULTUR ROOM (Total 20 No.)</p> <p>Specification: For producing Circadian rhythms tissue culture, biotechnology & allied works, with latest technology to produce excellent simulated natural light.; Size of Racks: Height of rack 187 cm (6'-3"). Width 127cm (4'.2"); Shelve dimension: 122 × 45 cm (50"×18") ; Shelf to shelf distance: 35 cm (15"); Shelf Color: Square M.S. pipe white shade powder coating finish with anti-corrosive and humidity resistant. ; Shelf Material: 3mm Hylem sheet. ; Shelves: illuminated shelves in one rack are: 05nos. ; Total no. of shelves (including top) in one rack: 06 nos.; LED lights: Four T8 1200mm 22W or higher LED lights in each shelf. Total no. of tube lights in one rack: 20 nos. ; One mains switch for each castor rack.; One separate switch is provided for every 2 tubes.; One fuse for one rack.; Four castor wheels in a rack for easy mobility.; Side holder rods, on each shelf prevent the bottles etc. from falling from the three sides of a shelf, i.e. On the left, back & right. Front side is used for keeping or removing the bottles etc.</p> <p>7.3 TISSUE CULTURE RACK WITH Color LED LIGHT FOR TISSUE CULTUR ROOM (Total 20No.)</p> <p>7.3.1 10 Racks : For producing Circadian rhythms tissue culture, biotechnology & allied works, with latest technology to produce excellent simulated natural light.</p>

			<p>Size of Racks: Height of rack 187 cm (6'-3"). Width 127cm (4'.2"); Shelve dimension: 122 × 45 cm (50" ×18") ; Shelf to shelf distance: 35 cm (15"); Shelf Color: Square M.S. pipe white shade powder coating finish with anti-corrosive and humidity resistant. ; Shelf Material: 3mm Hylem sheet. Shelves: illuminated shelves in one rack are: 05nos.; Total no. of shelves (including top) in one rack: 06 nos.</p> <p>LED Tube lights: seven different 4 Red 2Blue and 1Far Red colors T8 grow LED tube lights in each shelf (7 LED Tubes) of having (Red620-630nm:Blue455-465nm:Red620-630nm:InfraRed730-735nm/850nm :Red620-630nm:Blue455-465nm:Red620-630nm),order of arrangement ; Total no. of LED lights in one rack: 35 nos</p> <p>7.3.2 : 10 racks of single colored LED lights fitted</p> <p>2 rack, Total no. of LED lights in one rack (4Tubes in each shelf): : 20 nos.(Red 620-630nm),</p> <p>2 rack, Total no. of LED lights in one rack (4Tubes in each shelf): 20 nos.(Blue 455-465nm),</p> <p>2 rack, Total no. of LED lights in one rack (4Tubes in each shelf): : 20 nos.(Infra Red 730-735nm),</p> <p>2 rack, Total no. of LED lights in one rack (4Tubes in each shelf): : 20 nos.(UV 385-395 nm),</p> <p>2 rack, Total no. of LED lights in one rack (4Tubes in each shelf): : 20 nos.(Far Red 850 nm),</p> <ul style="list-style-type: none"> • One mains switch for each castor rack. • One separate switch is provided for every each LED tubes. • One fuse for one rack. • Four castor wheels in a rack for easy mobility. • Side holder rods, on each shelf prevent the bottles etc. from falling from the three sides of a shelf, i.e. On the left, back & right. Front side is used for keeping or removing the bottles etc.
		8	<p>CONSTRUCTION OF ENVIRONMENT CONTROL CHAMBER</p> <p>8.1 TERRACE GARDEN –I HYDROPONICS UNIT</p> <p>Total Area: 198sq.m. (Divided in Same Four Chamber)</p> <p>Hydroponic Greenhouse Chamber, Size: 9m x 5.5m = 49.5m² x 3 Nos.</p> <p>Aeroponics Greenhouse, Size: 9m x 5.5m = 49.5m² x 1 No.</p> <p>PART – 1: COMMON ITEM IN ALL 04 CHAMBERS</p> <p>INFRASTRUCTURE: Suitable Structure for solar panel in roof, with galvanized steel is used</p>

			<p>and design as per IS875 standards to take with stand of wind speed 120 km. /hour. End wall and side wall framing Aluminum corner trims, aluminum ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble frame. All G.I. pipes are galvanized. This includes all the elements required for joining and water tighten components (such as fittings, clamps, screws and nuts plated against corrosion). (01 complete set).</p> <p>SUPERSTRUCTURE: by 6mm thick clear multiwall laxun sabic polycarbonate sheet, Aluminum Profile, EPDM gasket, Silicon sealant, and accessories. (01 complete set),</p> <p>ENTRANCE ROOM: Pre Entrance Room of Size: 2.1mtr. × 2.1mtr. × 2.43mtr. (L × W × H) made by galvanized pipes, sides and roof covered by 6mm thick polycarbonate sheet, with duly lockable arrangement. (2 Nos.), Door size: 1.9m x 0.91m Long & wide clear 6 mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware. (2 Nos.), Air Curtain: Euronis-1200mm, provided at main entry with limit switch. (4 Nos.),</p> <p>INTERNAL SCREEN: Internal Thermal Screen, Operation with motorized system. Internal Thermal Screen with 60% screen. (01 complete set),</p> <p>PART – 2: For Hydroponic Chamber in all 03 chambers Hydroponic Chamber – 1, Only Air Level Maintain without water circulation. Hydroponic Chamber – 2, 3, hydroponic 20 nos. separate media unit. Multi - Stand hydroponic channel: PART – 3: For Aeroponic Chamber Aeroponic growing module with growing tunnel with fogging irrigation with fertigation system WORK: Structure raised on RCC Column with Tie Beam, (350mm x 350mm) length wise & widthwise as per greenhouse requirement brick work 230mm wide 0.4m height, brick wall dually plaster and water proofing painting both sides. each for item no 8.1 to 8.6 Floor: by Antislipery tiles. (01 Complete Job in all respect) each for item no 8.1 to 8.6 8.2 TERRACE GARDEN-I HARDENING UNIT Total Area: 198sq.m. (Divided in Same Four Chamber) Each Chamber, Size: 9m x 5.5m = 49.5m² x 4 Nos. INFRASTRUCTURE: Suitable Structure for solar panel in roof, with galvanized steel is used and design as per IS-875 standards to take withstand of wind speed 120 km. /hour. End wall and side wall framing Aluminum corner trims, aluminum ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble frame. All G.I. pipes are galvanized. This includes all the elements required for joining and water tighten components (such as fittings, clamps, screws and nuts plated against corrosion). (01 complete set). SUPERSTRUCTURE: by 6mm thick clear multiwall sabic polycarbonate sheet, Aluminum</p>
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			<p>Profile, EPDM gasket, Silicon sealant, and accessories. (01 complete set),</p> <p>ENTRANCE ROOM: Pre Entrance Room of Size: 2.1mtr. × 2.1mtr. × 2.43mtr. (L × W × H) made by galvanized pipes, sides and roof covered by 6mm thick polycarbonate sheet, with duly lockable arrangement. (1 No.), Door size: 1.9m x 0.91m Long & wide clear 6 mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware. (2 Nos.), Air Curtain: Euronis-1200mm, provided at main entry with limit switch. (1 No)</p> <p>ELECTRIFICATION WORK: All wires will be of copper and desired load (Make-Havells/Finolex/Equivalent). Complete set with A grade work. (01 Complete Set.),</p> <p>WORK: Structure raised on RCC Column with Tie Beam, (350mm x 350mm) length wise & widthwise as per greenhouse requirement brick work 230mm wide 0.4m height, brick wall dually plaster and water proofing painting both sides.</p> <p>Floor: by Antislipery tiles. (01 Complete Job in all respect)</p> <p>8.3 TERRACE GARDEN-II Hi-Tech POLYHOUSE Total Area: 11.50m x 5.70m = 65.55 sq.m. (Partition in 03 different Chamber) Each Chamber, Size: 3.83m x 5.70m = 21.83sq.m. x 3 Nos. STRUCTURE: Frame: All galvanized steel is used and design as per IS875 standards to take withstand of wind speed 120 km. /hour. End wall and side wall framing Aluminum corner trims, aluminum ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble frame. (1 Complete Set), DOUBLE DOOR ROOM: Size: 2.1m x 2.1m x 2.43m (L × W × H) covered with 6mm thick polycarbonate sheet. Sliding Door: Size: 1.9m × 0.91m long & wide, normally lockable made with clear 6mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware - 4 nos., CLADDING: Roof, front wall, end wall, & sidewalls of the Polyhouse - sets and double room for rigid covering with 200micron UV Stabilized Polyfilm, and accessories. (1 Complete Set).</p> <p>8.4 TERRACE GARDEN-II HI – TECH POLYHOUSE Total Area: 21.70m x 6.30m = 136.71 sq.m. (Partition in 04 different Chamber) Each Chamber, Size: 5.4m x 6.30m = 34.02sq.m. x 3 Nos. STRUCTURE: Frame: All galvanized steel is used and design as per IS875 standards to take withstand of wind speed 120 km. /hour. End wall and side wall framing Aluminum corner trims, aluminum ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble frame. (1 Complete Set), DOUBLE DOOR ROOM: Size: 2.1m x 2.1m x 2.43m (L × W × H) covered with 6mm thick polycarbonate sheet. Sliding Door: Size: 1.9m × 0.91m long & wide, normally lockable made with clear 6mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation</p>
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			<p>hardware - 5 nos.,</p> <p>CLADDING: Roof, front wall, end wall, & sidewalls of the Polyhouse - sets and double room for rigid covering with 200micron UV Stabilized Polyfilm, and accessories. (1 Complete Set).</p> <p>SHADING SYSTEM: External shading system: 75% Monofilament green color shade net with manual rolling arrangement connecting pipe etc. can be rolled when not required. WORK: Structure raised on RCC Column with Tie Beam, (350mm x 350mm) length wise & widthwise as per greenhouse requirement brick work 230mm wide 0.4m height, brick wall dually plaster and water proofing painting both sides.</p> <p>Floor: by Antislipery tiles. (01 Complete Job in all respect)</p> <p>Work: Structure raised on RCC Column with Tie Beam, (350mm x 350mm) length wise & widthwise as per greenhouse requirement brick work 230mm wide 0.4m height, brick wall dually plaster and water proofing painting both sides. For 8.4.</p> <p>Floor: by Antislipery tiles. (01 Complete Job in all respect) for 9.1</p> <p>8.5 GROUND HARDENING UNIT HYDRO AEROPONIC PRODUCTION (01 UNIT Complete Set)</p> <p>Total Area: 200sq.m. (Divided in Two Chambers)</p> <p>Hydroponic Greenhouse Chamber, Size: 15m x 10m = 150m² x 1 No.</p> <p>Aeroponic Greenhouse, Size: 5m x 10m = 50m² x 1 No.</p> <p><u>PART – 1: COMMON ITEM IN ALL 04 CHAMBERS</u></p> <p>INFRASTRUCTURE: Suitable Structure for solar panel in roof, with galvanized steel is used and design as per IS875 standards to take with stand of wind speed 120 km. /hour. End wall and side wall framing Aluminum corner trims, aluminum ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble frame. All G.I. pipes are galvanized. This includes all the elements required for joining and water tighten components (such as fittings, clamps, screws and nuts plated against corrosion). (01 complete set).</p> <p>SUPERSTRUCTURE: by 6mm thick clear multiwall sabic polycarbonate sheet, Aluminum Profile, EPDM gasket, Silicon sealant, and accessories. (01 complete set),</p> <p>ENTRANCE ROOM: Pre Entrance Room of Size: 2.1mtr. × 3mtr. × 2.43mtr. (L × W × H) made by galvanized pipes, sides and roof covered by 6mm thick polycarbonate sheet, with duly lockable arrangement. (2 Nos.), Door size: 1.9m x 0.91m Long & wide clear 6 mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware. (3 Nos.), Air Curtain: Euronis-1200mm, provided at main entry with limit switch. (1 No.), WORK: Structure will be Raised on CC (concrete cement) blocks of Size: 1'×1'×2'. Floor: by floor mat on Natural Soil. (01 Complete Job in all respect)</p> <p>PART – 2: For Hydroponic Chamber</p>
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			<p>Hydroponic Chamber – 1, NFT Channels.</p> <p>PART – 3: For Aeroponic Chamber Aeroponic growing module with growing tunnel with fogging irrigation with fertigation system</p> <p>8.6 GROUND HARDENING PRODUCTION UNIT Total Area: 300sq.m. (Divided in Same Two Chambers) Each Chamber, Size: 10m x 15m = 150m² x 2 Nos.</p> <p>INFRASTRUCTURE: Suitable Structure for solar panel in roof, with galvanized steel is used and design as per IS875 standards to take with stand of wind speed 120 km. /hour. End wall and side wall framing Aluminum corner trims, aluminum ridge bar and Galvanized gutter trim Brackets & fasteners as required to assemble frame. All G.I. pipes are galvanized. This includes all the elements required for joining and water tighten components (such as fittings, clamps, screws and nuts plated against corrosion). (01 complete set).</p> <p>SUPERSTRUCTURE: 6mm thick clear multiwall sabic polycarbonate sheet, Aluminum Profile, EPDM gasket, Silicon sealant, and accessories. (01 complete set),</p> <p>ENTRANCE ROOM: Pre Entrance Room of Size: 2.1mtr. × 2.1mtr. × 2.43mtr. (L × W × H) made by galvanized pipes, sides and roof covered by 6mm thick polycarbonate sheet, with duly lockable arrangement. (1 No.), Door size: 1.9m x 0.91m Long & wide clear 6 mm polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware. (4 Nos.), Air Curtain: Euronis-1200mm, provided at main entry with limit switch. (1 No.)</p> <p>INTERNAL SCREEN: Internal Thermal Screen, Operation with motorized system. Internal Thermal Screen with 60% screen. (01 complete set),</p> <p>LIGHT: LED PAR Light for biotech purpose.</p> <p>CASTOR RACK: 3 illuminate shelves, shelf to shelf distance 2’.</p> <p>FAN & PAD COOLING SYSTEM: 100mm thick & G ’house Evaporative CELDEC cooling pad with All necessary framing material of Aluminium required top bottom and side frame distribution & returning piping., Slow Speed Axial Flow Fan: single speed belt driven exhaust fan (01 Complete Set.), 1000 Pots : 1 kg</p> <p>WORK: Structure will be Raised on CC (concrete cement) blocks of Size: 1'×1'×2'. Floor: by floor mat on Natural Soil. (01 Complete Job in all respect)</p> <p>8.7 UNDER GROUND PRE- HARDENING UNIT 01 UNIT Complete Set 8.7.1 PRE HARDENING HYDRO AERO CULTURE UNIT Total Area: 57.81sq.m. (Divided in Same Four Chamber) Each Chamber, Size: 2.34m x 5.84m = 13.66m² x 4 Nos. Hydroponic Chamber, Size: 2.34m x 5.84m = 13.66m² x 3 Nos. Aeroponic Greenhouse, Size: 2.34m x 5.84m = 13.66m² x 1 No.</p>
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			<p>Part – I, in all 04 Chambers</p> <ul style="list-style-type: none"> •Construction: Pre-fabricated double-walled chamber with 75mm thick insulation with puff between interior. •Inner Chamber: Made of stainless steel sheet of good quality. •Outer Chamber: Made of powder coated sheet. •Door: Door with inner viewing facility (To inspect the samples without disturbing the temperature of working chamber) with proper lock and key and fitted with sweeping gasket and glass. •Cooling System: Hermetically sealed CFC free compressor and fan cooled condenser. •Castor Rack:3 illuminate shelves, shelf to shelf distance 2’. •Lights: provided Photosynthesis Active Radiation Lamp (PAR) Controlled By Photoperiodic Timer •Temperature Control System: Temperature range of 22°C to 35°C ± 1°C controlled by dual temperature. •Electrical: Power cords and ground plugs to operate on 220 V / 440 V single or three phases. Power sockets on the panel (115/1/60-9 Amps for standard). <p>Part – II, in all 03 Hydroponic Chambers Multi - Self Hydroponic 20 nos. separate media unit.</p> <p>PART – III: in 4th chamber For Aeroponic Chamber Aeroponic growing module with growing tunnel with fogging irrigation with fertigation system</p> <p>8.7.2 PRE HARDENING POT CULTURE UNIT Total Area: 72.75sq.m. (Divided in Same Four Chamber) Each Chamber, Size: 3.32m x 5.47m = 18.16m² x 4 Nos.</p> <p>Part – I, in all 04 Chambers</p> <ul style="list-style-type: none"> •Construction: Pre-fabricated double-walled chamber with 75mm thick insulation with puff between interior. •Inner Chamber: Made of stainless steel sheet of good quality. •Outer Chamber: Made of powder coated sheet. •Door: Door with inner viewing facility (To inspect the samples without disturbing the temperature of working chamber) with proper lock and key and fitted with sweeping gasket and glass. •Cooling System: Hermetically sealed CFC free compressor and fan cooled condenser. •Castor Rack:3 illuminate shelves, shelf to shelf distance 2’.
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			<p> •Lights: Chamber – 1, Provided by each shelf different color of light in all castor rack Chamber – 2, Provided by each shelf white color of light in all castor rack Chamber – 3 & 4, provided Photosynthesis Active Radiation Lamp (PAR). </p> <ul style="list-style-type: none"> Temperature Control System: Temperature range of 22°C to 32°C ± 1°C controlled by dual temperature. Electrical: Power cords and ground plugs to operate on 220 V / 440 V single or three phases. Power sockets on the panel (115/1/60-9 Amps for standard). <p> Part – II, in all 03 Hydroponic Chambers Multi - Self Hydroponic 20 nos. separate media unit. </p> <p> <u>PART – III: For Aeroponic Chamber</u> Aeroponic growing module with growing tunnel with fogging irrigation with fertigation system </p> <p> 8.8 SIDE WORKING TABLE: With 2 standard size under base storage units, Surface offer excellent chemical and heat resistant and has sufficient durability for laboratory environment. Table Size: 1500mm x 750mm x 850mm (L x W x H) These tables will be placed in lab at a side wall length wise. INSTRUMENT TABLE (Anti Vibrating Table)Size: 1500mm x 750 mm (LxW) One Anti Vibrating Table Price </p> <p> 8.9 MODULAR CENTRE LAB TABLE: The modular central table with chemical and heat proof top consists. Regent Rack, & Storage Units- 4 nos. Such one table having one regent rack with 2 shelves and four storage units under top. a)Table Size: 1500mm x 1500mm x 850mm (L x W x H). b)Regent Rack: Size: 1500mm length x 490mm width with 2 nos. of glass shelves, as no. of places given where more shelves can be added per user’s requirement. c)Storage Unit: Each of size: 150mm x 750mm (L x W)- 4 nos. in a table. </p> <p> 8.10 SINK TABLE WITH WATER TAP: a) Table Size: 1500mmx750mmx850mm (L x W x H) Table material is resistant to acid, alkali, chemicals, high temperature & anti germs. Table tops area available in different colours: Light black, gray, light green etc. 01-Lab Table b) Sink with water tap; shutter under table base another relevant accessories. </p> <p> 8.11 LAB STOOL: Specially designed for labs with convenient height adjustable. A durable, comfortable chair/stool at a slightly lower price than our deluxe model. Vinyl molded seat/back and with adjustable foot-ring. Seat is adjustable between 43 and 56 cm. </p> <p> 8.12 WALL MOUNTED STORAGE UNIT: With full extensions slides maximize usable storage space. Heavy 3 knuckle steel institutional hinge and heavy door and drawer pulls are </p>
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			<p>furnished full depth. Size: 600 mm x 600 mm x 300 mm (L x W x H)</p> <p>8.13 STERILE GARMENT CABINET : 1220X400X1800 MM</p> <p>8.14 SIDE WORKING TABLE: With 2 standard size under base storage units, Surface offer excellent chemical and heat resistant and has sufficient durability for laboratory environment. Table Size: 1492mm x 750mm x 850mm (L x W x H) These tables will be placed in lab at a side wall length wise.</p> <p>8.15 ULTRA VIOLATE STERILIZER CABINET FOR EQUIPMENTS</p> <ol style="list-style-type: none"> 1. Inner dimensions: 13.50"x7.75"x9.00" 2. Power supply: 220+/-10 V50Hz 3. Set temperature: 70°C±10°C 4. Appliance: Sterilizes forceps, Tubes, Petri dishes, scalpel etc. 5. Packing dimension: 40*30*30cm 6. Auto shut-off when door is opened Mirrored interior UV bulb Steel cabinet Ultraviolet ray (with ozone) disinfect with UV bulb Mirrored interior Stainless Steel cabinet Wire Rack <p>8.16 TENSILE FABRIC ROOF 22 meter X 22 Meter at open area including fixing of tensile fabric roof with MS round 150mm column and 114mmx 3mm pipe 79x3mm rafter fabrication joint stretching by machine in hyperbolic parabola. Dome is fabricated by fabric weight 830g/m² using acrylic materials , breaking elongation % 18/25 , Tear stranth daN 25/25 adhesion daN/5cm 10/10 Tensile strength daN 240/212 Flame retardancy <100mm/min Temperature Resistnce -30 °C to +70 °C, Light fastness 60 % or more.</p>
		9	<p>Working shed</p> <p>9.1 TERRACE GARDEN-II NET HOUSE</p> <p>Chamber – I, - 19m x 8.70 x 2.43m : 3.35m =165sq.m.(L× W× SH : CH) Chamber – II, 12.30 m x 9m x 2.43m : 3.35m =111sq.m.(L× W× SH : CH) Shape: Arc Structure: made by latest G.I. pipe 32mm & 25mm±1mm Squire GI Pipe. Door: Size 6'-3" × 3' (H×W) two no. with lock and pinion system. Roof screen & Side covers: 50% UV Stabilized agro shading net, colour- green/black as per requirement.</p> <p>Electrical device: High quality ISI approved fittings with FR grade copper cable and rigid standard of safety with proper M.C.B.</p> <p>9.2 TERRACE GARDEN-II STORAGE/WORKING SHED: Total Area: 10.20m x 7.10m = 65.55 sq. m. (Partition in 02 different Chamber)</p>

			<p>Working Chamber– 1, Size 5.1m x 7.10m, = 21.83sq.m. all Sides & roof covered with pc sheet</p> <p>Working Shed – 2, Size 5.1m x 7.10m, = 21.83sq.m. only roof side are opened covered with pc sheet. Structure flange made by: 50mm x 50mm & 50mm x 50mm hot dip galvanized pipe. Roof cover by pre quoted GI sheet 0.5 mm thick Door: sliding door made by aluminum frame with Polycarbonate sheet 6mm and accessories, door size 2m x 1m qty. 01 No.</p> <p>Foundation wall: For Packing room WIDE BASED .2' above earth's surface, as kick-board 9" wide, Frame base block height 3'x 9"x 9" each with front side wall plinth protection 3'wide 6" thick.</p> <p>Floor: made by PCC (1:5:10)100 mm thick than CC (1:2:4) 100 mm thick with dully plastered floor area : 96m</p> <p>9.3 GROUND STORAGE/WORKING SHADE Total Area: 75sq.m. (Divided in Two Chambers)</p> <p>Working Chamber, Size: 15m x 5m x 4m height , 1 No. all Sides & roof covered with PC sheet Structure flange made by: 50mm x 50mm & 50mm x 50mm hot dip galvanized pipe. Roof cover by pre quoted GI sheet 0.5mm thick</p> <p>Door: sliding door made by aluminum frame with Polycarbonate sheet 6mm and accessories, door size 2m x 1m qty. 01 No.</p> <p>Foundation wall: For Packing room WIDE BASED .2' above earth's surface, as kick-board 9" wide, Frame base block height 3'x 9"x 9" each with front side wall plinth protection 3'wide 6" thick.</p> <p>Floor: made by PCC (1:5:10)100 mm thick than CC (1:2:4) 100 mm thick with dully plastered floor area : 75m² Two outer side</p> <p><u>Important Note: Vender must agree with the following conditions:</u></p> <ol style="list-style-type: none"> 1. This project is turnkey based project only single wander should complete this project by integrating all the items from 1 to 9 as one task. 2. Vender should submit unit/Sub Unit/Component wise price for each items before getting order or as and when asked by the university. 3. Bidder can visit the site before offering the tender. 4. Full and final payment will be made after compilation of work as per university guideline. 5. The total price quoted (Sum of item 1 to 9) will only be considered for bid comparison. 6. Any item/ unit/Sub Unit/Component may be omitted by the university during work if not found suitable or not as per need of the university.
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			<p>7. All the required consumables for making fully functional and operated for two years should be included in the bid.</p> <p>8. Vender must offer any other necessary accessories even not mentioned in this bid as an integrated part of this.</p>
05-A.23	Liquid Chromatography-Mass Spectrometry quadrapole with accessories (LC MS/MS Quadraple)	01	<p>Technical Specifications for LC-MS/MS system with accessories</p> <p>A LC-MS/MS triple quadrapole mass spectrometer equipment system for high end sensitively qualitative and quantitative determination for small biomolecules, pesticides residues, antibiotics residues, mycotoxins etc. analysis in biological samples and other natural product with complex matrix along with UHPLC and accessories complete functional system with user friendly software base operation as well as application software with method development tools and mass spectrum library data bases to meet the analysis requirements as per global food regulations like EU/USFDA/Japan food adm. /FSSAI/ APEDA etc.</p> <p>The complete system should be fulfill following minimum specifications</p> <p>1-Triple Quadruple mass spectrometer/ analyzer System</p> <p>Mass spectrometer should be a triple quadrupole analyzer based system or its better , a state of arts, high sensitivity, mechanism for qualitative and quantitative analysis with calibration and auto tuning facility</p> <p>Ionization Source and its Interface</p> <p>Source should have efficient technology capable of avoiding interference from solvents and other extraneous matter from complex matrix.</p> <p>System should have dedicated ESI one source(standard) and it should be easy changes the source without the use of sophisticated tool and without vacuum break out</p> <p>System should have ESI- APCI (Dual / Combine source) second ionization sources(additional). it should be easy changes the source without the use of sophisticated tool and possibly without vacuum break out</p> <p>Instrument must be capable of acquiring data alternating/ same time between ESI and APCI ion modes</p> <p>The Desolvation temperature should be more than $\geq 500^{\circ}\text{C}$ or better for optimum</p>

			performance at various flow rates.	
			Source must be able to handle broader ranging from 5 µl to 1 ml/ min or better to cater wide flow range with Gas Flow for Nebulization.	
			The system must have an exhaust for the removal of gasses and condensed liquid from the ionization source and able to compatible with both 100% aqueous and 100% organic phases.	
			System should have ESI and APCI both sources fast +/- Polarity switching time should be less than ≤ 50 ms during acquiring data or better	
			Cleaning of source should be done without venting the system	
			Source Interface should be capable of handling large batches of complex sample matrix like plasma, serum, foods, etc. over a long period of time without performance degradation maintain cleanliness of ion optics	
			Interface should be capable of ambient temperature operation and without complex apertures to maintain structural integrity of thermally labile and fragile molecules.	
			Quadrupole Mass Analyzer:	
			The instrument should be configured with a quadrupole mass filter analyzer for the efficient transmission of ions in MS mode and selection of precursor ions for MS-MS analysis.	
			Mass Range; The quadrupole analyser should have an m/z range of 25 to 1500 -2000 Da. or better range	
			Scan speed of instrument should have 10,000 -20,000 amu per second or better for fast preference.	
			Mass Stability; The instrument must exhibit a mass drift of less than 0.1 Da in 24hrs.	
			Linearity of Response; The linearity of response relative to sample concentration, for a specified compound, must be more than 5 orders of magnitude or better from the limit of detection.	
			Polarity Switching: less than ≤ 50 ms or better; The analyzer must be capable of acquiring data alternating between positive and negative ion modes.	
			MS Resolution; the resolution of system more than unit mass ≤ 0.50 Da, to 1.00 Da or better over a entire range of mass with automatically adjusted to desired resolution;.	
			Collision Cell; Instrument should have collision cell allowing less dwell time. Suitable for high sensitivity MRM studies and be free from cross talk less than 0.002%.	
			System should have able to acquired data points scan speed more than 250 - 500 /	

			MRM / Second or better	
			System should have ion guide to eliminate the neutrals and enhance the sensitivity will be preferable	
			Dwell time : The dwell time should be minimum less than (\leq) 5 ms or better for SRM and MRM modes and adjustable / programmable	
			Sensitivity`	
			ESI Positive: MRM mode of reserpine at the transition m/z 609-195 for a 1 pg on column injection should give signal to noise ratio (S/N) more than (\geq) 200,000:1 or better without smoothing data	
			ESI Negative: MRM mode of chloramphenicol at the transition m/z 320-152 for a 1 pg on column injection should give signal to noise ratio (S/N) more than (\geq) 200,000:1 or better without smoothing data.	
			APCI positive ionization mode, 1 pg on column of reserpine/ 17- α -hydroxyprogesterone should have the S/N 300:1 or better without smoothing data	
			Sensitivity must be on web site of manufacturing and offer specification sheet of principal company. Performance specification must be demonstrated during installation of system at site (performance documentary Proof/application note to be provided for both the above criteria to be fulfill with tender)	
			Operating modes	
			Mass spectrometer should have the following scan mode options:	
			• Full scan	
			• Product ion scan	
			• Precursor ion scan	
			• Neutral loss scan	
			• Selected Ion monitoring/ recording (SIM/SIR)	
			• Multiple Reaction Monitoring (MRM)	
			• MS and MS/MS in a single injection with matrix background monitoring or equivalent.	
			• Simultaneous full scan and MRM or better	
			• SRM/MRM mode scan window should be multi overlapping and simultaneously	
			System design and configured	
			• An infusion device must be either integral / in built or through auto sampler or any to device with the instrument and must be controllable from the instrument software for	

			<p>auto tuning and auto calibration and validation data gaining solution infusion</p>	
			<ul style="list-style-type: none"> • The system should have auto tune facility for instrument calibration/ tuning and acquisition of data for method validation and automatic tuning of instrument 	
			<ul style="list-style-type: none"> • Flow drain / divert for removal of contamination and flow switching facility before mass spectrophotometer entry / flow bypass to or to another detector 	
			<p>Gas Control :</p>	
			<ul style="list-style-type: none"> • The system should have electronic pressure and flow control of nebulizing gas, drying gas, auxiliary gas and collision gas controlled by the software 	
			<p>Vacuum system; Robust high efficiency vacuum system with minimum maintenance and utility with low noise level. The system should have vacuum safety features to prevent damage to the instrument in case of failure. Vacuum read backs must be digitally monitored and controlled through software to ensure fail-safe operation in the event of power failure.</p>	
			<p>Detector</p>	
			<ul style="list-style-type: none"> • A high sensitivity, high throughput detector with zero dead time, low noise and high accuracy at low level detections. 	
			<ul style="list-style-type: none"> • An photomultiplier/Electron Multiplier detector or better technology for fast acquisition. 	
			<ul style="list-style-type: none"> • Detector must operate in both positive and negative ion modes 	
			<ul style="list-style-type: none"> • Capable of switching polarity rapidly and fast compatible with analyzer or better. 	
			<ul style="list-style-type: none"> • The detector should have long life of more than 10 years or better. 	
			<p>System Controller and Operating system</p>	
			<ul style="list-style-type: none"> • Software must be multitasking type. It must able to control instrument all components such as MS, UHPLC, Auto-sampler and Mass Detector, vacuum pumps etc and also running, acquire and process the data simultaneously and mass spectrum library matching etc 	
			<ul style="list-style-type: none"> • The system must include an automated tuning and calibration facility for hardware set-up 	
			<ul style="list-style-type: none"> • The instrument control software must include a facility to automatically report on LC/MS/MS system performance by employing user-defined pass/fail criteria for compound retention time, peak area/height/width and signal-to-noise over a specified number of injections. 	

			<ul style="list-style-type: none"> • Software should be compatible to latest window version and upgradable to time to time version of OS in computer system 	
			<ul style="list-style-type: none"> • Data Acquisition, Peak Integration, Calibration, Quantification and QC calculations must be fully automated. 	
			<ul style="list-style-type: none"> • The quantification method editor must be viewable in page view or spreadsheet. 	
			<ul style="list-style-type: none"> • Application manager must allow to monitor the molecular ion up to 04 (four) confirmatory ions or better. 	
			<ul style="list-style-type: none"> • The system must include an automated method development tool in the software to allow creation of multiple reaction monitoring methods for compounds introduced from the instrument sample vials/ infusion vials from automatically infusion. 	
			<ul style="list-style-type: none"> • The MS acquisition method editor must have a facility to enable automatic setting of MRM dwell time, inter-channel delay and inter-scan delay times, based on the expected average chromatographic peak width to ensure optimal data acquisition rates are maintained for the highest quality of analyte qualification. 	
			<ul style="list-style-type: none"> • Software method validation and library pack should have database of 1000 or more than compounds (pesticides, Antibiotic residues and Mycotoxins etc) and database should contain Molecular formula, Mono isotopic mass, Parent ion, Cone voltage (V), Collision energy (eV), Product ions, RT etc for quick reference and method validation. 	
			<ul style="list-style-type: none"> • The software should have new compound acceptance criteria as per latest EU/ international directives 	
			<p>2-Ultra High performance Liquid Chromatography (UHPLC) system</p>	
			<ul style="list-style-type: none"> • Solvent delivery system should have following specifications 	
			<ul style="list-style-type: none"> • Quaternary / Binary gradient solvents system with lowest gradient delay volume and disperse volume 	
			<ul style="list-style-type: none"> • Solvent delivery system should have tolerance pressure limit upto 15,000 -18000 psi or more using sub 2 micron column upto 1 mL/min flow rate 	
			<ul style="list-style-type: none"> • Solvent delivery Flow Rate Range should to be 0.01 to 2.000 mL/min, or higher, with in 0.001mL increments. 	
			<ul style="list-style-type: none"> • Effective System Delay Volume should be \leq 200 - 400 ul, or better, independent of system backpressure 	
			<ul style="list-style-type: none"> • The system should have flow rate accuracy less than 1 % or better 	
			<ul style="list-style-type: none"> • Should able to programmable Plunger Seal Wash Integral, active program, Gradient Profiles more than 10 gradient curves including linear, concave and convex 	

			<ul style="list-style-type: none"> • Composition Accuracy +/- 0.5% or better • Flow Precision 0.1% RSD or better 	
			<ul style="list-style-type: none"> • Composition Accuracy +/- 0.5% absolute • Flow Accuracy +/- 1.0% or better • Sample Carry over : <0.002% using caffeine as analytes • Plunger seal should be integral, active and programmable. • Real time delta pressure monitoring curve display on control software and pressure Delta indication • Vender should quote tubing, ferrules, interlocks etc with one sub 2 micron standard column for fully function system • It should have Degasser: Channel Vacuum Degasser with four lines or more 	
			3- Auto sampler	
			<ul style="list-style-type: none"> • The Auto sampler should have more than 96 number of sample vials of 1.5-2ml volume and 2 Trays with more than 48 vial occupancy suitable to auto sampler . • Should have the injection volume setting from minimum 0.1 µl to 50 µl or more in injector port for UHPLC and programmable. • Should have the Injection volume precision RSD ≤ 0.4% or better., less than 0.01% carryover or better • Sample compartment temperature range 4.0 to 40.0 °C or more temp. range and programmable. • Auto samples equipped for auto dilution and co-injection facility • Auto samples should have less than 0.003% carryover of vasparine and programmable ringing/ purging ,flushing, washing of needle etc controllable through MSMS software 	
			3.1 Column Oven/ compartment ,	
			<ul style="list-style-type: none"> • Occupancy for minimum two or more columns of 25 cm longs, with safety features, high temp. Cut-off, it should be flow divert valve / detector switching device available. • The column oven should have the temperature range from 5°C to 50°C programmable and higher will be preferred. • Should have temperature control stability, precision ±0.3°C or better it inbuilt to auto sample or separate unit 	
			Connector to connect with column chip/ data logger for tracking and archive column usage history automatically.	
			4- Gases supply: Nitrogen Gas Generator and gas cylinders	

			<ul style="list-style-type: none"> • System should be supplied with Nitrogen gas generator along with trouble free inbuilt compressor, auto drain valve and appropriate capacity reservoir which should be sufficient enough to deliver the gas to LC MSMS required purity of quality, pressure, flow rate or better and auto regulation to run the system for continuous bases without interruption with all fittings and accessories for 7x24hrs operation and it should be international quality. 	
			<ul style="list-style-type: none"> • Should be noise and vibration free operation with safety features auto regulation for ON -OFF and standby etc. it should have very less or noise free to kept in laboratory room 	
			<ul style="list-style-type: none"> • Suitable filled gases cylinders (1 Nos. of each) should be supply as per required with test certificates, SS double stage regulators, cylinder opening key, gas pipes with fittings and purifier for the system for LCMS MS. 	
			5- System and application Software and Ethernet Posts, cards etc	
			Licensed application as well as instrument controlling software and compatible to Microsoft latest window bases loaded in latest configured personal computer to control GC, Auto sampler Mass analyzer and other accessories. It should be allows to fully automated quantitative and qualitative analysis with standard custom need base reports generation. All application and operative software copy should be provided in DVD and PEN drive with licensed keys for installation in future	
			<ul style="list-style-type: none"> • Any hardware need for connection, installation and loading of software and connection and communication other set up of system 	
			<ul style="list-style-type: none"> • Latest data based Mass spectrum library for data analysis and qualitative and quantitative comparative, it should having MRM data base mass spectrums library for more than 500 compounds with LC and MS parameters including pesticides, toxins phytochemicals, vet. drugs 	
			6-Computers system for software installation and instrument operation, data storage and analysis	
			<ul style="list-style-type: none"> • Computer with specification must be quoted which should be compatible and capable to operation functional working of the complete system for 24x7 hrs operation without interruption. 	
			Computer with Intel Core i7 Processor Intel original M/B, or better, 32Gb DDR3	

			<p>RAM, or better, 1+1=2 Tb HDD or better configuration with, DVD RW (CD RW capable), graphic card Ethernet ports, internet and USB, HDMI, VGA and Audio- in etc ports . Laser 6-button mouse, keyboard and color printer for printing hardcopy of chromatogram. Computer should be along with latest licensed window OS and other necessary softwares. LED monitor screen minimum 27” or better, 3840x2160 UHQ(4K) resolutions with in-built speakers 8W+8W. Working on AC 100-250Vac, 50/60Hz</p>	
			<p>One external 42” LED <i>monitor</i>/display, resolution 3740x2160 or better , equipped with 4k upscaler, Built -in Wi Fi, 8W +8W or more speaker, miracast in English facilities, LAN port-1, HDMI -2+1, USB-1+1, RF In 1 , one head phone out , power ; can work on 100-240Vac, 50-60 Hz, equipped with Web OS and all apps required for presentation of chromatographs</p>	
			<p>Power supply: Online UPS (Preferably ISI mark standards make), 15.0 KVA output capacity, minimum 3 hr back up at full power output, and sufficient SMF batteries (Preferably Exide/Luminous/Amaron make), castor mounted rack for batteries. UPS must be capable to supply power quantity and quality to run entire instrument system with all accessories without operator</p>	
			<p>7- Pre requisite for LC MS/ MS System with accessories for installation and working of the complete system:</p>	
			<ul style="list-style-type: none"> • Vendor should be quote and supply installation kits/any other material/ items requirement as a cost of tender price for instrument fully working status. 	
			<ul style="list-style-type: none"> • Any specific requirements other than above should be mention in tender offer either as standard accessories or separate with specification 	
			<ul style="list-style-type: none"> • Vendor should be supply and installed for the working of the system, all accessories such as gas purification panel units/ panel, module, electric device etc for safe and precursory installation. The gas lining panel work should be done by the supplier for the connection of instrument. 	
			<ul style="list-style-type: none"> • Any other gas required for the working of the system shall be provided minimum one filled gas cylinder with all accessories such as regulator, gas purification panel unit, gas purifier etc should be supplied and commissioned. The gas lining panel work should be done by the supplier for the connection of instrument. 	
			<p>8- Essential spares to run instruments</p>	

			<p>Vendor should be quote, provide and must be supply any spare parts, routing replacement items with code for future required for tuning/ calibration/ service / maintenance/ repaired to keep system in full functional condition of system for 3 years as following and as purely extra (except consumable). These items should not be included as standard items quoted in offer for full functional system.</p>																							
			<table border="1"> <thead> <tr> <th><u>8.1 Name with Specifications of Spared useful after warranty /guarantee period</u></th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>Inline filter with frit for LC</td> <td>10 nos</td> </tr> <tr> <td>Capillaries for ESI</td> <td>10-nos</td> </tr> <tr> <td>Corona needle for ESI</td> <td>5 nos</td> </tr> <tr> <td>Corona needle for APCI</td> <td>5 nos.</td> </tr> <tr> <td>Desolvation line</td> <td>10 nos.</td> </tr> <tr> <td>ESI O-ring (if required in MS)</td> <td>10 nos.</td> </tr> <tr> <td>Pump seals for LC system</td> <td>5 nos.</td> </tr> <tr> <td>Front Shield of ion source</td> <td>2 nos</td> </tr> <tr> <td>Tool kit</td> <td>1 set</td> </tr> <tr> <td>Any spare part for service/ replacement/ repair will be need for 3 year after warranty period</td> <td>Q S</td> </tr> </tbody> </table>	<u>8.1 Name with Specifications of Spared useful after warranty /guarantee period</u>	Quantity	Inline filter with frit for LC	10 nos	Capillaries for ESI	10-nos	Corona needle for ESI	5 nos	Corona needle for APCI	5 nos.	Desolvation line	10 nos.	ESI O-ring (if required in MS)	10 nos.	Pump seals for LC system	5 nos.	Front Shield of ion source	2 nos	Tool kit	1 set	Any spare part for service/ replacement/ repair will be need for 3 year after warranty period	Q S	
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			Auto sampler tray extra excluding with system	2 no.
			Plunger seal wash bottle (if available in LC)	4 nos.
			Alconox powder for cleaning system	10 pks.
			≤0.22μ Filter paper disc 25 mm dia (100 per pack) (10x100)	10 pks
			RP C-18, 1.7μ,100 mm X 2.1mm	5 nos
			Mix Mode column (C-8, WCX, WAX) 100 mm X 2.1mm	3 nos
			Biphenyl column 1.9μ,100mmX 2.1mm	1 nos
			Guard column cartridge holder with installation kit	2 nos
			Guard column cartridge /frit/inline filter for protect sub 1.7 μ column	50 nos
			Dehumidifier (room size 250 sq ft /2500 ft3)	1 no.
			Any other suggested item -essential need bases	Q S
			9-Other term and conditions	
			<ul style="list-style-type: none"> Point wise compliance sheet with vendor's specifications values must be provided in enclosed with tender, otherwise offer will be technically rejected. 	
			<ul style="list-style-type: none"> Warranty should be comprehensive Complete system including the third party items should have as per general term and condition (TWO years CMC) warranty/ guarantee (mean servicing maintenance, labors, spare-parts, and replacements etc). (Conditional warranty will not be acceptable) from the date of installation and One year AMC warranty/ guarantee after CMC period. Spares required during warranty years trouble free operation should be included in the offer and supplied with system. Warranty including minimum one visit of application engineer per year. 	
			<ul style="list-style-type: none"> Written service maintenance schedule with replacement/ spare part items to be submitted along with offer. 	
			Vender should be supply any spares parts, routing replacements item required for tuning/ calibration/ service/ maintenance/ repaired to keep system in functional working conditions without trouble free operation during warranty /guarantee period (It should be listed separately along with offer except consumables)	
			<ul style="list-style-type: none"> Service: All preventive maintenance as well as break down service should be provided free of cost under guarantee/ warranty period and application support at least once in year. 	

			<ul style="list-style-type: none"> • AMC: Specify separately quote the AMC charges for 1st and 2nd years (2 years) after guarantee / warranty period including calibration of the system and including minimum one visit of application engineer per year. • Vender should install free of cost at our site with analysis of few samples and developed a method with complete report to be printout. 	
			<p>Training: The supplier has to impart ON- site operation and application immediately after the installation and also OFF-SITE application training to minimum two scientists with your cost.</p>	
			<p>Price quoted should be inclusive of all the Equipment/Item/Material with all accessories, packing & forwarding charges (if any), Excise Duty, Custom Duty (if any but as government aided institute has exempted on certificate provided after purchase order), Freight upto S D Agricultural University, Transit Insurance, Total delivery cost at S D Agricultural University, Installation & Commissioning cost (if any), including warranty duration and cost (if any) and training to the staff of the Institute OR as specified in tender terms and conditions.</p>	
			<p>OPTIONAL:</p>	
			<p>LCMSMS system should have by-pass or change over device to divert flow towards optional detector</p>	
			<p>1-High Sensitive Photo Diode Array Detector</p>	
			<p>Number of diode elements ; ≥ 512 or better</p>	
			<ul style="list-style-type: none"> • Wavelength Range: 190-800nm 	
			<ul style="list-style-type: none"> • Wavelength Accuracy: ± 1 nm or less than that or better 	
			<ul style="list-style-type: none"> • Base line noise: $\pm 3 \mu$ AU 	
			<ul style="list-style-type: none"> • Light source: Pre-aligned Deuterium lamp/ better 	
			<ul style="list-style-type: none"> • Flow cell volume must be $\leq 1 \mu$L or less volume to better 	
			<ul style="list-style-type: none"> • Data acquisition must be at 80-100 Hz or better 	
			<ul style="list-style-type: none"> • Optional offer must be including all other accessories to full fill functional operation of system 	

05-A.24	Gas Chromatography Mass Spectrometry Q-TOF with accessories (GC-QTOF)	01	<p>Technical Specifications for GC- Q-TOF OR Equivalent or Higher (HRAM) Technology system with accessories</p> <p>Gas Chromatograph-Mass Spectrometer with Quadrupole and Time of Flight (TOF) OR HRAM / Equivalent mass analyzer based equipment system for high end sensitively qualitative and quantitative determination complete functional system with user friendly software base operation and analysis to meet the analysis requirements of global food regulations like EU/USFDA/Japan/FSSAI, etc.</p> <p>GC should be inbuilt with LED and configured with oven, gas regulations, SP/SPL & PTV injectors, large gas volume injection device / Head space (HS), FID detector, detector splitter and transfer line for GCMS/MS and dual tower or multimode auto samples etc complete system. The system should be capable of calculating the carrier gas linear velocity and the column void time. Automatic leak testing and unattended and automated system leak simultaneous check with safe guard. Gas Chromatograph to provide all needed data including temperature, pressure/ flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flows, detector flow rates and all detector parameter with programmable electronic control for complete system. System should have data-station with computer with monitor, color printer, operating software, data base library etc. as per specifications with all accessories.</p> <p>1-Quadruple TOF/ HRAM Equivalent mass spectrometer/ analyzer System</p> <p>Mass Analyzer: it should have Quadrupole Mass Filter, collision cell and followed by TOF or HRAM Equivalent mass analyzer or better technologies</p> <p>Standard Ionization mode: Electron Ionization (EI) and Chemical Ionization (both NCI and PCI) or Dual ionization source</p> <p>Ionization electron energy : variable settable range from 10-150 eV or better with increments of 1.0 eV</p> <p>Ionization source temperature : variable settable range from 75-350 °C temperature or better</p> <p>Ion source assembly: Dual filament assembly for EI and must be compatible EI and CI both ion sources and easy to interchangeable without vacuum venting, advanced EI ionization or better OR it having simultaneously both ion sources</p>
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			<p>mounting will be preferable</p> <p>ion source mounting : it must be upgradable and cartridge can be removed/ replaced without venting the system, easily, quickly or it should be simultaneously both ion sources mounting with programmable selection preferable</p> <p>Must have a non-coated inert EI source with combination of repeller and extraction lens for high sensitivity</p> <p>The mass spectrometer must have a quadrupole capable of isolating masses/ Mass resolution at a 0.4 Da width or better.</p> <p>System must have Quadrupole Mass filter for ion transmission and isolation of variable precursor ion</p> <p>System must have Collision cell that must be able to MS MS transition with hexa /multi pole arrangement or better , Collision cell that must be able to high sensitive MS MS fragmentation</p> <p>Detection limit (IDL) it must be able to detect < 10 fg or less of OFN (octofluoronaphthalene) at m/z 271.9867), statistically derived at 99% confidence level from the area precision (<8% RSD) of 8 sequential splitless injections of 1 µl of 10 fg OFN or better IDL IDL as mentioned should be demonstrated during installation and demonstration</p> <p>Mass Range: The mass range must be at least m/z 30-2500 amu / m/z or better</p> <p>Resolution: Must have a resolution full width at half height (FWHM) of $\geq 45,000$ to 50,000 at mass range from 75-300 m/z from a splitless injection of 1 µl of 100fg OFN or better range</p> <p>Resolution Performance: Must have a resolution of more than (\geq) 75,000 to 100,000 full width at half height (FWHM) at molecular mass 271.9867 m/z from a splitless injection of 1 µl of 100fg OFN or better range</p> <p>Sensitivity Performance : It should be able to produce EI full spectrum S:N> 9000:1 to 10000:1 to (RMS noise) while scanning from m/z 50 to m/z 300 or m/z 271.9867 from a splitless injection of 1 µl of 100fg OFN or better range</p> <p>It should be able to produce PCI full spectrum S:N > 150:1 (RMS noise) during scanning from m/z 100 to m/z 230 from a splitless injection 1µL of 10 pg BZP or better with methane reagent gas or 1µL of 10 pg/µL benzophenone (BZP) at m/z 183.0804 while</p>	
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			<p>Mass accuracy: it must have an average mass error of < 1 ppm at m/z 271.9867 from 8 sequential splitless injection of 1 μl of 100fg OFN or better ppm</p>	
			<p>Scan speed /; it must have acquisition scan rate variable and selectable from spectra / second more than 15 Hz or better range</p>	
			<p>Must have an electronic dynamic range of at least 10⁶ or better</p>	
			<p>The mass spectrometer must have a fully automated tune and user selectable manual tune</p>	
			<p>Vacuum System: Air-cooled high vacuum pump more than sufficient to required vacuum with control. it should be as quick as possible to attend vacuum at run level</p>	
			<p>It should be safety interlocks integrated into the GC MSMS system for interchange ion source without vacuum beak</p>	
			<p>Vacuum leak check : System must have the ability to perform automated leak check using a air as reference</p>	
			<p>Vacuum rough pump : The vacuum system supported with rotary-vane oil fore-pump as stander accessories of the system</p>	
			<p>Detector type: Electron Multiplier or Sealed PMT Or Discrete dynode electrodes or any suitable technique utilize digital electronic noise discrimination with Software based ability to acquire data in centroid, profile, nominal etc modes.</p>	
			<p>Instrument Control by software base operation and data acquisition</p>	
			<p>All unit must be control and operation by single software including data analysis and report generation ,</p>	
			<p>It should have all sort of scan functions such as Ful scan of MS, SIM, MRM, MS MS and data evaluating , filtering , baseline correction and data interpretation , report generation and data base structure elucidation etc</p>	
			<p>It should be automated data acquisition window adjustment, method setup, controlling and acquiring all the MS, MSMS and conventional detectors</p>	
			<p>Must have an integrated retention time-locking module for analyzing target compounds in complex matrices. The software module must provide the creation of custom compound databases as well as the utilization of vendor provided databases</p>	
			<p>Software must be able to quantification, unknown target screening and isolation , spectral deconvolution with mass library search and Kovecs indice scoring /retention</p>	

			time index	
			It should have software base report generation for environmental and food safety market as per international protocols.	
			<u>2-Gas Chromatograph :</u>	
			• GC Configuration for Oven, gas regulation and other hardware performance. GC must be feature an external LED screen to provide easy accessibility to GC and an immediate interaction with it. A routine automatic leak checks procedure. The system should be capable of calculating the carrier gas linear velocity and the column void time etc.	
			• Typical retention time repeatability : <0.0008 min, using with multiple solvents peak area repeatability : <0.5 % RSD	
			• Operating temperature range: ambient +5 °C to 450 °C with user selection	
			• Temperature set point resolution: 0.1 °C	
			• Temp. Ramping: it should have number of ramp more than 10/11 or more better	
			• Maximum heating rate: minimum 30 to 120 °C/min at high to lowest temperature ranges	
			• Oven cool-down (24 °C ambient): it should have 450 °C to 50 °C in < 5 minutes or better	
			• Oven Size ; Capable to accommodate 2 or more Capillary Columns simultaneously	
			• It must support to numbers of injectors and detectors installation ports/devices	
			• Injectors ports; liquid injection SLP/SL and PTV and gas injection head space inlet / large volume (200µl)	
			• Two detectors out let port: One for inbuilt detector like FID or any one and second facilities for interconnection with Transfer line with MS detector and compatible to temperature control.	
			• Pneumatics: Programmable Electronic /Flow/ Pressure control for injectors with single point control through software.	
			• Automatic leak testing and unattended and automated simultaneous leak check system.	
			• A dedicated automated evaluating and storing the column pneumatic resistance.	

			<ul style="list-style-type: none"> • It should allow an automated correction of the nominal column parameters and eliminate the use of unknown or unsure values. It should also permits to correctly handle columns with different id connected in series. Capable to calculate the carrier gas linear velocity and the column void time. • Constant and programmed pressures and flows with gas saver and septum purge with gas saver facilities • Total flow setting: – Control of split flow in 0.1 mL/min increments; split flow OFF or from 5 to 1000 mL/min– Purge flow: OFF or from 0.5 to 50 mL/min in 0.1 mL/min increments 	
			2.1 Injectors	
			Injectors ports PSP/SLP and PTV both should have with helium gas saver module/ device with software control and programmable. It should have Helium gas saving/ conserving function/ device / module for save helium very significantly.	
			2.1.1-Split/Splitless Injector – 01 No.	
			<ul style="list-style-type: none"> • The Split/Splitless injector should be user-installable, without any special tool with a facility to all capillary columns. •It should have maximum temperature: upto 400 degree C or better •It should be gas regulation through Electronic/ advanced- Flow/ Pressure Control (EFC/ EPC) with software controlled • The injector should support small volume minimum 0.5 µl to upto 10 µl as well as large volume splitless injection (50 to 200 µl) / whole sample and without any further hardware requirement(concurrent solvent re condensation) • It should be separate/ integrated / back flush capabilities •It should have split ratio \geq 1:7000 or better • It should be compatible with 1/8" and 1/16" packed column with / without using adapters • It should be supports to P&T/TD/HS/LV by special adapter. 	
			2.1.2 Programmable Temperature Injector(PTV) Injector–01No.	
			<ul style="list-style-type: none"> • It should have facility to inject small volume 0.1 to 5µl auto sampler as well as possibly with large volume up to 200ul or better in single stroke 	

			<ul style="list-style-type: none"> • It should have temperature ranged with air cooling: Ambient +5 °C up to 450 °C or better
			<ul style="list-style-type: none"> • Temperature programming minimum 3 ramps or more and ramping rate >250 °C/min or better
			<ul style="list-style-type: none"> • PTV injector with integrated / separate, concurrent back flush capabilities.
			<ul style="list-style-type: none"> • It should be supports to hot/cold split and splitless injection of small volume 0.1 to 5µl modes as well as large volume injection up to 200µl (solvent split) or better
			It should have split ratio more than 7000:1 and On Column injection facility through software
			It should be supports to P&T/TD/HS/LV by special adapter.
			3- Auto Sampler: liquid as well as gas samples injection
			<ul style="list-style-type: none"> • Auto sampler should be able to perform injection for either injection ports SL-SPL and PTV (liquid sample of low and high volume) as well as gas samples (Head space) and On Column injection without hardware changeover/ manual replacement for unattended operation and selected as per instrument method.
			It should be auto changeover syringes/ transfer line selection with all type of injection featured should be software controlled and programmable.
			It should have syringe x-y-z / linear/ axial motion for selection of injector ports (any of one, SL-SPL/ PTV/Head space/ On Column injection mode set/ programmed in the instrument method.
			OR It either should be or multimode/ multi functional or combipal type autosampler for injection ability with software base operation, port selection and all parameters can be setting ability in GCMSMS method itself.
			<ul style="list-style-type: none"> • It should able to inject from 0.1ul to 10ul as standard as well as minimum upto 50.0ul or better upto 200 µl with variable speed & varying syringe sizes, auto rinsing/ washing & must be operate and control fully by software as well as manual.
			Auto sampler should be not compatible with only of the mfg syringe
			It should have a reproducibility of <0.5% RSD.
			<ul style="list-style-type: none"> • It should have capacity minimum for 90 nos or more samples of 1.5-2.0 ml

			<p>vials occupancy capacity.</p> <ul style="list-style-type: none"> • It should have internal standard addition facilities/ auto dilution capacity with high accuracy • Auto sampler should have chamber /tray for 1.5-2.0ml vial stay / incubation and temperature control from 4 to 40°C plentium cooling/ heating to avoid of evaporation of solvent from vials. <p>Head space (gas sample)or its equivalent system for sample injection either connected to either SL-SPL or PTV injector port with high volume syringe or with heated transfer line facility for more than 5-6 vials incubation tray with all accessory and software controlled. It should be with temperature controlled upto 150°C or better. It should also have more than 50 vial in carousal/tray</p> <p>4- Detector</p> <p>GC system should be configuration for MSMS as well as additional one detector (FID) , that must be software controlled interchangeable for data acquisition and analysis,</p> <p>Automatic detector changeover/ switching device/ splitter system or facility: It should have multiple GC detectors automatic selection system / device for either one or simultaneously two or more detectors selection for data acquisition form MS MS and FID. If detector splitter, it should have spite ratio; 1:99% or 100%flow to either detectors with software base controlled.</p> <p>FID Detector (Flame Ionization Detector) – 01</p> <p>Flameout detection and automatic re-ignition, with alarm, safe guards.</p> <p>Minimum detection limit: less than (\leq):1.5.0pg C/s or better</p> <p>Sensitivity: >0.03 Coulombs/g C</p> <p>Linear Dynamic Range: >10⁷ (\pm10%) or Better over a entire range of conc. and molecular mass</p> <p>Maximum Temperature: up to 450 °C .</p> <p>Data Acquisition Rate: up to 250 Hz or better</p> <p>5- System control & application Software and Ethernet Ports, cards etc.</p> <ul style="list-style-type: none"> • Licensed application as well as instrument controlling software and compatible to Microsoft latest window bases loaded in latest configured personal computer to control GC, Auto sampler Mass analyzer and other accessories. It should be 	
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			<p>allows to fully automated quantitative and qualitative analysis with standard custom need base reports generation. All application and operative software copy should be provided in DVD and PEN drive with licensed keys for installation in future.</p>
			<ul style="list-style-type: none"> • System should provide with any hardware need for connection, installation and loading of software, connection and communication to other set up of system
			<ul style="list-style-type: none"> • Latest and upgradable data based latest version of NIST or Wiley or better library include spectra with names and chemical structures, Kovacs retention indices, accurate mass information for both molecular ions and product ions, MS/MS Spectra Lib, and NIST search & AMDIS programs. <p>Mass spectrum library for data analysis, qualitative, quantitative comparatives and peak identification, structure elucidation and conformation.</p> <p>It should have all HRAM mass spectral /MRM library of more than 600 compounds including pesticides, phytochemicals, veterinary drugs, toxins, metabolites and other food and environmental contaminants and adulterations etc.</p>
			<p>Operation and data base software should be online/ offline upgradable free of cost for up to 7 years or more time lime with latest data base</p>
			<p>6- Computers system for software installation and instrument operation, data storage and analysis</p>
			<ul style="list-style-type: none"> • Computer with specifications should be compatible and capable to operation functional working of the complete system with licensed software for 24x7 hrs without interruption and Data station should be compatible to process minimum 300 compound in a single run
			<p>Computer with Intel Core i7 Processor Intel original M/B, or better, 32Gb DDR3 RAM, or better, 1+1=2Tb HDD or better configuration with, DVD RW (CD RW capable), graphic card Ethernet ports, internet and USB, HDMI, VGA and Audio in etc ports . Laser 6-button mouse, keyboard and color printer for printing hardcopy of chromatogram. Computer should be along with latest licensed window OS and other necessary softwares.</p> <p>LED monitor screen minimum 27" or better, 3840x2160 UHQ(4K) resolutions with in-built speakers 8W+8W.Working on AC 100-250Vac,50/60Hz</p>

			<p>7-Pre requisite for GC MS – Q TOF / Equivalent (HRAM) System with accessories for installation and commencing of the complete system:</p> <ul style="list-style-type: none"> • Vendor should be quote and supply installation kits/any other materials/ items requirement as a cost of tender price for instrument fully working status. • Any specific requirements other than above should be mention in tender offer either as standard accessories or separately with specifications. <p>Gases supply: Vendor should be provide and installed gas supply items for the working of the system, all accessories such as suitable filled gas cylinders (2 Nos. of each, with high 99.9999% pure gas) for all gases required with test certificates, SS double stage regulators, cylinder opening key , cylinder cage or Bracket etc gas pipes with fittings and gas purifiers with control panels, Gas filter to remove the impurities (hydrocarbons, moisture and oxygen), Oxytraps, helium gas filter tower types etc.</p> <p>Any module, device etc for safe and precursory installation. The gas lining panel work installation should be done by the supplier for the connection gases to instrument.</p> <p>Power supply: Online UPS (Preferably ISI mark standards make), 20.0 KVA output capacity, minimum 2.0 hr uninterrupted back up at full power output with sufficient SMF batteries(Preferably Exide/Luminous/Amaron make), castor mounted rack for batteries. UPS must be capable to supply power quantity and quality to run entire instrument system with all accessories without attendant.</p> <p>8- Essential spares kits to run and maintenance instruments</p> <p>Vendor should be quote, provide and must be supply any spare parts, routing replacement items with code for future required for service / maintenance/ repaired to keep system in full functional condition of system for 3 years after warranty as following(8.1) as purely extra except-8.2. These all items should not be included as a part of standard items quoted in offer for fully functional system.</p> <table border="1"> <thead> <tr> <th>Name with Specifications of Spared used after warranty /guarantee period</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>EI ion source dual Filaments for replacement</td> <td>5 nos</td> </tr> </tbody> </table>	Name with Specifications of Spared used after warranty /guarantee period	Quantity	EI ion source dual Filaments for replacement	5 nos
Name with Specifications of Spared used after warranty /guarantee period	Quantity						
EI ion source dual Filaments for replacement	5 nos						

			Detector Multiplier/ or its equivalent	1 nos
			CI ion source Filament for replacement	2 nos
			Filament cartridge for mounting for replacement	2 nos
			Ion source volume for EI source for replacement	5 nos
			Ion source volume for CI source for replacement	2 nos
			Lenses 1 and 2 or it's equivalents for replacement	1 pair
			Repellers or it's equivalents for replacement	1 set
			MS transfer line nut pack for replacement	1 nos
			O ring for replacement	10 nos
			Capillary adaptor for replacement	2 nos
			Replacement Items such chimney, probe, heat cell etc for FID detector (each)	2 set
			Helium gas filter (tower top)- for replacement	1 nos
			Oxytrap for replacement	1 nos
			Replacement items for auto sampler for 3 years after warranty	SQ
			Any spare will be needed for repaired service and replacement for 3 year after warranty	SQ
			Consumable kits to run and maintenance instruments	
			Low bleed Septa maximum set point 350 °C	200nos
			Auto sampler Syringe 10 uL or auto sampler compatible	5 nos
			Auto sampler Syringe for gas volume injection / transfer line for head space compatible	2 nos
			Suitable vials for head space/ auto sampler for gas volume injection	200 nos
			Vespel/ graphite Ferrulefor capillary columns of 0.25, size	20 nos
			Vespel/ graphite Ferrulefor capillary columns of 0.32 mm, size	20 nos
			Vespel/ graphite Ferrulefor capillary columns of 0.53 mm ID for each size	20 nos
			Glass Liners for Split /Splitless injector	10 no

			Glass Liners for PTV injector	10 no
			Pump Oil	3 litre
			Quartz / Glass wool high quality	5 gm
			Standard tuning/ calibration solution GC MS Q-TOF/ HRAM vials/bottle	2 no
			Aluminum oxide or its equivalents for cleaning of GCMSMS components	2 nos
			Dehumidifier (room size 250 sq ft /2500 ft3)	1 no.
			Capillary columns-phase-5ms-(30 mtr. X 0.25 mm ID x 0.25um) semi polar for pesticide residues analysis	5 Nos.
			Capillary columns-phase-5ms-(30 mtr. X 0.32 mm ID x 3.0um) semi polar (for head space with suitable ferrules)	1 nos.
			Capillary columns-phase-1701ms-(30 mtr. X 0.25 mm ID x 0.25um) semi polar for pesticide residues analysis	1nos
			Capillary columns-phase-1ms-(60mtr. X 0.25 mm ID x 0.25um) non-polar for fatty acids isomers	1nos
			Standard Test and validation Mix for all above mentioned detectors and MS sensitivity.	Q S
			Mixture of more than 100 pesticides standards of minimum 1 ppm each with expiry more than 1 years	1set
			Any other suggested item : as per required for fully function and servicing	S Q
			9-Other term and conditions	
			<ul style="list-style-type: none"> • Point wise compliance sheet with vendor's specifications values must be provided in enclosed with tender, otherwise offer will be technically rejected. All specifications must be instrument installation demonstration / check out specifications. Marketing Specification will not be accepted 	
			<ul style="list-style-type: none"> • Warranty should be comprehensive Complete system including the third party items should have as per general term and condition (TWO years as CMC) warranty/ guarantee (mean servicing maintenance, labors, spare-parts, and replacements etc). (Conditional warranty will not be acceptable) from the date of installation and One year 	

			<p>as AMC warranty/ guarantee after completion of CMC period. Spares required during warranty years trouble free operation should be included in the offer and supplied with system. Warranty including minimum one visit of application engineer per year.</p> <ul style="list-style-type: none"> • Written service maintenance schedule with replacement/ spare part items to be submitted along with offer.
			<p>Vender should be supply free of cost any spares parts, routing replacements item required for tuning/ calibration/ service/ maintenance/ repaired to keep system in fully functional working conditions without trouble free operation during warranty /guarantee period (It should be listed along with offer except consumables)</p>
			<ul style="list-style-type: none"> • Servicing: All preventive maintenance as well as break down service should be provided free of cost under guarantee/ warranty period and application support at least once in year.
			<p>Vender should be clearly specified name of service and spares provider during warranty and AMC</p>
			<ul style="list-style-type: none"> • AMC/CMC: Specify separately quote the AMC and CMC separately charges for 1st and 2nd and 3rd years (3 years) after guarantee / warranty period including calibration of the system and including minimum one visit of application engineer per year.
			<ul style="list-style-type: none"> • Vender should install free of cost at our site with analysis of few samples and developed a method with complete report to be printout.
			<p>Training: The supplier has to impart ON- site operation and application training immediately after the installation and also OFF-SITE application training to minimum two scientists with vender cost.</p>
			<p>Price quoted should be inclusive of all the Equipment/Item/Material with all accessories, packing & forwarding charges (if any), Excise Duty, Custom Duty (if any but as government aided institute has exempted on certificate provided after purchase order), Freight , Transit Insurance, Total delivery cost at S D Agricultural University, Installation & Commissioning cost (if any), including warranty duration and cost (if any) and training to the staff of the Institute OR as specified in tender terms and conditions.</p>

