Directorate of Research
Navsari Agricultural University, Navsari-396450, Gujarat

Tender Document

For

Purchase of Scientific Instruments/Machineries

E-TENDER No. NAU/DR/01/2018-19

Date: - - 2018 Stamp, seal and signature of tenderer

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Chapter 1: Tender Notice -

Purchase of Scientific Instruments

Bids from manufacturer/Authorized dealers/supplier are invited for the purchase of Scientific Instruments/machineriesfor Navsari Agricultural University. The list of purchase items under this tender are given underneath. The bids are invited by e-tender through website **www.nprocure.com**or**au.nprocure.com**.

Period for Bid Document Downloading & Uploading	01/12/2018 to 18.00 hrs of 21/12/2018
The Last date for online tender submission	21/12/2018 up to 18:00 Hrs
Last date for physical submission of tender fee, EMD and other documents mentioned in Chapter 4 (3)by RPAD / Courier / Speed post	26/12/2018up to 17:00 Hrs
Bid Validity Period	Upto 31stMarch, 2019
Tender Fee (to be calculated by tenderer as applicable)	As per Chapter-6 of tender document
Earnest Money Deposit (EMD)(to be calculated by tenderer as applicable)	As per Chapter-6 of tender document
Technical documents available on	www.nprocure.com/au.nprocure.com

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Chapter 2: List of Purchase Items and its objectives

Specification (Please see Chapter 7, Appendix-V), tender fee and EMD (please see chapter 6)

No.	Name of the Instrument	Objective of purchase
1	GLC (Gas liquid Chromatograph)	Providing, Installing and commissioning Testing of the equipment GasLiquid Chromatograph with FID, ECD and FPD detector along with all accessories for pesticide residue analysis
2	GC MS/MS (Gas Chromatography Mass Spectroscopy)	Providing, Installing and commissioning Testing of the equipment Gas Chromatography Mass Spectroscopy (GC-MS/MS) along with all accessories for pesticide residue analysis
3	Water purification system	• The water purification system should produce two stages water purification systems. • Type-I: Ultra-Pure Water complying ASTM D1193-6 (most preferably Type-IA). The system should be able to produce ultrapure water for ICP-MS/LCMS/MS analysis with sub-ppt level trace elemental and TOC contamination. • Type-II: Purified water (water for buffers, pH solutions and microbiological culture media buffers, pH solutions and microbiological culture media preparation.
4	Heavy duty large volume homogenizer	Properly homogenize the solid and liquid food of variable sample volume for chemical and other analysis at variable speed
5	Fermenter	For the mass production of various bio pesticides (Fungi and Bacteria) like *Trichoderma,Metarhizium*, *Beuveria*, *Pseudomonasetc.*
6	CNC lathe Machine	To demonstrate the mechanical fabrication activities of different iron material viz., drilling, turning, threading etc. to the students.
7	Twin Screw Extruder	The equipment must be Laboratory Model High Shear Twin-Screw Extruder cum Cooker, designed for teaching, R&D and product development to process food materials (Fruits and vegetable based extruded products viz. Kurkure of variable shapes and size).
8	Carbonation Unit	The installation and commissioning of Carbonation unit to produce bottled carbonated the beverages / fruit drinks using a commercial Carbon Dioxide gas.
9	Digital Stereoscopic Microscope	For morphological and taxonomical and biological studies of insect pests and natural enemies. To capture the images of small insect pests and their various body parts with attached digital camera for morphometrical studies.

Note: Detail specifications with special terms and conditions of all above listed 9 purchase items are described in Chapter 7(Appendix V).

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Chapter 3: Instructions to tenderers for Online Tender Participation

1. All tender documents can be downloaded free from the website **http://au.nprocure.com** or **http://www.nprocure.com**
2. All bids should be submitted online on the website **http://au.nprocure.com** or **http://www.nprocure.com**
3. All bids should be digitally signed. For the details regarding digital signature certificate and related training involved the below mentioned address should be contacted

   (n)Code Solutions
   A division of GNFC
   301, GNFC Infotower, Bodakdev,
   Ahmedabad 380054 (India)
   Tel. : +91 79 26857316 / 17 / 18
   Fax : +91 79 26857321
   Toll Free Number : 1-800-233-1010
   www.ncodesolutions.com
4. The user can get a copy of instructions to online participation from the website **http://au.nprocure.com** or **http://www.nprocure.com**
5. The service provider should register on the website through the "New User" link 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. For all queries regarding use of digital signature certificate should be addressed to personnel in M/s. (n)Code Solutions.
8. For all queries regarding tender (except item specification) should be addressed to the office address provided below.

   The Principal,
   N.M. College of Agriculture
   Navsari Agricultural University,
   Eru Char Rasta, Navsari – 396 450 (Gujarat)
   E-mail: dean_agri@nau.in
   Phone: 02637 282766
   Contact: As per chapter 3, point No.9
9. For queries regarding item specifications, contact respective scientist preferably, during office hours as given below.

Sr. No.	Name of the Scientific Instrument/Machineries	Contact No. of concern Scientist	Name of the unit / sub-unit
1	GLC (Gas liquid Chromatograph)	9998286581	FQTL, NMCA, Navsari
2	GC MS/MS (Gas Chromatography Mass Spectroscopy		
3	Water purification system		
4	Heavy duty large volume homogenizer		
5	Fermenter	9879038539	Agri. College, Waghai
6	CNC lathe Machine	9512686833	Engg. Department, NMCA, Navsari
7	Twin Screw Extruder	9913753252	PHT, ACHF, Navsari
8	Carbonation Unit		
9	Digital Stereoscopic Microscope	9426603068	Fruit Research Station, NAU,Gandevi

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Chapter 4: Technical Bid Document (TBD) Submission

1.	Tenderer should note that the technical information pertaining to the quoted items **(as mentioned in the chapter –7)** should critically be furnished in the given format only**(Appendices-V(1) and so on)**. In the format, tenderer should have to make comments regarding any deviation or any equivalent technology or any information which supplement the claim of complying the technical specification or any noticeable information *etc.*	
2.	The tenderer has to upload all the necessary documents mentioned in the check list **(Chapter-7, appendix-IV)**online on n-procure (**www.au.nprocure.com/www.nprocure.com)** along with commercial bid. The tenderer has to precisely and accurately name the digital file of the documents as named in the checklist. Extra document or incorrectly named or misleading document will not be considered. It should be noted that the uploadable documents which are having multiple pages should be combined and converted into a single pdf file with freeware pdfconverter software. These digital documents should be properly named (as mentioned below) before uploading.	
	I	**Forwarding letter**(Upload the scanned copy)
	II	**Tender fee**: Upload the scanned copy of Bank Draft/s
	III	**EMD**: Upload the scanned copy of Bank Draft/s
	IV	**Tenderdocument** (Signed on all pages, properly scan and convert in pdf format. Combine all pages with appropriate free ware software and upload as single document).
	V	**Tenderer's detail**(Upload the scanned copy)
	VI	**Affidavit:** (Duly signed and notarized affidavit as per format should bescaned and converts in tosingle pdfdocument and upload).
	VII	**Check list** (Upload the duly filled scanned copy)
	VIII	**TSCD**(Scanned dully filled **Technical Specification Compliance Document** for the quoted item/s only and upload after converting it into single pdf document.
	IX	**PAN Card (**Upload the scanned copy**)**
	X	**GST certificate (**Upload the scanned copy**)**
	XI	**Auth_OEM certificate** (Upload the scanned copyof Authorization letter/OEM certificate)
	XII	**QS Certificate** (Upload the scanned copy of QCI/BIS/Indian Govt. approved agencies or organization/International quality standard certificate)
	XIII	**Income Tax return AY 2017-18**(Upload the scanned copy)
	XIV	**Brochure:** (Upload the brochure showing technical compliance. If the file size of catalogue/Brochure of quoted item is more than admissible size (3 MB). Tenderer must fragment the file with appropriate freeware software and then upload with appropriately naming the files. The fragmented file of quoted item must be named as: brochure_No. as per chapter 2_01.to *n*. Eg. Item is GLC and GC MS/MS and its brochure is of 12mb. Tenderer has to fragment the consolidated file into 4 sub-files. It should be named as Brochure_01_01 to Brochure_01_04.
	XV	**Other** (In this section, tenderer can upload scanned copy of any specific or relevant information pertaining to tender which have not been covered in the tender document. Such as tender fee exemption certificates *etc.*)
3.	The tenderer has to ensure that bid documents as per checklist (Chapter-7,Appendix IV)i.e.Forwarding letter, demand draft of Tender Fee and EMD, tender document duly signed by tenderer on each page, a hundred rupees notarized affidavit and technical compliance specification document should only be submitted physically to The Principal, N.M. College of Agriculture, Navsari Agricultural University, Navsari – 396 450 (Gujarat) on or before prescribed date.Envelope should be marked as **"E-TENDER No. NAU/DR/01/2018-19".** The tender received after prescribed date will not be considered.	
4.	Tender Supporting Documents (TSD) received late and/or not submitted in the prescribed formats/manner, incomplete in any respect or not accompanied by prescribed mandatory documents are liable to be rejected. NAU will not be responsible for non-receipt of tender within the specified date and time due to any reason including postal delays.	
5.	Do not put financial bids of the items anywhere in the Technical Bid Document during physical submission otherwise liable to be rejected.	
6.	**Do not to submit unnecessary documents** like explaining company profiles, nature of the company, services and miscellaneous things which is not inquired.	

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Chapter 5: General Terms and Conditions

Note: 1. Terms and Conditions listed under this chapter as well as in other chapters should be followed by the tenderers.
2. Purchase of all scientific instruments/machineries will be followed as per the Gujarat Government Purchase Policy resolution - 2016 dated 3.6.2016

01.	Navsari Agricultural University (hereinafter referred to as "NAU"), for its various Departments (hereinafter referred to as "the purchaser") for their requirement of Items (as mentioned in Chapter-3) intend to invite for supply and installation of Scientific Instruments/machineries across the various offices at Head Quarter as well as its sub centers. across the seven districts (Surat, Bharuch, Navsari, Dang, Narmada, Tapi and Valsad) of South Gujarat region of Gujarat state.
02.	In case of Original Equipment Manufacturer (OEM), attach the OEM certificate. Authorized dealers can quote their rates provided that they need to attach relevant certificate of authorized dealership issued during current financial year: 2018-19 from the OEM in favour of The Principal, N.M. college of Agriculture, Navsari Agricultural university, Navsari (Gujarat). Irrespective of whether the tenderer is an OEM or a distributor authorized by the OEM, the following eligibility criteria must be fulfilled • The tenderer should have made a positive operating profit • The tenderer should not be blacklisted by any Government or Government entity. • The tenderer should be in existence for a minimum of three years.
03.	The prices of the item given in chapter-2 and specified in chapter-7 (Appendix V) shall be inclusive of all freight, packaging and forwarding, transit insurance, installation charges, applicable taxes as per recent government rules & regulations as well as FOR destination.
04.	Rate should be quoted along with all applicable taxes. However, NAU being an government research and educational institute, therefore, is eligible for exemption of such duty from final payment. Therefore, PO will be released according to the applicable GST rate as specified for the Government research institutes.
05.	The lowest price is not the criteria and emphasis would be placed on quality and specifications of the material. The NAU has right to reject any or all the offers and invite fresh quotations if need arises. The NAU further reserves the right of selecting the brand and accepting or otherwise any of the conditions stipulated by tenderer.
06.	The bid is non-transferable.
07.	Amendment of bidding documents (corrigendum) At any time prior to the deadline for submission of bids, NAU may, for any reason, whether its own initiative or in response to the clarification request by a prospective tenderer, modify the bidding documents.The corrigendum will be published on website **http://www.nau.in**and **www.nprocure.com** only.In order to allow prospective tenderers reasonable time to take into consideration the amendments while preparing their bids, at its discretion, NAU may extend the deadline for the submission of bids.
08.	**Bid currency**: Prices shall be quoted in Indian Rupee only.
09.	The items shown in the Chapter-2 are subjected to requirements and the same may be purchased or may not be purchased without assigning any reason.
10.	The NAU may place repeat orders against the acceptance of tender within a period of validity, subject to the same terms and conditions originally provided in advertised tender and selected tenderer shall accept the same.
11.	The successful tenderer shall have to execute the purchase orders placed on any date during the validity of the tender at the rate, terms and conditions of the tender.
12.	All the electronics items should comply to International Standards for safety, Electromagnetic Emissions, Electromagnetic Immunity *etc.*
13.	At the time of order, If in any case the quoted item is not available in the market, the successful tenderer will have to supply higher version/replacement of that item in the quoted cost in the same time duration with prior approval of NAU.
14.	The successful tenderer will hold responsibility for the items sufficiently and properly packed for transport so as to ensure their being free from loss / damage / injury on arrival of destination NAU premises. The material should be supplied in the original company's packing which shall indicate packing details and other particulars as required under the statutory provisions. Inner and outer packing of boxes / cartons should be of standard design. The final packing of cartons of corrugated boxes shall be complying with ISS standards. A packing slip shall indicate clearly and legibly the

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	name of the product, batch number, quantity, date of manufacturer, date of expiry, gross and net weight, and consignee's name and address and other particulars as required. In the event of breakages or loss of items during transit / installation against requisition order the said quantity will have to be replaced/supply by the supplier without any additional charges.
15.	Successful tenderer failing to provide after sales services would be permanently blacklisted.
16.	The tenderers are encouraged to visit at ordering site before bidding for the assessment of feasibility of the quoted item. However, no any excuses will be acceptable regarding the performance to fulfil the objective of the quoted items.
17.	There should be no discrepancy in price quoted under similar period and similar supplies under the territorial jurisdiction of Gujarat state.
18.	The tenderers have to submit the quality assurance certificate obtained from QCI/BIS or any Indian Government approved institute/organization. In case of imported items where the QCI/BIS or Indian Government approved institute/organization quality control certificate is not available/application then the quality assurance certificate of international standard has to be provided.
19.	For finalization of purchase, **Gujarat Government Purchase Policy resolution - 2016 dated 3.6.2016 will be followed so as to promote "Make in India" policy of the Government.**
20.	**Payment:**The payment of item/items will be made after successful supply, commissioning/installation and satisfactory performance of the quoted items as per the requirement of the ordering party. However, any request regarding the advance or partial payment will not be entertained in any circumstances. If payment made through LC account, the cost of opening and other charges will be borne by the tenderer
21.	**Delivery:** The application for extension of delivery period shall be sent to concerned ordering office of Navsari Agricultural University at least 5 days prior to the expiry of delivery period of each items. The officer in charge, who is placing the order reserve the right to extend period or reject the deal and their decision in the matter shall be final and binding to all.
22.	**Warranty:** The tenderer must provide comprehensive onsite standard warranty **or as asked in specifications of different items,** from the date of installation for all items. Please clearly mention the parts, which are not covered under warranty, separately. If any instrument(s), properly not working and repetitively fault is found, say twice a week during the warranty period, the tenderer shall replace the item with new item without any additional cost to the purchaser. Further, any complaint shall be attended within a response time of 48 hours on 24X7 basis during warranty period.
23.	**Training and Demonstration:** Supplier has to perform on-site live demonstration/training as asked in specifications of different items.
24.	**Dispute:** In case of any dispute, final decision of The Purchase Committee, Navsari Agricultural University, Navsari – 396 450 will be binding upon all. In case of any dispute arises in respect of this tender, a suit in that behalf shall be subject to Navsari Jurisdiction.
25.	**All rights are reserved with the University Authority to accept or reject any or all the tenders received without assigning any reasons thereof.**

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Chapter6: Tender Fee, EMD and Security Deposit

1. **Tender fee and Earnest Money Deposit:**

   The tenderer has to submit non-refundable Tender Fee and Refundable Earnest Money Deposit in the form of Bank Draft payable at Navsari in favor of "Assistant Administrative Officer, N.M. College of Agriculture, NAU, Navsari" depending upon the number of Item/s quoted.

2. **Tender Fee Calculations:** The tender fee is based on the amount of quoted item/s. The tenderer has to submit tender fee based on the monitory value of quoted items. The applicable tender fee in different price category for quoted item/s is given below.

Price category of quoted items/s	Tender Fee
If total quoted price is less than or equal to Rs. 25,00,000	1,500
If total quoted price in between Rs. 25,00,001 to Rs. 50,00,000	2,500
If total quoted price isin between Rs. 50,00,001 to Rs. 1,00,00,000	5,000
If total quoted price isgreater than Rs. 1,00,00,000	15,000

3. **Earnest Money Deposit:**
   The tenderers have to submit EMD at the rate of 3 % of price of item/s quoted.

4. The tender without **Tender Fee** and **Earnest Money Deposit will not be considered.** Further**,**if submitted **Tender Fee** and **Earnest Money Deposit** amount is not matched with quoted items, the tender will liable for rejection.

5. Relaxation in tender fee, EMD will be considered as per **Gujarat Government Purchase Policy resolution - 2016 dated 3.6.2016, however, for availing such benefits concern firm has to submit / attach certificate or relevant letter issued recently by the government otherwise relaxation benefit will not be extended to such firm and tender quoted, may be rejected.**

6. **Refund of Earnest Money Deposit:** The earnest money of unsuccessful tenderer will be refunded. The **Earnest Money Deposit** of successful tenderer will also be refunded after completion of purchase procedure.

7. **Forfeiture of Earnest Money:** The earnest money will be forfeited if tenderer withdraws or modifies the offer after opening of tender document or tenderer does not execute the agreement if any, prescribed within the specified time.

8. **Security Deposit:** Successful tenderer has to submit 5% of purchase order value as a Security Deposit **in the form of Bank Draft payable at Navsari or Bank guarantee in favor of "Assistant Administrative Officer, N.M. College of Agriculture, NAU, Navsari" from any Nationalized bank** and will be informed by purchase office at the time of giving purchase order. The detail of

9. **Refund of Security Deposit:** The amount of security deposit will be refunded after completion of standard warranty period (or warranty period specified in item specification) starting from successful installation of item,after writing a letter to the Office where in instruments/machinery installed.

10. **Forfeiture of Security Deposit:** The security deposit will be forfeited if, successful tenderer fails to supply the items within the delivery period and/or supplier fails to comply specifications of instruments and/or supplier fails insuccessful installation/demonstration of the instruments/ machinery and/or supplier fails to provide satisfactory post sale services and support or fail to replace the defective piece/service the instruments/ machinery before warranty period.

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Chapter 7: Appendices

Duly filled each appendix as well as document mentioned in the different appendices needs to be attached in tender document, missing of any may liable to cancel the tender document

Appendix-I: Forwarding Letter

No.
Date: - - 2018

From: _____
_____
_____
_____

To,

The Principal,
N.M. College of Agriculture,
Navsari Agricultural University,
Eru Char Rasta, Navsari – 396 450 (Gujarat)

Subject: Submission of tender for the purchase of Scientific Instruments / Machineries

[E-TENDER No. NAU/DR/01/2018-19]

Sir,
I/We hereby submit the offer (duly filled) in response to the advertisement/tender notice **E-TENDER No. NAU/DR/01/2018-19** for Scientific Instruments / Farm Machineries in accordance with the terms and conditions of such supply and declare as under :

I/We hereby offer to supply to Navsari Agricultural University, Navsari in accordance with the terms and conditions, hereto annexed and at the prices given by me/us in commercial section of online tendering.
I/We enclose herewith **Tender Fee and EMD in favor of "Assistant Administrative Officer,N.M. College of Agriculture, NAU, Navsari"** drawn on State Bank of India, Navsari [Branch Code No. 3889.] with following details.

	Amount (Rs.)	Amount in Words	DD No.	DD issue Date
Tender Fee (Calculated)		Rs.		
EMD (Calculated)		Rs.		

Tender Fee against Item Nos. ___, ___, ___, ___, ___, ___, ___, ___, ___, ___, ___, ___,

EMD against Item Nos.: ___, ___, ___, ___, ___, ___, ___, ___, ___, ___, ___, ___, ___,

(Specify Items Nos. exactly you are bidding as per chapter-2)

I/We carefully read and understood and agree to abide by the said terms and conditions set in the tender document hereto annexed and the description/ specifications of the items.

I/We agree to hold this **offer open till 31st March, 2019** from the date of due date of opening of the tender.

I/We agree that in case of dispute, if any, the decision of The Purchase Committee, Navsari Agricultural University, Navsari 396 450 shall be final and binding upon me/us.

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Appendix-II: Tenderer's Detail

1.	Name of the Company	:	
3.	Registered Office Address with Telephone/Mobile Number Fax Number e-mail	:	
4.	Correspondence Address with Telephone/Mobile Number Fax Number e-mail	:	
5.	Details of the authorized person (Name, designation, address) with Telephone/Mobile Number Fax Number e-mail		
8.	PAN Card No.	:	
7.	GST No.	:	
8.	Bank detail (Bank Name, Branch Address, Account No., Type of Account(Current/ Savings), MICR No, IFSC Code		
9.	Filing date of IT Return AY 2017 – 18		

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Appendix-III: Proforma of Affidavit
(on Non-Judicial Stamp Paper of Rs 100/- duly attested by Magistrate /Notary Public)

I/We, _____, age___, years residing at _____in capacity of_____M/s _____ hereby solemnly affirm that :

1. All General Instructions, General Terms and Conditions, as well as Special Terms & Conditions laid down on all the pages of the Tender Form, have been read carefully and understood properly by me and are completely acceptable to me and I agree to abide by the same.
2. All the Certificates / Permissions / Documents/ Permits / Affidavits or any relevant document either submitted physically or uploaded as a part of tender are valid and current as on date and have not been withdrawn / cancelled by the issuing authority.
3. It is clearly and distinctly understood by me that my tender is liable for rejection if any of the Certificates / Permissions / Documents/ Permits / Affidavits is / are found to be invalid / wrong / incorrect / misleading / fabricated / expired or having any defect at any point of time.
4. I / We further undertake to produce on demand the original Certificate / Permission / Document / Permits for verification at any stage during the processing of the tender as well as at any time asked to produce.
5. 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.
6. My / Our firm has not been banned / debarred / black listed by any Government Department / State Government / Government of India / Board / Corporation / Government Financial Institution etc.
7. 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.
8. 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].
9. 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/PBG/cancel the award of contract. In this event, the Navsari Agricultural University reserves the right to take legal action against me/us.
10. I/We hereby assured that all our quoted item/s meet or exceed the requirement and are absolutely compliment with specification mentioned in the tender document.
11. 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.
12. I /We hereby commit that we have paid all outstanding amounts of dues / taxes / cess / charges / fees with interest and penalty.
13. In case of breach of any tender terms and conditions or deviation from bid specification other than already specified as mentioned above, the decision of purchase committee appointed by NAU for disqualification will be accepted by me/us.

Whatever stated above is true and correct to the best of my knowledge and belief.

Date : **Stamp & Sign of the Tenderer**

Place: **(Signature and seal of the Notary)**

Date: - - 2018 Stamp, seal and signature of tenderer

APPENDIX-IV: CHECKLIST

Sr. No.	Document / Certificate	Way of submission
1	Appendix-I: Forwarding letter	Online and hard copy
2	Tender Fee: Demand draft of Rs. _____ (Non-Refundable).	Online and hard copy
3	EMD: Demand draft of Rs. _____ (Refundable).	Online and hard copy
4	Tender document duly signed on each page	Online and hard copy
5	Appendix-II: Tenderer's details	Online
6	Appendix-III: Affidavit	Online and hard copy
7	Appendix-IV: Checklist	Online
8	Appendix-V: Technical specification compliance document	Online and hard copy
9	PAN card	Online
10	GST Certificate	Online
11	Authorization/Original Equipment Manufacturer (OEM) certificate	
12	QCI/BIS or Indian Government approved institute/organization quality control certificate/Internationalquality standard certificate (whichever is applicable).	Online
13	Income tax return (A.Y. 2017-18)	Online
14	Catalogue/Brochure showing item detail	Online
15	Other (any specific or relevant information pertaining to tender which have not been covered in the tender document. Such as tender fee exemption certificates *etc.*)	Online

Note: All the above (No.15, if necessary) documents are mandatory; missing of any is subjected to rejection of this tender

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Appendix V: TECHNICAL SPECIFICATIONCOMPLIANCE DOCUMENT (TSCD)

The tenderer has to fill the technical specification compliance document (TSCD) only for those instrument/equipment for which they have quoted.In the format of technical specification compliance document (TSCD), tenderer should have to make comments regarding any deviation or any equivalent technology or any information which supplement the claim of complying the technical specification or any noticeable information *etc.*After filling the above document, tenderer has to duly authenticate by signing on each page and seal them properly. Such signed and sealed document should be scanned and upload after converting it into pdf format only. However, a duly signed and sealed copy of above document should also be physically submitted with the tender document.

TSCDV(1): GLC

Particular	Specifications	Comply (Yes/No)	Remarks
I. Gas Liquid Chromatography (GLC)	**A. Gas Chromatography (Main frame)**		
	i. The GC must feature an external LCD/LED screen to provide easy accessibility to the GC and immediate interactions with it. ii. The LCD/LED screen of the GC should be able to provide all needed data, including all temperature and pressure/flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameters iii. It should have a routine automatic leak checks procedure.		
	Auto sampler		
	i. Round shape tray design, static (not XYZ axis settable), with at least 100 or more (2 mL) vials capacity. ii. Auto- sampler should be compatible with the syringes of different manufacturer. iii. Should inject from 0.1 µL to 5.0 µL with variable speed iv. Fully controlled by software as well as manual.		
	Injector (2 Nos.)		
	i. One Split/split less and one PTV should be quoted and it should be EPC/AFC/PPC/IEC controlled , ii. It should be able to operate with narrow bore capillary, normal capillary and wide bore & with a pressure range > 140 psi iii. The injector should allow timed closure/opening of the purge line. iv. Maximum temperature should ≥ 400 °C with fast cooling rate, 400 °C to 50 °C with < 4 min or better. v. Split Ratio: ≥ 7,000:1 vi. Pressure in the range of 0-900 kPa or better.		
	Oven		
	i. The operating temperature range should be 4°C above ambient to ≥450 °C with fast cool down as well as heat up time ii. Oven Ramps/Plateaus Cool down-It should have number of ramps/plateaus: 20/21 or better the maximum heating rate should be >100 °C/min or better iii. The oven temperature stability is within 0.01 °C/ every °C of actual temperature iv. GC analytical performance: a) The GC should have a Retention Time Repeatability of <0.0008 % or better b) The Peak Area Repeatability should be <0.5 % RSD or better		
	Detector with fast data acquisition		
	i. FID Detector should be minimum detection limit 1.5 pgC/s or better sensitivity ii. FID Detection system should have linear range $>10^7$ iii. ECD Detector should have detection limit 4.5 fg/s (lindane) or better, operating temperature range should be 400 °C iv. FPD Detector should have detection limit for P <100fg P/s or for S: 5pg/s or better with a temperature range upto 450 °C		
	Gas cylinders		
	i. Suitable filled gas (Zero Air , H_2, N_2 -1 no. each) cylinders of highest purity (99.9995) as required with test certificates, SS double stage regulators foe each gas cylinder, cylinder opening key, gas pipes with fittings and suitable gas purification station for the system.		
	B. Data Station with software system		
	i. PC with latest configuration and licensed operating system (At least i7 Processor, Intel Original M/B, 16 TB HDD, 24" LED monitor, DVD R/WR, 32 GB DDR3 RAM, graphic card etc.) with laser printer having back top back auto-duplex printing facilities. GC software (mandatory latest version with free of cost upgradation facility) should be GLP/GMP Compliance with Audit Trail Facility, multi channel of the same make,		
	C. IQ/OQ/PQ of the system must be performed with the documentation		
	D. Start-up kit i. Installation kit must be included for each instrument. ii. **Installed and commissioned for all the gases used in the instrument including gas tubing, manifold**., iii. Operation and maintenance manual for each unit in both hard copy and soft copy. iv. Service manual with set of required tools for each system/unit		

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<table>
<tr><th>Particular</th><th>Specifications</th><th>Comply (Yes/No)</th><th>Remarks</th></tr>
<tr><td>II. Accessories and Spare parts</td><td>
<table>
<tr><td>1</td><td colspan="2">Columns</td><td></td></tr>
<tr><td></td><td>i)</td><td>30 m X 0.25mm i.d. X film 0.25 µ, DB-1MS or equivalent (Strictly MS amenable)</td><td>10 nos.</td></tr>
<tr><td></td><td>ii)</td><td>30 m X 0.25mm i.d. X film 0.25 µ, DB-5 MS or equivalent (Strictly MS amenable)</td><td>10 nos.</td></tr>
<tr><td></td><td>iii)</td><td>60 m × 0.25 mm ID, 0.15 µm, DB-23 or of equivalent phase</td><td>4 no.</td></tr>
<tr><td></td><td>iv)</td><td>60 m × 0.25 mm ID, 0.20 µm HP-88 or equivalent phase</td><td>4 no.</td></tr>
<tr><td></td><td>v)</td><td>30m, 0.25mm ID, X Film 0.25µm , Rtx-OPPesticides2 or equivalent or single column with guard column for OCs and Ops pesticides</td><td>5 Nos.</td></tr>
<tr><td>2</td><td colspan="2">Gas Purification Panel for He,Ar,H_2,Zero Air,$N_2$with hydrocarbon trap, moisture trap and oxy trap</td><td>2 Nos.</td></tr>
<tr><td>3</td><td colspan="2">Long life, high-temperature low bleeding green septa, maximum setpoint 300 °C for both injector (S/Sl& PTV)</td><td>400 Nos.</td></tr>
<tr><td>4</td><td colspan="2">2 mL vials and caps with septa</td><td>5000 Nos.</td></tr>
<tr><td>5</td><td colspan="2">Glass Liners for Split injection</td><td>20 Nos.</td></tr>
<tr><td>6</td><td colspan="2">Glass Liners for Splitless injection</td><td>20 Nos.</td></tr>
<tr><td>7</td><td colspan="2">Glass Liners for PTV injection</td><td>20 Nos.</td></tr>
<tr><td>8</td><td colspan="2">Vespel ferrules for capillary columns of 0.25 mm id</td><td>40 no.</td></tr>
<tr><td>9</td><td colspan="2">Vespel ferrules for capillary columns of 0.32 mm id</td><td>40 no.</td></tr>
<tr><td>10</td><td colspan="2">Vespel ferrules for capillary columns of 0.53 mm id</td><td>20 Nos.</td></tr>
<tr><td>11</td><td colspan="2">MS Interface ferrules</td><td>30No.</td></tr>
<tr><td>12</td><td colspan="2">Graphite Seal (PTV)</td><td>6 no.</td></tr>
<tr><td>13</td><td colspan="2">Graphite Seal (SSL)</td><td>6 no.</td></tr>
<tr><td>14</td><td colspan="2">Column Cutter</td><td>2 no.</td></tr>
<tr><td>15</td><td colspan="2">Auto-sampler syringes – 10µL</td><td>50 Nos</td></tr>
<tr><td>16</td><td colspan="2">Oil for vacuum pump</td><td>10 Litre</td></tr>
<tr><td>17</td><td colspan="2">Mixture of minimum 200 pesticide standard, minimum 1 ppm and 1 mL with at least one year expiry date</td><td>1 set</td></tr>
<tr><td>18</td><td colspan="2">PTFE Syringe filter, 0.22µ, 13mm diameter.</td><td>5000 Nos</td></tr>
<tr><td>19</td><td colspan="2">Heptacosa (PFTBA) or equivalent GC-MS calibration standard</td><td>2 no.</td></tr>
<tr><td>20</td><td colspan="2">Appropriate nuts to fit capillary columns to the injector and MS interface</td><td>(10 each).</td></tr>
<tr><td>21</td><td colspan="2">Tool kit</td><td>1.0</td></tr>
<tr><td>22</td><td colspan="2">Gas tube cutter</td><td>1.0 no.</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>III. Warranty</td><td>i. Standard Warranty of 48months starting from date of satisfactory and faultless functioningoftheequipmentfor60daysat therespective laboratorypremises.
ii. An additionalAnnual Maintenance Contract(AMC)Serviceforthe period of 36 monthsafterexpiry of standard Warranty.
iii. Thetenderer shouldgive assurance of providing the spare parts and maintenance services for next 5 to 8 years after the expiry of the standard and extended warranty period.
iv. Comprehensive calibration of the instrument (GLC) and their components shall be a part of the every major repair/breakdown and preventive maintenance.</td><td></td><td></td></tr>
<tr><td>IV. Others</td><td>i. Tenderer has to provide a required infrastructure in the lab for operation of instrument like instrument table, modification in existing room facility like electrical wiring along with 2 Ton AC, Nitrogen based Concentration Workstation (At least 50 nozzles for appropriate numbers of sample loading), refrigerated table-top centrifuge meeting high and low speed centrifugation amenable for 8 x 50 ml, 15ml and 2ml, capable of achieving 5000 to 10000 rpm, Multifunction Printer with Scanning, copying and back to back printing facility, Vertical side by side Double Door Refrigerator (capacity approx. 600 litre) for CRM Storage and whatever other requirements for the fulfilment of the objective of the purchase.
ii. Power Supply : The system should have UPS (minimum 15KVA) of suitable rating with voltage regulation, spike protection and minimum 240 minutes back up for the supplied equipment</td><td></td><td></td></tr>
<tr><td>V. Training</td><td>i. Pre-installation Training for three persons for operation and maintenance of GLC at their authorized training centres with state of art facilities
ii. Post Installation training for two persons for Five days at application lab for GLC
iii. Every year till the end of warranty/CMC period for two-person training for one week twice in a year at application lab or onsite (if requested by NAU)
iv. Advance outside Training at application lab for three persons of NAU after installation.</td><td></td><td></td></tr>
<tr><td rowspan="3">VI. Terms and Conditions</td><td>i. Tenderer has to mandatorily quote for both the instrument i.e.TSCD V(1): GC and TSCD V(2): GC MS/MS. The bid containing either GC or GC-MS/MS solely will automatically be rejected.</td><td></td><td></td></tr>
<tr><td>ii. The supplier should aim at a turnkey supply and installation of the instrument. Any accessory or facilities which is felt mandatory for the proper working of the instrument but not mentioned in the specification has to be quoted and supplied along with.</td><td></td><td></td></tr>
<tr><td>iii. The tenderer should enclose with the technical bid a list of at least 5 Installations of the quoted model or a comparable model of equivalent</td><td></td><td></td></tr>
</table>

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Particular	Specifications	Comply (Yes/No)	Remarks
	sensitivity in the country along with the Contact Name, contact no, mail ID and complete address		
	iv. On the basis of discretion of the end user, NAU; the purchaser reserved the right to physically verify/evaluate performance of the similar installation of instruments (from the list attached by the tenderer) those qualify in the technical bid.		
	v. The tenderers need to give an undertaking that application support and services would be available for minimum 10 years.		
	vi. The Supplier is solely responsible for the construction of the equipment sites in compliance with the technical and environmental specifications. The Purchaser will designate the installation sites before the scheduled installation date to allow the Supplier to perform a site inspection to verify the appropriateness of the sites before the installation of the equipment, if required. The supplier shall inform the purchaser about the site preparation, if any, needed for installation, of the goods at the purchaser's site immediately after notification of award/contract.		
	vii. If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation		
	viii. The system shall not be prone to damage during power failures and trip outs. The normal voltage and frequency conditions available at site as under: Voltage 230 volts – Single phase/ 415 V 3 phase (+_ 10%), Frequency 50 Hz.		
	ix. Purchaser i.e. NAU reserves the right to witness either the reproduction of the data generated by the tenderer's laboratory or to analyze the required samples / solutions at the tenderers laboratory in case the need arises		

TSCDV(2): GC MS/MS

Particular	Specifications	Comply (Yes/No)	Remarks
I. Gas Chromatography Mass Spectroscopy	**A. Gas Chromatography Mass Spectroscopy (Main frame):**		
	i. The system should compatible with triple quadrupole geometry and capable of carrying out MS and MS/MS experiments. ii. The GC must feature an external LCD/LED screen to provide easy accessibility to the GC and immediate interactions with it iii. The LCD/LED screen of the GC provides all needed data, including all temperature and pressure/flow parameters, type of carrier gas, carrier gas column pressure, flow rates, split flow, detector gas flow rates and all detector parameters iv. A routine automatic leak checks procedure. v. A routine automatic column evaluation procedure and storing the column pneumatic resistance. It should also allow an automated correction of the nominal column parameters. vi. The system should be capable of calculating the carrier gas linear velocity.		
	Auto sampler		
	i. Round shape tray design, static (not XYZ axis settable), with at least 100 or more (2 mL) vials capacity. ii. Auto- sampler should be compatible with the syringes of different manufacturer. iii. Should inject from 0.1 µL to 5.0 µL with variable speed. iv. Fully controlled by software as well as manual.		
	Injector (2 Nos.)		
	i. One Split/split less and one PTV should be quoted it should be EPC/AFC/PPC/IEC controlled ii. It should be able to operate with narrow bore capillary, normal capillary and wide bore column. iii. The injector should allow timed closure/opening of the purge line. iv. Retention time locking/automatic adjustment of retention time system with constant flow or pressure. v. Maximum temperature should ≥ 400 °C with fast cooling rate, 400 °C to 50 °C with < 4 min or better. vi. Split Ratio: ≥ 7,000:1 vii. Pressure in the range of 0-900 kPa or better.		
	Oven		
	i. The operating temperature range should be 4°C above ambient to ≥450 °C with fast cool down as well as heat up time. ii. Oven Ramps/Plateaus Cool down ➢ It should have number of ramps/plateaus: 20/21 or better ➢ the maximum heating rate should be >100 °C/min or better ➢ The oven temperature stability is within 0.01 °C/ every °C of actual temperature iii. GC analytical performance: ➢ The GC should have a Retention Time Repeatability of <0.008 % or better ➢ The Peak Area Repeatability should be <0.5 % RSD or better		

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Particular	Specifications	Comply (Yes/No)	Remarks
	Mass Spectrometer		
	Detector		
	i. Scan mode: Full scan, SIM, timed-SRM, SRM/MRM, Combined MRM/SRM/Full scan, Product ion scan, neutral loss ii. Detection system should have linear range >106 iii. The mass range should be 10 to 1000 m/z or better iv. Should have adjustable electron energy from 10 eV to 150 eV or better v. Should have emission current up to 250 µA or better vi. The scan speed should not be less than 20,000 amu/sec or higher scan speed vii. Should have ≥800 transition/sec from lower transitions to higher transitions without up gradation. viii. Mass resolution should be at least 0.4 µ FWHM/ unit mass resolution or better. Manual tuning facility will be preferred ix. Dwell time should be at least ≤0.5 msec or better x. The mass stability should be 0.1 Da over 24 hours or better xi. Interface between GC and MS with independent heating up to 350 °C or better xii. Sensitivity: ➢ EI MRM/SRM Instrument Detection Limit: 4fg or less OFN derived at the 99% confidence level from area precision of eight sequential injections of 1 µL, 5fg/µL OFN, acquired in EI SRM/MRM ➢ EI full scan: S/N ratio 1500:1 or better for 1 µL of 1pg/µL OFN (m/z 272) ➢ EI MRM: S/N ratio >16,500:1 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.		
	Ion source		
	i. It should have an EI source with dual filaments, programmable to 350 °C or better. ii. The system should have improved ion guide/off-axis to reduce excited neutral background to single counts per scan without requiring signal thresh holding, background subtraction Or smoothing		
	Vacuum system		
	i. Efficient vacuum system with minimum maintenance. ii. The system should have vacuum safety features to prevent damage to the instrument in case of failure.		
	Gas cylinders		
	i. Suitable filled gas cylinders (2 Nos. of each for He, Ar) as required with test certificates, SS double stage regulators for each gases, cylinder opening key, gas pipes with fittings and purifier for the system.		
	B. Data Station with software system		
	i. PC with latest configuration and licensed operating system (At least i7 Processor, Intel Original M/B, 16 TB HDD, 42" LED monitor, DVD R/WR, 32 GB DDR3 RAM, graphic card etc.), with laser printer having back to back auto-duplex printing facilities. ii. GC/MS software should be latest, free of cost, upgradable and compatible to process minimum 500 compounds in a single sample. iii. It should have Automated SRM/MRM Development. iv. It should have Automated acquisition window adjustment based on retention time. v. It should have Compound based acquisition method setup. vi. It should have a software for controlling and acquiring all the MS and conventional detectors. vii. It should have a separate dedicated software for reporting for environ mental and food safety market as per international protocols. viii. The latest version of the NIST, 2017 and Pesticide Library (Licensed version) which could be updated time to time, should be included. ix. Should provide dedicated pesticide MRM database (with adequate licence version) for at least 500 or more compounds.		
	C. IQ/OQ/PQ of the system must be performed with the documentation		
	D. Start-up kit		
	i. Installation kit must be included for each instrument. ii. Installed and commissioned for all the gases used in the instrument including gas tubing, manifold., iii. Operation and maintenance manual for each unit in both hard copy and soft copy. iv. Service manual with set of required tools for each system/unit		
II. Accessories and Spare parts	1 Filament Cartridge — 10 Nos. 2 Spare EI ion Source — 3 No 3 Oil for vacuum pump — 10 Litre 4 Heptacosa (PFTBA) or equivalent GC-MS calibration standard — 2 no.		
III. Warranty	i. Standard Warranty of 48months starting from date of satisfactory and faultless functioningoftheequipmentfor60daysat therespective laboratorypremises. ii. An additional Annual Maintenance Contract (AMC)Servicefor the period of 36 monthsafterexpiry of standard Warranty. iii. Thetenderer shouldgive assurance of providing the spare parts and maintenance services for next 5 to 8 years after the expiry of the standard and		

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Particular	Specifications	Comply (Yes/No)	Remarks
	extended warranty period. iv. Comprehensive calibration of the instrument (GLC MS/MS) and their components shall be a part of the every major repair/breakdown and preventive maintenance.		
IV. Others	i. If necessary, tenderer has to provide compatible housing and electric facility, supported instrument *etc.* free of cost.		
V. Training	i. Pre-installation Training for three persons for operation and maintenance of GC-MS/MS at their authorized training centres with state of art facilities ii. Post Installation training for two persons for Five days at application lab for GC-MS/MS iii. Every year till the end of warranty/CMC period for two-person training for one week twice in a year at application lab or onsite (if requested by NAU) iv. Advance outside Training at application lab for three persons of NAU after installation		
VI. Terms and Conditions	**i. Tenderer has to mandatorily quote for both the instrument *i.e.*TSCD V(1): GC and TSCD V(2): GC MS/MS. The bid containing either GC or GC-MS/MS solely will automatically be rejected.**		
	ii. **The supplier should aim at a turnkey supply and installation of the instrument. Any accessory or facilities which is felt mandatory for the proper working of the instrument but not mentioned in the specification has to be quoted and supplied along with**.		
	iii. The tenderer should enclose with the technical bid a list of at least 5 Installations of the quoted model or a comparable model of equivalent sensitivity in the country along with the Contact Name, contact no, mail ID and complete address		
	iv. On the basis of discretion of the end user, NAU; the purchaser reserved the right to physically verify/evaluate performance of the similar installation of instruments (from the list attached by the tenderer) those qualify in the technical bid.		
	v. The tenderers need to give an undertaking that application support and services would be available for minimum 10 years.		
	vi. The Supplier is solely responsible for the construction of the equipment sites in compliance with the technical and environmental specifications. The Purchaser will designate the installation sites before the scheduled installation date to allow the Supplier to perform a site inspection to verify the appropriateness of the sites before the installation of the equipment, if required. The supplier shall inform the purchaser about the site preparation, if any, needed for installation, of the goods at the purchaser's site immediately after notification of award/contract.		
	vii. If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation		
	viii. The system shall not be prone to damage during power failures and trip outs. The normal voltage and frequency conditions available at site as under: Voltage 230 volts – Single phase/ 415 V 3 phase (+_ 10%), Frequency 50 Hz.		
	ix. Purchaser i.e. NAU reserves the right to witness either the reproduction of the data generated by the tenderer's laboratory or to analyze the required samples / solutions at the tenderers laboratory in case the need arises		

TSCDV(3): Water Purification System

Particular	Specifications	Comply (Yes/No)	Remarks
General	• Compact, Wall mountable or bench top, sleek water purification system capable of independently dispensing both Ultra-pure Type I (18.2 MΩ resistivity in line), TOC (1-5ppb) for Mass chromatographic and molecular biology applications and Type II (12 - 15 MΩ resistivity in line) water for buffers, pH solutions and microbiological culture media buffers, pH solutions and microbiological culture media preparation		
Feed water acceptability	• Theunit shouldbeabletotakeordinary tap water and remove bulk of the suspended and dissolved solids and should be able to soften the tap water considerably for feeding the pre-treatment unit. • Should be compatible with feed water quality of free chlorine level of 3 ppm, SDI upto 20 and conductivity of 2000 Micro-Siemens.		
(a) Pre-Clearing Unit	• Theunitsshouldbeabletotakeordinary tap water and remove bulk of the suspended and dissolved solids or any metallic chemical species and should be able to soften the tap water considerably for feeding the pre-treatment unit through RO process		
(b) Pre-filter Unit	• Singlecompactpre-filter unit is required containingmulti-stagemicronfilterandinbuiltpumpforboosting feedwaterpressureincasetapwaterpressuredropsandshouldhaveautomatic low/highpressurecut off.		
(c) Hardness and chlorine removal	• System should have inbuilt hardness removal to avoid scaling and chlorine present in tap water, without any additional filter.		

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Particular	Specifications	Comply (Yes/No)	Remarks
(d) ROMembrane	• Thesystemshouldhavea highfluxthinROMembrane&water qualitymonitoringaftereverypurification stagetomonitortheROrejection(94-99%rejection). • In case of any deviation in performance screen should change in colour to indicate performance.		
(e) ElectroDeionization Module	• Thesystemshouldhavemixedbedi-onexchange resinfilled, self-regeneratingelectro deionization module. • System should be scaling resistant.		
(f) Reservoir	• The quoted system should have minimum50-liter storage capacity withventfilter,activatedcarbonandmicron hydrophobicmembranetotrapcontaminants,presentinatmosphericair. • It should have sensor rod float switch for auto cut-off with the pre-treatment unit. • It should come with multi-level switches from the original manufacturer.		
(g) Ultrapure system	• ApplicationSpecificcartridgestoremoveionicandorganiccontaminants totracelevels.		
(h) Boron specific filter	• Instrument should incorporate specific technology to remove Boron and deliver <10 ppb levels of boron.		
(i) TOCMeter	• System shouldmeasureTOConline.		
(j) PointofDeliveryUnit	• Thedispensingunitshouldbeofadjustableheightand rotatingarm-adjustabletoanyglassware.		
(k) LCD SystemDisplay	• Should show alarms and indication parameters such as feed conductivity, permeate conductivity, Type II conductivity, RO rejection in % of ions, water level in the tanks, Digital microprocessor control is required.		
(l) Output Quality of Water	**Ultrapure (Type I) water:** • Flow Rate (L/min) : 0.05 to 2 (Programmable flow rate) • Ultrapure Water Resistivity : 18.2 (MΩ•cm at 25°C) • Conductivity (µS/cm) :< 0.055 µS/cm • Microorganisms (cfu/mL) : < 0.01 • Particulates >0.22 μm^3 : < 1 • (particulates/ml) • Pyrogen Levels (EU/mL) : <0.001 • RNase Level (pg/mL) : < 1 • DNase Level (pg/mL) : < 5 • TOC (ppb) : < 5 **Pure (Type II) water:** • Production flow Rate (L/hr) : 3L/Hr • Ultrapure Water Resistivity : 10- 15 (MΩ•cm at 25°C) • Conductivity (µS/cm) :<1 • Microorganisms (cfu/mL) : < 1 • Particulates >0.22 µm3 : < 1 (particulates/ml) • Pyrogen Levels (EU/mL) : <0.001 • TOC (ppb) : < 30		
(m) Ultrapure water for Trace Elemental Analyses	• Standalone point of delivery unit which should contain mixed bed ion exchange cartridge to address trace elements. • Should provide ultrapure water with extremely low levels of elemental contamination (single ppt or sub-ppt level). • Should consist and 0.1 micron charged filter to avoid any trace elements/ions. • Water quality and reproducibility should have been validated by independent laboratories specialized in ultra-trace elemental analysis. • A footswitch allowing water delivery, reducing the risks of external contamination, as scientists do not need to remove their hands from a laminar flow hood. • Water delivery should be provided at a flow rate adapted to the user's needs (up to 1.5 L/min). This eliminates the need of water storage and the associated contamination risks. • There should be no metallic parts in the system delivering water in the laminar flow hood. • Essential water quality information should be clearly visible from a colour backlit display – audible alarm available if required. • Adjustable height and rotating arm - adjustable to any glassware.		
(n) Technology Certificates and related requirements	The tenderer should certify that • The equipment is of latest technology and filters to be traceable for date of installation and consumption of water. • The equipment is to be upgraded as and when required. • The equipment will be promptly and properly serviced by thesupplier when desired • Tenderer should be responsible for Manufacturer's warranty in respect of proper design, quality and workmanship of all the system Accessories etc. from the date ofsatisfactory installation of system.		
(o) Data Acquisition	• System should contain inbuilt Data management system/ software with record keeping capabilities and a powerful search engine to retrieve data on water quality and system performance		
(p) Instruction ManualandDocuments	• Thesuppliershouldprovideinstructionmanualandsupporting documentswhereverrequiredandoriginalcatalogueshouldalsobeprovidedtovalid		

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Particular	Specifications	Comply (Yes/No)	Remarks
	atethequoted specifications.		
(q) Maintenance	• To avoid maintenance errors and to improve traceability, the internal primary consumable water purification cartridges will have a built-in RFID tag. • The ultrapure water system built-in resistivity and TOC monitors will be calibrated according to international norms and standards. • To ensure on-time reordering of the pre-treatment consumables, the system will have automatic warnings.		
(r) System design and safety standards	• The body of the unit shall be constructed with sufficient degree of resistance against safety hazards caused by liquid spillage, humidity, sterilization and disinfection. • Switches and controls should be protected against penetration of fluids. • The unit should be operable at 230V/50Hz input power.		
(s) Installationandcommissioning	• Thesystemshouldbeinstalledandcommissioned atsite.The installation/application engineersshouldimpartsitetrainingofthecompletesystemregardingthe operationandmaintenance,afterthesuccessfulinstallation. Engineer certificate to be submitted.		
(t) Documentation	• Should submit proof of water purification system installations in India's reputed premier academic and R&D institutes.		
(u) Consumables	• Must quote separately for consumables (cartridges, filters etc.) for TWO YEAR for trouble free working		
(v) Extended Warranty years)	• System should be supplied with Total Three years of warranty.		
(w) Other parameters	• System should have consumable change reminder. • System should have cross cable interface for Good Laboratory Practice (GLP) compliance. • Reservoir should be constructed of inert polyethylene with no static water area, Crevice free interior and self-draining base. • Tenderer should provide an extra RO unit prior to pre-filtration unit to further soften the feed tap water.		
Terms and Conditions	i. The supplier should aim at a turnkey supply and installation of the instrument. Any accessory which is felt mandatory for the proper working of the instrument but not mentioned in the specification has to be quoted and supplied along with. ii. The tenderers need to give an undertaking that application support and services would be available for minimum 10 years. iii. The system shall not be prone to damage during power failures and trip outs. The normal voltage and frequency conditions available at site as under: (a) Voltage 230 volts – Single phase/ 415 V 3 phase (+_ 10%), (b) Frequency 50 Hz.		

TSCD V (4): Heavy Duty Large Volume Homogenizer

Particular	Specifications	Comply (Yes/No)	Remarks
Homogenizer	i. It should have 4.0 Litre Variable-Speed (2000 to 20,000 RPM) Commercial Blender with 3.75 Peak HP, Adjustable Speeds, Built-in RPM Display, Electronic Membrane Keypad, Stainless Steel Container with 2 Handles & Rubberized Lid. (CE Approved; RoHS), Adapters to allow use of different containers for dry and liquid samples (10g to 4.0L) ii. It should have capable of Dry blending and have stainless steel container having (500 ml capacity) with lid. iii. It should have capable of Dry blending and stainless steel container with lid (10–75 grams dry capacity) iv. It should have 1.0 Litre stainless steel container with stainless steel lid. v. It should have Mini Container: 50-250- ml Capacity vi It should have adapter, 4.0 Litre, allows use of 1.0 Litre and smaller containers on 4.0 Litre Blenders.		
Spares to be supplies	i. Two blades for each type of container. ii. Two rubberized ring for the Lid of each container		

TSCDV (5): Fermenter:

Fermentation Facility having individual controlling units for Fermenters In-situ Sterilizable with PLC/TFT Touch Screen display for monitoring and control of pH/Temp/DO_2 and Agitation.

Particular	Specifications	Comply (Yes/No)	Remarks
Total capacity	50L(Seed Vessel), 100L and200L each.		
Agitation	• Top side agitation motor with gear box and bottom side out let valve • Vessel Material- SS 316 • D/H Ratio- 1:2.5 • Inner Surface- 240 grit finished & mirror polished • Gasket- Silicone Design Temperature: 150^0C max. Working Temperature:130^0C max. Design Pressure- 3.75kg/cm^2/full vacuum Working Pressure- 3.0kg/cm^2/full vacuum • Jacket Material- SSS-304 with Insulation. • Design Temperature:170^0C max. • Working Temperature: 140^0 C max.		
Ports	➢ 1 Agitator Motor with gearbox		

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Particular	Specifications	Comply (Yes/No)	Remarks
	➢ 1 Port-SS Safety valve ➢ 1 Port 0 – 7 bar Pressure gauge ➢ 1 Port for light source ➢ 1 Port with Diaphragm valve for media inlet ➢ 1 Port for Pressure release valve ➢ 1 Port for SS Diaphragm valve for Air inlet and outlet ➢ 1 Sampling port ➢ 1 Sterilizable Flush bottom valve for broth out. ➢ 1 Dummy port ➢ 1 RTD port ➢ 1 Dummy probe ➢ 3 Acid, Alkali, Nutrient feed and Inoculums ➢ Ports for pH and DO ➢ It should have automatic pressure control, DO control and antifoam control		
Drive	Should be Top driven with Single mechanical seal with VFD in each Fermenter vessel. The agitator should be able to provide variable speed from 20 to 400 rpm. It should have Dual Ruston impellers with Six number blades and four baffles.		
Control Panel	System should be Microcontroller based with Big PLC/TFT Touch Screen Graphic Display.		
Temp. Probe and Controller	The temperature should be PID control to control the fermentation temperature within 4 to 60ºC and measured with RTD Pt 100 sensor. Temp. Control Accuracy ±0.1 ^{0}C with PID Control. Power Supply :-230V±10%, A/c 50Hz		
Sterilization and Controls:	• Systems should have automatic sterilization with Temperature Range upto 140°C and timer from 0 to 99 minutes. pH should be measured through Gel filled pH Sensor and be in the range of 0-14 pH. Peristaltic pumps for automated control for addition of Acid/base to be provided for pH control. Foam level control having Time Proportionate control with SS316L Conductive Type probe with peristaltic pump. DO_2 Sensor- Polarographic Type having SS Housing and sterilizable type should be provided for measurement of Dissolved Oxygen within 0-100% range. Harvest port should be provided at the bottom with valve and steam line connections.		
Sparger	SS 316 pipe with sparging ring at bottom.		
Filters	0.2 µm PTFE Cartridge absolute filter on air- in line with SS housing and 0.2 µm PTFE Cartridge absolute filter on exhaust air with SS housing.		
Valves-	Diaphragm valves. Sampling and Flush Bottom valve, Diaphragm valve for water inlet and out let for cooling.		
Boiler/ Steam generator:	Suitable capacity Boiler fitted with Auto cutoff system/ Safety features and with Pressure gauges. Should have Auto level water sensor along with pump.		
Air Compressor:	For aeration an air compressor fitted with Auto Cut-off with Flow Rate 0-1000LPM and having storage tank of 500 Ltrs.		
Pipeline Fitting and accessories:	The Fermenter should include all necessary fixtures/port/openings/pipes for air, media, inoculums, Acid/alkali, antifoam, Temperature Sensor, Sterilizable type pH Sensors, Sterilizable Type DO Sensor, Harvesting valve, Pumps etc		
Warranty and Certifications:	The bidder should quote 2 years extended warranty in addition to standard warranty.Supplier must have CE Certification and should comply with quality standards.		
Spare part/accessories	The Bidder should assure the uninterrupted supply and after sell services for maintenance up to 5 to 8 years after the expiry of the standard and extended warranty period.		
Experience:	The Company/ Firm should have similar experience of Minimum Three to Five Years and should provide customer list with their contact nos. with technical bid.		
Free- Working Installation, demonstration & training at site with operating manual.			

TSCDV(6): CNC Lathe Machine :

Particulars	Specifications			Comply (Yes/No)	Remarks
Capacity		Unit	**Value (Range)**		
	Swing over bed	Mm	300		
	Turning length	Mm	200		
	Job swing diameter	Mm	Up to 200		
	Standard turning diameter (STD)	**Mm**	**100**		
Slides	X-Axis travel	Mm	240		
	Z-Axis Travel	Mm	150		
	Rapid Feed	M/Min	15/24		
Main Spindle	Spindle motor power	kW	7.5/11		
	Spindle bore	Mm	50		
	Spindle nose	Mm	A4		
	Maximum bar capacity	Mm	20-35		
	Spindle speed range	Rpm	50-4000		
	Chuck size	Mm	135		
Turret	Turret type		Linear		
	No. of tool		5		
	Max. Boring dia meter	Mm	32-40		
	Tool cross section	Mm	25×25		
Tail stock	Quill dia	Mm	130		
	Quill strock	Mm	250		

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Particulars	Specifications			Comply (Yes/No)	Remarks
Accuracy	Position accuracy	Mm	0.015		
	Repeatability	Mm	0.003		
Mandatory features	➢ Linear motion guide ways ➢ AC spindle drive ➢ AC servo digital drive ➢ Hydraulic chucking ➢ Auto and manual coolant system ➢ Centralized programmable lubrication ➢ Laser calibrated axis for highly precise positioning accuracy and repeatability ➢ Electrical quality device ➢ Manual data input ➢ LM 2 axis simultaneous ➢ Part program storage and editing ➢ Constant surface speed control ➢ Tool nose radius compensation ➢ Feed rate over ride ➢ Circular interpolation ➢ Threaded cutting cycle ➢ Direct drawing dimensions programming ➢ Absolute/incremental programing ➢ Graphic simulation ➢ Run hour display ➢ LCD display ➢ Self-diagnostic ➢ USB Port ➢ RS-232 serial interface port				
CNC system	The Latest Digital system Siemens 808D/ Siemens 828D Advance FANUC 0i TF/TD with graphic simulation and program diagnostics, alarms messages, etc. Software, programming cable and computer/laptop to be provided with system for programming purpose. **Additional software Feature**: Component Part-program to be done by machine automatically without effecting the given cycle time. **Additional Feature with software:** Probes for tool offset measurement and transfer of offset data to controller and in process work piece measurement to be interfaced with the controller.				
Acceptance Criteria	The tenderers shall have to demonstrate the out put of the offered machine within operating parameters during trial run (i.e. after erection / installation). After completion erection / installation the machine, the performance of the machine will be evaluated by continuous running the machine for 2-3 hrs with the raw material of the choice of purchaser. Then, if the performance of the machine found satisfactory on basis of its ability to deliver the accurate and at the acceptable rate of output with constant quantity and quality. Then only the successful installation of the machine will be considered.				
Warranty	**The bidder should quote 2 years extended warranty in addition to standard warranty.**				
Spare part/accessories	The Bidder should assure the uninterrupted supply and after sell services for maintenance upto 5 to 8 years after the expiry of the standard and extended warranty period.				
Training:	• One pre-installation exposure cum training of the machine either at manufacturer site or site of customer where similar machine has already been supplied. • Two days training of operation, maintenance and troubleshooting after successful installation of the machine.				

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Particulars	Specifications	Comply (Yes/No)	Remarks
Spare parts and accessories	**Spare parts and accessories: The bidder has to supply the below mention spare part/s with machine :** **1. Tool Holders for Head Turning Operation:** 1.1 Rough Facing Tool Holder (1Set Extra excluding tool-up on turret) 1.2 Drilling Tool holder (1Set Extra excluding tool-up on turret) 1.3 Face Groove (1Set Extra excluding tool-up on turret) 1.4 Turning tool holder (1Set Extra excluding tool-up on turret) 1.5 Grooving Tool Holder (1Set Extra excluding tool-up on turret) 1.6 Threading tool holder (1Set Extra excluding tool-up on turret) 1.7 Additional Grooving Tool holder (1Set Extra excluding tool-up on turret) 1.8 Parting Tool Holder (1Set Extra excluding tool-up on turret) 1.9 Boring Tool Holder (1Set Extra excluding tool-up on turret) 2. A**ccessories** 2.1. Hallow cylinder 2.2. Hydraulic collet chuck 2.3. Auto Door 2.4. Auto loader 2.5. Automatic tool setting 2.6. Easy sms system 2.7. Bar feeder 2.8. Bar puller 2.9. Chip conveyor 1.10. Polygon machining solution		

TSCDV(7): Twin Screw Extruder :

Particular	Specifications	Comply (Yes/No)	Remarks
Capacity	Capacity of 5-15 Kg per hour (depending upon nature of feed materials and quality of products desired)		
Components	Unit must include feed funnel, mixing, kneading, shearing, heating, shaping, formingand cutting section in a single line.		
	Screw Diameter: 32mm		
	Twin-Screw Feeder, UHMW-HDPE Screws driven by variable speed Motor which can be monitored from RPM Meter. Co-rotating screws.		
	Barrel fabricated from Nitriding Steel with two water jackets operated by two solenoid valves.		
	Two nos. Band Heaters, ceramic insulated.		
	Multi-start Screws fabricated from Nitriding Steel.		
	"DEBLOCKING CUM CLEANING DEVICE" to clear blockage.		
Power supply	Drive – 7.5 HP Motor driven through reduction gear unit and duplex gear driven by AC drive i.e. Variable Frequency Drive (VFD) (imported make from Europe or USA) to control rpm.		
	TORQUE-LIMITER fixed before duplex gear – to cut-off power if the load exceeds pre-determined limit – a reliable safety limit.		
Accessories	Die Plate assembly with two nos. round dies of different diameter, one no. flat die and one no. pipe die.		
	'Stellited' edge stainless steel cutter, driven by variable speed motor.		
	Safety device vide limit switch for the cutter.		
'Stand alone' panel board consisting the following :			
Panel board	a)2 nos. Electronic PID Temperature Controller-Indicator with sensor for 2 nos. Band Heaters.		
	b)1 no. Electronic Temperature Indicator with sensor for mass temperature.		
	c)3 nos. rpm meters for monitoring the RPM of Main Drive, Feeder & Cutter 1 no. meter for display of torque of Main Drive.		
	d)Ammeter, Voltmeter, Push-button Switches, Indicating Lamps etc.		
Other	Must have performance certificates after three years of installation from the reputed government institutes		
	Bidder should supply spare parts or AMC for minimum of 10 years. AMC should be after warranty period.		
	Demonstration of the extruder shall be on bidder part		

TSCDV(8): Carbonation Unit:

Particular	Specifications	Comply (Yes/No)	Remarks
Technical specifications for Carbonation Unit			
Capacity	Capacity of carbonation: 50-60 litre per batch		
Carbon Dioxide source	The Carbonation unit must be used to carbonate the beverage / fruit drinks to desired gas volume using a commercial Carbon Dioxide cylinder as source.		
	Must be supplied with commercial 50 litre Carbon Dioxide cylinder and other required accessories like Chiller etc.		
	Must have even and high dissolution of gas in beverages/fruit drinks.		
	Volume, flow rate and pressure of the gas must be controllable. Must be provided with control panel houses, HP and LP gas regulator with indicator gauges. Electronic pressure transducer controlled Diaphragm valve to regulate gas flow. Complete electric system along with built in alarm system and pressure controller for gas and only temperature indicator as one unit.		

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Filling and capping	From the Carbonization unit, the carbonated beverage must be sent to the Counter Pressure Filler for Filling.		
	Must be suitable for various sizes of both plastic and glass. The machine is suitable for 350,500 & 1000ml PET Bottles, with a production capacity of 350-400 bottles per Hour for 350. Bottle loading and unloading are manual		
	After filling of carbonated beverage in bottles, bottles must be easily sealed / capped. Capping head: one. Capping capacity: 300-500 BHP with 0.5 HP motor.		
	Body must be of food grade SS No 304.		
Other	Bidder should supply spare parts or AMC for minimum of 10 years. AMC should be after warranty period.		
	Demonstration of the carbonation unit shall be on bidder part		

TSCD V(9): Digital Stereoscopic Microscope

Particulars	**Specifications**	**Comply (Yes/No)**	**Remarks**
Preferable make	Carl Zeiss or Nikon or Olympus		
Optical body	Trinocular body		
Zoom ratio	Apochromatic optics with a zoom ratio of 8:1 or more.		
Magnification	Magnification range of 6.3x…50x or more. The total magnification from 1.9 x to 250 x or more with various combination of objectives and eyepieces.		
Eye piece	Eyepieces 10x with a field of view of 23mm and above, for spectacle wearers with +/- 5 Diopters.		
Working distance	Free working distance of 92 mm with 1x objective and 10X eye pieces.		
Interpillary distance adjustment	Observation tube with a viewing angle of 35° and adjustable intraocular distance of 55-75mm.		
Stand and working surface	Stand with a base of D310xW200xH90 mm and Working surface D195xW160 mm. Column 250 mm with drive and handle, lifting range 145 mm. Hand Rest Stand for increased operating ergonomics.		
Episcopic Illumination	Built-in LED trans-illumination unit with rotatable and slidable mirror for bright field, dark field and oblique trans-illumination. 2x sockets for IVI and illuminator K LED. Separate RL/TL controls for on/off/dimming.		
Illumination	Illumination through Double Spot illuminator with Gooseneck doubles spot, 2x 160mm for variable epi-illumination and height adjustable. Ring illuminator Segmentable with 48 LEDs in 2 rows tilted.		
Optical body rotation	Separate controls for segmentation and rotation. 4 modes – Full, Half, Quarter circle and 2 facing quarter circles with manual turning in 90° steps or continuous rotation.		
Power unit	Integrated power unit 12V DC 24W/100...240V AC/50...60Hz. Glass and B/W plastic plate D=84x5 mm. Country-specific power cable EURO C7 with dust cover.		
Camera attachment	Integrated Camera port with interface 60N with switch over 100vis/100doc right. Camera adapter 60N C-Mount 2/3" 0.5x.		
Camera specifications	CMOS Camera with driver software 64 bit, USB 3.0, PCIe x1 interface USB 3.0 connection cable 3.0 m. With a basic resolution of 2560 (H) X 1920 (V) + 5.0 Megapixel and with a pixel size of 2.2 µm x 2.2 µm and a chip size of 5.70mm x 4.28 mm equivalent to 1/2.5" and corresponding software to capture the image and analyze the same. The function capabilities: Acquisition of images, interactive graphic representation, Analysis, process and views, navigation windows, scale bar text annotation etc.		
Optional Accessories			
Desktop Computer	Basic suitable desktop computer (any make) with advance software for image analysis and morph metrics observations. Processor: Intel Core i5 or higher; Operating system: Windows 10; Monitor: 21.5" LED or higher; HDD: 1TB eSATA of higher; RAM: 8 GB; DVDRW Optical drive or higher; Multimedia Keyboard & Optical Mouse.		
Printer	Colour printer (any make). Print Speed: 4ppm or higher, Print Quality: 600 x 600 dpi or higher, Connectivity: USB, Color Printing Type: CMYK		

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