PONDICHERRY UNIVERSITY
(A Central University)

Tender document for supply of Sophisticated Analytical Instruments

(Tender No.PU/CIF/DST-PURSE/TN01/2014-15)

CONTENTS

TERMS AND CONDITIONS (UNDER TWO BID SYSTEM)

I. Instructions to the Bidder: -

1. Purchase of Tender Document

The Tender document can be either downloaded from the University website **www.pondiuni.edu.in** or procured from the Information Facilitation Counter, Dr. Ambedkar Administrative Block, Pondicherry University on payment of tender document fee as specified below, by means of a Demand draft drawn in favour of **the Finance Officer, Pondicherry University, payable at Puducherry**. In case of downloaded documents, it should be submitted along with the tender document fee in the form of Demand draft drawn as mentioned above.

2. Tender Document fee and EMD to be submitted

Sl. No.	Equipment	Tender Document fee	E.M.D.
1.	Semi-macro elemental Analyser for automatic determination of C-H-N-S-O-X	Rs.2,500/-	Rs. 1,00,000 or 2.5% of bid amount whichever is lower
2.	ION Chromatography System	Rs.2,500/	Rs. 1,00,000 or 2.5% of bid amount whichever is lower
3.	UV-VIS-NIR Spectrophotometer	Rs.2,500/	Rs. 1,00,000 or 2.5% of bid amount whichever is lower
4.	Automated Fast Protein Liquid Chromatography (FPLC) system	Rs.2,500/	Rs. 1,00,000 or 2.5% of bid amount whichever is lower

3. Last Date & Time for submission of Tender Documents

18.06.2014 at 3.00 p.m. *and they will be opened on the same day at 3.30 p.m.]*

4. Submission of tender Document

Tender / quotation (**separately for technical bid and price bid**) must be submitted in sealed cover super-scribing thereon bidder's name, Notification No. and name of the Item, along with tender document and EMD , last date of tender etc., Any tender, submitted without tender document fee and EMD, will not be accepted. This is to be dropped in the Tender Box placed at the Information Facilitation Counter, Pondicherry University, or sent by Registered post / courier service addressed to" **The Registrar, Pondicherry University, R.V.Nagar, Kalapet, Puducherry – 605 014, India"** positively before the tender bid closing time. Tenders sent through Fax will not be accepted.

5. Payment of EMD:

The Tender for each instrument must be accompanied by EMD (refundable) as stated above, by means of a Demand Draft, in favour of the Finance Officer, Pondicherry University, payable at Puducherry separately. *The Small Scale units are exempted from payment of EMD provided they enclose proof of their exemption issued by the competent authority*.

6. Quoting the Core price & Tax, Duties, Discount etc.

The taxes / duties / discounts, if applicable, are to be explicitly and separately shown in the bid and under no circumstances these components shall be added to the basic price and shown as single price. All the components of taxes, if applicable, should be shown explicitly and separately.

7. Electrical Power

All equipment must operate at 230V/50 Hz single phase and / or equivalent three phase electrical power.

8. The validity of the Quotation

The validity of the quotation should be for at least 180 days from the closing date of the bid.

9. Late Bids

The offers will not be considered if received after the bid closing date and time.

10. Invalid quotes

The offers received through telex / tele-fax / e-mail will not be accepted by the University under any circumstances.

11. In case of Postal loss

The University shall not be responsible for any delay / loss or non-receipt of tenders by post / courier service.

12. No unsolicited correspondence

No unsolicited correspondence shall be entertained after the submission of the offer.

13. Purchase Agreement

If an order is placed with the firm, the purchase shall be governed by the terms and conditions of the University in force at that time.

14. Additions in terms and conditions

Additional terms and conditions will be incorporated in the purchase order, if needed, to safe guard the interests of the University.

15. Non-transferable

Tender is not transferable.

16. Power to reject the offer

Any offer containing incorrect and incomplete information shall be liable for rejection.

Pondicherry University reserves the right to accept / reject any offer in full or in part or accept any offer other than the lowest offer without assigning any reason thereof. *However, deficiencies on any one or, more of the following crucial criteria will be a material factor, for consideration other than the Lowest Quotation: -*

1. *Total Number of installations of the similar Equipment in the premier Research Institutes in India.*
2. *Availability of Service Network in India, especially in Chennai or Bengaluru.*
3. *Valuable feedback from the present users about the performance, service support, accuracy of result, etc.*
4. *Any other techno commercial information which is deemed fit to be important in the opinion of the University.*

II. Price Schedule

1. The bidder who is capable of supplying the entire solutions for the instrument quoted as per the list of ITEMS mentioned in the schedule, is alone need to submit their quotation.
2. The rates should be quoted for a single unit.
3. The price should include the delivery and installation at the Central Instrumentation Facility, Pondicherry University, Puducherry and training charges (if any).
4. Quote in Indian Rupees is preferred.

III. Eligibility:

1. The firm must have the requisite domain expertise with regard to supply, installation and post-sale service of the items they are quoting.

2. The firm should have been in existence for at least six years as on the date of this document and must have executed at least three orders for this kind of equipment during the last five years.

3. The firm should have sufficient number of installations of the similar Equipment in the premier Research Institutes in India.

5. The firm should have nation-wide Service Network all over India, especially in Chennai or Bengaluru.

6. The feedbacks from the present users of the similar equipment about the performance, service support, accuracy of result, etc. are to be submitted along with the Tender Document.

7. Any other techno commercial information, pertaining to this particular Equipment, principal suppliers, technical background and capability, local agents' background on Scientific Equipment Business, etc. may also be appended along with testimonials and documentary proof.

IV. Conditions of Contract: -

1. The offer must be in English. The rates should be indicated both in figures and words against item specified in the given Annexure. It is preferable that the price be quoted in Indian Rupees or in US Dollars or in major foreign currencies.

2. **The total cost should be quoted for FOB as well as CIF – Pondicherry University, Puducherry.**

3. The price quotes under FOB and CIF should also include the expected installation cost in the University Laboratory at Puducherry and also cost of consumables which are required for the main equipment for initial operation up to a reasonable period.

4. In case of the Principal supplier of Foreign country unable to meet the conditions stated at para no.4, the local agent / dealer should fulfil the above said conditions in respect of Local Insurance, Freight, safety transport and installation, etc.

5. The prices quoted shall remain firm until equipment is supplied to the Central Instrumentation Facility, Pondicherry University, Puducherry.

6. The University has been granted the benefit of exemption from the payment of the Central Excise Duty and Customs Duty by the Department of Scientific and Industrial Research (DSIR), India, vide their Notification No. 10/97 dt. 01-03-1997 and 51/96 dt. 23.07.96 respectively.

In respect of

a. Scientific and technical instruments, apparatus, equipment including computers.
b. Accessories and spare parts of goods specified in (a) above and consumables.
c. Computer software, compact disks, CD ROM, Recording magnetic tapes, microfilms, micro-chips etc.
d. Prototypes.

Customs duties at Indian port, if any, will be to the account of the University.

7. Infra-structural, power and any other requirement for satisfactory installation and commissioning of the whole system must be provided, at least 120 days in advance of the installation to be commenced. All drawing for electrical connections, electrical safety items piping work etc. must be provided in detail.

8. Complete technical specifications and literature, including process flow, to be included with the quotation. Manufacturers of various major parts/equipment must be mentioned explicitly.

9. A clear statement regarding availability of after-sales service and availability of spare-parts for next 5 to 10 years should be included.

10. Please give a recent customer list (within last five years) with contact details including email address.

11. If you have an authorized representative in India, you are requested to inform his technical ability to take care of the problems in the system, if developed later within the warranty and outside the warranty period. The responsibility of the Indian agent must be clearly specified.

12. The bidder from abroad shall obtain, if required, export permission from the appropriate authorities in his country or the country of origin for items to be shipped to India in case of items to be imported. The University shall provide necessary information if required for this purpose.

13. The bidder from within India shall obtain the requisite approval for Imports etc., if required.

14. Warranty**:** The material covered under the purchase order, when installed, shall be warranted for the quality, workmanship, trouble free operation and performance for a period of **at least 36 months from the date of putting the system into operation** at the Pondicherry University, or at least 42 months from the date of receipt of the last lot of the consignment in India. (A signed Bidder's Warranty as per Annexure – I has to be submitted along with the Bid Document)

If any item covered under warranty fails, the same shall be replaced free of cost including all the applicable charges including shipping cost both ways.

15. Payments terms**:**

100% Payment would be made only after delivery and installation of the equipment/s in good working condition at the specified site on submission of Performance Bank Guarantee towards 10% of the cost of equipment for the duration of the warranty period from the date of installation of equipment in good working condition otherwise 90% payment only be released and the balance 10% amount will be released on completion of warranty period or submission of performance bond of 10% of the total contract / purchase value in the form of bank guarantee (obtained from any Nationalized Bank in India) for the duration of the warranty period (Refer Annexure – II for Bank Guarantee Format).

Normally, as per the present policy, advance payment and payment by LoC is not accepted by the University. Payment would be made only by way of Foreign Demand Draft / multicity cheque / Wire transfer, after the successful delivery and installation of the equipment. If required, payment would be arranged to be made immediately on delivery and installation of the equipment with due certification and recommendation by the end user.

However, in exceptional circumstances, payment would be considered through Letter of Credit depending upon the merit of the case.

In such cases, an undertaking would have to be given by the supplier or his duly authorized agent guaranteeing the timely supply and installation of the equipment in good condition, including receipt of required documents well within period of Letter of Credit to effect payment and to bear the expenses / additional financial burden that may have to be incurred by the University in case of default by the supplier or his agent for any transaction in connection with the timely supply of the equipment

Bank charges in India shall be borne by the purchaser and outside India shall be borne by the contractor / supplier. However, Bank charges on account of delay on the part of contractor / supplier should be borne by the contractor/supplier.

16. In case of any dispute in respect of the tender, all legal matters shall be instituted within the jurisdiction of the place where the purchaser ordinarily resides.

17. No Agency commission will be paid to any authorized agent in India.

18. The successful bidder should deliver and install the equipment at the end user department in good working condition, at the supplier's risk within the stipulated time as specified in the supply order.

The Cargo arrival notice and other connected documents/details required for clearing should be sent well in advance to the Purchase Section of Pondicherry University with a copy to the end user department, for facilitating clearing. Any charges incurred due to non-receipt of the cargo arrival notice and other related documents/details for clearing the cargo would have to be borne by the supplier.

If the equipment is supplied after the stipulated time, the additional financial burden and other consequences, if any, has to be borne by the supplier.

The payment would be made only after receipt of the item/s in good working conditions as per specification. The University would not be making payment in case of receipt of items found defective in any manner whatsoever. In such an event, all the related charges, if any, incurred by the University, would have to be paid/borne by the supplier.

19. Liquidated damages: Timely supply of the ordered items, installation, commissioning (wherever is applicable) and training etc. is the essence of the contract. In case of failure to supply within the time specified in the Purchase order, a penalty/LD of 0.5% of the total value per week or a part thereof shall be levied subject to a maximum of 7.5% in respect of items which are not supplied. The decision of Pondicherry University shall be final in this regard.

20. The training should be provided by the firm on the specimen and operation of the equipments for a minimum period of three weeks from the date of installation with an expert team for two persons.

For any clarification with respect to technical specifications, please contact Dr. G. Govindaraj, Centre Head, Central Instrumentation Facility, Pondicherry University, Puducherry.

Email: ggraj_7@yahoo.com
Tel: 0413-2654405
Mobile : +91 98945 96729

II. Descriptions & Technical Specifications of Instruments required

I. Semi-macro elemental Analyser for automatic determination of C-H-N-S-O-X

Fully Automated PC controlled Elemental Analyser for Solids, Liquid , liquid volatile and gas samples.

Operating modes for measurement of CHNS, CHN CNS, S, Trace S and O-TCD and Cl.

Sample weight Range : 0.02 to 1000 mg. The instrument should be capable to accept **40 mg Absolute Carbon in any sample.**

Measuring range : 0.004% to 100% for all elements. Also mention the absolute measuring range for all elements with documentary proof.

Detection Range : Less than 40 ppm.

Standard deviation : ≤0.1% of absolute.

Sample Combustion System

- Must have dual furnace system for combustion/reduction with independent temperature control upto 1200 deg C for each furnace.
- Should have **ash finger** to hold ash and prevent ash from affecting catalyst and quartz combustion tube.
- Should have mass flow controller / electronic flow controller for constant flow of carrier gas
-

Separation System

Advanced Chromatographic separation of gases using segmented multi-stage column with independent temperature control.

Detector System

Temperature stabilised TCD detector for measurement of C-H-N-S-O.

Optional IR detector for Trace measurement of Sulfur to 1ppm. Automatic Switchover form Trace S to Normal S mode.

Other Features :-

- Attachment for determination of Chlorine using EC detector. Should use the same autosampler as for CHNS-O determination.
- Capable of direct measurement of TIC in solid or liquid samples. The instrument should accept 3-4 gram of sample for direct TIC analysis.
- Possibility to analyze gas samples.

Autosampler System : Electromechanical auto sampler system with 80 positions or more in single tray.

Software should be Windows based with all parameter display with possibility of **segmented** leak check through software.

Carrier gas : Capable of using Argon gas and Helium gas, both as a carrier gas.

Consumables: To be supplied with consumables sufficient for 4,000 sample analysis.

Semi microbalance with 0.01 mg resolution (Mettler/sartorious/shimadzu make)

Solid sample preparation device and liquid sample sealing press (both) should be quoted.

Warranty :- 10 years warranty on furnace. 5 years warranty onTCD. 2 years warranty for the whole instrument.

Necessary documents :-

1. The offer should be submitted by manufacturer or their exclusive agent with certificate of exclusivity.
2. Original Catalogue must be provided.
3. All technical specifications should be printed on the catalogue. Separate sheet will not be acceptable.
4. List of User in India with their address and contact details should be provided.
5. Compliance statement to be provided.
6. Company must have their service center in close to Pondicherry either in Tamilnadu or Karnataka.

II. ION Chromatography System

Supply, installation, commissioning and training of **Automated Software Controlled Ion Chromatography System** for analysis of anions, cations, transition metals ions, lanthanides, pesticides and other organic compounds in water and waste water samples on *turn-key basis at Central Instrumentation Facility, Pondicherry University, Pondicherry.*
(As per the technical specifications & the system modules indicated below).

Technical Specification

The system should be PC based with data acquisition and system control through the software. The software should also be able to program various components like Columns, Pumps, Detector, etc., automatically. The system should have a leak detector and facility for calibration facility.

Fully Automated (Dual Channel) and state-of-the Art Ion Chromatography System required for simultaneous analysis of Anions, Cations, Transition metals, Lanthanides and amines in water and waste water samples. It should be able to perform simultaneous analysis of anions and cations or anions and transition metals or cations and transition metals or in other suitable combination. The system should be equipped with the following components with specifications (Alternative specifications having similar performance may also be considered):

1. Pump:
Pump (2 nos.): Gradient pump (1 no.) and Isocratic pump (1 no.)
(i) Gradient pump specifications: Computer controlled dual piston pump, suitable for multiple gradient configurations
(**Binary/Ternary/Quaternary**) for mixing and delivery of at least two eluents/mobile phases. It should have pressure alarm limits.
Metal free (polymeric) and compatible with eluents from pH 0-14.
Pressure range: up to 35MPa. (5000 psi);
Flow rate range: Adjustable from 0.001 ml/min to up to 5 ml/min with accuracy ± 0.1%; Precision/resolution of flow rate should be 0.001 ml or better than 0.1%; Pressure ripple: less than 1% at 1 ml/min; proportioning accuracy ~1% or
better; .
Pump should be provided with power failure protection.

(ii) Isocratic pump specifications: Computer controlled dual piston pump, suitable for Isocratic applications for delivery of single eluent/mobile phase. It should have pressure alarm limits. Metal free (polymeric) and compatible with eluents from pH 0-14.
Pressure range: up to 35MPa. (5000 psi);
Flow rate range: Adjustable from 0.001 ml/min to up to 5 ml/min with accuracy + 0.1%; Precision/resolution of flow rate should be 0.001 ml or better than 0.1%;
Pressure ripple: less than 1% at 1 ml/min.
Pump should be provided with power failure protection.
• Compartment unit for mounting the Suppressor, Detector electronics, columns etc.

2. Injector:
•Dual 6-Port injector (or better) valves with built in leak sensor.
•The sample loops should be in the range of 5,10,20,50,100 and 200µL which can be operated through software.

3. Eluent Organizer:
Eluent organizer with eluent bottles of 1-2 litre capacity for keeping different eluents.

4. Detectors:
The ion chromatograph should be having flexible system for efficient detection of different ionic species: These are as follows:
(i) Conductivity Detector for analysis of major anions and cations (2 Nos.)
•Microprocessor based thermostat with micro-flow cell conductivity block with an accuracy of ± 0.001°C
•Temperature of the conductivity block should be adjustable between 20-50°C
•Conductivity measure range: 0 to15000 µS with a resolution 0.1nS/cm; Linearity: 1% at 1000 µS.
• Auto ranging digital conductivity signal and it's monitoring with suitable software.
•Cell Body : Chemically inert polymeric material with Cell Volume : ~1.0µL
•Maximum Operating Pressure: 500 psi.
• Cell Temperature Range: 5 ºC above the upper DX enclosure temperature; up to 50 ºC max.
• Cell Temperature Stability : < 0.001 C º

(ii) UV-Visible Detector for analysis of transition metal ions
• Variable Wavelength Absorbance Detector having detection of ions using multi-data channels and one reference channel.
•Variable Wavelength range between 190 to 900 nm in 1 nm Increments
• Optical System : Dual beam optic design Monochromator single wavelength UV-Vis detector
Noise : Typically <± 2.5 mAU at 254 nm
Drift : < 0.1 mAU/h
Cell Path Length : 10mm with appropriate Cell Volume (~10 µL)
•Provision of post column derivitization technique and for compound determination
•Post column derivitization unit should have reagent delivery pump/pneumatics control, mixing 'T' joint and reaction coils.

(iii) Electrochemical Detector / Bioscan detector (or equivalent) for analysis of cyanide,Suphide,Iodide,lanthanide,sugars, etc.
•Electrochemical detector having DC & Pulsed Amperometric modes.
•Microprocessor controlled digital signal processing with appropriately low noise levels.
•Sequential monitoring of ions in single run using interphase between Conductivity and electrochemical detectors.
•Electrodes: Gold, Glossy Carbon and others should be quoted
• Reference Electrode may be of pH-Ag/AgCl combination.
•Current measuring range: 0.1nA to 10 µA or higher.
Autoranging digital amperometry signal with compatible software.
• Cell Volume at Working Electrode : <0.5 µL
• Maximum Operating Pressure : 0.7MPa (100 psi)

5. Columns:

•IC columns preferably micro bore columns for analyses of anions, cations, transition metals, lanthanides, amines, sugars etc and residual pesticides (ppm/ppb range) should be individually quoted with respective guard columns and the associated ferrules and end fittings.

All columns must be solvent compatible and non-corrodible components working at pH 0-14.

•The system should be able to identify the columns to configure the maximum flow rate and pressure for the column

•System should be capable to treat the turbid samples having high matrix to allow clean samples to the IC system, which protects Column.

•The entire setup should be controlled by software and should be automatic.

6. SUPPRESSOR (1no. for Cations & 1No. for Anions):

• System should have the facility to enhance the analyte conductivity and suppress background conductivity for Cations & Anions

•Electrolytic Suppressor which could generate the necessary ions required for regeneration by electrolysis of water (Dual suppressor or similar type) for isocratic & gradient analysis (for stable and noise-free results) with **3 years warranty**.

7. Automatic online Eluent preparation module

Eluent Preparation module (Optional Items & to be quoted separately):

On-line eluent generator/synthesizer to generate the mobile phase of desire strength online to do ppb and ppt level analysis of cations and anions.

•This IC system module should be providing precise and reliable automatic elution where the required eluent is generated directly from the cartridge and the deionized water consistently and conveniently (in a computer controlled fashion).

• Eluent Cartridges should be provided and quoted separately.

8. Auto sampler

• An Auto sampler should be provided for the automatic and reliable injection of samples.

•It Should be fully controlled by the software.

•Simultaneous (For simultaneous analysis of cations & anions or cations and transition metals or anions and transition metals or in other similar configuration) and sequential injections for high throughput.

• The auto sampler should have at least 30 positions for samples and It should support variable sample vial capacity (1-10 mL) should be provided.

• Multi-Injection (minimum 10 times) facility to check repeatability

•The complete sample flow path should be non-metallic including the sample needle

• At least 500 Vials & 2000 septa should be supplied with the system

• The auto sampler should have facility for Auto matrix elimination, concentration and calibration. It should be able to perform the calibrations as per requirement of analysis.

• The entire set-up provided should be automatic and controlled through the software

9. Desktop PC & Printer, UPS with battery backup, gas cylender etc.

(To be provided from India in Indian currency)

Latest Computer System with minimum 2 years on site warrantee and having following minimum configuration:

Intel i7 Processor, 21" wide screen Full HD LCD/LED Monitor, 8GB RAM, 1TB Hard Disk, DVD Writer, 1TB Portable Hard Disk, Compatible operating system, Antivirus, and any

other software essentially required for smooth operation of the equipment and data compilation/analysis.
• Latest Colour Multi-function laser printer for printing of reports/results.
• Any other accessories essentially required for installation and smooth functioning of the equipment like Reference Gas Cylinders, Regulators, Valves, SS Pipe lines etc.
Uninterrupted power supply with a backup time of 60 minutes

10. Software: •Fully compatible Chromatography Software for the automated instrument and data system for control, acquisition, processing, & Reporting.
• Free Software up gradation for the instrument.
•This software should be compatible with PC provided with the system allowing users a complete system control and
user friendly help. The software should also have a facility for the system diagnostic for wellness monitoring.

11. Accessories & Essential Consumables:
• All important accessories like polypropylene bottles tubing, fittings, spares and eluent Cartridges etc., required for
smooth and complete operation of the system for at least 2 years/3000 samples (whichever is higher) should be
supplied.
• Provide the list of necessary consumables for smooth running of machine for a period of minimum three years along
with the cost. All accessories required for installation like Mobile Phase and Solvent filtration system should be provided along with the system.

12. Necessary standards & chemicals:
•All the necessary chemicals (eluents), eluent cartridges etc. and NIST certified standards (including mix standards for
anion and cations) of ion chromatography grade/HPLC grade (as per the system requirement) should be provided for
3years/5000 samples and should be quoted in clear terms.
•Towards this, a list of all the items should be provided separately.

13. Warranty, free maintenance service & specific requirements
•**Three years comprehensive onsite warranty from the date of installation**.
•Charges for Three years Free Maintenance service after the completion of the warranty period should be included with the cost of equipment.
•The instrument manufacturer must be ISO 9001 certified for manufacturing, testing, validation, etc. Certificate must be enclosed along with offer.
•Provide rate of each item separately: pumps, auto sampler, columns, suppressor, detectors, PC etc.

III. UV-VIS-NIR Spectrophotometer

Specifications:

1.	Wavelength range	185 nm to 3,300 nm
2.	Mode of operations	Transmittance, Absorption, Reflectance (Diffused/Specular)
3.	Nature of samples	Liquids, Solids and Thin Films including Multi-Layers
4.	Spectral bandwidth	With multiple steps of 8 or more in both UV-Vis and NIR regions.
5.	Resolution	0.1 nm (or) better
6.	Wavelength sampling pitch	0.01 to 5 nm (or) better
7.	Wavelength accuracy	± 0.2 nm (or) better (UV-Visible regions) ± 0.8 nm (or) better (NIR region)
8.	Wavelength repeat accuracy	±0.08 nm (or) better (UV-Visible regions) ±0.32 nm (or) better (NIR region)
9.	Stray Light	At 220 nm, NaI ≤ 0.00008% At 340 nm, $NaNO_2$ ≤ 0.00005% At 1,420 nm, H_2O ≤ 0.0005% At 2,365 nm, $CHCl_3$ ≤ 0.005%
10.	Photometric system	Dual beam
11.	Photometric range	-6 to 6 Abs (or) wider range
12.	Photometric Accuracy	NIST 930D filter ± 0.003 Abs (or) better
13.	Photometric Reproducibility	With 1 second integration time, taking standard deviation over minimum of 5 measurements ± 0.0008 Abs (or) better (0 to 0.5 Abs) 0.0016 Abs (or) better (0.5 to 1 Abs)
14.	Photometric Noise RMS	With 1 second response time, 2 nm slit 500 nm 0.00005 Abs max. (or) better 900 nm 0.00008 Abs max. (or) better 1500 nm 0.00003 Abs max. (or) better
15.	Baseline/photometric stability	after warm up at 500 nm, 1 second integration, 2 nm slit ≤ 0.0002 Abs/h
16.	Light Sources	Appropriate light sources with automatic adjusting of light – source position
17.	Detectors	Suitable Detectors which gives more or less flat transmission curve with minimum noise throughout the UV-Vis-NIR region.
18.	Software	Required and compatible software for the instrument operation, measurement and analysis.
19.	Computer system	Necessary Computer system suitable for total instrument control, Data acquisition, Analysis and report generation along with a suitable printer should also be a part of the offer. Detailed Specifications for such a system should also be provided in the quote.

Optional:

1.	Purging	Gas purging for optics and sample compartment
2.	Variable temperature measurement	-200°C to +250°C with a very good stability
3.	Temperature controlled cell holder	Temperature range: 10 to 60°C or better With better display accuracy and control precision
4.	Ultrasonic sonic bath	For the dispersion of liquid samples

IV. SPECIFICATIONS FOR AUTOMATED FAST PROTEIN LIQUID CHROMATOGRAPHY (FPLC) SYSTEM

Versatile Chromatography (inert biocompatible) System for all purification (protein and plasmid DNA) from microgram to gram scale

- 0.001 ml/min to 25 ml/min should be upgradable to150 ml/ min if required; packing flow rate - 50 ml/min (Extended Flow Rate)
- Pressure Range - 0 to 20 MPa (2900 psi)
- Flow rate Accuracy - ±2%
- Viscosity range - 0.5 to 10 cP (5 cP above 12.5mL/min)
- Capable of running with automaticpressure / flow control option and reverse flow

Capable of installed withintegrated Design of Experiment (DoE) as a tool forexperimental design
Capable of accurate, automatic gradient formation from 0 to 100% gradient over the entire flow range of 0.1 to 25 ml/min
In-Built program to check and validate the accuracy of the pumps during ascending/ descending step down gradients
Capability to be integrated using I/O box with third party Detectors

UV/Vis Detector:
Twodetectors capable of monitoring at least 3 wavelengths from 190-700 nm installed at the same time for giving flexibility and increased application capability for using small and large flow cells simultaneously to detect low and high concentration proteins

- Absorbance range of -6 to +6 AU with high sensitivity, minimal dead volume and time
- Accuracy - Within ±2% at 0 to 2 AU
- Single lamp source having not less than 4000 h of life time without any warm-up time
- The data acquisition/ transmission should be throughthe fiber optic technology to provide a high signal-tonoiseratio

Conductivity monitor:
Conductivity reading ranges 0.01 – 999 mS/cm
Accuracy ± 0.01 mS/cm or ± 2%, whichever is greater
Operating pressure 0–5 MPa (725 psi)
Flow cell volume - not less than 6 µl
Temperatures monitor range of 0–99°C
Temperature monitor accuracy ±2%

pH monitor: pH electrode to be installed inline & calibration can be done by connecting to the pH valve without removing the probe
pH reading range – 0 to 14
Accuracy ± 0.1 pH unit within pH 2 to 12
Operating pressure – 0 to 0.5 MPa (72 psi)
Flow cell volume 76 µl

Automated Sample Injection:
System must be capable of carrying out accurate gradients equipped with automated sample injection by integrating sample pump in the system.

Column Switching Valve:
Column switching valve with reverse flow capability for increased flexibility in column and media selection; The valve capable of screening of up to 5 columns and media in automated sequence; Reverse flow capability for concentrated fractions and column cleaning; Built-in Pre- and Post-

column pressure sensors for protecting columns from over pressurizing and compacting; Differential pressure sensing capability for monitoring column health

Versatile valve a general four-position valve that canbe used to tailor the flow system to specific tasks, forexample, for multistep purification schemes

Loop valve should allow the use of up to five loops andshould be used for collection of intermediate fractionswhen performing multistep purification or forautomated purification of up to five different samples

Loop valve to be available forholding reagents; Inlets should be expandable with up to two extraposition valves for expansion of buffer and sample inletcapacity, integrated with online air sensors placed inthe sample inlet valve and inlet valves A and B suchthat when air is detected, the system is paused so thatthe air can be removed before further introduction intothe flow path to avoid damage

The system should have capability to switch between multiple buffers and cleaning solutions
Outlet valve options should be available to direct theflow to the fraction collector, waste or other outletports

Air sensors to protectthe column from air (drying)

The system should have the flexibility to be installed with a round as well as a XY fraction collector at the same time

Fraction Collector:

The system should be supplied with a round fraction collector with ability to
- Use in time, volume or peak recognition mode
- Minimize spillage using Drop Sync feature
- Allows collection of up to 350 fractions and use of 3, 8, 15 and 50 ml tubes and deepwell plates (24, 48 and 96-welled plates)
- Automatic peak recognition using control software
- Allows using flammable liquids

Software:

The software should be capable of automatic evaluation like peak integration, area under the curve analysis, Asymmetry & HETP (Height equivalent theoretical plates), conductivity height, and capacity factor; The software should be in-built for simple, intuitive, and flexible method creation using predefined phases (steps) and also have column library for application protocols, method templates and columns & techniques and capability to connect to a secure digital connection between workstation at a remote location
Software should have capability(i) to generate the method through wizard as well as manual method editor, (ii) to run methods in queue (Method Queue) with/ without any manual intervention & with/ without delay time and (iii) to read and analyze DoE results
Should have in-built program to check and validate the accuracy of the pumps during ascending/ descending step down gradients. These parameters are necessary to evaluate the manual column packing efficiency
Software should have Column Logbook as a valuable tool to keep track of individual column and run data for traceability and operational security is highly desirable

Necessary Computer system suitable for total instrument control, Data acquisition, and Analysis and report generation along with a suitable printer should also be a part of the offer. Detailed Specifications for such a system should also be provided in the quote.

Columns & consumables:

Necessary pre-packed columns for purification employing HIC, ion-exchange and GPC for low MW proteins (500-10000 Da)
Empty columns along with necessary resins
Flow adapters and other necessary fitting kit with whole set of Ferrules and connectors for connecting different columns

OPTIONAL:

Chromatography cold chamber:

Potential-free outlet for connection to a house alarm-system
Stainless steel chamber - Adjustable. Special stainless steel table for Chromatography System; fully insulated safety-glass doors, self-closing, large glass area for best viewing, lock included
Rear loading with breaks + 1x adjustable foot; Fully-automatic
The humidity control according to thecompressor working status
Free cooling system, fully hermetically sealed and with forced ventilation, mounted on
Anti-vibration damper, smooth running and low noise emission

- 4x moisture-proofed internal electrical sockets
- 2x access ports 40mm left & right
- External switch
- Easy cleaning due to deep built bottom with drains, centrally placed plughole
- Adjustable feet for 100% leveling
- Air Circulation: Double blower
- Evaporator: Mounted outside of the chamber on top.
- Capacity: 1500 litre

ANNEXURE - I

BIDDER'S WARRANTY

The Registrar, Pondicherry University, Puducherry invited Bid Document for establishing a ..... (name of the equipment / instrument) System at Central Instrumentation Facility, Pondicherry University

AND M/s._____

Thereinafter referred to as "The Bidder" having carefully studied all the bid documents, Specifications, etc. accompanying the tender for supply of the above mentioned Equipment and desirous to submit the bids as per the Tender Document advertised vide Notification No.CIF/DST-PURSE/TN-01/2014/..... dated .....

DO HEREBY WARRANTY THAT

1. The bidder is familiar with all the requirements of the bid documents.

2. The bidder has investigated the site and satisfied, he regarding the character and scope of the work and local conditions that may affect the supply or its Performance.

2. The bidder is satisfied that the supply can be performed and completed as required in the contract.

4. The bidder accepts all risk directly or indirectly connected with the performance of the contract.

5. The bidder has had no collusion with other contractors, with any of the men of Pondicherry University, Puducherry, or with any other person in preparation of the bid.

6. The bidder has not been influenced by any statement or promise of the Officials of Pondicherry University, Puducherry but only by the bid documents.

7. The bidder is financially solvent.

8. The bidder is experienced and competent to perform the contract to the satisfaction of the Co-ordinator, Central Instrumentation Facility, Pondicherry University, Puducherry.

9. The statements submitted with the bid are true.

10. The contractor is familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipal, District, State and Central Government that may affect the work, its performance or personnel employed therein.

11. All the terms & conditions of the Supply Order will bind the bidder once his quote is accepted and supply order issued.

Signature of the Bidder

ANNEXURE - II

BANK GUARANTEE

Pondicherry University
Bharat Ratana Dr. B R Ambedkar Administrative Building
R Venkataraman Nagar
Puducherry 605 014

1. This guarantee made this_____day of_____201_ by _____ Bank having its Registered Office at _____ and one of its branches at_____ (hereinafter referred to as "the Guarantor" which expression shall, unless it be repugnant to the subject, meaning or context thereof, be deemed to mean and include its successors and assigns) in favour of the Pondicherry University, Puducherry 605 014 represented by its Registrar, having his office at R. Venkataraman Nagar, Kalapet hereinafter referred to as the "University" which expression shall include his successors in office for an amount not exceeding Rs._____ (Rupees _____ only) at the request of M/s._____ (more fully described hereunder)

2. Whereas the University has placed Work Order No: PU/_____ dated_____ for_____ _____ with M/s._____ having its office at _____ and hereinafter referred to as the "Contractor" which expression shall include their successors and assigns.

3. And whereas the Contractor has accepted and agreed to execute the work as per the work order as per undertaking / agreement dated _____ within the time stipulated and in the manner specified therein.

4. And whereas the University has called upon the Contractor to furnish Bank Guarantee for the sum of Rs._____ (Rupees_____ _____ only) for fulfilment of the said work as specified in the work order and as agreed to by the Contractor.

5. And whereas the Contractor has requested the Guarantor herein to furnish an irrevocable and unconditional Bank Guarantee in favour of the University for an amount of Rs._____ as guarantee towards execution of the work as agreed to by the contractor to the University.

6. Now, therefore, we _____ Bank, the Guarantor herein, do hereby irrevocably and unconditionally Guarantee the payment to the University the sum not exceeding Rs._____ (Rupees_____ only) in the event of any breach, failure, neglect or inability on the part of the Contractor in the execution of the said work, on demand without reference of the matter to the Contractor and without any prior consent of the Contractor, at all times throughout the period of execution of the work, without demur, cavil or argument or delay.

7. The Guarantor agrees and undertakes that the decision of the University as to whether the contractor has committed any breach of the obligation with respect to the wok to be executed, and the quantum of amount therefore payable by the Contactor to the University in that regard, shall be final, binding and conclusive as against the Guarantor and the Guarantor shall make payment accordingly, on demand by the University.

8. The Guarantor further agrees and undertakes to pay to the University the amount demanded by the University irrespective of and not withstanding any dispute raised by the Contractor in any suit or proceeding before any judicial forum relating to the Contracted work and the Guarantor's liability under this Guarantee shall be absolute and unequivocal.

9. This Guarantee is issued subject to the condition that the liability of this Guarantor under this guarantee is limited to the maximum of Rs._____ (Rupees _____ only) and the guarantee shall remain in full force up to _____ and cannot be invoked otherwise than by a written demand or claim by the University for the payment of the said amount by the Guarantor on or before_____ or any extended date as decided by the University.

10. This University shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the contracted work or to extend time for performance of the work by the Contractor. Any change to the contracted work shall not in any way release the Bank (Guarantor) from liability under this Guarantee and we waive notice of any such change. The University shall have full liberty to forbear or enforce any of the terms and conditions of the contracted work.

11. This Guarantee shall not be affected by any legal limitation, disability or other circumstances relating to the Contractor or the Guarantor.

12. This Guarantee shall be valid for the period up to _____ and shall extend further and beyond _____ for such period as determined by the University.

13. The Guarantor undertakes not to revoke this guarantee except with the previous consent of the University in writing.

14. Notwithstanding anything contained herein:
    Our liability under this guarantee shall be limited to Rs._____ Rupees_____ _____ _____ only)

    This guarantee shall be valid up to _____ and for such further period as determined by the University for fulfilment of the contract.

    We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or demand on or before _____ or such extended period / date.

    In witness whereof, this Guarantee has been executed by _____ for and on behalf of the Bank (Guarantor) on the day, month and year first above written.

SIGNATURE AND SEAL

NAME OF THE BANK (GUARANTOR)

ADDRESS