BID DOCUMENT

TENDER FOR PROCUREMENT OF LABORATORY EQUIPMENTS FOR

Quality Control Laboratory

Tea Park

Siliguri

TENDER NO. RL-33(142 /2008/QCL

NOTICE INVITING TENDER

Office of issue	:	Chairman, Tea Board, Kolkata
Tender No	:	TENDER NO. **TENDER NO. RL-33(142 /2008/QCL**
Tender Document	:	Details are given below
Due date/Time of receipt	**:**	**30..03.2012 up to 1.00 p.m.**
Opening date/ time	**:**	**On 30..03.2012 at 3.00 p.m.**

Sealed tenders are invited on behalf of Chairman Tea Board, Kolkata for **supply and installation of Machineries/equipments** at Quality Control laboratory,Tea Park, Siliguri,Tea Board.

Eligibility of bidder:
Indian companies registered to take up tendered items of work and whose annual turnover in the last financial years was more than Rupees 50 lakhs, are eligible to participate in this tender. Further, the bidder should have capability and experience in supplying, installation/commissioning of the machineries/equipments described in the tender document. Eligibility conditions are described in details in the tender document.

Estimated cost of the work is Rs. 4 .6 Crores (Rs. Four crores sixty thousand only only). Bid security (EMD) shall be 2.5% of the estimated cost of work which is payable in the form of demand draft in favour of "Tea Board, Kolkata". **Tender Document is to be downloaded from the website of Tea Board, www.teaboard.gov.in and a DD of Rs. 1000/- in favour of Tea Board, payable at Kolkata, to be attached with the Technical Bid of tender as the cost of tender document.**

Secretary,
Tea Board, Kolkata

1. DEFINITIONS:

a) "TEA BOARD" means Tea Board Of India, a Commodity Board under the Government of India, Ministry of Commerce and Industry and having its Head Office at 14 B.T.M Sarani, Kolkata 700001

b) "The purchaser" means the Chairman Tea Board, KOLKATA acting through the Secretary, TEA BOARD, Kolkata.

c) "The Bidder" means company, individual or firm who participates in this tender and submits its bid.

d) "The Supplier" means the successful bidder supplying the goods and services under the contract.

e) "The Goods" means all the equipment, machinery, more fully described in this document which the supplier is required to supply to the purchaser under the contract.

f) "Provisional acceptance letter/letter of intent" means the intention of the purchaser to place the purchase order on the bidder.

g) "The Purchase Order" means the order placed by the purchaser on the Supplier signed by the purchaser including all attachments and appendices thereto and all documents incorporated by reference therein.

h) The purchase order shall be deemed as "Contract" appearing in the document.

i) "The Contract Price" means the price payable to the Supplier under the purchase order for the full and proper performance of its contractual obligations.

j) "Validation" is a process of testing equipment as per the Generic Requirements in the specification for use by Quality Control Laboratory, Tea Park,Siligurii

TEA BOARD OF INDIA
(MINISTRY OF COMMERCE & INDUSTRY
GOVT. OF INDIA

TENDER DOCUMENT FOR PURCHASE OF EQUIPMENTS (as per Clause 3) FOR Quality Control laboratory, Tea Park,Siliguri.

2.0 PARTICULAR OF TENDER

a)	Designation and address of Authority inviting tender	:	Chairman Tea Board 14, B.T.M.Sarani Kolkata- 700 001
b)	Tender No.	:	**RL-33(142)/2008/Part-II/2012**
c)	Last date for sale of tender document	:	30**.03.2012 upto** 1.00 pm.
d)	Last date for issuing tender	:	**30.03.2012 upto** 1.00 pm
e)	Place of Sale and receiving of tender	:	Tea Board (H.O) 14, B.T.M.Sarani Kolkata- 700 001
f)	Date and time of opening of Techno Commercial Bid	:	30**.03.2012 at** 3.00 pm
g)	Venue of opening tender	:	Tea Board (H.O) 14, B.T.M.Sarani Kolkata- 700 001
h)	Date and time of opening of price Bids	:	To be opened after completion of Techno-commercial evaluation

3.0 EQUIPMENTS TO BE PURCHASED

(Particulars given below)

NAME OTHE INSTROMENTS AND THERE REQUIRED NUMBER

A. ICP-MS SYSTEM -1

B.GC MS MS -1
C.GAS CHROMATOGRAPH -1
D. SPECIFICATIONS FOR LC-MSMS (TRIPLE QUADRUPOLE) -1
E. HPLC -1
F.DEEP FRIDGE -1
G DOUBLE WALLED SHAKING WATER BATH -1
H.MAGNETIC STIRRER WITH HOT PLATE -1
I. PH METER -1
J. MICROWAVE OVEN -1
K.ANALYTICAL BALANCETABLE TOP -1
L. PRECISION BALANCE. -1
M.AUTOPIPETTE - 500 - 5000 UL X 5
N. AUTOPIPETTE - 10 - 100 UL X 5
O.VORTEX MIXER(MULTITUBE) X3
P.WATER PURIFICATION UNIT FOR HPLC GRADE .
Q.GAS CYLINDERS (HIGH PURE) 1
R.REFRIGERATED CENTRIFUGE -1
S. MUFFLE FURNACE -1
T. 10 KVA UPS SYSTEMS -1
U.CONCENTRATOR- TURBO VAP LV CONCENTRATION WORKSTATION -1
V.ROTARY EVAPORATOR SPECIFICATION: 1
W.DIGITAL THERMOMETER- 1
X.LYOPHILIZER-1

4.0 TECHNICAL SPECIFICATIONS: Annex. 1

4.1 GENERAL SPECIFICATION

4.2 STANDARD ASSOCEORIES

4.3 OPTIONAL ASSOCEORIES

4.4 BENCHMARKING SPECIFICATION

** The Bidder should give detailed specifications of equipments proposed giving clearly the standardization certification like ISO, ISI etc. Such details will be analyzed by a team of experts and any sub-standard equipment will be out rightly rejected.*

4.5 The fore goings is the basic minimum specifications to be met. Equipments with better specification/facilities will not be a disqualification.

4.6 Essential Spares

The firm must certify that the spares for specified life (which should be mentioned) of the machines/equipments would be available in India. Firm is also provide their details setup in India and certify that it has requisite infrastructure for carrying out maintenance and repairing in India.

4.7 WARRANTY (Particulars to be inserted)

5 VALIDITY OF RATES

The rate quoted in the tender should remain valid up to Three months

6 CONSIGNEE

The equipment/machines as per specification given above shall be delivered to Quality Control Laboratory at Siliguri. The designation of the consignee along with the complete address is given in Annexure I **(Correct address may be given)**

7 TERMS AND CONDITIONS

7.1.1 Bids should be submitted in two bid system. Part I Techno Commercial Bid and part II Price Bid. All the Bid will be put in separate cover super scribed as follows:-

a) Part I Techno Commercial bid for equipments due on ---------- at---------- hours (IST)
b) Part II price bid for equipments on----------at------- hours(IST)

Both the above seal covers shall be put in another cover and super scribed as:

"Two Part Bids for ---------- (name of the equipments) due on ----------at----------hours (IST)"

7.1.2 Bids technical literature, instruction, and certificate, diagrams etc. should be in English language and in original.

7.1.3 Each page of the bid must be serially No. and dully signed by the tenderer indicating unconditional acceptance of terms and conditions of the tender.

7.2.1 Price bid should indicate complete breakup of price in Rs. terms in the following format:

I. Net ex-factory godown price of the equipments including standard accessories and mechanical spare parts (inclusive of all items for which cost is to be borne by the suppliers as mentioned in the terms of tender agreement).
II. Transportation charges.

III. Insurance as per para 7.8
IV. Any other charges.
V. Cost of additional warranty for two years after expiry of mandatory warranty of one year may be mentioned separately.
VI. Excise & Custom duty as applicable.
VII. Central sales tax if any.
VIII. Any other taxs if applicable.

7.2.2 In the Techno Commercial Bids, besides usual stipulation, the following should be clearly mentioned.

a) Each copy of tender should be a complete document and should preferably be bound as a volume. Different copies must be bound separately and should include technical hand out etc.

b) **Bidders are mandatorily required to fill up the "Technical compliance statement" for each equipment they bided for as mentioned in annexure "J", failing to which their bid will be liable for rejection.**

c) **Profile of the bidder must be submitted as mentioned in Annexure 'k'.** Tenders shall enumerate the operational experience in similar environment of the equipments offer along with name and addresses of user organization and dates when the equipments were installed.

d) In case the machines/equipments as offered deviates from requirements let down in the tender document, the tenderers should describe in what respect and to what extent the equipment offered by them differs/deviates from the specifications even though the deviations may not be very material. Tenderers must state categorically whether his offer is exact to tenders specifications and indicate deviations if any, failing which his offer is liable to be rejected. Tenderers shall make available full information and technical documents in original on the equipments being offer along with each copy of the quotation. Deviation(s) whether material or not may be decided by Chairman Tea Board in consultation with Advisory Committee consisting of Director Research and F.A. & C.A.O and such decision shall be final and binding.

e) Tenderers shall furnish details of back-up engineering and support system that will be available to the buyer based at **Siliguri** and **Kolkata**. The maintenance of the system after expiry of relevant warranty, spare parts and back-up maintenance support must be guaranteed for the life of the equipment which would be specified.

f) The tenderers shall clearly indicate the time for supply of equipment after receipt of supply order and the penalty clause for delay in software beyond the agreed time schedule.

g) **EARNEST MONEY**:- Earnest money will be 2.5% of the total tender value or maximum Rs. 25000/- (Twenty five thousand only) in shape of D/D of any schedule Bank in favour of Tea Board must be submitted with techno commercial bid of the tender. The tender without full earnest money will not be accepted in any case. The earnest money of unsuccessful tenderers shall be returned as promptly as possible but not later than thirty days after expiry of deed validity as mentioned in para 4. The successful tenderer's earnest money shall be converted as part of deed security.

h) Certificate as per Annexure-C of the tender documents to the effect that the equipments/machines at brand new and fully tropicalised and fit for operation in condition particularly those prevalent at Siliguri shall be enclosed.

i) Any price preference/discount or any auxiliary/optional equipment for placing repeat/multiple order should be clearly mentioned and be reflected in the quoted price.

j) Future updating of the accessories and details thereof should be indicated.

k) Mandatory warranty of one year and additional extended warranty to two years for the machines and details thereof should be specified for each item.

l) **The price quoted should be strictly in accordance with the terms of tender document and should include installation, training, acceptance test, stabilized power supply units, cabling, loading and unloading, etc.**

m) Detailed technical literature pertaining to the specifications for all equipment and accessories in original should be enclosed with each book volume of techno commercial bid

n) Details of foundations flow of work, flow diagram, total electrical load and environmental conditions such as temp, humidity, etc., required for operation of equipment to be mentioned.

o) Training programme proposed to be imparted to our personnel for operation & maintenance with duration & place of training should be specified.

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o) Procurement of equipments should be on clause SIT (supply, installation and testing).

p) For equipments more than Rs 75 Lakhs .00 techninal manpower support to the system for a period of at least 1year.

p) **Comprehensive maintenance programme, facility and their detailed terms & conditions for a period of at least 5 years after mandatory warranty of 1 year and additional warranty of 2 years period must be mentioned. However, it will not be obligatory for the Tea Board to go for it.**

q) Designated life of the Machines in terms of running hours or calendar years and availability of spares for that period in India against Rupee Payment must be mentioned.

r) Certificate to the effect that the price quoted is internationally competitive and has been/being charged by the vendor worldwide. A list of purchasers to whom the same Machines/equipments have been sold in India may also be submitted.

s) The tenderers should furnish the name and other details of after-sale service/repair facilities available in India.

t) The tenderers will be required to arrange free demonstration of the Machine at a place mutually agreed for facilitating technical evaluation of their technical bids.

u) Latest Income Tax/Sales Tax Clearance Certificate/Vat No. or similar document as prevalent must accompany the tender set along with documentary evidence to prove their financial status. Permanent Income Tax Account Number, Vat Number of supplier may be mentioned.

v) The tender document is non-transferable.

w) Tenderers have to download tender documents from website: www.teaboard.gov.in and deposit Rs.1000/- in the form of Bank Draft in favour of **Tea Board** payable at **Kolkata** being cost of tender document at the time of submission of tender, failing which their tender will not be considered.

7.3 Cost of preparation of tender and arrangement for demonstration/presentation shall be borne by the tenderer.

7.4 (a) Incomplete tenders/defective tenders/ambiguous tenders are liable to be rejected.

(b) Late tenders are liable to be rejected for whatsoever is the reason.

7.5 **TRAINING:**

Successful Tenderer shall make provision for imparting training at **Siliguri** free of cost during Site Acceptance Test (SAT) to:-

1. Maintenance engineers of the user Organization.

2. Pre-and post-installation training to operating staff

7.6 **SPARE PARTS:**

Tenderers should include in their tender, provision for such tools and initial stock of maintenance spares as are essential for proper maintenance and operation of equipment for 3 years after expiry of 1 years mandatory warranty period / additional extended warranty period of 2 years. In addition, essential requirements of spares and consumption per annum should be indicated. Tenderers shall give an undertaking for supply of spares for the life of the system. Tenderer should specify the life of the Machines/equipments.

7.7 **INSTALLATION, ERECTION AND COMMISSIONING:**

7.7.1 The Tenderers shall be responsible for erection, installation and commissioning of the machines/equipments at the destination site, free of cost and also for making it fully operational.

The material required for installation such as:-

(a)	Labour	(d)	Necessary literature
(b)	Consumables	(e)	Instructions material
(c)	Drawing	(f)	other tools

shall be the responsibility of the tenderers.

7.7.2 **For costly instruments having individual value of more than 10 lakhs (Rs ten lakhs only), it will be the responsibility of the supplier to ensure smooth functioning of the equipments beyond commissioning.**

For this purpose, it will be the responsibility of the supplier to ensure regular visit (minimum once a in a month) for preventive maintenance.

7.8 **INSURANCE:**

All goods supplied under the contract/supply order shall be fully insured for all risk with Tea Board of India as the beneficiary. All consignments are required to be dispatched to the consignee's installation-site/final destination and the insurance cover shall remain valid till the erection, installation of the main equipment has been completed by the supplier and accepted by the consignees. The insurance charges along with particulars of insurance agents

shall be given in the break up details of cost as required under para 6.2.1.

7.9 WARRANTIES AGAINST QUALITY:

7.9.1 Tenderers shall be fully responsible for the manufacturer's warranty in respect of proper design, quality and workmanship of the equipments/Machines, accessories, etc. for a period of at least one Year mandatory warranty and two years additional extended warranty from the date of successful completion of site acceptance test (SAT) of the system/sub-system. The supplier will furnish a warranty certificate regarding quality as per Annexure 'C' along with Techno Commercial Bid. The supplier will replace free of cost all the defective material/parts and any other accessory supplied by them under the contract/supply order which is found/noticed defective within the period of mandatory warranty and extended additional 2 years warranty.

7.9.2 The Warranty period shall be counted for the up time of the Machines/equipments which should not be less than 95%. Any shortfall in the up time below 95% shall result in extension of Warranty period to that extent.

7.10 TESTING PROCEDURES:

7.10.1 In addition to manufacturer/tenderer defined tests, pre-delivery inspection, Site Acceptance Tests at Quality Control Laboratory ,Siliguri shall be carried out on continuous basis through user interaction as per Bench Marking specification (Para 3.4) testing procedures defined as under.

7.10.2 In addition to checking of deliverables and manufacturer's defined test, the acceptance tests shall also involve the operation of the complete system/equipment testing of different categories, which will be conducted by the tenderer in the presence of a team or agency nominated by the purchaser. Charges for carrying out these tests shall form part of the bid.

7.11 SITE SPECIFICATIONS:

Each Tenderer shall give site specifications of the equipments/machines being delivered specifying required area, power and other environmental conditions required if any.

7.12 Each successful Tenderer shall provide 3 sets of parts catalogue, operational & hardware manuals and user guides for each Machine.

7.13 The rate for 2 years additional extended warranty period should also be separately quoted in price bid.

7.14 Each page of the tender should be initialed by the tenderer.

7.15 The earnest money will be liable to be forfeited if the Tenderer withdraws or amends impairs or derogates from the tender in any respect within the period of validity of his tender.

7.16 The sealed envelopes containing the tender must be super scribed "Tender for ---- ----------due on ----------" (Techno Commercial Bid/Prices Bid as the case may be). Both bids must be in separate sealed covers & super scribed in bold letters.

7.17 The quantity of Machines equipments may increase/decrease at the time of placing of firm supply order.

7.18 Only the authorized representative of the tenderer with proper authority letter may attend the opening of the Bids in the Office of TEA BOARD,14 B.T.M. SARANI, KOLKATA-700001

7.19 Price bids of only those tenderers will be opened if their Techno Commercial Bids meet the following requirements:

a) The equipments/machines mentioned in the tender meet all the technical specifications.

b) The tenders meet the entire requirement contained in this tender document.

c) Earnest money in terms of tender document is enclosed.

7.20 **SECURITY DEPOSIT FROM SUPPLIERS:**

The successful tenderers will have to furnish Security deposit @ 10% of the value of the supply order in the form of FDR, Bank Guarantee valid for 1 year from the date of supply order with a provision of further extension/revalidation up to the period which is required for covering entire mandatory warranty/extended warranty period from the date of completion of site acceptance test. The requisite Proforma of the Bank Guarantee is given in Annexure 'A'. The successful tenderer will also execute the Annexure 'B'

7.21 **LANGUAGE OF THE TENDERER**

The Tenderer and all documents and correspondence relating to the tender exchange by the tenderer and the Board shall be in English.

7.22 **Tender currency: Price shall be quoted only in Indian currency. Price quoted in currency other than INR will be liable for rejection.**

7.23 Late Tenders: Any tender received after the deadline prescribed in Para 2.0 d) will be rejected and returned when opened to the Tenderer.

7.24 Any price variation due to decrease in import duty or other taxes as imposed by Central/State Govt. must be passed on to the purchaser.

7.25 The Board reserves the right at the time of award of the contract to increase or decrease the quantity of goods specified in the schedule.

7.26 Notification of offer: The Board will notify the successful tenderer by fax, confirming in writing by registered letter that its tender has been accepted. This notification of offer will constitute the formation of contract.

7.27 Signing of Contract Agreement: At same time as the Board issued the letter of acceptance to the successful tenderer, the Board will send the tenderer the contract from as per Annexure- E incorporating the understanding between the parties.

7.28 Within fourteen days of receipt of the contract form the successful tenderer shall sign with date the contract form and return it to the Board.

7.29 Corrupt, fraudulent, coercive or collusive practices: The Board reserved the right to cancel the whole tender process even after selection of successful tenderer if it is found that any of the participating tenderer including the successful tenderer has indulge itself in Corrupt, fraudulent, coercive or collusive practices.

7.30 **Tea Board reserves the rights to accept/reject the tender or cancel the whole process of tender without assigning any reason.**

7.31 **TENDER EVALUATION CRITERIA:**

7.31.1 Board will award the contract to successful Tenderer whose tender has been complied with both “Techno-commercial” and “Price” bid.

7.31.2 The weightage on “Techno-commercial” and “Price” bid will be 70% and 30% respectively.

7.31.3 The instruments will be selected on the basis of cumulative value of both the bids and provided further that the Tenderer is determined to be qualified to perform the contract satisfactorily. (For details on procedure please see Annex. ‘I’)

8 **TERMS OF PAYMENT:**

95% payment will be made after delivery of machines/equipments and execution of the supply order including successful installation and site acceptance test (SAT) and comprehensive training for personnel at the respective sites after receiving consignee’s

certification for successful execution of supply order and rest 5% will be given within next three month after getting certificate from the consignee on successful smooth functioning of the installed machines/equipments.

9 **FORCE MAJURE:**

"Force Majure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not limited to acts of the purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

If a force Majure situation arises, the supplier will promptly notify the purchaser in writing of such conditions and the cause thereof. Unless otherwise directed by the purchaser in writing the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majure

10 **TERMINATION FOR INSOLVENCY**

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, without compensation to the supplier, if the Supplier becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or effect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

11 **CLARITY OF INFORMATION**

Vendors must furnish specifically the information/clarification where sought in terms of tender document. Vague/ambiguous answering against different paras will not suffice and their tender may be treated as cancelled.

12 **COST OF TENDERING**

The Tenderer shall bear all costs associated with the preparation and submission of its tender and Board (Purchaser) will in no case be responsible and liable for those costs regardless of the conduct or out come of the tendering process.

13 **PATENT RIGHTS:**

The successful Tenderer shall indemnify the Board against all third party claims of infringement of patent, trademark or Industrial design rights arising from use of goods so supplied to the Board.

14 **RESOLUTION OF DISPUTE**

Any dispute arising out of this tender, during the contract period or completion and whether before or after the termination, abandonment or breach of the contract shall be referred to the arbitrator. Chairman, Tea Board, 14, B. T. M Sarani, Kolkata-700

001 will be the arbitrator in all such cases as per the Indian Arbitration and Conciliation Act, 1996 whose decision shall be final and binding.

15 **INTERPRETATIONS AND JURISDICTION**

The Contract shall be interpreted in accordance with the laws of the Union of India and course at Kolkata shall have the sole jurisdiction in the event of any dispute not referred for arbitration.

Annexure-'A'

(Ref: Para 7.20, page 11)

A. PROFORMA FOR BANK GUARANTEE

In consideration of the President of India (hereinafter called "The Government") having agreed to exempt _____ (hereinafter called "the said Contractor" from the demand, under the terms and conditions of an Agreement dated _____ made between _____ and _____
for supply of equipment (hereinafter called "the said Agreement"), of security deposit for the due fulfillment by the said Contractor of the terms and conditions contained in the said Agreement, on production of a Bank Guarantee for Rs. _____ (Rupees _____ only). We, (indicate the name of the Bank) _____ hereinafter referred to as "The Bank") at the request of the said Contractor do hereby undertake to pay to the government an amount not exceeding Rs. _____ against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach by the said Contractor of any of the terms or conditions in the said Agreement.

2. We (indicate the name of the Bank) _____ do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a demand from the Government stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Govt. by reason of breach by the said Contractor any of the terms or conditions contained in the said Agreement or by reason of the contractor's failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable buy the Bank under this Guarantee. However, our liability, under this Guarantee shall be restricted to an amount not exceeding Rs._____
3. We undertake to pay to the Government any money so demanded not withstanding any disputes that may be pending or any raised by the Contractors in any suit or proceeding pending before any Court or Tribunal relating thereto, our liability under this Guarantee being absolute and unequivocal. The payment so made us under this Guarantee shall be valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.

4. We (indicate the name of the Bank) _____ further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till _____

5. Office/Department/Ministry of _____ certifies that the terms conditions of the said Agreement have been fully and properly carried out by the said Contractor and accordingly discharge this Guarantee. Unless a demand or claim under this Guarantee is made on us in writing on or before the _____ we shall be discharged from all liability under this Guarantee thereafter.

6. We, (indicate the name of the Bank) _____ further agree with the Government that the Government 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 said Agreement or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said Contractor and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor or for any forbearance, act or commission on the part of the Government or any indulgence by the Government to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

7. This Guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

8. We, (indicate the name of the Bank) _____ ___ lastly undertake not revoke this Guarantee during the currency except with the previous consent of the Government in writing.

Dated the _____day _____

For _____

(Indicate the name of the Bank)

Annexure 'B'
(Ref: Para 7.20, page 11)

RESPONSIBILITY OF THE CONTRACTOR FOR EXECUTING THE CONTRACT

The contract made between _____ _____ (hereinafter called the 'Contractor' which expression shall include their legal representative on the ..... part & _____ as Purchaser on behalf of the President of India, hereinafter called the Government.

Risk in the Equipment

The Contractor shall perform the contract in all respects in accordance with the terms and conditions as mentioned from clause _____to _____ of Supply Order No. _____ dated _____. The equipment and every respect at the risk of the Contractor until actual delivery to the Consignee at the stipulated place or destination or, where so provided in the Supply Order until their delivery to the Consignee as specified in the Schedule, as Interim Consignee for the purpose of dispatch to the Consignee. The Contractor shall be responsible for all loss, destruction, damage or deterioration of or to the equipment not being supplied as per specification vide clause _____.

Consignee's Rights of Rejection

(a) Notwithstanding any approval which the Purchaser may have given in respect of the equipments or any part or portion thereof or any materials or other particulars or the work or workmanship involved in the performance of the contract (whether with or without any test carried out by the Contractor of the Purchaser or under the direction of the Purchaser and notwithstanding delivery of the equipments where so provided to the Interim Consignee), it shall be lawful for the Consignee, on behalf of the Purchaser to reject the equipments or any part, portion or consignment thereof (i) within 45 days after actual delivery thereof to them at the place or destination specified in the schedule and (ii) in the case of equipment

within 90 days reckoned from the date of receipt of complete equipment with spares and accessories, as ordered if such equipments or part, portion or consignment thereof is not, in all respect, in conformity with specifications and terms and conditions of the contract whether on account of any loss, deterioration or damage before despatch or delivery or during transit or otherwise howsoever.

(b) That if the Contractor fails to observe or perform any conditions of this contract or become insolvent or he or his Agent offers any bribe in connection with contract then, notwithstanding any previous waiver of such default or action, the Purchaser will have the power on behalf of the Government to terminate the contract forthwith and without prejudice to other rights and remedies of the Government to forfeit the said Security deposit of Rs. _____ _____
in the form of Bank Guarantee at his discretion and also recover from the Contractor any loss suffered by the Government on account of the contract being so terminated prematurely.

(C) That in case of any dispute or difference that may arise in connection with this contract the settlement of which is not hereinbefore provided for, the same shall be referred for the Arbitration to the Chairman, Tea Board, 14, B. T. M., Sarani, Kolkata – 700 001, or if he is unable or unwilling to act as an Arbitrator, to any other person nominated by him in writing and the decision of such arbitrator shall be final and legally binding on the parties to this contract.

Witness

Signed by the said Contractor
Or his Authorised Agent

1. _____

2. _____

Witness

Signed by the Purchaser
(for and on behalf of the President of India)

1. _____

2. _____

Annexure 'C'
[Page 7, Para 7.2.2 (h)]

WARRANTY CERTIFICATE

We warrant that every thing to be supplied by us hereunder shall be brand new/ fully fit for operating in Indian conditions particularly those prevalent at ----------free from all defects and faults in material, workmanship and manufacture and shall be of the highest grade and quality and consistent with the established and generally accepted standards for material of the type ordered shall be in full conformity with the specification/drawings of samples if any and shall operate properly. We shall be fully responsible for its efficient operation.

In case of any latent defect or inconsistency due to poor manufacturing/repair& overhaul of the equipment /instrument, or defective supply not conforming to the specifications if observed at the time of final inspection and thereafter 1 year mandatory warranty and 2 years additional extended warranty from the date of final acceptance, we undertake the guarantee to repair/supply free of cost the defective items up to the final destination and the inland expenses borne by the indenter, will be at our cost.

This warranty shall survive inspection and payment for and acceptance of the goods but shall expire (except in respect of complaints of which the contractor has been notified prior to such date) 36 months after their successful installation and acceptance by the purchaser.

SEAL of manufacturer/supplier Enterprises

Signature…….
Name & address of manufacturer/supplier

Dated…….

Annexure 'D'

CONSIGNEE of the Machines/Equipments

1. **Project Director,**
   Darjeeling Tea Research & Development Centre,
   Quality Control Laboratory
   Tea Park
   Siliguri

Annexure 'E'

CONTRACT FORM

THIS AGREEMENT made the _____ day of _____, 20___ between [name *of Purchaser* of the one part and (*name of Supplier)* of (address *of Supplier)* (hereinafter called "the Supplier") of the other part:

WHEREAS the Purchaser invited tenders for certain goods and ancillary services VIZ (brief description of goods and services) and has accepted a tender by the Supplier for the supply of those goods and services in the sum of [*contract price in words and figures*] (hereinafter called "the Contract Price).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
   (a) The Tender Form and the Price Schedule submitted by the Tenderer;
   (b) The Schedule of Requirements;
   (c) The Technical Specifications;
   (d) The General Conditions of Contract;
   (e) The Special Conditions of Contract; and
   (f) The Purchaser's Notification of Award.

3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

The parties agree that, in the event of a dispute between them under or in connection with the contract, the mechanisms for the resolution of disputes outlined in the Conditions of Contract shall be followed in the manner specified therein.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, Sealed and Delivered by the said _____ (for the Purchaser)

in the presence of _____[*name of witness*]_____

Signed, Sealed and Delivered by the said _____ (for the Supplier)

in the presence of _____[*name of witness*] _____

Annexure 'F'

TENDER FORM

Date: _____

Tender/Contract No.: _____

TO: TEA BOARD OF INDIA,
14, B.T.M SARANI, KOLKATA-700001

Dear Sirs:

Having examined the Tender Documents], the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver [description *of goods]*in conformity with the said Tender Documents for the sum of Rs 20 lac (Rupees twenty lac only) or such other sums as may be ascertained in accordance with the Price Schedules attached herewith and made part of this tender.

We undertake, if our tender is accepted, (1) to commence delivery within [number*]* days and to complete delivery of all the items specified in the contract within […….] days calculated from the commencement date specified in the Schedule of Requirements, and (2) to complete all associated services specified in the contract within […….] days calculated from the commencement date specified in the Schedule of Requirements.

If our tender is accepted we will obtain the guarantee of a bank in a sum equivalent to (_____) per cent of the contract price for the due performance of the Contract, in the form prescribed by the Purchaser.

We agree to abide by this tender for a period of [number*]* days from the date fixed for the submission of tenders under paragraph 17 of the instructions to tenderers and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this tender, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this _____day of_____20_____

_____
Signature

_____
Name

_____
[In the capacity of]

Duly authorised to sign tender for and on behalf of _____

Annexure 'G'

PRICE SCHEDULE FOR GOODS

Name of tenderer _____

1. Item

2. Description

3. Quantity

4. Unit Price inclusive of all applicable Import duties and taxes on directly imported components.

5. Sales and other taxes payable if Contract is awarded

6. Total price per item (inclusive of all applicable taxes/levis/duties at the site of installation) =

Total Amount =_____ (INR)

- Cost of two (2) years extended warranty: _____ (INR)

Signature of tenderer_____

Note:

1. *In case of discrepancy between unit price and total, these will be adjusted in accordance with the Instructions to Tenderers.*

2. Prices and currencies to be in accordance with the Instructions to Tenderers.

3. All items in the Schedule of Requirements must be entered and priced in the appropriate Price Schedule.

4. Price should be quoted in both figures & words. In case of any mistake in the figure, the price in words will be taken as valid quote.

5. The cost of two (2) years extended warranty will not be considered initially for arriving at the total cost of bid. It will not be mandatory for Tea Board to opt for two (2) years extended warranty. However, the rates quoted for the same will be binding upon the bidder incase Tea Board decides to go for extended warranty after laps of one (1) year of mandatory warranty.

Annexure 'H'

MANUFACTURER'S AUTHORISATION FORM

[*Date*]

TO: TEA BOARD OF INDIA,
14, B.T.M SARANI, KOLKATA-700001

WHEREAS [name *of the Manufacturer]* who are established and reputable manufacturers of [name *and/or description of the goods]* having factories at [address *of factory]* do hereby authorize [name *and address of Agent*] to submit a tender, and subsequently negotiate and sign the Contract with you for the above goods manufactured by us.

We hereby extend our full guarantee and warranty as per Clause 23 of the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Tenders.

(*Signature for and on behalf of the Organization)*

Annexure 'I'
(Para 7.31, page 12)

TENDER EVALUATION CRITERIA

Board will award the contract to successful Tenderer whose tender has been complied with both "Techno-commercial" and "Price" bid, where weightage will be given as 70% and 30% respectively.
The successful bidder will be selected on the basis of cumulative value of both the bids and provided further that the Tenderer is determined to be qualified to perform the contract satisfactorily.

For Eg:

- Evaluation of Techno-commercial bid for a particular instrument will be as follows: The bids of those companies which will comply with all the technical specifications as per the tender requirements will be selected for and ranked by a panel of experts on the basis of technical details submitted by the bidders. All such bids which qualify and ranked by the panel of experts will be allotted marks as follows. Such marks will be converted on the bais of 70% weightage and taken for further consideration.

Parameters	Company A	Company B	Company C	Company D	Company E	Company F
1	Complied	Complied	Complied	Complied	Complied	Complied
2	Complied	Not complied	Complied	Complied	Complied	Complied
3	Complied	Complied	Complied	Complied	Complied	Complied
4	Complied	Complied	Complied	Complied	Complied	Complied
5	Complied	Complied	Complied	Complied	Complied	Complied
6	Complied	Complied	Complied	Complied	Complied	Complied
7	Complied	Complied	Complied	Complied	Complied	Not Complied
8	Complied	Complied	Complied	Complied	Complied	Complied
9	Complied	Complied	Complied	Complied	Complied	Complied
Qualification status	Qualified	Rejected	Qualified	Qualified	Qualified	Rejected
Ranks given	1	-	2	4	3	-
Marks allotted	100	-	90	70	80	-
Weighted marks on the basis of 70% weightage	70	-	63	49	56	-

- All the bids which qualify technical evaluation will qualify for the opening of price bids. Like technical bid, price bid will also be ranked and actual weightage calculated on the basis of 30% weightage. An illustration will as follows :

Company	A	C	D	E
Hypothetical Price (Rs.)	6250	5500	5000	7000
Ranks given	3	2	1	4
Marks allotted	80	90	100	70
Weighted marks on the basis of 30% weightage	24	27	30	21

- The weighted marks obtained by any bidder in technical evaluation and financial evaluation will be added to determine L1, L2 & L3 bidder

Company	*Techno-commercial Bid*	*Price bid*	Total marks	Rank	Remarks
A	70	24	94	L1	Selected
C	63	27	90	L2	
D	49	30	79	L3	
E	56	21	77	L4	

So, the instrument of the Company A will be selected for final purchase.

Annexure 'J'
(Para 7.2.2, page 6)

"Technical compliance statement"

Name of the equipment	Requirement of the purchaser *(as mentioned in the technical specification of the bid document)*	Offer by the Bidder	Deviations (if any)

Annexure 'J'
(Para 7.2.2, page 6)

PROFILE OF THE BIDDER
(To be furnished with the BID)

1.	Company Profile	
	Name	
	Address of the registered office	
	Name & Designation of CEO	
	Contact numbers of CEO	
	Nature of Business	
	Years of operations in India	
	Location of offices in India	
2.	Experience / Credentials	
	Number of similar units installed in eastern India	
	Number of similar units installed in Kolkata/ near Siliguri	
	List of satisfied customers in India (testimonials from three satisfied customers may be attached)	
3.	Service Support in India	
	Number of application specialists	
	Location of service centres in eastern India	
	Number of trained service engineers in eastern India	
	Number of trained service engineers exclusively dedicated to each equipment offered	
	Number of trained service engineers for the equipments offered stationed in Kolkata	
	Number of trained service engineers for the equipments offered stationed near Siliguri	
	Whether the OEM makes available any service support in India	
4.	Availability of spares in India	
	Whether the service set up maintains stock of essential spares in eastern India	
	Lead time for supply of essential spares	

Date: _____ Signature _____

Place: _____ Name _____

Company seal: _____ Designation _____

Annexure 1
Specifications

a. Inductively Coupled Plasma Mass Spectrometer (ICP-MS) System for quantitative analysis of elements (mass range 2 – 260 amu or more) present in tea samples at ppt, ppb and sub-ppm level.

Complete, bench top Instrument with open option under the table to accommodate the Chiller and rotary pump suitable for analysis, speciation of multiple elements in a single run. Should able to operate in Temperature: 15 to 35°C (59 to 95 °F) at constant temperature of variations ≤ 3 °C and Humidity: 20 to 85%

Features

- The instrument must have a frequency matching RF Generator, operating at 27MHz and with no consumable parts required.
- The RF generator rated at 27 or more MHZ, operating from 500 to 1600 watts should be software controlled as well the torch ignition, shut down and system warm up should be auto controlled.
- Standard single piece quartz/ platinum torch with wide diameter; min 2.5 mm for quantitative matrix decomposition and sample ionization.
- For day-to-day analysis the Plasma Torch to spectrometer alignment in XYZ direction. Torch position resolution and reproducibility should not be higher than 0.1 mm in all three axes.
- Plasma gas flow should be controlled by an active mass flow controller for all gas control of Cool gas, auxiliary gas and nebulizer gas, an additional option should be provided as standard for introduction of third gas required during the analysis of organic matter.

Lens system for focusing the ions

- To reduce routine maintenance when analyzing high matrix samples, the collision/reaction cell must be protected from contamination by either an off-axis ion lens or photon stop
- To minimize downtime due to routine maintenance and to protect the mass analyzer and detector from contamination with atmospheric moisture, the main ion lens assembly (ie off-axis lens or photon stop/lens) should be located outside the high vacuum region (ie in front of the gate valve) to allow for removal, cleaning and replacement without the need to vent the main vacuum system.

Collision / Reaction Cell

- Collision cell technology to remove polyatomic interference
- The system should contain collision/reaction cell must include at least 2 cell gas line with the option of adding up to a total of 3 cell gas line to cover all possible applications. It is

not acceptable to use an external gas manifold for the addition of a 3rd cell gas as dead volume is increased and changeover between externally-controlled cell gases cannot be automated within a run.

- The collision/reaction cell must operate effectively in collision mode, using pure Helium. Combination of gases should be avoided due to complex reaction or to eliminate optimization of cell parameter for every change of gases.

Quadrupole Mass Analyzer

- It should be a quadrupole, should operate at > 2.5 MHZ or more to provide best stability, good resolution, better peak shape and exceptional abundance sensitivity.
- The analyzer quadrupole should discretely control the resolution of the selected mass region dynamically without affecting the overall nominal resolution of the system.
- The entire mass range in-between 2 to 260 atomic mass unit or better should be scanned in milliseconds.

Detection System / Ion Detection Assembly

- The ion detector should be a discrete Dynode electron multiplier unit or equivalent. Detector should be able to analyze high and low concentration of isotopes simultaneously with > 10^9 of dynamic range in a single scan.
- It should be capable of measuring a single monoisotopic element over a concentration range of 0.5ppt to 500ppm under the same operating conditions, WITHOUT any change in any hardware or mass analyzer resolution to increase measurable range.
- Both the analog and pulse counting modes should be protected against overload. Minimum dwell time 100μS in both pulse count and analog mode.
- Detector should be having minimum life of 3 years without replacement

Auto Sampler

- Instrument should have an auto sampler to avoid manual sample feeding and avoid human error, which should be capable of holding at least 50 samples.
- System should have the sample handling capability of aerosol dilution which eliminates the process of manual dilution in case of the high concentration element present in samples

Power Supply:

- Required UPS with minimum 30 min back up to be provided to run the equipment.

Other requirements:

- On site comprehensive training for lab staff and support services till customers satisfaction with the system.
- Installation testing: Supplier of the instrument must provide free installation, commissioning and testing
- Should include IQ / OQ / PV in your quotation.
- User / Technical / Maintenance manuals to be supplied in English preferably in both Book and CD form.
- Required consumable for 2 years.

b.GC MS MS SPECIFICATIONS

Benchtop model Gas Chromatograph with Triple Quadrupole Mass Spectrometer (GC MS MS) is required for analysis of residues of multi component pesticides in single run in Tea ,soil and Vegetables etc. The Gas Chromatograph and MS MS system has to be procured from single manufacturer and its further service and application support has to be provided by the single vendor. All the operation of GC and MS unit will be performed through software. The instrument should be able to perform the multi residue screening and quantification in a single run and confirm with MS MS as per EC as well as USFDA and other regulatory guidance.

Mass Analyser Specification

Sl No	Specifications/Requirements	Criterion
1	Mass Range	Mass Range upto 900 Da or better
2	Mass Analyser and Filters	Quadrupole with filters to to remove neutral noise/contamination for better sensitivity Facility for active ion beam focusing Analyser Temperature upto 200 ^{o} C or better
3	Scan Modes	Precursor, Product, Neutral Loss, SIM,SRM, MRM, Full Scan etc
4	Dynamic Range	Minimum 10 ^{5}
5	Linear Response	Relative to sample concentration, for a specified compound, must be 5 orders of magnitude from the limit of detection
6	Ionization Modes	Electronic Ionisation (EI) and Optional positive and negative chemical ionization
7	Electron Energy	10 to 120 Electron Volt (EV) user selectable or higher

8	Probe	Direct infusion of sample to MS unit should be available or specify
9	Ion Source	Source temperature upto 300 ^{o}C or better Quick change over EI/CI mode Inert EI source with dual filament
10	Collision Cell	Mention the gas used for collision Facility to focus the ion beam for entering into the cell and exit the cell to be available Collision energy digitally controlled and specify the voltage
11	Tune	Auto tune facility and manual tuning option available
12	Resolution	Should be adjustable form 0.7 Da to 4 Da or Specify
13	Dwell Time	Minimum 1ms or better
14	Scan speed	Minimum 5000 or better
15	MRM Speed	Minimum 200 transitions/sec
16	EI scan sensitivity	S/N ≥ 200 : 1 or Better with 1 pg Octafluoronaphthalene (OFN) from m/z 50 to 300 for m/z 272 or Otherwise specify the sensitivity in terms of Signal to Noise with the concentration of the chemical and injection volume and m/z
17	EI MRM sensitivity	S/N ≥ 500 : 1 or better with 100 fg Octafluoronaphthalene (OFN) from m/z 272 --- 222 transition or Otherwise specify the sensitivity in terms of Signal to Noise with the concentration of the chemical and injection volume and m/z transition
18	PCI scan sensitivity	S/N ≥ 300 : 1 or better with 100 pg Benzophenone (BZP) from m/z 80 to 230 for m/z 183 or Otherwise specify the sensitivity in terms of Signal to Noise with the concentration of the chemical and injection volume and m/z
19	NCI scan sensitivity	S/N ≥ 500 : 1 or better with 250 fg Octafluoronaphthalene (OFN) from m/z 50 to 300 for m/z 272 or Otherwise specify the sensitivity in terms of Signal to Noise with the concentration of the chemical and injection volume and m/z

20	Detector	Electron Multiplier Or Photo Multiplier Provisions for lesser noise by the neutral ions other contaminations. Please mention the shelf life of the detector
21	Turbo Molecular Pump	Air cooled with suitable capacity to bring fast vacuum Easy and quick change over from EI or CI Should allow system to withstand carrier gas flow rate as suitable to application and intended use
22	Total gas flow	Specify the GC gas flow in ml/min MS system can allow and Collision gas flow in ml/min
23	Library	Licensed Latest NIST/Wiley etc library with latest version including data on pesticide to be provided along with the software Must includes spectral name and chemical structure
24	GC and MS operation	Operation of minimum one GC detector data while MS data acquisition is going on.

PTV Head Space autosampler or combipal system
4 Low breed column
Free consumables glass liner /insert for PTV

Uninterrupted Power Supply(UPS)
3 phase in single phase out
True online UPS OF 10 KVA capacity or above with
power factor correction and harmonic distortion (< 5 %
THD ; < 3% Single Harmonic), Three phase 440V for
the smooth running of LC-MSMS with battery with back up of 4
hr.

Training

Training for the operation of instrument, understanding of software, data evaluation, report generation, method editing, tuning, trouble shooting and development of analytical methods etc will be provided free of cost during the 2 years warranty period and followed by 3 years AMC period. Training at the R & D centre of the company has to be provided mandatory to minimum two analysts of the laboratory for better exposure and application studies.

The application support has to be provided by the company for the development of method and analysis of sample for which the GC MS MS instrument purchased at customer site.

Validation and IQ/OQ/PQ documents for both GC modules and MS components

The installation Qualification, Operational qualification and Performance Qualification of the instrument (GC and MS) has to be performed at the time of installation.

The operational and performance qualification of the instrument has to be performed at least once in a year or after major breakdown of instrument.

The job will be done free of cost during warranty and AMC period.

At the time of supply of the instrument the IQ/OQ/PQ documents in soft and hard copies and essential validation kits for GC and MS has to be supplied free of cost.

c.Gas Chromatograph

Sl No	Specifications/Requirements	Criterion
1	Oven Temperature	Ambient temperature to 350^{o}C or Better. Programmable
2	Injector	Split/split less mode functioning
3	Autosampler	Minimum 50 vials
4	Carrier gas control modes	Constant pressure and flow modes Programmable flow
5	Electronic Pressure control	Should be available for carrier gas flow Electronic pneumatic control for auto pressure regulation for split/splitless operation, septum purge
6	Software Control	Data station system with computer suitable software control for operation Data evaluationand QC Dtector ECD /FID

Columns 4 Capillary 30 m Length ,0.25mmX25um , suitable for pesticide residue analysis

Training

Training for the operation of instrument, understanding of software, data evaluation, report generation, method editing, tuning, trouble shooting and development of analytical methods etc will be provided free of cost during the 2 years warranty period and followed by 3 years AMC period. Training at the site has to be provided mandatory to analysts of the laboratory for application studies.

Validation and IQ/OQ/PQ documents for both GC modules and MS components

The installation Qualification, Operational qualification and Performance Qualification of the instrument (GC) has to be performed at the time of installation.

The operational and performance qualification of the instrument has to be performed at least once in a year or after major breakdown of instrument.

The job will be done free of cost during warranty and AMC period.

At the time of supply of the instrument the IQ/OQ/PQ documents in soft and hard copies and essential validation kits for GC has to be supplied free of cost.

d. SPECIFICATIONS FOR LC-MSMS (TRIPLE QUADRUPOLE)

Mass Range 50 - 2000 amu or better
Scan Speed Should have the scan speed of 4000 - 6000 amu/sec or
(above) or **better**.
Interface Rugged source capable of handling large batches of complex
sample matrix like over a long period of time without performance degradation. The cleaning of source should be done without venting system.
Vacuum system A robust high efficiency vacuum system with minimum maintenance and utility with low noise level and automatic vacuum lock system.
Triple Quadrupole. Quadrupole having high standards of mechanical tolerance and minimum coefficient of thermal expansion to ensure highest mass stability.
Resolution (0.3 amu or better)
Sensitivity 1 pg reserpine 400:1 without smoothing peak to peak on
column
Collision Cell : Specially designed collision cell allowing less dwell time.
Suitable for high sensitivity MRM studies. Should be free of cross talk
Ionization source Should include dual mode ESI, APCI. It should be easy to
change the source without the use of sophisticated tools.
Operating modes
Full scan
SIM
Product ion scan
Precursor ion scan
Neutral loss/gain scan
Multiple Reaction Monitoring
Information dependent acquisition system or equivalent scan mode of MRM to high sensitivity product ion scan for library conformation
Automated tuning
Detector The detector must have a digital range of 1 to e6 cps
It must operate both +ve and -ve ion mode and back
and must be capable of switching polarity rapidly.
Quantification software System/Software
Easy to use software. Completely automated quantitative and qualitative data processing capability.
Automated mass calibration and optimization of operating parameters. It should maintain ion ratio, simple report format, etc. Single point
control of pump, auto sampler & MS/MS
Graphic method of editing, Auto tune, Ion Ratio
Simple report format

System suitable for complying to USP/BP
Metabolite ID software/other customized software.etc
Automated calibration and quantitative
optimization.
Automated MS to MS/MS switching a single run
with user selectable criteria.
Perform alternating POS/NEG scan in one run.
Automated quantification & reporting of
acquired samples
The software should have 21 CFR Part II
compliance.
LIMS compatibility Software for batch analysis.

Computer platform
Preferably IBM ,Suitable branded computer,i7 processor with 12 GB DDR3
Memory, Up to 1 TB SATA hard drive (7200 RPM)
DVD-RW 24" LCD Monitor with suitable
Operating System
LaserJet mono color printer.

Gas cylinders
Argon gas generator/cylinders, regulators and purifier for the system. Specification with purity and safety data sheet and certificate from competent authority
Low noise and vibration free gas generator, with compressor, should be able to supply all the gases required for the LC-MS/MS instrument at required
purity, pressure and flow rate. It should be complete with all accessories such as regulator, gas purification panel etc. If gas cylinders, minimum two nos.

HPLC (Fast LC)
Online solvent degasser unit
Quaternary System with vaccum degasser (2 channel built in degasser), Auto sampler, column oven, 2 nos of C18 2.1 x 100 mm 1.7 µm . and 2 nos. 2.X50mm Complete system and MS
should be controlled by MS software.
Flow rate – 0.01 - 2ml/min.
Syringe should be capable of taking even though the sample is in less quantity
It should have the facility of keeping the sample in a
cooling condition(temperature range from 4 to 400 C
Operating pressure – upto 15000 psi
Flow accuracy – +0.5% RSD
Flow precision – +0.1%
Injection vol. – 0.5-10 µl
Autosampler The Autosampler must accommodate not less than 50
vials
Injection accuracy – More than 0.3% RSD
Vial capacity – upto 2ml
Needle washing facility – should have needle washing facility from internal and external side programmable
Built in dilution and derivative system facility
Syringe size –Should accommodate the injection volume stated above.
Linearity – > 0.999 coefficient of deviation

Precision - < 0.5% RSD
Sample carryover - <0.005%
Seal wash – Integral and programmable
Column oven Temperature range with control
Spares and consumables For 5 years
Uninterrupted Power Supply(UPS)
3 phase in single phase out
True online UPS OF 10 KVA capacity or above with
power factor correction and harmonic distortion (< 5 %
THD ; < 3% Single Harmonic), Three phase 440V for
the smooth running of LC-MSMS with battery with back up of 4
hr.
Other Conditions
1 Model & year of introduction of the Instrument Should be mentioned in the tender along with original brochures/catalogues.

Experience The supplier should have experience of at least 20 installations and operating LC MS-MS in
India.

Training

Training for the operation of instrument, understanding of software, data evaluation, report generation, method editing, tuning, trouble shooting and development of analytical methods etc will be provided free of cost during the 2 year warranty period and 3 year AMC period. Training at the R & D centre of the company has to be provided mandatory to minimum two analysts of the laboratory for better exposure and application studies.

The application support has to be provided by the company for the development of method and analysis of sample for which the LC MS MS instrument purchased at customer site.

Validation and IQ/OQ/PQ documents for both GC modules and MS components

The installation Qualification, Operational qualification and Performance Qualification of the instrument (GC and MS) has to be performed at the time of installation.

The operational and performance qualification of the instrument has to be performed at least once in a year or after major breakdown of instrument.

The job will be done free of cost during warranty and AMC period.

At the time of supply of the instrument the IQ/OQ/PQ documents in soft and hard copies and essential validation kits for LC and MS has to be supplied free of cost.

e.HPLC SPECIFICATIONS

High Performance Liquid Chromatograph with Poly Diode Array (PDA), Fluorescence detector with autosampler, online degasser unit, column holding chamber and software aided fully automatic operation is required for analysis of antibiotics, aflatoxins, amino acids and other chemical parameters etc. The equipment and its accessories are to be operated through Interface controlled by software. All the components of HPLC have to be communicated through communication ports and Interface which then controlled by software. The latest configuration PC, LCD/LED monitor and Laserjet printer etc are to be provided along with the above mentioned equipment.

Solvent Delivery Unit

Sl No	Specifications/ Requirements	Criterion
1	Pump	Binary/Quarternary Gradient with Dynamic gradient mixer Should be capable of operating with 3-4 Solvents at a time during gradient operation
2	Composition Range	0 – 100 % among the 3 - 4 solvent lines
3	Gradient mixing accuracy	± 0.5 %
4	Gradient curve	Linear and Exponential (Positive and Negative)
5	Flow range	0.1 to 5 ml/min or better
6	Flow Increment	0.1 ml
7	Flow accuracy	± 1 %
8	Flow Precision	RSD < 0.5 % or better
9	Retention time reproducibility	RSD < 0.5 % or better
10	Pumping System	Software controlled
11	Maximum Pressure	5000 Psi or better
12	Pulnger	Pump should be micro-volume double plunger pump Capacity : 10 ul or Specify
13	Plunger Rinsing mechanism	Automatic
14	pH of operation	1 – 9
15	Operating environmental condition	Temp : 22 – 40 ^{o} C and Humidity – 20 -80 % RH
16	Safety Measures	Sensors for leak detection and auto cut off at high pressure should be provided as safety measure

17	Communication Port	Available

Degasser

Sl No	Specifications/Requirements	Criterion
1	Degasser	Online Vacuum No of degassed solvents should be 3 – 4 and degasser flow line capacity 300- 500 ul
2	Maximum flow rate	10 ml/ min
3	Number of channels	4 - 5 (3 - 4 for line and 1 for autosampler rinsing) or specify
4	Internal volume	Typically 12 ml per channel
5	Material in contact with solvent	PTFE, PEEK
6	Communication Port	Available

Auto sampler

Sl No	Specifications/Requirements	Criterion
1	Tray Capacity	Not Less than 50 vials to accommodate 1.5 – 2 ml vials/ tubes and 3 - 5 Nos of 10 ml vials for rinsing and dilution options
2	Replicate injections	1 - 99 injections
3	Vial Detection	Through Sensor
4	Injection Volume Range	Total sample injection or variable injection volume (no sample loss)
5	Loop volume	Specify
6	Injection volume accuracy	± 1 %
7	Injection volume repeatability	≤ 0.5 % RSD
8	Injector Linearity	>0.999 (r^2)
9	Sample Syringe Sizes	250 µl or able to inject 5–50 ul volume
10	Injection Cycle time	2 – 3 samples per minute
11	Sample Probe	Pressure Assisted injection
12	Needle Rinsing	Before and after each injection, outer and inner of needle

13	Sample Carry over	Nil or < 0.02 %
14	Flush Cycle	User selectable
15	Sample Rack cooling facility	8 – 35 ^{o} C
16	Flush volume	0- 2000 µl, User selectable
17	Max Operable Pressure	Upto 5000 psi
18	Valve Material in contact with sample	Stainless steel, Vespel, Ceramic, Peek
19	Ambient Temperature of operation	4 – 40°C
20	Ambient Relative Humidity limits of operation	20- 80 %
21	pH of operation	1 – 9
22	Communication Port	Available
23	Safety	Stop operation when pressure is more than 3500 – 5000 psi as per setting

Column Oven

Sl No	Specifications/ Requirements	Criterion
1	Operation Range	10 to 50 °C or better
2	Temperature accuracy	± 1 °C
3	Control	Heating / Cooling automatic sensor based
4	Post column derivatisation	Loop should be provided to carry out post column derivatisation. The suitable pump to be provided for flow of derivatisation liquid. Minimum 2 flow lines
5	Safety	Auto stop of pump incase leakage or failure of temperature controlling system. Liquid leakage sensor
6	Communication Port	Available

Detectors

Photo Diode Array Detector

Sl No	Specifications/ Requirements	Criterion
1	Light Source	Deuterium and Tungsten – Halogen Lamp. Long Life Deuterium lamp with 1000 –

		2000 hrs operation
2	Number of Photo diodes Elements	Minimum 512
3	Wave length range	190- 700 nm, Increment of 1 nm
4	Wave length accuracy	± 1 nm
5	Wavelength Precision	± 0.1 nm
6	Signal Noise	1 x 10^{-5} AU or Less at 250 nm
7	Linear Range	Not more than 5 % deviation
8	Signal Drift	1.0 x 10^{-3}/ hr or less at 250 nm
9	Calibration of Optics	Auto calibration for GLP compliance
10	Flow Cell	Appropriate
11	Ambient Temperature of operation	22- 40°C
12	Ambient Relative Humidity limits of operation	20- 80 %
13	Signal Processing	A/D or D/A converter
14	Functions	Contour out put, Scanning single or multi wavelength at a time, MAX plotting, spectrum library, Multichannel signal acquisition
15	Safety	Liquid leakage detection and auto put off of pump. Easy cleanable flow cell.
16	Communication Port	Available

Fluorescence Detector

Sl No	**Specifications/ Requirements**	**Criterion**
1	Source	Xenon Lamp
2	Spectral acquisition	Excitation and Emission Septra, Scan speed 25 – 30 ms per data point
3	Cell volume	8 -16 ul
4	Excitation Wave length range	200- 700 nm
5	Emission Wave length range	210- 900 nm
6	Wave length accuracy	± 4 nm or Better
7	Wave length repeatability	± 0.5 nm or Better
8	Sensitivity Range	1,2,4,8,16,32,64,128,256
9	Gain	x 1, x 10, x 100, x 1000

10	Response	Fast, Standard, Slow
11	Band width for Excitation and Emission	20 nm or less
12	Pressure Limit	140- 150 PSI
13	Function	Dual wavelength detection, Wavelength Scanning
14	Calibration of Optics	Auto calibration for GLP compliance
15	S/N	Water Raman Peak S/N> 1000 Or Better
16	Ambient Temperature of operation	20- 40°C
17	Ambient Relative Humidity limits of operation	20- 80 %
18	Signal Processing	A/D or D/A converter
19	Safety measure	Liquid leakage Sensor. Auto put off pump on leak
20	Communication Port	Available

Spare and Consumables

Columns : RP -18 (4.6 mm ID x 250 mm, 5 u SS or Equivalent) – 1 No
RP -18 (4.6 mm ID x 150 mm, 5 u SS or Equivalent) – 1 No
RP - 8 (4.6 mm ID x 150 mm, 5 u SS or Equivalent) – 1 No
Security Guard Catridges for the above columns
Universal Guard Holders

Solvent sonication System

Vials – As suitable 2 Packs (Each pack containing 100 vials)

Pump Maintenance Kits/line frits/filters etc – Minimum 2 sets

Pump Seal – 2 Sets

D 2 Lamp – 1 No

Warranty and AMC

Minimum 2 Years warranty after successful installation of the instrument. Service and training during warranty period should be free of cost.

AMC for next three years and rate of AMC has to be furnished. The AMC amount should include the charges for validation of the instrument (only labour).

The number of preventive maintenance during AMC period should be 2 numbers and the breakdown visits should be provided as and when required without charge.

Training

Training for the operation of instrument on the site of installation, software, data evaluation, trouble shooting and development of analytical methods will be provided free of cost during the warranty period and AMC period.

IQ/OQ/PQ

The installation Qualification, Operational qualification and Performance Qualification of the instrument has to be performed at the time of installation.
The operational and performance qualification of the instrument has to be performed at least once in a year or after major breakdown of instrument.
The job will be done free of cost during warranty and AMC period.
At the time of supply of the instrument the IQ/OQ/PQ documents in soft and hard copies and essential kits has to be supplied free of cost.
During 2nd warranty year and AMC period the validation kits will be procured on paid basis.

Computer and Soft ware

Latest version of soft ware to take care of the entire operation of instrument and its components, real time data acquisition, management, processing and reporting with regulatory compliance to 21CFR part 11 to be provided.
PC along with latest configuration with LCD/LED monitor, optical mouse, key board. Laser printer etc to be provided to operate the instrument.

- The Bidder should give detailed specifications of equipments proposed giving clearly the standardization certification like ISO, ISI etc. Such details will be analyzed by a team of experts and any sub-standard equipment will be out rightly rejected.

f.Deep Fridge
Capacity - 400 - 450 L. Dimension - Horizontal or Veritcal , Racks/Chambers for storage of items, Sensor for Temperature monitoring with Display unit, Auto defrosting facility, approved refrigerant for cooling, auto shut down of the compressor after achieving desired temperature, Vent for easy cleaning of the freezer. Operating temperature range 0 to - 20 o C, Temperature Control Knob, Temperature at full load should be minimum - 18 to -20 oC, Single/Doble door, temperature accuracy ± 1 o C or less.Operational manual to be provided, In built stabiliser or suitable external stabiliser to be provided. After Sale Service should be available promptly.

G. DOUBLE walled shaking water bath
Digital RPM as standard.
Constant shaking speed even during heater operation.
***Construction* :**

Double walled, insulated, full stainless steel construction.
Hinged Gabled SS Lid.
Removable SS tray of modular design to accommodate flask holders of different capacitiers.
Independent over-temperature self resetting safety cut-out with alarm.
Standard Features :
Control : Digital 0.10C resolution.
Control : Accuracy ± 0.20C at 370C
RPM : Digital
Temperature Range : Ambient + 5 to 800C
Shaking Speed : 30 to 175 oscillations.
Control Accuracy : ± 3 RPM
Stroke Length : 25 mm
Size L/W/D in cm : 45 x 28 x 21
Flask holders supplied : 6 nos. of 250 ml as standard
Shaking Speed : 30 to 175 osc
App. Shipping Details : 32 Kg/49 Kg / 0.27 m3
(Net / GR./ Volume)
Options Accessories
Flask holder for 100 ml flask of 9 nos.
Flask holder for 500 ml flask of 4 nos.
Flask holder for 1000 ml flask of 2 nos.
Flask holder for 2000 ml flask of 1 nos.
universal tray for shaking bath

h.Magnetic Stirrer with Hot Plate
Features :
Space efficient design makes them ideal for use on crowded bench tops and inside of bio-hoods.
Heating and stirring can be performed simultaneously.
DC motor supports stable speed at the start and low heat emission.
Heater capacity of 550W for rapid heating.
Construction :
Case is made of MS and Aluminium with heat cured epoxy coating.
Top heating plate is ceramic coated.
Standard Features :
Digital PID controller for precise control of plate temperature.
High efficiency DC motor with digital display and speed control from 100 to 200 rpm depending on Viscosity of sample fluid.
Plate (Ceramic Top) temperature can be effectively controlled by Proportional Voltage type controller.
High efficiency DC motor with stepless electric speed controller from 50 to 1200rpm depending on Viscosity of sample fluid.
Plate size (L x W) mm : 180 x 180
Motor : Feedback Control
Temperature control method : Digital PID control
Heater : 550 W
Temp. Range : Up to 300oC Max
Should include enough spares to last at least 2 years. Complete installation and demonstration should be provided by factory-trained certified engineers. After Sale Service should be available promptly.

i. pH Meter
- Microprocessor based for fast and accurate pH measurement with soft touch control panel
- 3 point calibration
- pH range (0-14)
- Auto-calibration with up to 3 buffers
- Built-in Auto buffer recognition
- pH and Temperature display
- Refillable Triode 3-in-1 epoxy body combination pH electrode
- Power 220-240 V; 50/60 Hz, Automatic temperature compensation (0-100° C)
- CE, ISO 9001, ISO13485 Marked or equivalent marked

Accessories:
- Standard buffers 4,7, 10 pH 250 ml each
- Electrode 1 set extra
- 3M KCl solution – 250 ml
- electrode storage buffer
- electrode cleaning solution – 250 ml
- ISO or equivalent certified
- Warranty period of 3 years, subsequent 5 years comprehensive AMC

j. Microwave Oven
Microprocessor controlled system
Capacity 25 L
Digital timer and alarm facility
Interior Cavity Epoxy Coated, White
Transparent door to watch the heating process
With general safety features
Power 220-240 V; 50/60 Hz

k. Analytical balanceTable top,
Max Capacity - 220g, Mass range 0 - 220 g, Taring range - 0 - 220 g, Readability - 0.1 mg, Reproducibility (SD) - 0.1 mg or less, Linearity - ± 0.3 mg or less, Min weight - 10 mg, , external air pressure deviation should be minimal,linear adjustment with internal weight, auto internal calibration, adjustment with internal weights -fully automatic time- and temperature-controlled adjustment,adjustment with external weight for calibration, sensitivity drift should be minimal, interfaces - RS 232,ethernet provision, printer attached, pan size - 75 x 75 mm or suitable ,stabilisation time 10 sec or less, LCD display for all measurements and touch screen operations,facility for weighing, statistics, other functions, antivibration table to be provided, Operating condition - 10 to 40 o C and 25 - 85 % humidity,calibrtion certificate required
MicroTable top balance, Max Capacity - 22g, Mass range 0 - 22 g, Taring range - 0 - 22g, Readability - 1 microgram, Reproducibility (SD) - 0.1 mg or less, linearity - ± 0.1 mg or less, min weight - 1 mg,accuracy at min weight - 0.1 mg or less, external air pressure on deviation should be minimal,linear Adjustment with internal weight, auto internal calibration, adjustment with external weight, djustment with internal weights -fully automatic time- and temperature-controlled adjustment, Temperture drift specify, sensitivity drift should be minimal, Automatic door closing and opening, inner chamber , interfaces - RS 232,ethernet provision, printer attached, pan size - 40 x 40 mm,stabilisation time 10 sec or less, LCD display for all

measurements and touch screen operations,facility for weighing, statistics, other functions, microspatula to be provided for putting the weighing items onto the pan, antivibration table to be provided, Operating condition - 10 to 40 o C and 25 - 85 % humidity, calibrtion certificate required. Complete installation and demonstration should be provided by factory-trained certified engineers. Warranty 2 years followed by 3years AMC
After Sale Service should be available promptly.

l. Precision Balance.
* Compact and space saving.
* LCD / LED Display for easy viewing Function.
* Auto - Zero Tracking, Auto - Calibration.
* suitable for weighing 1gms to 200gms
* Inbuilt rechargeable battery for continues use.

Complete installation and demonstration should be provided by factory-trained certified engineers. After Sale Service should be available promptly.
Warranty 2 years followed by 3years AMC

m.Autopipette - 500 - 5000 ul
Automatic, Inbuilt battery and charger to be provided, pipette stand to be provided, Pipetting range - 500 -5000 ul, Increment - 0.01ml, Accuracy at 5000 ul - < 30 ul & CV - 0.2 % or less, Calibration certificate to be provided along with operation manual, Battery life min 1 year, pipetting technique - direct or reverse, LCD display and operation bottons to be provided, modes of operation like pipetting, stepper etc should be available.
Autopipette - 100 - 1000 ul
Automatic, Inbuilt battery and charger to be provided, pipette stand to be provided, Pipetting range - 100 -1000 ul, Increment - 1 ul, Accuracy at 1000 ul - < 6.0 ul & CV - 0.2 % or less, Calibration certificate to be provided along with operation manual, Battery life min 1 year, pipetting technique - direct or reverse, LCD display and operation bottons to be provided, modes of operation like pipetting, stepper etc should be available.

n. Autopipette - 10 - 100 ul
Automatic, Inbuilt battery and charger to be provided, pipette stand to be provided, Pipetting range - 10 -100 ul, Increment - 0.1 ul, Accuracy at 100 ul - < 1 ul & CV - 0.2 % or less, Calibration certificate to be provided along with operation manual, Battery life min 1 year, pipetting technique - direct or reverse, LCD display and operation bottons to be provided, modes of operation like pipetting, stepper etc should be available.

o.Vortex mixer(Multitube)
Multi tube vortexing at time, Adaptor for vortexing of plate and tube, non linear control of vortex speed, vortexing speed should be specified, speed control knob to be provided, provision to operate touch on and continous mode, operator manual to be provided.

p.Water purification unit for HPLC Grade
Should have prefiltration unit with pump to provide constant pressure and sensor to automatic switch on/off the pump depending on the water purification unit function, RO filtration to purify organic and inorganic contamination, ion exchange to remove trace ion contamination, acticated carbon filtration. The inbuilt display system should be available to provide information of RO rejection, water temperature, resitivity/conductivity of purified water. The rejection capacity of RO unit should be more than 95 - 99 %. The acceptance limit of conductivity/resitivity of feed

water to the filteration unit should be specified. The system should have facility to store and provide water equivalent to double distillation for misc laboratory analytical work. The storage capacity of the reservoir should be 30- 60 L. The final quality of water supposed to be used for HPLC application as per ASTM water qualily or should have resistivity of 18.2 MΩ·cm at 25 °C and a TOC value below 5 ppb. The water should be pyrogen free and bacterial count below 0.1 CFU/ml.The flow rate of product water should be provided. The sodium, potassium and chloride content of the final water should be specified.
The system should be automatic and 24 hrs operation. PE reservoir which eliminates leaching of organic materials, protects against contamination
Should include enough spares to last at least 2 years. Complete installation and
demonstration should be provided by factory-trained certified engineers. After
Sale Service should be available promptly.

q.Gas Cylinders (High Pure)

N2 gas with cylinder (47L)
and regulator (two stage) with heater, necessary tubings and
connectors. The heater should work on 220□10 V ; 50 Hz AC.
1 gas cylinder and 1 regulator (two stage) Nitrogen or suitable gas cylinders for collision with highest volume capacity and filled with high pure gases. The cylinders have to be provided with safety certificates

r.REFRIGERATED CENTRIFUGE

Sl No	Specifications/Requirements	Criterion
1	Model /Brand	Specify
2	Position	Floor Mounting/Table top
3	Control	Microprocessor controlled timer, speed in RPM/g, temperature and digital display
4	Motor	Brushless induction motor - practically maintenance free, reliable drive system with low level of vibration and noise , dynamic brake
5	Display	RPM/g, Time, Curve
6	Parameter setting	Time, Temperature, Speed, acceleration and decelaration curve, programme
7	Controlling Facility	Manual adjustment of speed, time, temperature, acceleration, deceleration curve, programme the controlling knob or touch botton facility should be provided
8	Speed holding accuracy / Min speed	100 rpm or Equivalent g
9	Speed indicator	0 - 99 min with temperature indicator
10	Timer Control	60 sec to 99 min

11	Temperature control	–10 °C to 40 °C
12	Speed of Rotor	50 ml x 8 Hold Rotor – Max Speed – 12000 – 15000 RPM With adapter 15 ml x 8 Rotor - 2 or 1.5 ml x 24 Hold Rotor – Max Speed 15000 – 18000 RPM
13	Speed Operation	Both in g and RPM mode
14	Speed Increment	100 RPM or equivalent g or specify for different type rotors
15	Min rotor temperature ^{0}C	Not more than -8^0 C
16	Rotor to be provided (1 No each)	50 ml x 8 Hold Rotor and Adapter for 15 ml x 8 tubes 2 or 1.5 ml x 24 Hold Rotor (compatible with eppendorf tubes) Rotor should be suitable to hold conical and round bottom tubes
17	Imbalance Sensor	Be Provided
18	Display	Bright LCD display of Time, Speed, Programmes, Acceleration and Decelaration curve
19	Programme storage	10 Programmes or more
20	Acceleration / Deceleration	Min 9 Profile. 20 curves for Acceleration And Decelaration 10 freely programmable Acceleration And Decelaration. with Graphic display 50 users program memory backup Each. Acceleration Time to max. speed ≤ 13 s Braking time from max. Speed ≤ 12 s
21	Opening or Closing of Lid	Hydraulic based/ Motorised lid lock
22	Noise	Noise level with rotor <54 dB
23	Operators Manual	Required
24	Calibration Certificate	For RPM and Temperature By ISO : 17025 :2005 Accredited Lab
25	Voltage Stabilisation	In Built or Provided External as suitable for its operation
26	Safety	Self diagnostic Error messages & audible alarm All Safety Requirements Compliant
27	Warranty	2 Years from the date on installation AMC for next 3 Years and AMC charges should be quoted The breakdown visit during AMC period should be attended as and when required and no extra charge will be paid for that.
28	Spares and Consumables	Rotors and Adapters to be provided Lubricant oil

		Seals for rotor etc
29	Training and Demonstration	Should be imparted to the technologists for safe and effective handling of the instrument
30	Operating environmental condition (Temp and Humidity)	20 – 40 o C and 20 -80 % RH
31	Documents	IQ/OQ/PQ for verification of installation, operational and performance qualification of the instrument against company's declaration

s. MUFFLE FURNACE"

- Double walled insulated door mounted on heavy duty hinges is provided with effective locking arrangements.
- Temperature of muffle furnace is maintained and controlled by a digital temperature controller working in conjunction with thermocouple placed in the hot zone.
- Supplied complete with control panel.

Temperature Range: Ambient ± 5ºC to 1100 ºC/11
Warranty 02 Years from the date on installation
AMC for next 3 Years and AMC charges should be quoted

The breakdown visit during AMC period should be attended as and when required and no extra charge will be paid for that.0 ºC

t. 10 KVA UPS systems
Configuration Details:
The UPS system shall consist of the following major equipment:
a) Rectifier
b) Boost converter
c) Battery charger
d) Static inverter
e) No-break static transfer switch
f) Maintenance by-pass switch
g) Battery bank
h) Main control panel with LCD display
The UPS system shall be able to operate in any of the following modes:
On-line Mode - During on-line operation mode, the UPS system shall be used to provide precise regulated and transient-free power to the computer equipment loads. The mains supply provides power to the input converter. The input converter shall provide regulated DC power to support the inverter and simultaneously supply the battery charger to maintain the battery in a fully charged condition. The inverter shall convert the DC power into regulated AC power for the load.
ECO Mode - When the load does not require highest level of protection, the UPS shall be able

to work in an energy saving mode. This mode shall be fully programmable to adapt it to the load and customer needs. When ECO mode is activated the UPS switches automatically to bypass as a function of the actual mains quality. In case of a mains imperfection (out of tolerances) the UPS seamlessly returns to 'On-line mode' without compromising the guarantee of total security for the critical load. This mode will not be activated unless specifically requested by the client on site.
Battery Mode - Upon failure of the mains supply, input power for the inverter shall automatically be supplied from the connected battery. When the mains is restored or the standby generator set supply is ready, input power for the inverter and for recharging the battery shall automatically be supplied from the rectifier.
If the input does not return, the UPS shall automatically shut itself down in an orderly manner when the discharge limit of the battery is reached.
By-pass Mode - Upon the failure of static inverter, the no-break static transfer switch shall be activated automatically to isolate the faulty inverter and at the same time maintain a continuous supply to the system load. The automatic transfer mode shall also operate in the event of system overloading or if irregular or undesirable output for the load is detected. In this case, the system shall automatically return to the original on-line mode operation if the disturbance is cleared.
Manual By-pass Mode - If the UPS system needs to be isolated for service or maintenance, the maintenance by-pass shall transfer the load from inverter to the mains without interruption and vice versa.
UPS Output Power Rating- 10kVA, 4 wire plus earth, power factor 1
UPS Delivery Submittals
Submittal upon UPS delivery shall include:
One instruction manual**:** Manual shall include a functional description of the equipment with block diagrams, safety precautions, instructions, step-by-step operating procedures and routine maintenance guidelines, including illustrations.
Quality Assurance
Manufacturer Qualifications
Standards ISO9001.
Before shipment, the manufacturer shall fully and completely test the system to assure compliance with the specification.
Warranty 02 Years from the date on installation
Should include enough spares to last at least 2 years. Complete installation and demonstration should be provided by factory-trained certified engineers. After Sale Service should be available promptly.AMC for next 3 Years and AMC charges should be quoted

u.Concentrator- Turbo Vap LV Concentration Workstation
Capacity: 50 sample tubes of different volumes (max 30 ml), Water bath temp range: Ambient to 90 0C, Gas regulator and gauge range: 0 to 30 psi.
Time range: 1 to 99 min., Simultaneous automated concentration of multiple samples and unattended operation, automatic gas shut off and operational diagnostics.
Accommodates 50 samples but each row can work independently. Additional features/accessories are desirable

v.Rotary Evaporator Specification:
Design of rotary
evaporator
The rotary evaporator should be microprocessor controlled, capable for automatic distillations, product concentration and separation of one or more solvents. The unit should have motorized lifting and lowering control of evaporating flask with provision for automatic lifting of the flask in case of power failure. The unit should have vacuum controller and facility for digital vacuum display. The unit should display vapor temperature of the boiling liquid. The bench top chiller compatible with rotary evaporator unit.
Rotation speed The rotation speed of unit should be in the range of 20- 280 rpm having digital control & display unit.
Connection voltage (V) 230V/50Hz
Fitting of Evaporating flask
The evaporating flask from 50-5000 mL can be used on the same joint adapter without any additional connections
Evaporating Flask and Receiving Flask
1 liter of Evaporating Flask and Receiving Flask (2 in each case) should be provided.
Quality of Glass wares
All glass wares should be made using Borosilicate glass.
Temperature range Temperature range of the heating bath should be in the range of room temperature to 180o C with an accuracy of +/- 2o C and it should have digital setting control & display unit.
Heating bath The heating bath should be of insulated double wall type and surface material of the outer of the heating bath should be non-corrosive.
Condenser The unit should have one double-jacketed vertical condenser.
vacuum pump The vacuum pump should be a two-stage diaphragm and should have a minimum suction capacity of 1.8 m3/h & the pump should achieve a vacuum of less than 10 mbar.
Display units All display parameters like water bath temperature, vacuum, rpm etc. should have a separate electronics and not on single control panel.
Other accessories Chemical resistant PTFE diaphragm. Clips, power cords should be provided.

A warranty of minimum of 2 years and AMC with 3 years should be provided for the above specifications.

w.Digital Thermometer
Measurement accuracy
Above -100 °C (-148 °F): ±[0.05% + 0.3°C (0.5°F)]
Below -100 °C (-148 °F): ±[0.20% + 0.3°C (0.5°F)]
Display resolution 0.1°C / °F / K < 1000°
1°C / °F / K □ 1000°
Measurement range -210°C to 1200°C (-346°F to 2192°F)
Environmental Operating temperature:
-10°C to 50°C (14°F to 122°F)

Storage temperature:
-40°C to 60°C (-40°F to 140°F)

Humidity:

0% to 90%; 0°C to 35°C (32°F to 95°F)
0% to 70%; 0°C to 50°C (32°F to 122°F)
Applicable : ISO standards

X .Lyophilizer:-

Condenser blank of temperature ES -55^0 C / XL-75^0 C.
Condenser capacity in 24hours 2lit.
Overall condenser capacity 3lit.
SLC control system LCD display
Condenser capacity scale –150^{0}C to 100^{0}C
Vacuumed indication (militorr or milibar selectable) 760torr to 1millitorr.
Vacuum regulation:vacuum bleed type.
Temperature vapor pressure conversion push button.
System maintainance oil change message.
PC interphase RS 232.
Defrost method; hot gas.
System refrigerant CFC free
Condenser type-bottom external coil.
Compressor horse power ES, XL 1/3 HP.
Average Time to 100 MTor(0.13mbarr)- 15 minutes.
Ultimate system vacuum 10 Mtorr(6.6x10-3mabbr)
Standard voltage: 115V/60, 208V.