RAJIV GANDHI INSTITUTE OF PETROLEUM TECHNOLOGY, JAIS, AMETHI

Dated: 20.05.2019

CORRIGENDUM-1

Last date of submission of E-Tender	**04.06.2019 (Tuesday) before 3pm**
Opening of Techno-Commercial Bid	**04.06.2019 (Tuesday) at 4pm**

Revised Technical Specifications of HIGH RESOLUTION MASS SPECTROMETER LC MS/MS QTOF for Tender No. RGIPT/JAIS/E-OPN/LAB/2019-20/03 dated 18.04.2019

Preamble: LC-MS/MS QTOF for the identification of bio molecules (Proteins and peptides), polymers and polar molecules with all suitable software support to run the instrument. LC-MS/MS QTOF system must have a robust design and latest version of superior hardware and software product features to handle both Qualitative and Quantitative Applications. The System should be capable for the Complete Molecular Characterization and analysis of Small molecules, Complete Proteomics discovery research, polymers and others. Installation certificate will be issued only after successful installation, commissioning and onsite training at Rajiv Gandhi Institute of Petroleum Technology Rae-Bareli.

Terms & Conditions:

1. Vendor (s) will have to make arrangements for all the other accessories, infrastructure (suitable Table for instruments stability) including UPS, etc. essential for the successful operation of the equipment.
2. The vendor should issue an undertaking for the availability of spare parts for atleast **TEN YEARS** from the date of successful installation.
3. The service visit should be made within 48 hours after the report of the problem and instrument should be up and running within 5 working days.
4. LC-MS/MS QTOF system must be stable and run for a long time without much trouble. The maintenance cost of the equipment must be minimal.
5. All the claims made by the various vendors in terms of the specifications mentioned below should be validated by means of authenticated documentary evidence in the tender document being submitted by them. In the absence of authenticated documentary evidence available in the submitted tender, it may be considered as disqualified/cancelled.
6. The samples (Protein & Polymer) provided during Pre-bid meeting are a part of the Technical evaluation of the High Resolution Mass Spectrometer system which is quoted by the Vendor for the following specifications. The HRMS data submitted by the vendor has to reproduce the same data during installation at RGIPT. In the absence of authenticated & satisfactory HRMS data for samples in the submitted tender, it may be considered as disqualified/cancelled.

High Resolution MASS SPECTROMETER (MS) Specifications:

Quadrupole Time of Flight Mass Spectrometer - (Q-ToF) System: A high end Q-ToF Mass Spectrometer capable of performing analysis of known and unknown protein and polymers, small molecules with the following specifications. The system should capable to operate in polar solvent (water, DMSO) and *atleast* two nonpolar solvents (hexane, THF).

Q-ToF System- with facility to either use as standalone or connect to a High Performance Liquid Chromatography system for qualitative and quantitative analysis with single point complete software control.	
Mass Analyzer	Mass Analyzer should be equipped with Quadrupole Time of Flight system. It should have: high resolution mass capability, information rich fragmentation ability, increased mass resolution & accuracy, Positive & negative ion modes.
ToF Mass Range	100-40,000 m/z or better
Intact Mass determination	The equipment should be capable of detecting molecules with mass about 150 KDa or better *(Research Article/Authenticated document Required to substantiate the claim)*
Quadrupole Mass Range – MS Analysis	1200 m/z or better
Mass Accuracy	≤ 1 PPM or better for internal calibration (a proper system, e.g. Calibrant Delivery System or better method must be included)
MS Sensitivity	ESI (Reserpine) S/N > 300:1 for 1pg on Column or better
Mass Resolution	≥ 30,000 FWHM or better in MS & MS/MS modes at m/z ~ 900. Preferably, ≥ 25,000 FWHM or better in across the mass range
Spectral Acquisition rate	25 spectra/sec or better with high reproducibility S/N ratio for bovine insulin, for other technology 18 Hz.
Ion Source	The instrument must be equipped with Multimode or equivalent Ionization technique for ionizing samples in both ESI & APCI sources. Choice of ionization sources to cover all areas of applications. 1. ESI Source 2. APCI Source The above ion sources should be easily inter-changeable by the user, having capability of handling flow rates up to 1.5 ml/min or better. While changing source, the vacuum should not get interrupted.
Desolvation Temperature	It should have a desolvation temperature more than 400^{oC} or better.
Vacuum System	Automatically protected differentially pumped vacuum system
Instrument Calibration	A single calibration is preferable for both MS and MSMS measurements. Reference standard/reagent should be included also. Direct Infusion Pump & Syringe should be included.
Collision Cell	Should have suitable collision cell for MS/MS measurement. It should be capable of normal scan various MS/MS scans, data acquisition of High and Collision energy fragmentation data with accurate mass measurements.
Detector	A detector having highest sensitivity throughout the lifetime of the system. Detector must operate in both positive and negative ion modes.
System upgradability	System should be upgradable so that ion mobility for co-eluting/isobaric sample separation. **A separate quote must be included for upgradation related**

	expenses which will be added for evaluation of commercial bid. Validity atleast 3 years.
Imported Nitrogen Generator (noise free)	Should be supplied with the system along with the trouble free inbuilt compressor and appropriate capacity reservoir which should be sufficient enough to deliver the gases required to run the system
Computer and Workstation Software:	Two latest PCs (one for instrument, separate one for data analysis) with necessary hardware and Windows 7 or Higher OS software required to operate all the specified equipment/data analysis and future upgradation to higher OS should be free of Cost. Minimum configuration for PC or suitable configuration that suits the requirements: CPU (i7 Intel processor), RAM (DDR3 min. 8 GB (4 x 4 GB)), HDD (min. 2 Tb), video card with 1 GB memory, DVD writer with double layer writing capability, USB drive, laser printer, minimum 21 inch flat screen colour monitor or better configuration. All the necessary software should be provided in the CD with legal licenses. **Or Factory recommended configuration for data acquisition**.
	1. The software must be provided for seamless control of standalone LC-MSMS. System suitability. System should cover full digital instrument control, calibration, qualitative, quantitative processing, report creation, self-diagnosis and auto-tuning. 2. Software should be able to control, acquire, store, process and reproduce the data. 3. Software for Structural Elucidation and Elemental composition calculation to filter out incorrect elemental composition calculations through the use of intelligent spectral interpretation algorithms must be incorporated. 4. Software for Fully automated isotope pattern matching with the generation of a list for the sum formula from both mass accuracy as well as the isotope pattern matching - it has to use both MS and MS/MS data and Possibility to maintain the isotopic pattern with an error of less than 2%. 5. Software for Identification and validation of unknown compound with required Databases and Libraries **should be quoted separately.** 6. Dedicated Software for Proteomics research includes Qualitative and Quantitative workflow Management. • for the Protein/peptide analysis, • Identification of unknown sample, • Deconvolution of spectra. 7. Accurate Mass library scoring to verify composition of significant ions 8. Should have capable to do auto-calibration, accurate mass measurements, MS/MS experiments and quantification
LIQUID CHROMATOGRAPHY SYSTEM- A liquid chromatography system should provide an integrated configuration for solvent and sample management: The LC systems equipped with vacuum	

degasser, autosampler, column oven, highly sensitive detector and suitable number of desired columns. The threshold configuration for each item is given below. **Please note: for UPLC/HPLC systems- along with pump, all others (autosampler, columns, etc.) should be taken care of while quoting so that inconvenience should not arise at users end.**	
Pump & Solvent system	• Quaternary/binary pump designed for Ultra High performance liquid chromatography, designed to blend 2 (two) solvents, with capable of operation at 15000 psi, binary pump or better • Online Vacuum Degasser • Operating flow range: 0.010-2.0ml/min with 1µl/min increments • Flow accuracy: ± 1% RSD or better • Flow precision: ≤ 0.075 % RSD or better • Effective Delay volume: <700 µL or better (independent of back pressure) • Composition range: 0.0% to 100% in 0.1% increment • Plunger seal wash Integral, active, programmable • Mobile Phase Accessories inline filters, plus dampers, mixers & splitters, bottle tops must be available with installation kit.
Auto Sampler	• Can accommodate 75-100 Nos. of 1.5mL vials or better • Sample temperature: 4 – 40º C • Should be able to make 1– 99 injections per vials • Sample delivery precision should be < 0.5% RSD • Sample carry over should be less than 0.01% for caffeine. • Injector needle wash should be programmable • Injection volume precision ≤ 0.3 RSD or suitable parameter
Detector	• DAD/PDA detector or equivalent • Light Source : D2 Lamp • Flow Cell Volume ≤ 10µL or better • Wavelength range : 190 – 700nm or better
Column Oven	• Column temperature control 5 deg C below ambient to 80 deg C with 1 degree increments or better • It should be able to handle at least 2 Nos of 250 mm or 150 mm columns within the oven or better • Column switching valve should be available for switching solvent flow path • Column Storage device/rack should be provided • 3 number of each, C18, C8 RP and Normal phase columns (for HPLC); whereas for UPLC system, 3 number of each C18, C8 RP and Normal phase columns with sub 2 micron particle size should be offered.
Point of Control	Single point control or better for both LC and MS system
ACCESSORIES: The equipment must be supplied with branded Gas generators suitable for supply of all the gases required by all of the Workstation's components.	

Gas Cylinders	The system should be supplied with the required accessories such as gas generator or gas cylinder, branded regulators**,** compressor, tubing, filters for the operation of the instrument.
UPS	Online UPS – 10 KVA cum stabilizer for the MS and accessories with One hours backup.
Spares & Consumables	Essential Spares and User Consumables/ essential parts for routine maintenance should be included.
WARRANTY: The equipment must be covered under full comprehensive warranty for service and all the spares parts (UPLC, MS, nitrogen generator, UPS, electronic boards & hardware consumables, etc.) for the **first three years**, after successful installation, commissioning and training. No conditional warranty will be accepted.	
OPTIONALS ITEMS TO BE QUOTED SEPERATELY	
A SPECIALIZED TECHNICAL STAFF	A specialized technical staff / personnel is required to be deputed by the supplier till the expiry of the warranty period, for the smooth functioning of the machine / equipment. The person should be a qualified graduate with working experience in handling of HRMS, UHPLC (LCMS-MS) or similar equipment. The supplier should also provide adequate training to maximum persons.
Warranty/CMC	After three years, the warranty for next three years should be quoted separately.

The changes in Technical Specifications have been made after the pre-bid meeting, which are highlighted.

The other terms & conditions remain unchanged.

This issues with the approval of Competent Authority.

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