TECHNICAL SPECIFICATION AND TECHNICAL COMPLIANCE SHEET 'SINGLE QUADRUPOLE LIQUID CHROMOTOGRAPHY MASS SPECTROMETER (LCMS)'

Quadrapole MS System with facility to connect Fast LC using sub 2 um particle size columns for high sensitivity trace level analysis.

1. **Mass Range (AMU)**: **50 - 2000 (or better**)
2. **Scan Speed:** Should have the scan speed of 10000 Da /sec or above.
3. **Interface:** The cleaning of the source should be done without venting the system and facility for Vacuum Interlock.
4. **Vacuum System:** A robust high efficiency vacuum system with minimum maintenance and utility with low noise level.
5. **Sensitivity:** 1 pg of loop injection of reserpine should give signal to noise ratio greater than 100:1.
6. **Multimode Ionisation :** ESI / APCI combined source : A combined ESI/APCI source must be provided as standard with the instrument. ESI and APCI ionisation must be achieved using a single probe. It should be able to perform both ESI and APCI in a single run with 20ms and batter switching capability or better.
7. **Detector:** The instrument must incorporate a photomultiplier / Electomuliplier Detector (the life of the detector must be specified).
8. It should have Automated SIR method development.

Fast Liquid Chromatography system

1. Quaternary solvent System with Vacuum Degasser, Autosampler, Column Oven, C18 RP Columns, The complete system and MS should be controlled by single software.
2. The system should have the capability to operate the column range from sub 2um particles .

Pump

1. Low pressure gradient pump with serial dual reciprocating pistons with on the fly compression.
2. Vacuum degassing capability: Four and additional for needle wash; preferable
3. Operating Flow Rate Range to be 0.001 to 10 mL/min ±0.1%, in 0.001 mL increments.
4. Effective System Delay Volume < 400ul, preferable.
5. Gradient Profiles:10 µL gradient profiles preferable.
6. Maximum Operating Pressure:**12000 psi or more**
7. Composition Precision 0.05% RSD.

Auto sampler:

1. Inline split loop with sample **capacity of 96 x 1.8/2 ml and better** vial and 15 x 10 ml vials
2. Injection Volume **Range 1-50µL and better** or more Precision <0.25% RSD and Accuracy ±0.5% and carryover of <0.004% and temp. control of 4-45^{0}C at 22^{0}C below the ambient temperature.
3. Column Temperature 5 to 80 ^{0}C or more and should have active preheating.
4. Column Tracking & Storage Device should be provided; preferable.
5. UV-VIS Detector with Dual Wavelength Capability.
6. **Data Acquistion 80HZ or Better.**
7. Pressure Limit : 1000 psi for any cell volume
8. Wavelength Range: 190-700nm.
9. Nitrogen Generator with built in compressor should be quoted

Chromatography software

1. Chromatography data system for control acquisition, processing and reporting system
2. Chromatography software should have **stand alone facility, 32/64 bit** design for Windows 7.
3. It should be 21 CFR part 11 compliance

All pre-requisite required (i.e. Computer, Printer, UPS 10 KVA on line UPS with 2hrs backup) for installation to be quoted along with main system.