MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY
BATHINDA-151001, PUNJAB (INDIA)
(Established by Punjab Govt. vide Punjab Act No. 5 of 2015 & Under Section 2(f) of the UGC Act at S. No. 428)

Ref. No. MRSPTU/Purchase/16-17/..... Dated .....

SPECIFICATIONS For High Performance Liquid Chromatography with Single point Software Control

HPLC Pump (or delivery system)

- High Pressure binary gradient Two pump Integrated System.
- The machine should be operable both in isocratic and gradient mode.
- The flow rate should be within a range from 0.001 to 20 ml/min with the possibility of increment of 0.01 ml/min for carrying out semi-preparative applications.
- Flow Precision: ≤ 0.1% RSD or better.
- Flow Accuracy: ± 1.0% or better
- Delay Volume : <200µl (with Mixer).
- Max. Operating pressure: 6000 psi or more.
- Gradient Composition Accuracy : ± 0.5%of setting 1ml.
- Gradient Composition Precision : ± 0.5%of RSD of setting 1ml.
- Should have possibility to operate in various gradient curve mode including Liner, Step, concave, convex etc.

Manual Injector

- Loop Size volumes should be of 5ul, 20ul, and 200 ul etc. with suitable syringe.

Column Oven

- Should have provision for housing at least four or more columns of 30 cm length.
- Temperature setting rage: Ambient- 60^{o}C or better
- Operating temperature: ambient to 60^{o}C or better

UV Detector

- The detector should have wavelength range of 190-700nm
- Bandwidth <5nm
- wavelength accuracy of • ± 1 nm
- Wavelength Repeatability: • ± 0.1 nm
- Linearity <5%at 2.4AU

- Base line Noise single wavelength 5.0x10-6 AU at 230 nm or better
- Base line Noise Dual wavelength 35.0x10-6 AU at 230nm, 280 nm or better
- Drift 1.0x10-4 AU
- Sampling rate : Up to 80
- Flow Cell Path length: 10mm, Cell volume: 16.3 µl or less.
- Light Source: Deuterium or tungsten lamp with minimum life of 2000 hrs or more.
- Should have provision of low noise performance within the operable wavelength range without lamp change.

ECD Detector

- Operating modes: Direct Current pulsed amperometric detector (PAD) scan.
- Potential Range: ±200mV in 10mV steps (DC,PAD,Scan)
- Column Oven: 70° C above ambient to 450 °C, 0.10° c resolution.
- Analog Signal Output :± 1volt or :± 10 volt selectable.
- Auxiliary Electrode:Stainless steel.
- Working Mode: DC
- Filter time constants: 0.1-5 seconds in 1,2,5 sequence steps ,DC mode
- Current Range : DC 10pA(dummy load .47 Uf,200Mohms,+800mV, time constant 1.0 s) at temperature equal 300 C.
- PAD Mode
- Range: 20nA-200uA,1,2,5 sequence steps.
- t1: 100-2000 ms
- t2: 100-2000 ms
- t3:0(off)-2000 ms in 10 ms steps
- Sample times (ts)= 20, 40, 60, 80, 100 ms
- Scan Range: 10nA-5uA in 1, 2, 5 steps
- Scan Times: 1-50 Mv/s in 1, 2, 5 steps
- Scan Cycles: Half, Full, Continuous
- Time event programming: DC & PAD
- Flow Cell: Design: Confined Wall-Jet
- Standard flow cell: 0.08uL min. volume, flow rate 25uL/min-2mL/min

Software

- The software should be original and authenticated
- Should have option for versatility for multitasking without multiple software packages
- Should have option for data integrity along with advanced security measures Embedded Oracle data base software must be quoted.

- Single point control/Single software must be quoted to control and acquire data from all the modules.

Hardware

 Computer of standard make like HP, Dell or Lenevo should be supplied with mentioned specification: Processor: i4, or higher version; 4GB RAM, 1TB hard higher drive or; DVD Read Write Drive, LED colour monitor; 101 keys key board, Mouse and Mouse Pad; with latest version of windows 7 Pro based operating software; LaserJet Printer, 3KVA UPS with 30 min Backup

Columns: C18 (Two)

Warranty: 2 Years with additional AMC of two years