

## **Tender specifications for the supply, delivery, installation and commissioning of High Performance Liquid Chromatograph System (HPLC).**

01. Quaternary Gradient Pump
02. Online Degassing Unit
03. Auto Sampler with Cooler
04. Column oven
05. Detector: UV-VIS or PDA or Both
06. Controller
07. PC with Workstation Software
08. Reservoir Tray.

Detailed Specifications of the System are listed below:

### **01. Quaternary Gradient Pump:**

- Dual Plunger Design
- Flow rate range: 0.001 ml/min to 5ml /min
- Flow rate accuracy:  $\pm 1\%$  and Flow Precision:  $\pm 0.075\%$  RSD
- Gradient Programming up to 4 Solvent, 0-100% in 0.1% Step
- Gradient Concentration accuracy:  $\pm 0.5\%$  and Precision:  $\pm 0.1\%$
- Capable of performing Linear, step and exponential gradients
- pH range : 1 to 13
- Auto Purge, Auto Start up and Short down for unattended operations.
- On line Seal Wash kit for rinsing the Plunger and to avoid buffer deposition.

**02. On line Degassing Unit:** On line degassing Unit to remove the dissolved gases in the mobile phases with 4 or more channels.

**03. Auto Sampler with cooler:** Auto Sampler with Sample cooler needs with the following specification.

- Injection Method: Full Volume Injection, Variable Volume Injection
- Injection Volume Range: 0.1 -100 $\mu$ l
- Injection Volume Repeatability: 0.3% RSD
- Carry over: 0.01%
- Injection Volume Accuracy:  $\pm 1\%$
- Sample Rack for Auto Sampler: Suitable rack for 1.5ml, Micro titer plates and deep well plate.
- One Set of 1.5ml Vial with cap and Septum (200 nos/set)
- Sampler Cooler: Direct cooling type sample cooler for Auto Sampler with temperature control from 4 to 40°C.

### **04. Column Oven:**

- Column Oven should accommodate at least 2 nos of Columns

- Column Oven Temperature range should be 15 °C below, ambient & up to 60°C

**05. DETECTOR:**

**a. UV-VIS Detector:** A Programmable UV-VIS Detector with dual Wavelength monitoring capability with the following Specifications.

- UV-VIS Detector Wavelength range 190- 600nm
- Noise level:  $\pm 0.25 \times 10^{-5}$  AU
- Drift:  $1 \times 10^{-4}$  AU/h
- Analytical Flow cell with 10mm path length and 8 $\mu$ l volume
- Flow Cell should be temperature controlled
- Wavelength accuracy  $\pm 1$ nm and reproducibility :  $\pm 0.1$ nm
- Built in Mercury Lamp for performing wavelength accuracy check
- UV –VIS Detector should be capable of performing simultaneous Dual Wavelength monitoring.

**Optional –**

**b. Photo Diode Array Detector (PDA):** A Programmable PDA Detector with the following Specifications:

- Range of Wavelength: 190 to 800nm with 512 diode array elements
- Noise Level :  $0.6 \times 10^{-5}$  AU
- Drift :  $5 \times 10^{-4}$  AU/h
- Programmable Slit width : 1.2 nm for High Resolution & 8 nm for High Sensitivity
- Temperature Controlled flow cell to reduce the base line noise
- Inbuilt Holmium oxide Filter for auto wavelength accuracy check.

3D Plot, Control Plot, Snap Shot functions, multi wavelength monitoring, peak purity curves, spectral library and spectral matching etc should be offered through the workstation software.

**06. System Controller:** A System Controller for controlling all modules of HPLC System listed through the Workstation.

**07. Reservoir Tray:** A reservoir tray for housing the mobile phase bottles along with 5nos of Mobile bottle (schott) each 1 liter capacity.

**08. PC with Workstation Software:** A PC with Workstation Software for controlling the entire HPLC System through PC. The Software should be user friendly and based on Windows. Software should support all Quantitation features such as Area Normalization, Internal and External Standards, SST, Custom reporting, Audit trails and GLP features. The Software should include complete System Suitability Test functions (SST) functions as per BP/USP etc. PC should be computable with all softwares of the instrument and have Intel Core I-3 3<sup>rd</sup> GEN Processor, Intel Original Latest Motherboard, 4GB RAM, 500 GB Hard disk, 18.5" LED Screen, Internal DVD Writer, Optical Keyboard & Mouse, ATX Cabinet with SMPS of well-known brand.

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