Specifications for HPLC System with support systems.

The vendors are requested to submit

A) A Technical Bid and B) A Commercial bid in SEPARATE ENVELOPES clearly marked as technical and commercial bids.

The bids may be sent to the address below:

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The required specifications are as follows:

A Liquid chromatography system is required for the analysis of organic solutes in liquid samples. The following are the required specifications of this system and its support system required for its operation.

1) A quaternary pump system with the capability of handling 4 solvents as mobile phase. These solvents may be used together or individually or in any combination.

2) The flow rate offered by the quaternary pump must be at least between 0.001 – 10 mL/min.

3) The system must be capable of handling pressures up to 40MPa

4) The system must have a suitable flow dampening device to reduce pulsating flow.

5) The compositions of these solvents may be adjustable dynamically using a gradient system or in isocratic mode.

6) The system must have an in-built degasser.

7) The system must have a tray for holding the solvent bottles safely and securely minimizing the risk of spillage. Solvent bottles and appropriate suction tubes with inline metal/ceramic or equivalent filters must be provided for use with HPLC grade solvents.

8) Clear and easy valves and methods for purging must be available. The tools required for the purging must be provided along with the system.

9) The fittings must be easy to operate with the tools provided.

10) Appropriate tools for maintenance must be provided.

11) It is preferable to have some leak detection system.

12) Some spare consumables (such as inline filters) must be provided initially.

13) The system must be able to work with the voltage available in Indian conditions (220-240 V) (50/60 Hz) without any major power conversion. If such power conversion is required, such a convertor must be provided along with the system in addition to the UPS.

14) A column oven compartment must be provided to maintain the temperature of the column between ambient and a maximum temperature of 50 C with a resolution of 1 C.

15) An autosampler must be provided that can inject samples into the LC system with sample volumes ranging from 0.1 microliters to 100 microliters. The instrument must be provided with a The autosampler must be capable of holding atleast 15 vials at a time and must allow for programmable automated injection of these these samples into the LC system without interruption of the operation. The autosampler must be able to hold vials (approximately 1.5 mL with screw cap and septa) that are interchangeable with standard HPLC vials provided by other vendors. Sampling loops of other volumes must be easily available for purchase and installation, if required.

16) A Diode array detector (PDA or DAD) must be provided for the measurement of the signal. This system must be capable of measuring absorbance in at least the UV and Visible light range of wavelengths. To facilitate this, the system must be provided with appropriate light sources (lamps or equivalent). The DAD detector must have a flow cell that can be easily cleaned if necessary. It must also accessible for easy change of lamps and maintenance. The range of wavelenths must be between 190 – 800 nm. Appropriate communication cables must be provided to communicate with the LC injection system. The DAD must be synchronized with the LC system for the start of a run and must not required the user to press start on the detector system.

17) The flow lines must be robust and must be able to withstand the high pressure generated in the system without causing frequent leaks. The flow line exiting the detector must be drained into a waste bottle.

18) A software system controlling all the aspects of the HPLC system mentioned above must be provided (original disk or Drive or CD). This system must be capable of creating and storing methods with stored parameters such as flow rate, run time, composition such as isocratic or gradient, column temperature – if applicable, acquisition parameters such as DAD parameters in a run. It should be possible to call these methods during a sequence of samples in the autosampler. The system should have the capability of running different methods for different samples. The software should allow the programming of sample sequence for

running different samples with different methods without user intervention and in an automated manner.

19) The software should have the capability of different display parameters during the run of a sample. The post run data analysis should be available in the same software where the chromatogram of a run sample must available for analysis. Data analysis must include standard chromatogram operations such as area, height, width and percentage estimation. The software system must also allow the easy integration of calibration data into data analysis methods. The software must be able to perform spectral analysis for UV-visible, fluorescence and RI detectors.

20) The software data analysis system must also allow for the integration of UV spectral library information for automatic matching of the peaks with reference spectra, even if this might not be standard features. If this UV spectral matching feature is available, please highlight it.

21) The data analysis information and report preparation with customized settings must be available. The report format should be either rtf or pdf format. The raw data may be extractable as a csv format or text file.

22) A suitable computer system must be provided for this system that can handle all the operations. (No printer is required – it is optional).

23) A suitable UPC system must be provided that can provide a back up operation of 30 minutes that can allow the user to shut the system down.

24) System accessories such as spare tubing, fitting and tools for the maintenance of different aspects of the system must be provided.

25) A generic C-18 column must be provided that can separate a mixture of polyaromatic hydrocarbons

26) The system manual must be provided in either CD or hard copy.

27) AMC (Annual maintenance contract) or technical support must be provided for the first three years.

28) A tubing kit and maintenance tool kit must be provided along with the system.

29) Installation and training must be provided by the vendor.

30) The vendor (or representative / authorized agent) must have a service center in Chennai.