



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
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Ref. PR No. 1000056675

Rfx. No. 6100003100

Item Description – **Technical Specifications for Gas Chromatography System**

Sr. No	Item Description		Technical Compliance (Yes / No)	Additional Information (if any)
1.	General Specifications	It should be easy to use, less complicated; with best-in-class scanning speed. It should have “Ecology mode” to save power and carrier gas consumption allowing for a lower cost of ownership. The system should include hardware, software, consumables, methods and additional tools to accelerate sample turnaround and minimize cost per sample.		
2.	GC Specifications	System should be capable of supporting two inlets and two detector ports simultaneously, should have electronic pneumatic / pressure controls for all the gases and should have Chromatography Data system which is based on Microsoft Windows operating system for instrument control, data acquisition, data analysis, quantization, automation & customization with online and offline sessions provided. System should have capacitive touch screen along with GC Assist. System should have capability of locking/adjusting the retention time so that same retention time can be reproduced from system to system and the method should be electronically transferred		
3.	Column Oven	a. Provision to install two or more columns b. Operating temp range of oven from near ambient to 450 ° C c. Oven Ramps : 32 d. Oven Cooling :3.4 Min with dual channel		

4.	FID Detector	System Should include FID an TCD with following properties: a. Detection Limit: $\leq 1.0\text{pg c/s}$ or better. b. Data rates up to 1,000 Hz accommodate peaks as narrow as 5 msec at half height c. Dynamic Range : $\geq 10^7$		
5.	Thermal conductivity detector (TCD)	a. Minimum detectable level: 400 pg tridecane/mL with He carrier. b. Linear dynamic range: $>105 \pm 5 \%$ c. Maximum temperature: 400 °C d. Standard EPC for two gases (He, H₂ , or N₂ matched to carrier gas type e. Make-up gas: 0 to 12 mL/min f. Reference gas: 5 to 100 mL/min		
6.	Inlets	a. S/SL (1 No.) b. C16 Suitable for all capillary columns (50 to 530 $\mu\text{m id}$) c. Split ratios up to 7,500:1 to avoid column overload. Setting split ratios (particularly low split ratios) is limited by column parameters and control of system flows (particularly low system flows). d. Split less mode for trace analysis. Pressure-pulsed split less is easily accessible for best performance. e. Gas saver mode to reduce gas consumption without compromising performance. f. Packed Inlet (1 No.) g. Wide-bore capillary 1/8-in. packed columns and 0.530 mm capillary h. Total Flow Setting: 0.0 to 200.0 mL/min i. Pressure Range: 100 Psi		
7.	Auto Sampler	a. Minimum 15 vials or more b. Injection accuracy: $> 0.5\%$ or better		
8.	Software	a. Suitable software for instrument control for all mentioned modules to be quoted b. Parameters for all instrument modules associated with the instrument. Users can create new or load existing methods for a launched instrument, make modifications as needed and save the acquisition method with the same name or under a new one		

		c. Data Analysis should extensive review capabilities for GC data facilitating the use of the same integration, calculation, calibration and reporting across the all data file. d. Data analysis should have an option of Chromatograms layout provides for a visual inspection and comparison of multiple injections		
9.	Columns	a. DB-1701 30m, 0.25mm, 1.00um – 1 No. b. GC,DB-1701-60m-.25mm-.50um – 1 No. c. DB-5 30m, 0.25mm, 1.00um – 1 No.		
10.	Warranty	The instrument should be supplied with standard 1 year warranty		