

## SPECIFICATION FOR GAS CHROMATOGRAPH

October 5, 2012

- Microprocessor based modular GC system
- **Dual Packed Column Injection Port** with **Dual Flow Line Advance Flow Controller** and **High Sensitivity Dual FID Detector & Single TCD detector** system for operation on 220V / 50Hz
- Large column oven size greater than 15 liter capacity and oven temperature up to 400°C
- Programming capacity - 20 programs, column oven temp. programming with rate setting of -250°C to +250°C
- Machine should have fast column oven cooling with microprocessor rear vent control
- **Dual Packed Column Injection port** with dual flow line **Flow Controller** for digital setting and control of carrier gas flow up to 100 ml/min
- Capability of installation of 2 packed columns either SS or Glass, 1/8" OD with two FID detectors
- More than five step flow programming capability with programming rate of up to +400 ml/min
- Correction function to maintain constant column flow rate during temp programmed analysis
- Inert Quartz nozzle for FID to reduce detector contamination
- Automatic ignition and re-ignition of FID flame through keyboard or GC software
- Large interactive Graphical User Interface LCD display for easy setting of GC parameters and monitoring functions including chromatograms.
- Intelligent self-diagnostics functions to validate the instrument before every sample injection
- Capability for installation of 3 simultaneous injections ports and 4 detectors on single GC system

### **FID Specification**

- Temperature range : up-to 400°C
- Detection limit: 3 pico gram carbon/s (Dodecane)
- Dynamic range:  $10^7$
- Quartz Glass Nozzle
- Amplifier differential types as standard.
- FID nozzle for Capillary & packed – two numbers each

### **TCD specification**

- Dual Flow Rate Differential Thermal Conductivity Detector System
- Temperature range up to 400°C
- Dynamic range :  $10^5$
- Sensitivity of 40,000 MV. ML/mg (built in pre- amplifier, with 10 x amplification)

### **Split / Splitless Injection Port**

- Split / Splitless Injection Port with built-in Flow Controller for digital setting and control of carrier gas pressure up 970 kPa and total carrier flow up to 1200 ml/min
- Built-in 7 step pressure & flow programming
- Digital split ratio setting up to 1 : 9999.9
- Correction function to maintain carrier gas average linear velocity during temp programmed analysis for capillary columns
- Compatibility to complete range of capillary columns from 0.2 mm ID to 0.53mm ID

### **PC based GC Workstation,**

- 32-bit Windows Vista/XP/NT/2000/7 compatible workstation software for integration of peaks and analysis

- **Set of Essential consumables (Septum, liners, ferrules etc) – To be provided for three years use**
- **Branded Desktop PC with i3/i5 processor with Windows 7 preloaded along with media, USB port & RS-232 port with monochrome LaserJet Printer, 5 KVA On-line UPS with 30 minutes backup, Gas Purification Panel.**
- **Two nos of Packed Column & one number of Capillary column (as per the requirement) with 30 mts length as per application (to be informed later) for analysis of different samples to be supplied along with the instrument.**

#### **Terms and Conditions –**

1. Please submit the TECHNICAL and FINANCIAL bids in separate sealed envelopes. Mark the two envelopes clearly as “Technical Bid” and “Financial Bid”. Both the sealed envelopes should be sent in a single sealed envelope, clearly marked as “Quotations for Purchase of **GAS CHROMATOGRAPH** due on 29.10.2012”. The quote should reach the following address on or before 29.10.2012, upto 5 PM.

**Prof. A. K. Srivastava**  
**Department of Biochemical Engineering and Biotechnology**  
**Indian Institute of Technology Delhi**  
**Hauz Khas, New Delhi-110016**

2. Please quote prices at F.O.B. New Delhi, inclusive of installation charges.
3. Technical bid should contain **compliance chart** based on specifications as per NIQ, but must not contain any commercial information
4. The quotations should be in the currency of the country of origin as well as Indian Rupees wherever possible and should be valid for at least three months.
5. Please attach all the technical literature and a list of similar installations done in India.
6. Standard warranty details (minimum 3 years) should be provided.
7. Payment should be through irrevocable letter of credit.
8. If the quote is being submitted by the representative of the Principals/manufacture themselves, a valid Agency ship/Dealership Certificate authorizing the agent to quote to IIT Delhi on behalf of the Principals should be enclosed.
9. Quotation must indicate a delivery schedule, which in no case should exceed 4 weeks from the date of placement of order.
10. Complete set of manuals for the operation of equipment should be given.
11. Clearly specify the installation requirements—such as space, power, frequency, environment (Temperature and humidity) etc.
12. The institute reserves the right to accept or reject any / all the quotations without assigning any reasons thereof.

