G.B.PANT NATIONAL INSTITUTE OF HIMALAYAN ENVIRONMENT &SUSTAINABLE DEVELOPMENT,
(FORMERLY KNOWN AS G.B. PANT INSTITUTE OF HIMALAYAN ENVIRONMENT & DEVELOPMENT)
KOSI- KATARAMAL, ALMORA – 263643, UTTARAKHAND

ADDENDUM NOTICE

Tender Notice No. GBPI/Central Lab/NMHS-PMU/16-17/2016/24

Please refer to Institute tender notice No. **GBPI/Central Lab/NMHS-PMU/16-17/2016/24** Published in "Hindustan Times" (New Delhi edition) dated 26.02.17 for **Gas Chromatograph Mass Spectrophotometer with Autosampler and FID under NMHS-PMU Project. Some Specifications have been added in above item and the last date of receiving of tender documents is also extended up to 15.03.2017 at 2.00 PM.** The other terms and condition will remain as such. The full details of tender document are available in the Institute website http://gbpihed.gov.in

Administrative Officer
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1.1.1 General Specification - Gas Chromatograph Mass Spectrophotometer with Autosampler and FID:

A microprocessor controlled latest Dual channel Gas Chromatograph should be fully automated with following minimum capabilities :-

1. Oven Ramps 20 times or more
2. Electronic Pneumatic Control of carrier gas pressure & flow independently.
3. Oven temperature Ambient up to 450°C.

a) Column Oven

1. Accommodates up to two 105m x 0.53mm id capillary columns.
2. Operating temperature range suitable for all columns and Chromatographic separations. Ambient temperature +4°C to 450°C or better.
3. Temperature set point: 1°C or better.
4. Column oven cooling from 400°C to 50°C within 5.0 min or better.
5. Maximum achievable temperature ramp rate: 120°C/min or better.
6. Carrier gas pressure setting range from 0 to 900 kPa or better.
7. Electronic Pneumatic Control of carrier gas pressure & flow independently.
8. System should have advance feature for method development which should include- Column flow/pressure calculator, Solvent elimination and backflush wizard for large volume injection, Vapour volume calculator etc. Facility for removing high boilers by backflushing through the column should be provided at the mid or detector end of the column.
9. 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.

b) Programmable Split/split less capillary inlet (S/SL) with EPC/APC-*for MS and split/splitless for FID*

1. Split/splitless injector port – one
2. Suitable for all capillary columns (0.20*mm*, 0.25*mm*, & 0.50*mm* id).
3. Capable of making large volume injections ≥ *200 µl*
4. Injector should have programmable temperature capabilities with more than ≥*3* steps heating and ramps and a maximum heating rate of ≥ *200 °C*/min or above
5. Maximum temperature: 450°C or more.

Vasudha

c) **FID Detector**

1. Flame ionization detector (FID) that responds to most organic compounds.
2. Minimum detectable level :< 1.5pgC/sec or better.
3. Linear dynamic range: 10^6.
4. Maximum operating temperature: up to 450°C.

d) Auto Injector/ (Sampler) for 15 vials (2ml volume), or more, with capability to inject upto 250ul

e) **Mass Spectrophotometer specification**

1. **MS:** Electron impact ionization (EI), with full scan (FS), SIM, and MRM capabilities
2. Fast quadrupole scanning, upto 20,000u/s.
3. **Mass resolution and Mass stability**

   Automatic tuning down to 0.7u and manual tuning below 0.4u

   Mass stability better than 0.1u/24hours or better
4. **Detector**

   Detector should be an EMT with the design capable of removing neutrals
5. **EI ion source**

   •Ion source temperature: 150 to 350°C or better *(can be achievable)*

   •Filament: Dual (Automatic switching)

   •Electron energy: 10 to 200 v

   •Provision to automatically clean the ion source during a run

MASS ANALYZERS

•Q1 and Q3 analyzers: Quadrapole mass filter having hyperbolic shaped and capable of being heated to upto 200 deg C or better *technology or equivalent technology*

•Collision energy: upto 60 eV or better

•Collision gas: Nitrogen/ *Argon*

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SCAN SPEED

•High speed scanning rate: 20,000u/s or better

•Minimum dwell time :< 1msec or better

•Maximum MRM speed : 800 MRMs/sec or better

SOFTWARE

Mode: Q1 scan, Q3 scan, product ion scan, Precursor ion scan, neutral loss scan, Q1 SIM, Q3 SIM, MRM and simultaneous analysis of scan/SIM or Scan/MRM

•Instrument tuning: Autotuning capability should be available

SENSITIVITY SPECIFICATIONS

EI Scan sensitivity 1pg octafluoronaphthalene m/z 272 S/N≥ 1500:1 or better

MRM sensitivity 100fg octafluoronaphthalene m/z 272→ 222 S/N ≥ *8000*:1 or better on a 30m column

Instrument Detection Limit: 4fg or less octafluoronaphthalene (OFN) for 1uL injection of 10fg/uL OFN, 8 sequential injections; MS/MS transition of *m/z* 272→222;

f) Libraries: NIST library–latest version NIST 2014 with license to be supplied with the system. System should be supplied with complete setup of GC method and QQQ MRM conditions so that no method development is required. A pesticide MRM database of more than 900 compounds with at least 6 MRM transitions on average should be supplied.

g) **Columns:**

Capillary Columns for Pesticides 2 Nos (30m length)

h) Computer controlled system, 19 TFT monitor computer system with 500 GB hard disc, 04GB RAM with other latest configurations and laser printer of repute makes. Software should provide total support to analysis work controlling all the modules, Software features include high speed data acquisition and build analysis compatibility, full qualitative and quantitative processing function capability,

i) UPS - One 10KVA Online UPS with 1 hour backup.

j) Gas cylinder with SS dual stage regulators (Helium, Nitrogen, Hydrogen, *Zero Air and Argon*)

k) Gas distribution panel with necessary traps

l) **Warranty:** The main system should come with a three year warranty