

**Corrigendum/Addendum to the Short Tender Document for procurement of Instruments & Equipments for the year 2017-18.**



Sl. No.	Page/ Para/ Sub Para	
1	Page - 23 Sl. No. 6 under <b>Technical Bid (Schedule -A)</b>	Sl. No. 6 of "Schedules-A" may be treated as deleted.
5	<b>Addendum</b> Page -23 Sl. 14 under <b>Technical Bid (Schedule -A)</b>	Detail specification of " <b>Automatic Protein Analyzer</b> " is attached Annexure-A.
6	<b>Addendum</b> Page -23 Sl. 15 under <b>Technical Bid (Schedule -A)</b>	Detail specification of " <b>Automatic Fat Analyzer</b> " programmable Solvent Extraction System is attached Annexure-A.
7	<b>Addendum</b> Page -23 Sl. 16 under <b>Technical Bid (Schedule -A)</b>	Detail specification of " <b>Fibre Analyzer</b> " is attached Annexure-A.

The other items are unaltered.

  
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## **Annexure-A**

### **Sl. No. 14 - Automatic Protein Analyzer**

#### **Specification :**

#### **Automatic Macro Block PC Compatible Digestion System with Auto lift facility**

- Eight Place 250 ml PC Compatible Block Digestion System with casted aluminium alloy heater
- Direct USB Port for PC/Laptop Connectivity, TFT Graphic Touch Screen Display.
- Unique wireless mouse to operate touch screen without PC at a distance of 2 mtrs from equipment.
- 100 programs & 12 sequence steps, PC chart software, Should have live graphical representation of time/temp. gradient, Should have live Schematic process flow feature with display of various stages with facility to have print options
- Software enables multiple unit monitoring with multi user login feature
- Auto lift for automatic loading of samples tubes before digestion and automatic lifting of hot digestion tubes along with the rack after completion of digestion, Mother board of digester controls the auto lift mechanism
- Inbuilt software program for micronutrient, macro nutrient, trace element, diacid and triacid analysis.
- Remote Control Module for wireless data monitoring, control & transfer to PC at a distance of 10 mtrs from equipment, Unit should be with Data Logger with real time feature
- All essential accessories like SS Insert Rack, Exhaust Manifold, Suction assembly for safe removal of acid fumes,
- Additional set of tubes with rack& manifold to enable uninterrupted digestion.

#### **Scrubber System**

- Four Stage Fully Automatic Microprocessor based acid neutralization scrubber with digital display integrated online with motherboard of digestion system with inbuilt pump for water recirculation
- Should automatically start on operation of digestion system, and should automatically stops on completion of digestion cycle with a delay time of 5 minutes to remove residual fumes.
- Auto waste disposal & auto drain of tank water after pre programmable consecutive operations, Incorporates indication of drain cycles, low level indication and high level indication,
- Auto fill error in case of absence of inlet water in tank and the system automatically switches off with alarm.
- Inbuilt auto error diagnostic and safety features. Electrical Requirement: 230v/50Hz AC Mains.

#### **Automatic Distillation System**

- Auto sequencing Programmable Microprocessor based Distillation with inbuilt printer & software, Colour Touch Screen high resolution TFT LCD Display, Large 4.3" screen
- Auto Intelligent run of programmable steps,
- Addition of Boric Acid, Dilution, KMNO<sub>4</sub> Addition for Available Nitrogen, Alkali Addition, Steam Processing, Residue Removal, Process over indication with alarm with inbuilt delay time features,



- Automatic Titration Connectivity feature for online titration.  
Aspiration of Receiver Residue.
- Flow diagram display to show live auto sequencing steps at each stage of process, Data table export to excel
  - Facility to program and control distillate volume for determination of available nitrogen
  - Inbuilt safety features with CE Certification to fulfill all statutory requirement of Good laboratory Practice.
  - Auto sensing of "NO WATER" condition in condenser & steam generator with alarm & signal to alert user.
  - Auto deactivation of operation after warning on no water condition in case of user non availability
  - Enables automatic monitoring and measuring of high temperature in distillate with sensor for auto warning signal and safety alarm to alert user to control distillate temperature. Continuously measured temperature is displayed digitally.
  - Auto door open warning indication, Auto tube insert error indication. Auto deactivation of System on error diagnosis, Adjustable steam power, Auto online water saving mechanism, Auto reagent Level Sensor with Alarm for Reagents, Stainless steel non corrosive steam Generator
  - Inbuilt Automatic Printer for direct print out of results without connecting to PC.
  - Automatic calculation of results on input of titrant volume in terms of percentage of Protein/N<sub>2</sub>.
  - Automatic water level monitoring & Peristaltic pump for reagents addition
  - Electrical Requirement - 220 - 230V/50Hz.

### **Titration**

- Fully Automatic Colorimetric Titration System, Acid/Base-aqueous and Non-aqueous titrations,
- Photometric optical Optrodecoulor sensor for colorimetric titration, works on wide range of wave length 470, 502, 520, 574, 590, 610, 640 & 660 nm
- Auto end point (SET) and automatic equivalence point (MET) in a single system
- Electrode Temperature sensor and polarized electrodes;
- Direct measurement of pH, mV, Temperature, I<sub>pol</sub> and U<sub>pol</sub>,
- Automatic Temperature compensation with Pt 100/Pt 1000 Resistance thermometer,
- Automatic Buffer recognition up to 5 Buffers, Automatic calibration of upto 5 Buffers,
- Graphics Display with live curve, Results: Directly in %, ppm, g/L, mg/mL, mol/L, g, mg, mL, mg/pc, should be upto 9 decimals
- Manual control of measurement, Stirring and dosing, 100 operator programmable protocols with inbuilt standard 30 methods library
- Magnetic Stirrer with stand, Buret volume 20 mL,
- The titration interconnectivity Hardware modules enables direct online titration completion of distillation without need of sample transfer from receiver end.
- Minimum burette volume 0.002 ml / step with standard 20 ml burette ( 2microlitre)
- Instruments has Display resolution of Ph : 0.001 Ph if connected to PH electrode.
- Data storage facility allows entry of data such as cylinder volume, titrant, strength of titrant, validity of titer, etc.
- Intelligent exchange unit feature automatically recognizes the right burette and the right reagent pertaining to particular method.



- Memory stick with USB port to store more than 50,000 values
- Magnetic Stirrer 801 with stand – Magnetic stirrer with base plate, Support rod and electrode holder for use with Titrino plus.
- Electrical Requirement - 220V/50Hz.
- Additionally Digital Burette for calibration with Programming facility, Continuous operation ,
- Titrate mode and dosing mode, Individual calibration to user specified adaptations,
- Valve less dosing system, Interface RS 485/232, Power supply:9 V DC, Direct printing option, Minimum flow rate 10ul.

**Data Processing System (Laptop Version) :**

- i5 Processor, 2 GB RAM, 500 GB Hard Disk, DVD Writer, Wi-fi with original Windows



**Sl. No. 15- FAT ANALYZER (PROGRAMMABLE SOLVENT EXTRACTION SYSTEM)**

**Specification :**

- programme,
- Data logging with real time clock, Memory stick for data storage with separate port in mother board,
- Auto Phase changeover of 5 stage extraction includes boiling, Condensation, rinsing, solvent recovery & Predrying steps
- Programmable user ID with Programmable scan rate,
- PC software performs Live graphical representation of time / temperature gradient,
- Live process view display of various stages with facility to have print options,
- Software enables multiple unit monitoring with multi user login feature,
- Data table export to excel,
- Automatic sensing of no water condition in condenser with auto alarm & warning signal to alert user.
- Auto deactivation of operation after few minutes of warning on NO-WATER condition in case of user non availability,
- Inbuilt Airpump with SS Manifold for pre drying and solvent cloud evaporation, Automatic collection of recovered Solvent with optical sensor to prevent overflowing of solvent.
- Versatile to handle different sizes of thimble, Extraction beakers & Nitro Cellulose thimble Size : (25 mm dia X 80mm L) and (33 mm dia x 80mm),
- Remote control module for wireless data monitoring, control and transfer to PC at a distance of 10 mtrs from equipment,
- Additional 20 Nos. Extraction Beakers, Micro Thimble Box (25 X 80mm) – 2 Nos. Macro Thimble Box (33 X 80mm) – 2 Nos. Micro Thimble Stand – 2 Nos. & Macro Thimble Stand – 2 Nos. Electrical Requirement:230V/50Hz. AC Mains.

**Refrigerated Water Cooling System to circulate cold water for Condenser requirement in Fat Estimation System**

- Refrigerated Water Cooling Circulating system with digital display of temperature,
- Inbuilt safety features with CE Certification to fulfill all statutory requirement of Good laboratory Practice.
- Auto over temperature protection / Auto Error indication / Auto Sensor Break Protection,
- SS Tank capacity: 10 Litres, Recirculation Pump: Submergible pump,
- Over load protection, Microprocessor based PID Temp. Controller,
- Temperature Range: 10°C to 20°C. MS powder coating housing,

## **Sl. No. 16 - FIBRE ANALYZER**



### **Specification:**

- Automatic Six Place PC Compatible Auto sequencing Fibre Estimation System.
- System for determination of Crude fibre, NDF, ADF, ADL, Cellulose, Hemicelluloses, Lignin,
- Ceramic Infrared Heater.
- TFT Graphic Touch Screen Display.
- Unique wireless mouse to operate touch screen without PC at a distance of 2 mtrs from equipment.
- Direct USB Port for PC/Laptop Connectivity, Integrated auto sequencing time/temperature domain of 70 programs or more with at least 12 sequencing steps in each programme,
- Data logging with real time clock, Memory stick for data storage with separate port in mother board,
- Auto Phase changeover of 5 stage extraction includes boiling, Condensation, rinsing, solvent recovery & Predrying steps
- Programmable user ID with Programmable scan rate,
- PC software performs Live graphical representation of time / temperature gradient,
- Live process view display of various stages with facility to have print options,
- Software enables multiple unit monitoring with multi user login feature,
- Data table export to excel,
- Remote control module for wireless data monitoring, control and transfer to PC at a distance of 30 mtrs from equipment,
- Preheating hot plate for acid / alkali made of Casted aluminium alloy heater with Digital PID Control,
- Independent sample loading with individual mechanical controls,
- Sintered Silica glass Crucible,
- Additional 36 Nos. Crucibles,
- Electrical Reqt: 230V, 50 Hz. AC Mains.

### **Six Sample Cold Extraction System**

- Enables defatting of samples & Extraction at ambient temperature for solvent hydration of fibre residues,
- No sample transfer & no loss of sample since the same crucibles are used for cold extraction unit & hot extraction unit.
- Six place system with modular construction, Stainless steel crucible holder – 6 Nos.
- Nylon bush with adaptors to have intact grip – 2 Nos.
- Mechanical individual drain valves – 2 Nos. Imported Viton drain tube for solvent drain.
- Compact housing with powder coated finish.