

List of equipments for the department of Biochemistry

Sl. No.	Name of Equipments
1	Atomic Absorption spectrophotometer with graphite furnace and accessories
2	High Precision water bath
3	Water Distillation
4	Automatic Phlebotomy tube labeller
5	Laboratory Incubator
6	Micropipette

SPECIFICATIONS OF ATOMIC ABSORPTION SPECTROPHOTOMETER with GRAPHITE FURNACE AND OTHER ACCESSORIES

Main System

- Optics : True Double Beam optical design
- Monochromator: The system should be based on Echelle Grating with 79 lines/mm and optimized for both UV and Visible energy. Slit width should be auto selectable
- Detector : Solid State Detector
- Wavelength Range: 190-900 nm.
- System should have lamp holder with built-in power supply for EDL (or equivalent)
- Air Acetylene & Nitrous Oxide Burner Head
- Oil-free Air Compressor & Nitrous Oxide gas regulator should be offered in the main system directly from the manufacturer of the AAS (local Air Compressor and Nitrous Oxide gas regulator will not serve the purpose)
- All the method parameters related with lamp selection, calibration, control of flow gases should be through integrated software in the system
- The instrument should have programmable gas controls both for air, acetylene, nitrous oxide
- The AAS unit should have built-in touch screen with Windows® like Software for controlling analyzer, setting-up the method parameters, analyzing the samples, performing calibration, etc.
- The system should also have software for PC operation of the system apart from the touch-screen operation
- The unit shall have flexibility of purging the optics so that it can be operated even in demanding atmosphere of laboratory
- All the electronic boards included in a single box so that user can have flexibility to change for replacement.
- Lamps should have built-in code for current, slit width, wavelength and it should automatically optimize for energy. The lamps should be from the same manufacturer as for the main instrument to ensure better system performance
- The Hollow Cathode Lamps / EDL (or super lamp) should be offered - Cu, Fe, Zn, Mn, As, Cd, Hg
- Various safety interlocks like burner head, gas pressure, nebulizer, drain full condition etc. should be integrated inside the system

Mercury/Hydride System

The system should be offered with Mercury/Hydride system for high-sensitivity determination of mercury and hydride-forming elements such as As, Se, Sb, Te, Bi and Sn.

Local Items

- (a) Suitable Exhaust Hood
- (b) 2 KVA Online UPS with 30 minutes back-up (for flame system) // 10 KVA Online UPS with 30 minutes back-up (for flame + furnace system)
- (c) UHP grade Acetylene gas filled cylinder
- (d) UHP grade Argon gas filled cylinder
- (e) UHP grade Nitrous Oxide gas filled cylinder
- (f) Double stage gas regulators for Acetylene & Argon
- (g) PC workstation with B/W LaserJet Printer

Adnan

High Precision Water Bath

Double walled inside chamber & shaking tray is made of Stainless Steel 304 grade.

Temperature Range 5°C to 50°C & is controlled by digital temperature indicator cum controller.

Shaking speed 40-180 RPM & is controlled by speed regulator supplied with one tray of 100 ml flask.

System to work on 220V AC.

Size of Inside S. S. Chamber (H x W x D) 275mm x 275mm x 150mm (9 flask of 100 ml)

IQ/OQ/PQ/DQ certificates

Almer

Water Distillation

Complete unit should be made of stainless Steel with all features like low water cut off device etc.

The apparatus should have improved design by adopting "liquid-level sensor to control water level,

Evaporating drum : Made of stainless steel

Electric control panel : Water level cut-off device

Rubber and sealing ring : Between the boiler & lid

Intake Control valve : For water inlet.

Return water pipe : Made of Stainless Steel

Water Produce 20 Ltrs / Hr

Alum

Specifications for Automatic Phlebotomy Tube Labeler

Sr. No.	Desired Features
1	A Blood Collection Support System that promises Safety, Efficiency and Error free Specimen labeling of tubes in a Blood Collection Unit of a Laboratory/Hospital
2	It can be installed anywhere in the Laboratory without worrying about the design or Layout of the Phlebotomy Room
3	Tray Feed : Manual
4	It is provided with two different compartments from front of the Instrument - Right: for Printer & Labels and Left : for Stocking of Blood Collection Tubes
5	Number of Tube stocker : Total 6 Interchangeable stocking chambers in left side Compartment
6	Each chamber having capacity to store up to 20 tubes
7	Max. number of Tube types supported : 6 different kinds of tubes
8	Tubes can be manually inserted for emergency patient tube requirement.
9	Total Tube Capacity: 120 Tubes.
10	Applicable tube size : Diameter of 12 to 18 mm and length of 75 to 110 mm with stopper.
11	Automatic Tube preparation : Uses one tray for each Patient
12	Number of discharged Tray: At a time 1 trays. Discharge of prepared tray is under control of the Laboratory staff
13	Throughput/hour : 4sec/tube when continuous labeling
14	Automatic tube selection as per test requisition of Each patient
15	Automated Barcode Labeling: It can stick labels precisely at Correct position and the position can be easily changed, (if required) as per the tube size; to adopt to various kinds of downstream analyzers
16	Automatic Patient ID Verification
17	Automatic tube selection
18	Operator can Designate Order of Draw for the tubes
19	Identifies & Prints all the patient related information like Name, Age, Sex, Analyzer type, Ward, Chemistry or Hematology, etc
20	System can dispenses all the tubes and extra labels for the tests like Urine, Sputum or stool; as per patient test requisition, along with the Summary of the work-list (in the form of a patient kit)
21	Weekly/ Monthly Performance Report : System can capture Real time output of every Phlebotomist
22	Workload Data : System can give report on Daily or Monthly Consumption of Tubes, Hourly Phlebotomy Collection numbers, Peak period of collection; and ability to trace sources of Error
23	System Can provide documentation for regulatory purposes and gives Accurate calculation of turnaround time
24	Printing method : Direct Thermal
25	Barcode: Code39, CODABAR, EAN128, Code128, Interleaved 2 of 5, UPCA/E, EAN-8/13, PDF-417, QR Code, Maxi Code, Data matrix
26	System Interfaces with LIS/HIS

Ahm

Laboratory Incubator

Double walled.

Inside Chamber made of Aluminum /S.S. & outside M.S. Sheet P

Thermostatically controlled from ambient to 70°C + 3°C.

Door has double glass viewing. Built 'L' shape thermometer, two pilot lamps, On/Off switch, perforated trays.

Workable on 230 Volts AC. Extra Shelves

Air Circulating fan

Inner Chamber made of aluminum

IQ/OQ/PQ/DQ Certificates

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Micropipette

1. Pipette should be extremely light weight, highly resistant to heat, acids & alkalis with maximum recovery of reagent.
2. *Spring Loaded Tip Cone: Improved ergonomics, Tight fit to the tip (not in 5ml and 10ml pipettes)*
3. *Facility should available to adjust the pipettes for High viscous fluids and high vapor pressure solution.*
4. Control Button: Very low operating force, Colour indicates pipette volume.
5. Ejector: Very low operating force, positioned for perfect ergonomics.
6. *It should be IVD Conformation and CE certified.*
7. Volume Display: 4 Digits. Magnifying shape.
8. *Piston System: Ultra light system made up of Fortran.*
9. Quick Connection Clip: Remove lower part easily.
10. Fully Autoclavable
11. *Pipette Calibration facility should be available and accredited by NABL(National Accreditation Board for Testing & Calibration Laboratories)*
12. Volume range:- 0.1– 2.5 micro liter , 0.5–10 micro liter , 2–20 micro liter , 10-100 micro liter , 20–200 micro litre, 100–1000 micro liter, 0.5–5ml , 1–10ml

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