

[LSC]

**DEPARTMENT OF LIFE SCIENCES,
UNIVERSITY SCHOOL OF SCIENCES, GUJARAT UNIVERSITY
(F.O.R. Department, 3 years Extended Warranty (1/2+2 years CAMC from principals))**

1. 2D Gel Analysis with Software and western Blot attachment:

2-D Gel electrophoresis Unit: 2-D Gel Electrophoresis should be useful for proteomics study. System should be capable of separating biomolecules quickly and effectively. System should deliver purified proteins, nucleic acids, and other biomolecules for sequencing, antibody production, crystallography and other applications etc. System should include: Isoelectric focusing unit with compatible power supply, focusing trays with lids, forceps and other necessary accessories for basic unit,

Isoelectric focusing unit (IEF): System should be capable of running 7-24 cm IPG strip, various lengths in single system. Various lengths viz: 7, 11, 17 and 24 etc.

- Current should be monitored in each IPG strip; Capacity 12 strips per tray,
- Temperature controlled platform, power mode should be constant, real time clock; System should include power supply; Output voltage 12,000V with 1V increment; Current 0-2.5mA, Power approx. 0-25W; Voltage ramping profile should be slow, linear. Platform; Voltage profile: slow, linear etc. Temperature 10-25°C,
- Device should be programmable viz: Rehydration and focusing time, platform temp., and current limit per IPG etc.

SDS PAGE Electrophoresis unit: The SDS PAGE unit should include casting stand, spacers, combs, central cooling core, buffer chambers (lower and upper), lid with cable and other necessary accessories.; 1. System should be capable of running 16x16 cm, 16x20 cm size of gels, 2. System should accommodate at least 17 cm IPG strip, 3. Device should accommodate handcast and precast gel, 4. System should run more than 100 samples at a time, 5. Temperature should be uniform during running gel and central cooling must be provided, 6. System should accommodate denaturing and native polyacrylamide gel, 7. System should be user friendly for handling.

Power Supply: Should attempt to maintain the selected voltage by automatically adjusting the current flow; maintain the user selected current flow by automatically adjusting the voltage supplied, 1. Maximum power 500W, Timer 0-999 min, 2. Input Voltage: 100-240V, freq. 50/60HZ, 3. Voltage 10-500V in Volts, current 0.01-500mA; 4. Output mode of voltage and current should be constant. 5. System should be programmable, 6. System should be capable of leakage and load detection, 7. System should have over load and short circuit protection, 8. Operating temp from 0-40°C, 80-90% humidity, 9. LED display system.

Software: 2D Gel analysis software with all the recent features

2. Water purification system (A Pre-filtration Kit (3-Stage))

The Water System should be an integrated system that can produce ultrapure and reverse osmosis (RO) water from tap water directly. Quality of ultrapure water produced should meet or exceed ASTM, CLSI, CAP, and ISO Type I water standards. It should deliver a minimum of 10 litres per hour of 18.2MΩ-cm water.

The unit should be supplied with Water Softener kit with output capacity of 20Ltrs./Hr with AC Tank & AC Filter.

A Prefiltration kit (3-stage) comprising of *Polypropylene Depth Filter, 10 in, 1 µm,*

Polypropylene Depth Filter, 10 in, 10 µm, & Activated Carbon Cartridge, 10 in, should be supplied to protect the system from gross impurities.

Electrical and water compartments are completely segregated, thus safer to operate.

- The fully automated control system contains pre-rinse, RO membrane fouling preventing flush, RO membrane and cartridge life monitoring as well as many other programs for convenient operation.
- The pre-rinsing program should start automatically when a new RO membrane is installed.
- The system should have Two sets of dual-column purification cartridges to work sequentially to ensure thorough removal of ions and organics in water.
- The system should recirculate automatically every hour to prevent microbial from growing.
- Resistivity should be measured by a high-precision resistivity meter.
- Users can set water dispensing time for easy water collection.
- The system should be equipped with a 30-liter PE tank(upgradable to a 60-liter) with tank vent filter with CO2 scavenger and a liquid level sensor.
- A 0.2 µm final filter and ultrafiltration filter should be quoted optionally.

Product Water Flow Rate

Ultrapure water (Type I) - Typically 1.5 L/min (at 25°C); Typically 10 L/h (at 25°C, RO water

Product Water Quality

Resistivity - >18.2 MΩ.cm at 25°C; TOC - <10ppb** (<5 ppb with a dual wavelength UV lamp)

Particles in Ultrapure Water (>0.2 µm) - < 1 /mL (with a 0.2µm final filter); Microorganisms - < 1 cfu/ml (with a 0.2µm final filter); Pyrogens (endotoxins) - < 0.001Eu/ml (with a terminal ultrafiltration cartridge)

3. Freezing and Cooling Systems

Microprocessor controller with digital display; Adjustable High/low temperature alarm; Door open alarm; Frost free, Forced air cooling; Adjustable shelves- Shelve : 4 or more; Capacity :1000 Liters or More than 600 Ltrs; Temperature Range :1°C ~ 8°C, Lock : Yes; Wheels : 4 (All)
Energy Consumption: **VC in 10.8 units/24Hrs**; Provision for in built power supply for small equipments

4. Research Grade Trinocular Microscope with Phase Contrast & Digital Camera.

Research Trinocular Microscope with infinity Corrected optical system, Built in transmitted Koehler Illuminator, 6V 30W halogen illumination system with Built in four position filters for day light & neutral density, preset switch for auto adjustment of light for CCD. Quintuple revolving nose piece with inwards tilt.

Wide field Trinocular Head- 3 position prism for 100% viewing, 20% - 80% for viewing & observation & 100% for camera port with Wide field paired 10X eyepiece.; C-Mount Adaptor: 1X/0.63X

Coarse & fine focusing knobs with one micron graduation, Ceramic coated coaxial stage, upper limit stopper tension adjustment on course focusing adjustment knob, Double slide holder , Equipped with rubber grip;

Condenser with N.A. 1.1 for Bright Field / Dark field & Phase contrast Microscopy. Phase-contrast observation from 10X to 100X and dark field observation from 10X to 40X should be possible.

Objectives – Quintuple revolving nose-piece with inverse tilt; Plan Achrom 4X, Plan Achromat Phase 10X with N.A 0.25, Plan Achrom Phase 20X, with .4 NA, Semi Achromat Phase objectives 40X with N.A. 0.75, & Semi Achromat Phase objectives 100X with 1.3 N.A.

Camera: CCD sensor: 2/3"5.0 Megapixel Color CCD, Active area: 8.8 mm × 6.6 mm

Sensor resolution: 2580 × 1944 pixel; Pixel size: 3.4 μm × 3.4 μm; A/D conversion: 3 × 12 Bit RGB

Pixel clock: 12 MHz | 18 MHz; Dynamic range: 61 dB | 60 dB; Max. Exposure: 180 s; Frame rate (image size): 21 fps (644 × 490); Image resolution: Standard- 2580 × 1944; Progressive Scan: 644 × 490 and 1290 × 972, Binning: 2×, 3×, 4×, 5×; Digital interface: IEEE1394a Firewire

Ambient conditions: Temperature: +5 °C ... +35 °C; Humidity: 5 % ... 80 %, not condensing; Software: Capture software

5. Microplate spectrophotometer for Nano-drops

Read method: Endpoint, kinetic, spectral scanning, well area scanning; It should be able to run spectral scans of 2 μL samples, or samples,

Low Volume Plate: The low volume plate should be capable of measuring up to sixteen 2 μL samples for rapid nucleic acid or protein quantification. It should be also capable of measuring two miniature cuvette and at least one standard cuvette.. The plate should be re-usable and have low maintenance. The fused silicon slides should be easily removable and replaceable.

Microplate types: Should be capable of reading 6-, 12-, 24-, 48-, 96- or more well plates

Light Source: Xenon Flash Lamp, Lamp life 1 billion flashes

Wavelength range: 200 nm – 999 nm, selectable in 1 nm increments through tunable grating monochromators.

Bandpass – 5 nm; Dynamic range – 0 to 4.0 OD; Resolution - 0.0001; Monochromator wavelength accuracy – ±2 nm; Monochromator wavelength repeatability – ±0.2 nm; Reading speed – 96-well Normal: 49 seconds; 96-well Rapid: 38 seconds; 96-well Sweep: 15 seconds

Software

Single integrated windows based software for Reader control and data analysis with at least 5 user licenses should be supplied with the instrument. The software should be able to analyze the data and perform all the calculations. Power – 100 – 240 VAC, 50-60 Hz, Consumption < 40W; Regulatory – Instrument should be CE and NRTL Safety Agency marked.

6. UV Visible Spectrophotometer*:

Required microcontroller based single/ double beam scanning instrument. Should provide the % transmission, Absorbance and Concentration mode scanning with single, multiple and spectrum scan option. It should cover 200-1100nm full scan option, bandwidth ±1nm and good accuracy. The instrument operation and data processing should be on Board with good large quality digital display., Grating: 1200 lines/mm, Spectral Band Width: 0.5 to 4nm, Resolution: 0.2 or better, Stray light at 220nm: 0.01 or better, Wave length accuracy: ± 0.3 nm, Wavelength reproducibility: 0.008 nm, Scan Rate: 500nm or more/min, Pre-aligned tungsten-halogen and deuterium, Photometric accuracy: ± 0.001 A 10.Cuvettes: 3 ml, 1ml, 0.4-0.75ml(1 each), Detector: Photo Multiplier Tube (PMT), To conduct experiments for quantitative estimations of bio molecules for plant, animal and microbial biochemistry as well.

7. Visible Spectrophotometer*:

Microprocessor based, Wave Length Range: Full Visible range (350 – 900nm), Grating: high, Spectral Band Width: 0.5 to 4nm, Resolution: 0.2 or better, Wave length accuracy: ± 0.3 nm, Wavelength reproducibility: 0.01 nm, Scan Rate: 500nm or more/min, Pre-aligned Halogen lamp Photometric accuracy: ± 0.001 A 10; Detector: Photo Multiplier Tube (PMT), It should have % transmission, Absorbance and Concentration mode scanning with single, multiple and spectrum scan option. The instrument operation and data processing should be on Board with good quality digital display.