

## **[ZOO]**

### **Department of Zoology, Gujarat University.**

#### **1. Student Binocular Microscope:**

Bright Field Microscope for cytological and histological assessment for teaching and research – have features like Kohler Illumination, 4X, 10X, 40X & 100X Oil Immersion, 10X & 15X Positive Eye piece WF. Well-known brand preferred.

#### **2. Visible Spectrophotometer:**

Microprocessor based, Wave Length Range: Full Visible range (350 – 900nm), Grating: high, Spectral Band Width: 0.5 to 8nm, Resolution: 0.2 or better, Wave length accuracy:  $\pm 0.3$  nm, Wavelength reproducibility: 0.01 nm, Scan Rate: 500nm or more/min, Pre-aligned Halogen/Tungsten lamp Photometric accuracy:  $\pm 0.001$  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.

#### **3. 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 exceeds ASTM, CLSI, CAP, and ISO Type I water standards. It should deliver minimum 10 litres per hour of 18.2M $\Omega$ -cm water.

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

#### **4. Digital Analytical Balance**

Capacity: 220 gm with internal calibration

Readability: 0.1 mg

Repeatability: 0.1 mg

Linearity: 0.2 mg

Pan size: 90 mm

Setting time: 2 sec

Used material: PVC and mercury free

Overload protection up to 100 kg.

#### **5. 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 0.4 NA, Semi Apochromat Phase objectives 40X with N.A. 0.75, & Semi Apochromat 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 and computer system: Desktop computer (Essential configuration: RAM= 4GB, Hard Disc=500GB. Processor= Intel generation4 -i5, Operating system Win 7) along with Capturing software

#### **6. Magnetic Stirrer with Hot Plate and magnet sets**

Capacity: 2 lit.

Digital speed indicator

Stainless steel hot plate

RPM: 1200

#### **7. Vortex Mixer**

Type of movement: orbital

Operating mode : continuous and touch

Accessories: tube adaptor for 18 hole test tubes, and platform pad for tubes and small vessels

#### **8. Cryo Cans (Liquid nitrogen containers):**

Evaporation rate – Not more than 0.3 Liters/day

Capacity – 35 Liters

Number of racks – 6; Number of shelves/rack – 5; Total approx. 750 vials of 2 ml capacity should be stored; Square box with 25 vials/box

Static holding – minimum 100-120 days.

#### **9. Air Purifier:**

Suitable for room size of 600 ft<sup>2</sup>. Clean air delivery rate (CADR) – more than 400 ft<sup>3</sup> per minute. With electronic sensors, remote, timer, filter replacement indicator, speed control etc. Price should include filters and other recurrent accessories at least for three years.

#### **10. Refrigerated centrifuge:**

Max. speed – up to approx. 15,000 rpm with minimum temperature upto minus 8°C and following rotors:

1.5 – 2 ml tubes – Angular – 1 No.

15 ml tubes – Angular – 1 No.

15 ml tubes – Swing out – 1 No.

**11. Waterproof pocket pH tester – with pointed tip.**

pH Range 0-14; Resolution 0.14 pH; Accuracy -  $\pm 0.01$  pH; LCD display; battery operated. Suitable for solid, semi-solid and liquids upto 0.5 ml.

**12. Micro safe Biosafety Cabinet Class II Type B II.**

Floor Top Model (With Stand); Dimension: 28 Inch X 24 Inch X 24 Inch;  
Work Surface – Complete Stainless Steel; Airflow Working – 100 % Exhaust with duct;  
Filter Type – HEPA filter with typical efficiency 99.99% at 0.3 micron;  
Germicidal UV light with programming; Fluorescent light illumination of work space; UV & Fluorescent lights with On & Off switches; Manometer for static pressure monitoring;  
Air velocity 100ft/min; Cost for extra ducting should be quoted in per ft. or meter. Second stage HEPA filter for exhaust is also preferred.

**13. CO<sub>2</sub> Incubator:**

CO<sub>2</sub> incubator with 150L – 200L capacity, air-jacket system, automated decontamination facility with wet heat or dry heat facility, UV Lamp, HEPA?ULPA filters, in-built in-line 0.2 micron filters for gases, humidity display, air-tight indoor, minimum 4 shelves expandable to 6-7, sample port, anti-microbial coating, CO<sub>2</sub> gas cylinders, gauges/regulators and all necessary accessories for installation and functioning.

**14. Digital pH meter:**

Digital pH meter having pH range: 0.00 to 14.00 units, Temperature Range: 0 to 100°C, pH Resolution: 0.01 units, pH Accuracy:  $\pm 1$  unit within 10 °C of calibration,  $\pm 0.2$  unit within 20 °C, pH Buffer Recognition: USA (4.01, 7.00, & 10.01) or NIST (4.01, 6.86, & 9.18), pH Calibration Temperature: 0 to 60 °C.

**15. Hot Air Oven:**

Temperature range: 5°C Above ambient to 250°C with Accuracy:  $\pm 1^\circ\text{C}$ , the gap between inner & outer walls of chamber is filled with high grade mineral glasswool of thickness 4", which ensures maximum thermal efficiency, Electronic Timer with audio alarm, No. of trays: 4 – 6.

**16. UV-visible Spectrophotometer system with PC and Printer:**

Wavelength Range (190-1100nm), Built in automatic 8 cell changer, Variable Bandwidth (0.5, 1.0, 2.0 & 5.0 nm), Wavelength display (0.01nm increment), Wavelength accuracy ( $\pm 0.1$  nm), Wavelength Reproducibility (0.1nm), Noise Level (0.000005 Abs), Stray Light (<0.05%), Micro cells (Accommodable), Built in Nucleic acid, Proteins and 3D software, Control (Stand alone as well as PC), Pharmacopoeia software for Drug analysis and other software for biological applications, A Pair of 10mm Quartz cells, A pair of 0.5 ml quartz cells.

**17. Low Temperature Incubator:**

General purpose laboratory incubator. Temperature Range – Ambient to 50 - 60°C max. Should be provided with PID Temperature Control and Natural convection heat distribution. Chamber size 18"l x 18"w x 18"h. Double wall construction, fiberglass insulation provided on 5 sides as well as between inner and outer walls, and silicon rubber door sealing to reduce heat loss and power drain. Stainless-steel chamber, semicircular arcs at corners for easy cleaning, and the space between the shelves in the chamber is adjustable. Internal door should be clear and chemical and heat resistant. Stainless steel interior chamber and shelves are corrosion resistant, durable and easy to clean.