Sealed quotations are invited for the procurement of the following items under the DST-FIST Scheme. Apply within 15 days of advertisement. Quotations are to be addressed to The Principal, DST-FIST lab, DAV College, Sector 10, Chandigarh.

List of items with Specifications

1	**B.O.D. Incubator** ➢ PID Microprocessor digital controller display. ➢ Display: Digital display of temperature in degree having accuracy ±0.5°C ➢ Inside Material: SS-304 mirror polished. ➢ Outside Material: Mild steel duly powder coated. ➢ Temperature: 5° to 60°C ➢ Accuracy: ±0.5°C Modular ➢ Temperature uniformity: ± 2.0°C ➢ Capacity: 10 Cuft, ➢ Trays: 3 nos made of SS-304 perforated removable stainless steel shelves. ➢ Air circulation fans motor F.H. & blower fitted (two) ➢ Insulation: 75 mm thick PUFF insulation ➢ Heating System: U-shaped S.S. Nichrome wire air heater. ➢ Refrigeration System: Compressor with CFC free. ➢ Observation Door: Inside observation glass door. ➢ Trays: 3 Nos. ➢ Warranty: 12 months from the date of installation. ➢ Castor wheel ,MCB adjustment , tray height arrangement, heavy duty latches & imported hinges ➢ Recommended 2 KVA stabilizer. ➢ Power supply: 220 VOLTS, 50Hz single phase AC supply. ➢ Model: MBI-50
2	**Serological Water bath** ➢ Microprocessor Based PID controller digital temperature maintains maximum temperature accuracy. ➢ Stainless steel bath for superior durability & high thermal efficiency. ➢ Stainless steel LID. ➢ Doubled wall construction. ➢ Drain plug. ➢ Temperature ambient +5°C to 100°C, ± 0.5°C ➢ Size: 300x250x175 mm (LxWxH) ➢ Capacity: 14 ltrs (Nos. of racks:2) ➢ Heating load: 1.5 KW ➢ Stirring device (optional)
3.	**Electronic Weighing Balance** **<u>Specifications for Digital Precision Balance, 3 decimal (1mg)</u>** * Balance should have Internal Built-in Internal Calibration Technology at a keystroke * Balance should have max capacity of 220 gram. * Weighing Platform size should be min. 120mm or more * Balance should have Readability and Linearity of 1mg

	* Balance should have built-in application for Formulation, Dynamic Weighing, Totaling, Piece Counting, Density, Percent Weighing, Statistics, etc. * Should have fast Settling time of 2 secs or less, for better reliability * Should have front feet leveling only and also front bubble leveler only * Balance should have large clear brilliant white backlit LED display, easy to read out * Balance should have 3 –sides (top/ left/right) easy glass opening sliding doors with bigger draft shield height. * Balance should have standard 9-pin RS-232 Comm. port for easy interface and connectivity to printer or computer. * Supplier must enclose Authorized Channel Distributor Certificate for supplying& Servicing of Goods * State-of-the-art weighing technology to ensure Date and Time, stable and accurate results * Should have reinforced body with solid metal base and overload protection up to 100kg **<u>Specifications for Digital Precision Balance, 2 decimal (0.01g)</u>** * Balance should have External Calibration Technology at a keystroke * Balance should have min. capacity of 600 gram or more. * Weighing Platform size should be round 160 mm * Balance should have Repeatability, Linearity of 0.01g throughout the range. * Should have fast Settling time of 1-2 secs or less, for better reliability * Should have front feet leveling only and also front bubble leveler only * Balance should have large clear brilliant white backlit LED display, easy to read out * Balance should have standard 9-pin RS-232 Comm. port for easy interface and connectivity to printer or computer. * Should have provision to be operated on Battery also * Supplier must enclose Authorized Channel Distributor * Should Come With Stackable Cover **<u>Specifications for Analytical Weighing Balance in 0-220 g capacity, 4 decimal (0.1mg)</u>** * Balance should have Internal Built-in Internal Calibration Technology at a keystroke * Balance should have max capacity of 0-220 gram * Weighing Platform size should be min. 90mm dia. * Balance should have Readability, Repeatability, Linearity of 0.1mg throughout the range. * Balance should have built-in application for Formulation, Dynamic Weighing, Totaling, Piece Counting, Density, Percent Weighing, Statistics, etc. * Should have fast Settling time of min. 2 secs, for better reliability * Should have front feet leveling and front bubble leveler only * Balance should have large 18mm digits with clear brilliant white backlit LED display, easy to read out * Balance should have 3 –sides (top/ left/right) easy glass opening sliding doors with bigger draft shield height of 235mm. * Balance should have standard 9-pin RS-232 Comm. port for easy interface and connectivity to printer. * Supplier must enclose Authorized Channel Distributor Certificate for supplying in Punjab & List of Users to whom it is supplied as local after- sales-service support is a must, being an educational institution. * State-of-the-art weighing technology to ensure Date and Time, stable and accurate results

	* Robust all-rounder Balance to support user daily tasks with intuitive operation and fast results * Should have reinforced body with solid metal base and overload protection up to 100kg * Operating Temp: ambient to 45deg C, Power supply: 230V, 50Hz. With Operating Manual, Certificate of Conformity CE. * Warranty certificate of at least 0ne year or more from the date of installation. * Supplier must enclose Authorized Channel Distributor Certificate for supplying & Servicing of Goods
4	**Conductivity Meter:** ➢ u Controller Based Conductivity Meter with cells ('1.0 CC & 0.1 CC) and Temp. probe. ➢ Measurable Conductivity: Range selection through a switch ➢ Maximum of measuring Range for conductivity (mS/cm): 200 ➢ Resolution (µS/cm): 0.001 ➢ **Display type:** 3 and half digit LED display ➢ **Accuracy: (in +/- %))** ➢ **Cell Constant: 1.0 & 0.1 CC**, ➢ **Details of All other accessories to be supplied along with the meter**, with cells ('1.0 CC & 0.1 CC) and Temp. probe. ➢ Dimension: 250x205x75 mm (WxDxH) ➢ Weight: 1.25 Kg. ➢ Power: 230V, 50Hz, single phase.
5	**Hot Air Oven** ➢ **Capacity: Ltr (455 x 455 x 605 mm)** ➢ **Capacity In Ltr: 125** ➢ Double Walled outside cover epoxy coating MS steel & Inner chamber 304 Stainless steel ➢ Insulation mineral wool at **least 75 mm**, ➢ **PID Digital Temperature Control: ambient +5°C to 250°C, ± 1°C,** ➢ Air circulating fan for uniform temperature through out ➢ Control panel with indicator ON/OFF switch. The heating element in ribs at bottom & sides ➢ Air ventilation on the sides 2- shelves be perforated, adjustable SS 304 ➢ Two indicators for ON/OFF switch, ➢ Trays wire mash nickel plated. ➢ Elements place on side wall & bottom. ➢ The Door synthetic rubber gasket of Nitrile/silicone ➢ Power Supply: 230V,50Hz AC
6	**<u>Magnetic Stirrer with Hot Plate</u>** ➢ Digital speed indicator. ➢ Capacity: 2 ltr ➢ Heater capacity W: 300 ➢ Hotplate surface temp.: 200°C ➢ Dimension: 165x165x140 (WxDxH) mm ➢ Stirring Paddel: 8x35 ➢ Weight: 2.9 Kg ➢ MDC Motor. ➢ Soft touch key pad for speed, time & temperature.

7	**<u>PH meter</u>** pH range: 0...14 pH: -2.000 to 16.000(Instrument capability) Resolution of ph. measurement should have 0.01 Accuracy of ph. Measurement should be ±0.002 Temperature range of instrument -5 to 130°C, Temperature control should be Automatic and manual Accuracy of Ph. meassurement should be ±0.1 °C Must have both 3 points and 5 Points Calibration Buffer groups should be selected as 5 pre-defined and 1 user-defined Temperature capture should be Automatic and manual Instrument should have option to operate in Routine mode / expert mode Data storage capacity should be 200 measurements in instrument Communication interfaces should have RS232, USB port. Display should be LCD with Beep . Keypad should be Membrane keypad type made up of Polyethylene terephtalate (PET) Should have Ingress protection as per IP54 * Supplier must enclose Authorized Channel Distributor Certificate for supplying & Servicing of Goods Supplier Should Provide 3in1 ph Electrode . Should be Compact Design So, that All Stands , Electrode Arm can be placed inside the instrument
8	**Mini Centrifuge** ➢ Speed: 3000-10000 rpm ➢ Max RCF: 5460xg ➢ Running Mode: Timing/continuous ➢ Timer: 1s - 99 min. ➢ Rotors: 1.5/2 ml ➢ Noise Range:< 50dB ➢ Voltage: AC220, 50/60Hz ➢ Dimension: 195 x 170x 135 (LxWxH) mm ➢ Weight: 0.8Kg
9	**Vortex Mixer (Cyclo mixer)** ➢ speed control. The unit is also provided with an attachment for multiple tube holder-
10	**Water Analyser Kit:** Micro controller based Measure: pH, mV/ORP, Conductivity/TDS, Salinity, Dissolved Oxygen, Temperature, Colorimeter & Turbidity Meter pH: 0 to14.00 pH, Resolution: 0.01pH, accuracy: ±0.01± 1 digit Sensor combined electrode mV/ORP: Range: ±1999 mV, Resolution: 1mV, Resolution:±1mV,±1 digit, combined electrode Conductivity TDS: Range: 0- 100mS (5 ranges), 0 ppm to 100 ppt (5 ranges) at TDS factor: 0.5 app. TEMPCO 2%, sensor conductivity cell Salinity: 0-40 ppt, resolution: 0.1ppt, accuracy: ±2% FS± 1 digit. Dissolve Oxygen: 0 to 20 ppm, resolution: 0.1 ppm, accuracy: ±1% of FS ±1 Temperature: Range: 0-100°C, Resolution: 0.1°C, accuracy: ± 0.5°C, ±1digit PT-100 sensor.

	Colorimeter: Ranges: 0 to 2.00 Abs, 0-100% T, Conc.0-1999, acc:± 0.05Abs, Resolution: 0.001Abs/ 0.1% T Turbidity: Range: 0-1 NTU, 0-10 NTU & 0-100NTU, accuracy: ±2% of FS, sensor: Photodiode Display: LCD 2 line 20 character alphanumerical Power: 230V, 50Hz Dimension: 420(W) x 520(D)x 175 (H) Weight: 9 kg (app.)

11	**Heating Mantle with stirrer** ➢ Thermally insulated, electrically ground and power coated metal body. ➢ Energy 7 speed control. ➢ Stainless steel top plate for corrosion resistant handling. ➢ Quick clamp feature for easy heating elements replacement. ➢ Flask capacity: 500 ml. ➢ Flask diameter: 105 mm ➢ Temp.; ambient + 5°C to 450°C ➢ Speed: 200-2200 rpm. ➢ Exterior dimension: 225x175x150 mm (WxDxH) ➢ Power: 200W
12	**SPECIFICATION FOR ADJUSTABLE SINGLE CHANNEL PIPETTES** • Spring Loaded Tip Cone for connecting tips very tightly • Adjustment opening for adjusting pipettes to a specific liquid and volume. • Control Button with very low operating force, Color indication for pipette volume. • Tip ejector with very low operating force, positioned for perfect ergonomics. • Volume Display: 4 Digits with magnifier. • Perfect Piston System made out of Fortron. • Very easy removable lower part for cleaning pipette • Fully Autoclavable • No discoloration upon UV irradiation • 3Years Warranty • Volumes includes 0.1-2.5ul/ 0.5-10ul/ 10-100ul/ 2-20ul/ 20-200ul/ 100-1000ul with pipette carousel (stand for 6 pipettes) – 2 quantities each • Tips of volume 10ul – 2 quantities, Tips 200ul – 2 quantities, Tips 1000ul – 2 quantities
13	**Student Microscope Binocular** ➢ Optical system: Semi plane achromatic optics with anti fungal treatment. ➢ Eye piece: WF 10x (18 mm) paired eye piece. ➢ Inclined observation Head: Binocular 45° inclined, rotatable through 360°. ➢ LED light source. Objectives: 10x, 40x,100x (oil /spring)
14	**Gel Rocker Platform rocker** ➢ Max rpm: 20 ➢ Speed control ➢ Plate Form Size: 25x25 cm ➢ Weight: 4 Kg app.

	➢ Dimension: 30x30x11.5 cm ➢ Plate form material with non slip rubber mat in a gentle see-saw motion. ➢ Motor: DC ➢ Power supply: 230V, 50/60 Hz.

15	**Bi Prism Experiment:** Bi prism experiment on optical bench – to determine the wavelength of a sodium light.It consists of: 1. Optical bench with 3 transverse saddles and 1 fixed saddle. 2. Adjustable slit with mounting rod. 3. convex lens of short focal length with lens holder 4. micrometer eyepiece with mounting rod 5. fresnel's Bi prism with universal holder 6. Sodium lamp with choke and box.
16	**Quink's Tube Experiment:** Complete appts consisting of electromagnet of 7.5 Kg. strength with its Digital Power supply variable 0-4 amps. Digital Gauss meter 0-20K Gauss. Graduated Quink's tube With wooden stand.
17	**Four Probe Experiment**: Instrument comprising of a constant current power supply having 3½ digit 7 segment LED with auto polarity and decimal indication and digital Millivoltmeter of 0-200 mV and 0-20 mA, having four probe arrangement for Ge Crystal (Ge. Crystal Mounted with Spring Loaded connections), a Ge Crystal, an oven and a thermometer
18	**Newton's Ring Apparatus:** A specially designed for Newton's Ring experiment. It can also be use in Various positions. The bed is of cast iron and carries the machined guide ways. The sliding carriage is provided with micrometer slow motion and travels in one transverse. Microscope tube is fitted with achromatic objectives and focusing is provided with rack and pinion.
19	**Spectrometer:** A precision spectrometer having Vernier scale compartment to take reading. Spectrometer having 6" bed with brass pipe coli meter, a brass vernier scale having per minute least count with diffraction grating
20	**Diode Laser:** Laser Source 5mW (Semiconductor Diode Laser). With power Supply and Optics fitted for Beam Expender, workable 220volt 50Hz. Direct mountable on optical bench.

21	**Planks Constant Apparatus:** 1. Photo Sensitive Device (Vaccum Photo Cell) 2. Light Source Halogen Tungsten Lamp . 3. Colour Filter set of Five:- Blue, Green, Yellow, Orange , Red . 4. Regulated Output power supply, Input 220v. 50Hz. 5. 3.5 Display Digital 7 segment LED, Volts and Current Independent.
22	**Hall Effect Appts**: The set up consists of Electromagnet of 7.5 K.G. power supply for Electromagnet 0 -6 amp with meter, Germanium crystal mounted and digital constant current power supplywith two meters 0-200 mV and 0-20mA Halls Voltage and crystal current. Gauss MeterDigital 0-20K gauss with hall probe and two wooden stands.
23	**Rydberg Constant:** Apparatus consists of power supply with stand and tube fitted in a box, a good quality spectrometer and a imported grating for the experiment.
24	**SUBMARINE ELECTROPHORESIS SYSTEMS** ➢ Mini Sub System: Small model gel size 10 x 7 cm (for 8 samples) ➢ Digital PS 100: EPS 300 Model ; 0-300 V; 0-100 mA ; Variable with timer Constant Current ; Constant Voltage ; Digital display
25	**VERTICAL SLAB GEL ELECTROPHORESIS SYSTEMS** ➢ Vertical Mini Gel System: Mini model gel size (8 x 7) cm, (HxW) for 7 samples ➢ Digital PS 100: EPS 300 Model ; 0-300 V; 0-100 mA ; Variable with timer Constant Current ; Constant Voltage ; Digital display
26	**Automatic Melting Point Apparatus** ➢ The range of the apparatus is from about 2°C above room temperature upto 300°C, with readability 1°C. The apparatus is supplied with 175 ml. silicon oil for use upto 300°C and a box of The unit consists of a built in magnetic Stirrer ➢ Electronic controller for adjusting the rate of heating of silicon oil bath, an ON/OFF ➢ Switch, a pilot lamp, magnifier, a glare free illuminated background , a HIGH/LOW range selector ➢ switch and a digital temperature indicator with PT-100 sensor
27	**Multi magnetic stirrer** ➢ Plate material: Stainless steel ➢ Plate Dim. In mm: 550x210 ➢ Speed range in rpm: 100- 1500 ➢ Over all dim.: 600x270x110 (width) ➢ Net weight: 7 Kg ➢ Power supply: 230V, 50/60 Hz. ➢ No. of position: 3 x 2 ltr. ➢ Stirring bar: 3x 25 mm PTFE coated.