

DEPARTMENT OF PHYSICS, MRSPTU, BATHINDA.

Specifications

Sr No.	Item Name	Specifications	Qty.
01.	Digital Oscilloscope with LAN/WiFi Connectivity if within cost limit.	- Bandwidth: approx. 50 MHz, Channels: Dual (2), - Sample Rate: 1 G/s, Sample Rate / Relay Time Accuracy: ± 100 ppm, - Display: 7" Color LCD, 800×480 pixels, - Probe Attenuation Factor: 1X, 10X, 100X, 1000X, DC Accuracy: $\pm 16 \pm (3\% \text{ reading} + 0.05 \text{ div})$ for ΔV.DC, DC - Channel Isolation: 50 Hz: 100:1, 10MHz : 40 : 1,- Input Impedance: $1 \text{ M}\Omega \pm 2\%$ in parallel with $20 \text{ pF} \pm 5 \text{ pF}$ Communication Interface: USB host, USB device, Built-in Frequency Counter	01
02.	Measurement of Field strength B and its variation in a solenoid (dB/dx)	- Digital Gauss meter, Range: 0–200, Resolution: 0.1 G, Accuracy: $\pm 0.5\%$, Display: $3\frac{1}{2}$-digit 7-segment LED, with auto polarity, offset Balance: On panel, Maximum Current: 0.5 A, - Two Coils: Diameter 200 mm, Number of turns 1000, Coil Spacing Adjustable: from 6 cm to 87 cm Least Count: 1mm, Constant Current Power Supply current: 0–0.5 A smoothly adjustable Line, Regulator Accuracy: $\pm 0.2\%$ for 10% mains variation, Load Regulator $\pm 0.2\%$ for 0 to full load. Display: $3\frac{1}{2}$ digit 7 segment LED Display., Protection against overload/short current	01

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03.	To set up the Millikan oil drop apparatus and determine the charge of an electron	A pair of horizontal parallel plate electrodes separated by about 5 mm thick ebonite ring with a hole for viewing the oil droplets. The upper plate has a small hole in its Centre for the emission of the droplets which are produce by spraying oil with an atomizer. A device to illuminate the space between the plate electrodes. Three levelling screws at the base of the panel to make the parallel plate electrodes perfectly horizontal (perpendicular to the gravitational field) and a water-level placed on top of the panel to check it. A microscope with CCD camera head to view and transmit image of oil droplets between the plate electrodes to the monitor. A power pack to supply continuously variable voltage in the range 0-800 V to the upper plate electrode when the electric field is to be created between the plates. The lower plate is permanently grounded. A digital voltmeter to measure the potential applied to the upper plate. A 'Time Meter' to display the time for which the oil droplet is allowed to more. A timing device to measure time interval between the passages of droplets through present points. There are two keys to operate this device. Pressing the 'Clear' kay. Wipes out the time information. This is like a reset key. The time meter now reads '00.0' sec. Pressing the 'Start/Stop' key starts the timing device. Pressing it again stops the device. The elapsed time can be read on the meter. A monitor with graduated screen. The horizontal lines on the monitor screen help in setting the distance through which the droplets more. An atomizer to spray droplets. A thermometer to measure the room temperature.	01
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04.	Photo Electric Effect	• Photo sensitive Device: Vacuum Photo Tube, • Light Source: Halogen Tungsten Lamp 12 V/35 W (LED-based illumination combined with narrow-band optical filters) • Color Filters: 635 nm, 570 nm, 540 nm, 500 nm, 460 nm, • Regulated Voltage Power Supply • Output: ± 15 V continuously variable through multi-turn Pot • Display: $3\frac{1}{2}$ digit 7-segment LED • Accuracy: $\pm 0.2\%$, Current Measuring Unit: Digital Nano-ammeter (measure low Current with high stability), • Range: 1000 μA, 100 μA, 10 μA & 1 μA with 100% over ranging facility, • Resolution: 1 nA (1 μA Range), • Display: $3\frac{1}{2}$ digit 7-segment LED, • Accuracy $+0.2\%$	01
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