

The Islamia University of Bahawalpur

Department of Physics

PHYSICS LAB-VI (Phy-01604/Phy-21205)

Theoretical background required for various experiments

Exp. No. 1 Measurement of speed of light in various media by modulation technique

- What is light?
- Various theories related to nature of light
- Lens and its types
- LED(transmitter)
- Photo diode
- Modulation
- Refraction
- Effect of medium
- Refractive index
- CRO

Exp. No. 2 Charge to mass ratio of an electron by fine beam tube method (e/m)

- Why To Study E/M
- Helmholtz Coil
- Fine Beam Tube
- Ammeter, Voltmeter, Rheostat
- Ionization
- Excitation-De-Excitation
- Battery
- Thermionic Emission
- Magnetic Field
- Cathode Rays

Exp. No. 3 Measuring the dark I-V characteristics and efficiency of solar cell

- What is solar cell
- Fill factor
- Dark current
- Working of solar cell
- Solar panel
- Ammeter
- Power Supply
- Lamp its working
- Effect of intensity on working of solar cell
- What is short and open circuit
- Multimeter

Exp. No. 4 Measuring the linear absorption coefficient of lead/aluminum sheets and maximum energy of beta particles by GM tube apparatus

- Linear absorption co-efficient
- Ionization phenomenon (background)
- Excitation
- Radioactivity
 - History
 - Half life
 - Properties of α , β and γ rays
- α , β and γ decay
- GM counter
 - Working
 - Primary and secondary electrons
 - Quenching gas
 - Avalanche/cascade
 - Quenching process
 - Dead time
- Penetration power

Exp. No. 5 Frank-Hertz experiment by using Hg-tube

- Concept of Quantum (Max. Planck's Quantum Theory of Light)
- Excitation phenomenon/Excitation potential
- Ionization phenomenon/Ionization potential
- Bohr's theory (Shell model)
- Information about mercury (Hg)
- Temperature and its scales
- Difference b/w heat and temperature
- Concept of collision of electrons in Hg tube
- Collision and its types

Exp. No. 6 Charge on an electron by Millikan's method

- What is charge?
- What is an electron?
- Electric field
- Electric force
- Terminal velocity
- Drag force
- Stokes law
- Viscosity
- Microscope (construction and working)

Suggested by: Dr. Altaf Hussain

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