# PHYSICS LAB
# {QUESTIONS FROM BEHIND MANUAL}

1. Define energy band gap of a solid.
2. Differentiate metal, semiconductor and insulator based on band theory of solids.
3. Why the conductivity of a semiconductor increases with increase in temperature ?

1. Define Fermi energy.
2. What do you mean by Fermi temperature ?
3. Why the resistance of a metal increases with increase in temperature ?
4. Explain the probability of occupation of electron in the energy states of the metal as the temperature increases from zero Kelvin.

1. What is photoelectric effect?
2. What is work function of the metal?
3. What is the significance of threshold frequency?
4. Whether the kinetic energy of the emitted photo electron depends upon the intensity of the incident electromagnetic radiation?

1. When do you say that an object is a Black body ?
2. State and explain Stefan-Boltzmann Law.
3. 3. As the temperature increases what happens to the wavelength and intensity of the radiation emitted from the black body ?

1. Define resistivity of a material.
2. What is the relation between resistance and resistivity of a material ?
3. What are the advantages of four probe method over two probe method ?

1. Explain Hall Effect.
2. What are the two forces acting on the electron in Hall Effect setup?
3. What do you mean by charge carrier density of a material ?
4. What are the applications of Hall Effect ?

1. What is a transistor? Mention its different modes of configuration.
2. Write diode equation and explain reverse saturation current.
3. What are the applications of transistors?

1. What is LASER ?
2. Define the phenomenon of diffraction of light?
3. What is grating ? Mention grating equation.
4. What happens to the diffraction pattern when the distance between slits within the grating is increased?
5. What happens to the diffraction pattern when the number of slits within the grating (with same grating spacing) is reduced?

1. What is interference of Light ?
2. Why the central spot of Newton's ring is always dark?
3. What is the condition for destructive interference in Newton's rings ?
4. What happens to the fringe pattern if the Newton's ring setup is immersed in water ?

1. When do you say that the light is plane polarized?
2. What is double refraction?
3. Define birefringence.
4. What are the differences between positive and negative crystals?