SAMPLE DESCRIPTIVE QUESTIONS

=> IMPORTANT SHORT ANSWER QUESTIONS

1. Write notes on black body radiation.

2. What are the laws that support Planck's radiation law? Explain any two.

3. Explain the photoelectric effect.

4. State the laws of photoelectric effect.

5. Write the postulates of Planck's law.

6. State Heisenberg's uncertainty principle and Discuss the significance of Wave function.

7. (i) What isBorn's interpretation of wave function?

   (ii) State Bloch's theorem

8. What is Planck’s law of radiation? What assumptions made for Planck’s law?

9. Using Bose-Einstein distribution law obtains Planck’s law of black-body radiation.

10. Define photoelectric effect. State the laws of photoelectric effect.

11. Explain Compton effect. What are its uses?

12. Describe de Broglie’s hypothesis and its consequences.

13. Write a Schrodinger wave equation and explain various terms in it.

14. Derive the Schrodinger’s wave equation for free motion of an electron.

15. Deduce the expression for energy of an electron confined to a potential box of width “x”.

17. Draw & Explain E-k diagram.

18.Explain conductors, semiconductors and insulators with the help of Energy Band diagrams.

=> IMP LONG ANSWER QUESTIONS

1.State and derive an expression for Planck's Radiation Law.

2.Discuss an experiment to prove the existence of matter waves.

3.State and explain Bloch's Theorem.

4.What is meant by the effective mass of an electron? Derive an expression for it.

5. a) What are the factors affecting the photoelectric effect

b) Explain the theory of a Particle in a 1-D box.

6.(a) Explain classical free electron theory of solids and compare it with Sommerfeld's free electron theory.

(b)State and explain the Fermi-Dirac distribution function.

7.Derive an expression for Schrödinger's time-independent wave eqn. Explain the significance of the wave function.

8. a) Explain the Kronig-Penney model.

b) Draw & explain E-k diagram.

9. a) State the laws of the photoelectric effect.

b)Explain the photoelectric effect with the help of a diagram.

10.a) Derive an expression for the energy of the particle in a 1-D box.

b)An electron is bound in 1-D infinite well of width 10^{-10} m. Calculate the energy values in the ground state & two excited states.