One Two academy

Std 12 Physics Unit -8

Time: 60 minutes **Maximum marks: 35**

Choose the correct answer:- ***5 x 1 = 5***

1. The threshold wavelength for a metal surface whose photoelectric work function is 3.313 eV is (in Å) (a)4125 (b) 3750 (c) 6000 (d) 2062.5

2.Emission of electrons by the absorption of heat energy is called _____ emission.

(a) photoelectric (b) field (c) thermionic (d) secondary

3. Two radiations with photon energies 0.9eV and 3.3eV respectively are falling on a metallic surface successively. If the work function of the metal is 0.6eV, then the ratio of maximum speeds of emitted electrons in the two cases will be

(a) 1:4 (b) 1:3 (c) 1:1 (d) 1:9

4.The stopping potential of a metal surface is independent of

(a) frequency of incident radiation (b) intensity of incident radiation

(c) the nature of the metal surface (d) velocity of the electrons emitted.

5.The momentum of the electron having wavelength 2Å is

(a) 3.3×10^{24} kg m s^{-1} (b) 6.6×10^{24} kg m s^{-1} (c) 3.3×10^{-24} kg m s^{-1} (d) 6.6×10^{-24} kg m s^{-1}

Answer *any three* of the following questions:- **3 x 2 = 6**

6. Define the Work function of a metal. Give its unit.

7. State de Brogile hypothesis.

8. Give the application photocells.

9. Calculate momentum of an electron with kinetic energy 2 eV.

Answer any three of the following questions: ***3 x 3 = 9***

10. What is a photocell? Mention the different types of photocells.

11. List out the laws of the photoelectric effect.

12. Derive an expression for de-Brogile wavelength of electrons.

13.A proton and an electron have same de Broglie wavelength. Which of them moves faster and which possesses more kinetic energy?

Answer the following questions: ***3 x 5 = 15***

14. Explain the effect of potential difference on photoelectric current.

OR

How do we obtain characteristic X-ray spectra?

15. Describe briefly Davisson - Germer experiment which demonstrated the wave nature of electrons.

OR

List out the characteristics of photons.

16. Briefly explain the principle of an electron microscope.

OR

Explain the principle, construction and working of photo emissive cell.

All the Best