

Physics

ASSIGNMENT

Single Correct Questions

- The ϕ of a metal is 1eV . $\lambda = 3000\text{\AA}$ is incident on thin metal. The velocity of emitted electrons will be
 (A) 10 m/s (B) 10^3 m/s (C) 10^4 m/s (D) 10^6 m/s
- The photoelectric threshold wavelength of silver is $3250 \times 10^{-10}\text{ m}$. The velocity of the electron ejected from a silver surface by ultraviolet light of wavelength $2536 \times 10^{-10}\text{ m}$ is :
 (Given $h = 4.14 \times 10^{-15}\text{ eVs}$ and $c = 3 \times 10^8\text{ ms}^{-1}$)
 (A) $\approx 6 \times 10^5\text{ ms}^{-1}$
 (B) $\approx 0.6 \times 10^6\text{ ms}^{-1}$
 (C) $\approx 61 \times 10^3\text{ ms}^{-1}$
 (D) $\approx 0.3 \times 10^6\text{ ms}^{-1}$
- Photons of energy 7 eV are incident on two metals 'A' and 'B' with work functions 6 eV and 3 eV respectively. The minimum de Broglie wavelengths of the emitted photoelectrons with maximum energies are λ_A and λ_B , respectively where λ_A/λ_B is nearly
 (A) 0.5 (B) 1.4 (C) 4.0 (D) 2.0
- In a photo-emissive cell, with exciting wavelength λ , the maximum kinetic energy of electron is K. If the exciting wavelength is changed to $\frac{3\lambda}{4}$, then the kinetic energy of the fastest emitted electron will be :
 (A) $3K/4$ (B) $4K/3$ (C) less than $4K/3$ (D) greater than $4K/3$
- The frequency and the intensity of a beam of light falling on the surface of photoelectric material are increased by a factor of two. This will :
 (A) Increase the maximum energy of the photoelectrons, as well as photoelectric current by a factor of two
 (B) Increase the maximum kinetic energy of the photo electrons and would increase the photoelectric current by a factor of two
 (C) Increase the maximum kinetic energy of the photoelectrons by a factor of greater than two and will have no effect on the magnitude of photoelectric current produced
 (D) Not produce any effect on the kinetic energy of the emitted electrons but will increase the photoelectric current by a factor of two