**Q6: The work function of a substance is 4.0 eV. The longest wavelength of light that can cause photoelectron emission from this substance is approximately**

(a) 540 nm

(b) 400 nm

(c) 310 nm

(d) 220 nm

**Solution**

Let $\lambda_m$ = Longest wavelength of light

$(hc/\lambda_m) = \Phi$ (work function)

$\lambda_m = hc/\Phi = (6.63 \times 10^{-34}) \times (3 \times 10^8)/(4.0 \times 1.6 \times 10^{-19}) = 310$ nm

**Answer: (c) 310 nm**