PHYSICS

31. In a LCR circuit capacitance is changed from C to 2C. For the resonant frequency to remain unchanged, the inductance should be changed from L to

(1) $\frac{L}{2}$ (2) 2L

(3) 4L (4) $\frac{L}{4}$

32. The core of any transformer is laminated so as to

(1) reduce the energy loss due to eddy currents
(2) make is light weight
(3) make it robust and strong
(4) increase the secondary voltage

33. In a transformer, number of turns in the primary coil are 140 and that in the in the secondary coil are 280. If current in primary coil is 4 A, then that in the secondary coil is

(1) 4 A (2) 2 A
(3) 6 A (4) 10 A

34. The de-Broglie wavelength of a neutron at 927 °C is λ .What will be its wavelength at 27 °C?

(1) $\frac{\lambda}{2}$ (2) λ

(3) 2λ (4) 4λ

35. A particle is dropped from a height h_0. The de-Broglie wavelength of the particle is proportional to

(1) $h_0^{-\frac{1}{2}}$ (2) h_0^0

(3) $h_0^{\frac{1}{2}}$ (4) h_0

36. If an electron and a photon propagate in the form of waves having the same wavelength. It implies that can they have the same

(1) energy
(2) momentum
(3) velocity
(4) angular momentum

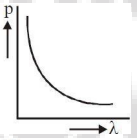
37. The maximum kinetic energy of photoelectrons emitted from a surface when photons of energy 6 eV fall on it is 4 eV. The stopping potential in volt is

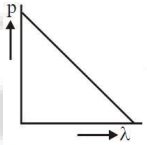
(1) 4 (2) 6
(3) 8 (4) 10

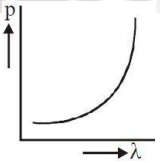
38. Figure shows the variation of photo- current with anode potential for a photosensitive surface for three different radiations. Let I_a, I_b, and I_c be the intensities and f_a, f_b and f_c be the frequencies for the curves a, b and c respectively

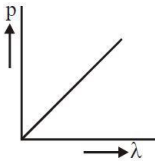
(1) $f_a = f_b$, $I_a \neq I_b$
(2) $f_a = f_c$, $I_a = I_c$
(3) $f_a = f_b$, $I_a = I_b$
(4) $f_b = f_c$, $I_b \neq I_c$

39. Which of the following figures represent the variation of particle momentum and the associated de Broglie wavelength?

(1) 

(2) 

(3) 

(4) 

40. The working function of a metal is ϕ and λ is the wavelength of the incident radiation. There is no emission photoelectrons when:

(1) $\lambda < \frac{hc}{\phi}$ (2) $\lambda = \frac{hc}{\phi}$

(3) $\lambda > \frac{hc}{\phi}$ (4) $\lambda \leq \frac{hc}{\phi}$