

CUET Important Physics Questions (02-05-2023)

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Q.1. A circular coil of n turns carrying current I , and radius R has a magnetic induction strength at its centre as

(a) $B = \frac{\mu_0 n I}{2R}$

(b) $B = \frac{\mu_0 n R}{\sqrt{2}R}$

(c) $B = \frac{\mu_0 n I}{R}$

(d) $B = \sqrt{\frac{2}{3}} \frac{\mu_0 I}{R}$

A.1. (a)

Q.2. The self inductance of a coil having 400 turns is 10 mH. The magnetic flux through the cross section of the coil corresponding to current 2 mA is

(a) 5×10^{-8} Wb (b) 2×10^{-8} Wb

(c) 3×10^{-5} Wb (d) 8×10^{-7} Wb

A.2. (a)

Q.3. A real image of a distant object is formed by a plano-convex lens on its principal axis. Spherical aberration is

(a) absent.

(b) smaller, if the curved surfaces of the lens face the object.

(c) smaller, if the plane surface of the lens faces the object.

(d) same, whichever side of the lens faces the object.

A.3. (b)

Q.4. Resistances P, Q, S and R are arranged in a cyclic order to form a balanced Wheatstone's network. The ratio of power consumed in the branches (P + Q) and (R + S) is

(a) 1 : 1 (b) R : P (c) $P^2 : Q^2$ (d) $P^2 : R^2$

A.4. (b)

Q.5. A circular coil expands radially in a region of magnetic field and no electromotive force is produced in the coil. This is because

(a) the magnetic field is constant

(b) the magnetic field is in the same plane as the circular coil and it may or may not vary

(c) the magnetic field has a perpendicular (to the plane of the coil) component whose magnitude is decreasing suitably

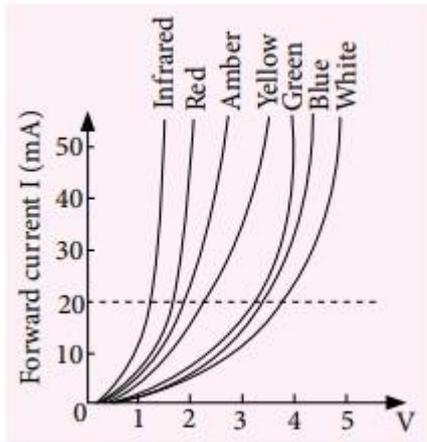
(d) both (b) and (c)

A.5. (d)

Q.6. Read the passage given below and answer the following questions

LIGHT EMITTING DIODE (LED)

Light emitting diode is a photoelectric device which converts electrical energy into light energy. It is a heavily doped p-n junction diode which under forward biased emits spontaneous radiation. The general shape of the I-V characteristics of an LED is similar to that of a normal p-n junction diode, as shown. The barrier potentials are much higher and slightly different for each colour.



I. An LED is constructed from a p-n junction based on a certain Ga-As-P semiconducting material whose energy gap is 1.9 eV. Identify the colour of the emitted light.

- (a) Blue (b) Red (c) Violet (d) Green

A. (b)

II. Which one of the following statement is not correct in the case of light emitting diodes?

- (a) It is a heavily doped p-n junction.
(b) It emits light only when it is forward biased.
(c) It emits light only when it is reverse biased.
(d) The energy of the light emitted is less than the energy gap of the semiconductor used.

A. (c)

III. The energy of radiation emitted by LED is

- (a) greater than the band gap of the semiconductor used
(b) always less than the band gap of the semiconductor used
(c) always equal to the band gap of the semiconductor used
(d) equal to or less than the band gap of the semiconductor used.

A. (d)