



CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-XII

Subject: PHYSICS

Chapter Name : Electro Magnetic Induction (Chap : 6)

Total : 14 Marks (expected) [MCQ(1)-1 Mark, SA-(1)-2 Marks]

Level - 1

MCQ Type :

- In an ac circuit, the instantaneous current is zero, when the instantaneous voltage is maximum. In this case, the source may be connected to :
A. pure inductor
B. pure capacitor
C. pure resistor
D. Combination of an inductor and capacitor
(A) A, B and C only (B) B, C and D only (C) A and B only (D) A, B and D only
- There is a uniform magnetic field directed perpendicular and into the plane of the paper. An irregular shaped conducting loop is slowly changing into a circular loop in the plane of the paper. Then
(A) no current is induced in the loop
(B) AC is induced in the loop
(C) current is induced in the loop in the clockwise direction
(D) current is induced in the loop in the anti-clockwise direction.
- A magnetic field of 2×10^{-2} T acts at right angles to a coil of area 100 cm^2 with 50 turns. The average emf induced in the coil is 0.1 V, when it is removed from the field in the time t . The value of t is
(A) 0.1 s (B) 0.01 s (C) 1 s (D) 10 s

(Hints : C.B.S.E. PMT, D.P.M.T. 2002)

- Which of the following figures correctly depicts the Lenz' law ? The arrows show the movement of the labelled pole of a bar magnet into a closed circular loop and the arrows on the circle show the direction of the induced current.



(Hints : D.P.M.T. 2009)

- A closed coil consists of 500 turns on a rectangular frame of area 4 cm^2 and has a resistance of 50Ω . The coil is kept with its plane perpendicular to a uniform magnetic field of 0.22 W m^{-2} . Calculate the amount of charge flowing through the coil if it is rotated through 180° .
(A) $1.76 \times 10^{-3} \text{ C}$ (B) $7.16 \times 10^{-3} \text{ C}$ (C) $6.71 \times 10^{-3} \text{ C}$ (D) $1.67 \times 10^{-2} \text{ C}$
- A straight conductor of length 0.4 m is moved with a speed of 7 ms^{-1} perpendicular to a magnetic field of induction 0.9 Wbm^{-2} . The induced e.m.f. across the conductor is
(A) 25.2 V (B) 5.04 V (C) 2.52 V (D) 1.26 V

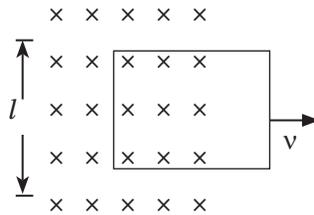
(Hints : JEE (Main) 2023)

7. A wire of length 50 cm moves with velocity of 300 m/min, perpendicular to a magnetic field. If the e.m.f. induced in the wire is 2 V, magnitude of field in tesla is

- (A) 2 (B) 5 (C) 0.4 (D) 2.5

(Hints : Kerala P.M.T. 2007)

8. A conducting square loop of side l and resistance R moves in its plane with a velocity v normal to magnetic field B . When half the loop is outside the field, the induced e.m.f. is



- (A) zero (B) RvB (C) $\frac{vBl}{R}$ (D) vBl .

(Hints : A.I.E.E.E. 2002)

Short Answer (SA) :

1. A wire kept along the north-south direction is allowed to fall freely. Will an emf be induced in the wire ?
2. Why do birds fly off a high tension wire when the current is switched on ?
3. How does the self inductance of a coil change when an iron rod is introduced in it ?
4. Why is spark produced in the switch when it is switched off ?
5. Self induction is called the inertia of electricity. Why ?

ANSWER

1. (D)
2. (D)
3. (A)
4. (A)
5. (A)
6. (C)
7. (C)
8. (D)