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TARGET : NEET (UG) 2024

Course : SARANSH (Youtube Live CRASH COURSE)

PHYSICS
DPP
DAILY PRACTICE PROBLEMS
DPP NO. 2

PHYSICS: EMI

DPP No. : 2

1. Two coils of self inductance 100 mH and 400 mH are placed very close to each other. Find the maximum mutual inductance between the two when 4 A current passes through them

(1) 200 mH (2) 300 mH (3) 100 $\sqrt{2}$ mH (4) none of these

2. In an LCR series a.c. circuit, the voltage across each of the components. L, C and R is 50 V. The voltage across the LC combination will be :

(1) 50 V (2) $50\sqrt{3}$ s (3) 100 V (4) 0 V (zero)

3. Which of the following units denotes the dimensions ML^2/Q^2 , where Q denotes the electric charge?

(1) Weber (Wb) (2) Wb/m^2 (3) Henry (H) (4) H/m^2

4. Tesla is a unit of -

(1) magnetic flux (2) magnetic flux density
(3) electric flux (4) self inductance

5. The formula of the induced emf due to rate of change of magnetic flux passing through a coil will be-

(1) $e = -\frac{d}{dt}(\vec{B}.\vec{A})$ (2) $e = -\frac{d}{dt}(\vec{B}.\vec{A})$ (3) $e = -\vec{A}.\left(\frac{d\vec{B}}{dt}\right)$ (4) $e = -\vec{B}.\frac{d\vec{A}}{dt}$

6. Lenz's law is based on the law of conservation of -

(1) charge (2) momentum (3) mass (4) energy

7. A wire of length 2m is moving with a velocity of 1 m/s normal to a magnetic field of 0.5 Wb/m^2. The emf induced in it will be - $(\ell \perp \vec{v})$

(1) 0.5 V (2) 0.1 V (3) 2 V (4) 1 V

8. When current flowing in a coil changes from 3A to 2A in one millisecond, 5 volt emf is induced in it. The self-inductance of the coil will be -

(1) zero (2) 5kH (3) 5H (4) 5 mH

9. The magnetic flux linked with a coil is given by an equation ϕ (in webers) = $8t^2 + 3t + 5$. The induced e.m.f. in the coil at the fourth second will be

(1) 16 units (2) 39 units (3) 67 units (4) 145 units

10. A coil of 100 turns and area 5 square centimetre is placed in a magnetic field B = 0.2 T. The normal to the plane of the coil makes an angle of 60° with the direction of the magnetic field. The magnetic flux linked with the coil is

(1) 5×10^{-3}Wb (2) 5×10^{-5} Wb (3) 10^{-2} Wb (4) 10^{-4} Wb