One Two academy

Syd 12 Physics Unit -4

Time: 60 minutes		Maximum marks: 35
Choose the correct answer:-		5 x 1 = 5
1. Eddy currents are produced when		
(a) a metal is kept in varying magnetic fields.		
(b) A metal is kept in a steady magnetic field.		
(c) A circular coil is placed in a magnetic field	d.	
(d) Current is passed through a circular coil.		
2.Lenz's law is in accordance with the law of		
(a) conservation of charges	(b) conservation	of flux
(c) conservation of momentum	(d) conservation	of energy
3. When the current changes from +2A to -2A in 0.05 s, an emf of 8 V is induced in a coil. The		
co-efficient of self-induction of the coil is-		
(a) 0.2 H (b) 0.4 H	(c) 0.8 H	(d) 0.1 H
4.In a transformer, the number of turns in the primary and the secondary are 410 and 1230,		
respectively. If the current in primary is 6A, th	nen that in the second	ary coil is-
(a) 2 A (b) 18 A	(c) 12 A	(d) 1 A
5.An inductor 20 mH, a capacitor 50 μ F and a	resistor 40 Ω are con	nected in series across a
source of emf $v = 10 \sin 340 t$. The power loss	s in AC circuit is-	
(a) 0.76 W (b) 0.89 W	(c) 0.46 W	(d) 0.67 W
Answer any three of the following questions	:-	$3 \ge 2 = 6$
6. State Lenz's law.		
7. State Fleming's right-hand rule.		
8. What do you mean by resonant frequency?		
9. How will you define Q factor?		
Answer any three of the following questions:		3 x 3 = 9
10. How is Eddy's current produced? How do they flow in a conductor?		
11. What is step - up and step-down transform	er?	
11. Give the uses of Foucault current?		
12. A step-down transformer connected to the main supply of 220 V is made to operate 11 V,		
88 W lamp. Calculate (i) Transformation ratio		
(ii) Current in the prima	ary.	
Answer the following questions:		$3 \times 5 = 15$
14. Explain the construction and working of a transformer		
OR		
Show mothematically that the rotation of a sol	il in a magnatic field	and and notation induced on

Show mathematically that the rotation of a coil in a magnetic field over one rotation induces an alternating emf of one cycle.

15. Mention the various losses of the transformer.

Give the advantage of AC in long-distance power transmission with an example. 16. Derive an expression for the phase angle between the applied voltage and current in a series of RLC circuits.

OR Prove that the energy is conserved during electromagnetic induction. All the Best