SIR VC RAMAN COACHING CENTRE ,IDAPADI

SUB : PHYSICS,,, UNIT – IV,,, CLASS: Xll

SLIP TEST -4 Date : 14 . 09.2024

Total mark: 20 m Time : 45 minutes

Section – A

Choose the correct Answer (3 x 1 = 3 M)

1. 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, then that in the secondary coil is

(a) 2 A (b) 18 A (c) 12 A (d) 1 A

2. In a series resonant RLC circuit, the voltage across 100 Ω resistor is 40 V. The resonant frequency ω is 250 rad/s. If the value of C is 4 μF, then the voltage across L is

(a) 600 V (b) 4000 V (c) 400V (d) 1 V

3. The magnification of voltages at series resonance is termed as ……..factor.

(a) Q (b) S (c) P (d) none of the above

Answer Any FOUR Questions (4 x 3 = 12 M)

4. State Faraday's laws of electromagnetic induction

5. Mention the ways of producing induced emf

6. How will you define RMS value of an alternating current?

7. A square coil of side 30 cm with 500 turns is kept in a uniform magnetic field of 0.4 T. The plane of the coil is inclined at an angle of 30o to the field. Calculate the magnetic flux through the coil.

8. State Fleming's right hand rule

9. An ideal transformer has 460 and 40,000 turns in the primary and secondary coils respectively. Find the voltage developed per turn of the secondary if the transformer is connected to a 230 V AC mains. The secondary is given to a load of resistance 10^4 Ω. Calculate the power delivered to the load.

Answer All the Questions (1 X 5 = 5 M)

10. a) Explain the construction and working of transformer.

(Or)

b). Derive an expression for phase angle between the applied voltage and current in a series RLC circuit.

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