

UNIT -4 – ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENT

2 Mark Questions:

1. Define Magnetic Flux
2. What is Electromagnetic Induction?
3. State Faraday's law of Electromagnetic Induction.
4. State Lenz's law of Electromagnetic Induction.
5. State Fleming's Right Hand Rule.
6. Define Self Inductance of the coil.
7. Define the unit of self inductance.
8. Define Mutual Inductance of pair of coil.
9. Define the unit of mutual inductance.
10. What are the methods of inducing emf?
11. What is an alternating voltage (or) current?
12. Define RMS value of alternating current
13. What is a Phasor?
14. What is a Phasor Diagram?
15. Define inductive Reactance
16. Define capacitive Reactance
17. What is a series resonance circuit?
18. Define Q factor of RLC series circuit.

3 Mark Questions:

1. Explain how lenz's law is in accordance with law of conservation of energy.
2. Explain how emf can be induced by changing the area of the coil.
3. What are the advantages of stationary armature – rotating field alternator?
4. Write down the advantages of three phase alternator.
5. Explain the energy losses in a Transformer.
6. Discuss the relating between alternating voltage and alternating current in case of a circuit containing pure resistor.
7. Derive an expression for average power in an AC circuit.
8. What is 'Wattless current' and 'Wattfull current'?
9. Write down the advantages and disadvantages of AC over DC.

5 Mark Questions:

1. Derive expression for motional emf from Lorentz force.
2. Derive expression for motional emf from Faraday's law and Energy Conservation.
3. What is Eddy Current? How Eddy Current can be minimized? Write down the applications of Eddy Current.
4. Derive an expression for self inductance of a long solenoid.
5. Derive an expression for energy associated with an inductor.
6. Derive an expression for Mutual inductance between two long co-axial solenoids.
7. Explain how emf can be induced by changing orientation of the coil with respect to the Magnetic field.

8. Describe the construction and working of AC Generator.
9. Discuss the construction and working of a Transformer.
10. Discuss the relating between alternating voltage and alternating current in case of a circuit containing inductor only.
11. Discuss the relating between alternating voltage and alternating current in case of a circuit containing capacitor only.
12. Discuss the case of an AC circuit containing a Resistor, Inductor and a Capacitor. Find out the Impedance of the circuit.
13. Prove that the LC oscillations are same as simple harmonic oscillations

