Physics - 12th Class Physics Chapter 4 Short Questions Preparation

Q1. Define mutual inductance and write at least two factors at which it depends.

Ans 1: The ratio of average emf induced in the secondary to the time rate of changing current in the primary is called mutual inductance.
It depends upon numbers of turn of the coil,area of cross section of the coil closeness of coil and nature of the core materials.

Q2. Write down any one method used for the production of induced emf.

Ans 1: Induced emf can be induced by electromagnetic induction.When a conductor is moved through a magnetic field the electric current flow through the circuit,The emf produced in the conductor is called induced emf and the current generated is called induced current.

Q3. When the primary of a transformer is connected to AC mains the current in it increase when secondary circuit is closed.Explain why?

Ans 1: When the secondary circuit is closed the output power increase.To produce the power ,transformer will draw large current from the A.C mains to increase its primary power.

Q4. What is back emf in motors?

Ans 1: When to coil motor rotates across the magnetic field by the applied potential difference V,an emf is induced in it.The induced emf is in such a direction that opposes the emf running motor.Due to this reasons,the induced emf is called back emf of the motor.The magnitude of the back emf increase with the speed of motor.

Q5. Define electromagnetic induction.

Ans 1: When a conductor is moved through a magnetic field,the electric current flow through the circuit,The emf produced in the conductor is called induced emf,and the current generated is called induced current.This phenomena is known as electromagnetic induction.

Q6. Can step up transformer increase the power level?

Ans 1: No,a step up transformer can not increase the power level,in actual transformer,due of dissipation of energy in the coil the output power is always less than input power,Therefore a step up transformer can't increase power level.

Q7. Name four methods to produce induce emf.

Ans 1: An induce emf is produced in the loop if the magnetic flux through it changes.The methods to produce induced emf are:

1. A bar magnet is moved towards the coil.

2. By changing the area of the coil in a constant magnetic field.
3. A coil of constant area is rotated in a constant magnetic field,
4. The coil is placed in the magnetic field of an electromagnet.

Q8. Can a transformer be used with D.C? Explain

Ans 1: No As transformer works on the principle of electromagnetic induction,which is produced by A.C and not by D.C,To induced a voltage in the secondary coil it is necessary to have magnetic flux change.

Q9. What is meant by back emf?Write its SI units.

Ans 1: The emf induced across the ends of a coil due to the changing current in the same coil is called self induced emf or back emf.Its SI unit is Volt(V).

Q10. Name the factor upon which the self inductance depends.

Ans 1: It depends upon induced emd and time rate of change of current in the coil.It also depend upon the number of turns of the coil,its area of cross section and the core material.
