Physics - ICS Part 2 Physics Chapter 15 Short Questions Preparation

Q1. 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.

Q2. 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.

Q3. What is the working principle of transformer?Explain

Ans 1: The transformer work on the principle of mutual induction between two coils.The transformer consists of two coils of copper electrically insulated from each other,wound on the same iron core,The coil to which AC power is supplied is called primary and that from which power is delivered to the circuit is called secondary.

Q4. Differentiate between motor and generator.

Ans 1: Motor: A motor is a device which converts electrical energy into mechanical energy.

Ans 2: Generator: A generator is a device which convert mechanical energy into electrical energy.

Q5. Write two similarities and two difference between motor and generator.

Ans 1: Similarities:

1. Construction of a motor is similar to a generator.
2. In both,magnetic field is provided by an electromagnet.

Differences:

1. Generators convert mechanical energy into electrical energy while motor converts electrical energy into mechanical energy.
2. In generator,the armature coil is rotated in the magnetic field and the current is the output.While in motor,armature is connected to battery,which rotated the armature.

Q6. 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.

Q7. When the primary of a transformer is connected to A.C mains,the current it is very small if the secondary circuit is open.Explain.

Ans 1: If the secondary circuit is open then output power will be zero,Because output power is always slightly smaller than the input power,therefore a very small value of current is being drawn by a primary coil of transformer from AC units,

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Q8. Define self induction and mutual induction.

Ans 1: The phenomena in which changing current in a coil induced a emf in itself is called self-induction.
The phenomena in which changing current in one coil induces an emf in another coil is called mutual induction.

Q9. 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.

Q10. State the Lenz's law and define Henry.

Ans 1: Lenz's Law: It states that the direction of induced current is always so as to opposite the change which cause the current.
Henry: If the current in the primary is changing at the rate of one ampere per second and the emf induced across the ends of the secondary coil is one volt then the mutual inductance is called one henry.
