Physics - ICS Part 2 Physics Chapter 15 Short Questions Preparation

Q1. 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.

Q2. Define induced emf and induced current.

Ans 1: If a conductor moves through a magnetic field then due to change in magnetic flux,an emf is induced across the ends of the conductor which is known as back emf.If the circuit is close it will cause an electric current which is called as induced current.

Q3. How the power is lost due to eddy current in a transformer and how this loss can be minimized?

Ans 1: The induced currents that are set up in the core of transformer in the direction perpendicular to the flux are known as eddy currents,It results in power dissipation and heating of the coral material.The insulation between lamination sheets should be perfect so as to stop the flow of eddy currents.

Q4. A suspended magnet is oscillating freely in the horizontal plane.The oscillation are strongly damped when a metal plate is placed under,The magnet.Explain why its occurs.

Ans 1: The oscillating magnet produces change of magnetic flux close to it.The metal plate placed below it experiences the change the magnetic flux,As the result eddy currents are produced inside the metal.According to Lenz's law these eddy currents oppose the cause which produce it,So the oscillation of magnet are strongly damped.

Q5. How does Lenz's law explain law of conservation of energy phenomena of electromagnetism induction?

Ans 1: When a rod is moving in the magnetic field towards right,an induced current flows through the loop in anticlockwise direction,Since current carrying rod experience a magnetic force opposite to that velociety.An external force equal in magnitude and opposite in direction must be applied to keep the rod moving with constant velocity.This dragging force provides the energy for the induced current to flow,This energy is the source of induced current.Thus electromagnetic induction is exactly according to law of conservation of energy.

Q6. 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.

Q7. What changes are required to turn the D.C motors into a D.C generators?

Ans 1:

1. In order to convert to convert DC motor into SC generator,the magnetic field must be supplied by the permanent magnet and not by electromagnet.
2. An arrangement to rotate the coil armature should be provided and battery must be removed.

Q8. 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.

Q9. 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.

Q10. A glass rod of "L"Length is moving perpendicular to the applied magnetic field P with velociety v.Explain briefly about the induced emf in it.

Ans 1: Induced emf is zero.As glass rod is insulator and there are no free electrons to be shifted from one extreme to the other.Therefore there will be no effect of perpendicular magnetic field.The induced emf is only produced by moving a conductor across the magnetic field.
