

Physics - ICS Part 2 Physics Chapter 15 Short Questions Preparation

Q1. What is D.C motor? Write down part of D.C motor.

Ans 1: D.C motor is a device which converts electrical energy into mechanical energy. Main part of D.C motor are commutator, armature and permanent magnet or electromagnet.

Q2. 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.

Q3. Does the induced emf always act to decrease the magnetic flux through a circuit?

Ans 1: No. the induced emf always oppose the cause that produce it. If the magnetic flux through the circuit is increasing then induced emf acts to decrease the magnetic flux.
If the magnetic flux through the circuit is decreasing, then induced emf acts to increase the magnetic flux.

Q4. 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 flows through the circuit. The emf produced in the conductor is called induced emf and the current generated is called induced current.

Q5. What is DC motor? Write its principle.

Ans 1: A D.C motor is a device which converts D.C electrical energy into mechanical energy. The basic principle of electric motor is that a current carrying coil placed in magnetic field experiences a torque which is given by $\tau = NIAB \cos \theta$.

Q6. How can the power losses be minimized in a transformer?

Ans 1: The power can be minimized in transformer by implementing following considerations.

1. Core should be assembled from the laminated sheet of a material whose hysteresis loop area is very small.
2. The insulation between lamination sheets should be perfect so as to stop the flow of eddy current.
3. The resistance of the primary and secondary coils should be kept minimum.

Q7. 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).

Q8. 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 closed it will cause an electric current which is called as induced current.

Q9. Name the factor upon which the self inductance depends.

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

Q10. What changes are required to turn the D.C motors into a D.C generators?

Ans 1:

1. In order 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.
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