

Electromagnetic Induction Questions



Here is the key for the "Fill in the blanks" questions on Electromagnetic Induction:

1. Electromagnetic induction was discovered by **Michael Faraday**.
2. The unit of magnetic flux is **Weber (Wb)**.
3. Faraday's law of electromagnetic induction states that the induced emf is directly proportional to the rate of change of **magnetic flux**.
4. Lenz's law states that the direction of induced current opposes the **change** that caused it.
5. The device that converts mechanical energy to electrical energy is known as a **generator**.
6. The SI unit of inductance is **Henry (H)**.
7. A coil with inductance opposes changes in **current**.
8. Mutual inductance occurs when two coils are placed such that the **magnetic field** produced by one coil induces an emf in the other coil.
9. The induced emf due to a changing magnetic flux is given by the equation **$\text{emf} = -d\Phi/dt$** .
10. A transformer works on the principle of **mutual induction**.
11. An alternating current is one that **reverses direction** periodically.
12. Eddy currents are produced when a **solid** conductor is exposed to a changing magnetic field.
13. The self-inductance of a coil is defined as the emf induced in the coil when there is a change in **current**.
14. A current-carrying conductor placed in a magnetic field experiences a **force**.
15. The core of a transformer is usually made of **soft iron**.
16. In an ideal transformer, the power output is **equal** to the power input.
17. The right-hand rule helps to determine the **direction** of induced current.
18. The number of turns in the coil and the rate of change of magnetic flux determine the magnitude of the **induced emf**.
19. The unit of magnetic field strength is **Tesla (T)**.
20. The phenomenon of inducing a current in a coil by varying the current in another coil is called **mutual induction**.
21. When the number of turns in a coil is doubled, the induced emf will **double**.
22. The force between two parallel current-carrying conductors is **inversely** proportional to the distance between them.
23. The phenomenon of eddy currents can be reduced by **laminating** the core.
24. A galvanometer can be converted into a voltmeter by adding a **high resistance** in series.
25. Fleming's right-hand rule is used to find the direction of **induced emf/current**.
26. The emf induced in a coil is **proportional** to the rate of change of magnetic flux through the coil.
27. The direction of the induced current can be determined by applying **Lenz's law**.
28. In a step-up transformer, the number of turns in the secondary coil is **greater** than the primary coil.
29. The magnetic flux linkage is the product of **magnetic flux** and the number of turns in the coil.
30. A magnetic field can be produced by a **moving** charge.

These answers correspond to the fill-in-the-blank questions provided earlier.