**UNIT-II**

**MACHINES & MEASURING INSTRUMENTS**

TWO MARKS Q& A

**1. How voltage is generated in rotating machines?**

In rotating machines voltage is generated in windings or group of coils by rotating them through a magnetic field.

**2. How will you change the direction of rotation of a DC motor?**

Either the direction of the main field or the direction of current through the armature conductors is to be reserved.

**3. Give the basic principle behind the working of transformer.**

The transformer works o4 the principle of mutual induction between two coils which are electrically isolated but magnetically coupled.

**4. Why is transformer rated in KVA?**

The copper loss of a transformer depends on current and voltage. Hence, total transformer loss depends on volt-ampere (VA) and not on phase angle between voltage and current. i.e., it is independent of load power factor. That's why rating of transformers are in kVA and not in kW.

**5. What is transformation ratio?**

It is the ratio in which the voltage to be transformed (stepped up or down) from primary to secondary of a transformer. It is given by:

V2 / V1 = N2 / N1 = K

Where, K is the transformation ratio.

6. **What is step down transformer?**

The transformer used to step down the voltage from primary to secondary is called as step down transformer (Ex: 220/110 V).

**7. What are the two types of three phase induction motor?**

The three-phase induction motor converts electrical energy into mechanical energy. The two types of three-phase induction motors are: Squirrel cage motors. Slip ring motors.

**8. What are the applications of three phase induction motor?**  
  
The applications of three phase induction motors are crushers, plunger pumps, cranes & hoists, elevators, compressors and conveyors.

**9. Write down the equation for frequency of emf induced in an alternator.**

F = PN / 120 Hertz

Where P = No. Of poles

N = Speed in rpm.

**10. What is the principle of Wheatstone bridge?**

What is the Wheatstone Bridge Principle? The Wheatstone bridge works on the principle of null deflection, i.e. the ratio of their resistances is equal, and no current flows through the circuit.

**11. What is the principle of operation of PMMC type instrument?**

It operates on the principle that the torque is exerted on the moving coil placed in the field of the permanent magnet.

**12. What is the difference between PMMC and MI type of instruments?**

Moving coil instruments use a control spring to provide the controlling torque. In moving iron instruments, the controlling torque is provided by either gravity control or spring control. Moving coil instrument uses permanent magnet. Moving iron instrument uses electromagnet.

**13. What is the use of MI type instrument?**

Moving Iron (MI) type instruments can be used for both AC & DC measurements.

**14. Why PMMC is not used for AC?**

 If A.C. is supplied, a reversing torque is produced. This cannot produce a continuous deflection. Therefore this instrument cannot be used in A.C