

# Tilak Maharashtra Vidyapeeth

Diploma in Engineering

SUB: Electrical Technology

## **Assignment No: I**

(Write any five)

1. Write a short note on Core type transformer.
2. Write a short notes on Shell type transformer
3. Write a short note on Berry type transformer.
4. Draw neat diagram of shunt generator.
5. Draw neat diagram of series generator.
6. State & Explain Kirchoff's laws
7. Explain the working principle of Transformer with neat diagram.
8. Derive an EMF equation for Transformer

## **Assignment No: II**

(Write any five)

1. Draw neat diagram of compound generator.
2. Explain the working principle of DC motor.
3. What is Back EMF in DC motor ?
4. Explain the concept of rotating magnetic fields.
5. Explain the operating principle of three phase induction motor.
6. If a coil of .300 turns is linked with a flux of 0.02 Wb when carrying a current of 20A calculate the inductance of the coil. If this current is uniformly reversed in 0.2 second, calculate the self-induced e. m. f. in the coil.
7. A series generator supplier a load of 50kW at 200 V. If the resistance of the armature and the series field are 0.04 ohm and 0.02 ohm respectively, find the generated e.m.f.
8. Explain with suitable diagram the working of PMMC voltmeter. . Draw the constructional details of moving iron attraction type meter. . A flux density of 1.2T is required in the 3mm air gap of an electromagnet wound with 500 turns of wire and having an iron path of 125 cm. Calculate the current required assuming a relative permeability of 1000 for the iron and neglecting the leakage

and fringing. A long shunt compound generated has a full load output of 75kw. If the armature resistance is 0.075 ohm the series field resistance 0.025 ohm and the shunt field resistance 50 ohm find

- a) Armature current
- b) E. M. F. generated

### **Assignment No: III**

(Write any five)

1. If a coil of .300 turns is linked with a flux of 0.02 Wb when carrying a current of 20A calculate the inductance of the coil. If this current is uniformly reversed in 0.2 second, calculate the self-induced e. m. f. in the coil.
2. Write short note on Squirrel cage induction motor. .
3. Write short note on Slip ring / wound rotor induction motor.
4. A single phase. 50Hz transformer has 300 primary turns and 750 secondary turns. The net cross sectional area of the core is 64 sq. cm. If the primary induced e.m.f. is 440 volts find maximum flux density in the core & E.M.F. induced in the secondary.
5. Why starters are required in induction motor?
6. A magnetic circuit has effective iron length of 100 cm and an air gap of 2 mm. It is wound with 800"turns. If the relative permeability of irons is 1200, fund the flux density in the air gap when the winding carriers a current of V| A. Neglect leakage and fringing.
7. A 50 kva single phase transformer has a turns ratio of 300/20. The primary winding is connected to a 2200 V, 50 Hz supply. Calculate
  - a) The secondary voltage on no load
  - b) The approximate values of the primary and secondary currents on full load.An 8 pole d.c. generator has a flux of 40mWB per pole and a lap connected armature with 960 conductors. Calculate the generated e.m.f. an open circuit when it turns at 400 r.p.m. If the armature were wave connected, at what speed must the machine be driven to generate the same voltage?
8. Differentiate between Squirrel cage induction motor and slip ring induction motor.

