

SAMPLE QUESTION

EC-1

2marks

1. Why transformer rating is in KVA?
2. Define voltage regulation of a transformer?
3. State the difference types of losses which occurs in transformer.
4. What is the significance of back emf in d.c motor?
5. Write the application of D.C compound motor.
6. What is commutation?
7. What is resultant pitch?
8. Write down two advantages of parallel operation of 1 ϕ transformer?
9. State the condition of maximum efficiency of ad.c.generator.
10. What happens when a d.c. supply is given to the primary side of a single phase transformer ?

5marks

1. Explain the short circuit test of a transformer briefly with the help of a circuit diagram.
2. A 30 KVA, 2400/120V, 50 HZ transformer has a high voltage winding resistance of 0.1 ohm and a leakage reactance of 0.22 ohm. The low voltage winding resistance is 0.035 ohm and the leakage reactance is 0.012 ohm. Find the equivalent winding resistance, reactance and impedance referred to their
i) High voltage side ii) Low voltage side
3. Explain the working principle of 1phase auto transformer.
4. A 4 pole, 220v shunt motor has 540 lap-wound conductors. It takes 32A from the supply mains and develop output power of 5.595 KW. The armature resistance is 0.09 ohm and the flux per pole Φ is 30 mwb.
Calculate:
(i) the speed and
(ii) The torque developed in N.M
5. Explain the armature reaction of D.C Generator.
6. Derive the e.m.f equation of D.C Generator.
7. Explain the no-load characteristics of a separately excited d.c generator and draw the curve with circuit diagram.
8. Explain the armature reaction of D.C Generator.
9. Derive the e.m.f equation of D.C motor
10. Derive emf eqn of transformer.

10 marks

1. In a transformer the core loss is found to be 52 watt at 40 Hz and 90 watt at 60Hz measured at same peak flux density. Compute the hysteresis and eddy current losses at 50 Hz.

2. Explain all day efficiency of transformer. Find the all day efficiency of 500 KVA distribution transformers. Whose copper loss and iron loss at full load are 4.5 KW and 3.5 KW respectively. During a day of 24 hours. It is loaded as under

No of hours	loading in KW	P.F
6	400	0.8
10	300	0.75
4	100	0.8

3. Show the type of connection of 3 phase transformer
- (i) star-star
 - (ii) star-delta
 - (iii) Delta-star
 - (iv) Delta-Delta
4. Explain the speed control of d.c shunt motor by armature voltage control method.
5. A 4 pole, long shunt lap wound generator supplies 25KW at a terminal voltage of 500 V. The armature resistance is 0.03 ohm, series field resistance is 0.04 ohm, and shunt field resistance is 200 Ohm. The brush drop may be taken as 1V. Determine the emf generated calculate also the No. of conductors if the speed is 1200 rpm and flux per pole is 0.02 Weber. Neglect armature reaction.
6. A shunt generator has F.L current of 196 A at 220 V. The stray losses are 750 W and the shunt field coil resistance is 55 ohm .If it has a F.L efficiency of 88%. Find the armature resistance, Also Find the load current corresponding to maximum efficiency.
7. Derive the torque equation of D.C motor.