2008 SRM UNIVERSITY
B.TECH ELECTRICAL AND ELECTRONICS ENGINEERING
B.TECH I SEMESTER
ELECTRICAL MACHINES-I

TIME : 3 HOUR
MARK : 100

ANSWER ALL QUSTIONS

PART-A(10*2=20 MARKS)

1.What is hysteresis loss? How will you minimize it?

2.What is multiple excited system?give one example.

3.What is armatue raction?

4.Mention the type of excitation in DC machine.

5.What is the use of starter?

6.At what condition,power developed in the DC machine is maximum?

7.How will you clasify transformer based on construction?

8.Why the flux in the transformer are constant for all loading conditions?

9.Mention the varios losses in DC machine.

10.What is the use of polarity test?

PART-B(5*16=18 MARKS)

11.a. Derive an expression for mechanical force developed in rotating machines.
                    (OR)
b. Explain the MMF developed in distributed winding

12.a..i Derive the emf equation DC generator.

ii. Draw and explain the characteristics of compound generators.
                    (OR)
b. Explain he process of commutation in DC generator?Mention its types.

13.a. Explain the varios method of speed control of DC shunt motor.
                    (OR)
b. Draw and explain the following characteristics of DC series and shunt motor:

(i) Mechanical characteristics   (ii) Electrical characteristics

14.a. With relevent phasor diagram,explain the operation of single phase transformer on No load and loading conditions at different power factor.
                    (OR)
b. Compare auto transformer with two winding transformer.how will you convert to auto transformer in to step up or step down transformer?

15.a. Explain swimburne's test.How will pre determine the efficiency of DC generator and DC motor using this test? Mention its merits and demerits.
                    (OR)
b. A 5 K V A single phase transformer has 1000 watts and 2000 watts as iron losses and copper losses at full load and is operating at 0.8 pf logging .What is the maximum efficiency at wich the transformer works? Al so find the efficiency at half load and unity power factor.