



Reg. No. :

Name :

Fifth Semester B.Tech. Degree Examination, September 2014
(2008 Scheme)
(Special Supplementary)
08.502 : ELECTRICAL TECHNOLOGY (MPU)

Time : 3 Hours

Max. Marks : 100

Instruction : Answer **all** questions from Part – A and **one full question** from **each** Module of Part – B.

PART – A



1. Draw and explain the magnetic characteristic of a DC generator.
2. Derive the torque equation of a DC motor.
3. What is armature reaction ? What are its effects ?
4. What are the losses in a transformer ? How can they be reduced ?
5. Explain the construction of three phase induction motor.
6. Explain the necessity of starter for a three phase induction motor.
7. Derive the emf equation of an alternator.
8. What is voltage regulation of an alternator ? How is it determined ?
9. Explain the principle of split-phase motors.
10. What are the electric braking methods ? **(10×4=40 Marks)**

PART – B

All questions carry equal marks. **(20×3=60 Marks)**

Module – I

11. a) Draw the characteristic curves of a dc shunt motor and a dc series motor and compare.
b) A 25 kW, 250 V dc shunt generator has armature and field resistances of 0.06 ohm and 100 ohms respectively. Determine the total armature power developed when working (1) as generator delivering 25 kW output (2) as a motor taking 25 kW input.

OR



12. a) What is critical field resistance of a dc shunt generator ? What is its significance ?
- b) A short shunt compound dc generator supplies a load current of 150 A at 230 V. The armature resistance is 0.15 ohm and the series field and shunt field resistances are 0.1 ohm and 100 ohms respectively. Calculate the emf generated if the brush drop is 2 V per brush.

Module – II

13. a) What is the significance of all-day efficiency ? How is it calculated ?
- b) In a 50 kVA, 11 kV/400 V transformer, the iron and copper losses are 500 W and 600 W respectively. Under rated conditions. Calculate the efficiency on upf at full load. Find the load for maximum efficiency and the iron and copper losses corresponding to this load.

OR

14. a) Explain the torque-slip characteristics of a 3 phase induction motor.
- b) With necessary diagrams, explain the starting methods of three phase squirrel cage induction motors.

Module – III

15. a) Explain V curves of a synchronous motor.
- b) Describe the construction and working of stepper motor.

OR

16. a) Derive the emf equation of an alternator.
- b) What are the starting methods of a synchronous motor ?