



Reg. No. :

Name :

Fifth Semester B.Tech. Degree Examination, November 2014**(2008 Scheme)****08.504 : ELECTRICAL DRIVES AND CONTROL (T)**

Time : 3 Hours

Max. Marks : 100

PART – AAnswer **all** questions. **Each** question carries **4** marks.

1. Derive the expression for emf generated in a dc generator.
2. Explain the principle of operation of dc motor.
3. What is back emf in dc motor ? Explain its significance.
4. A 3 phase induction motor is wound for 4 poles and is supplied from 50 Hz system. Calculate the synchronous speed and rotor speed when the slip is 4%.
5. Explain switching characteristic of power MOSFET.
6. What are the requirements of a drive circuit for power MOSFET ?
7. Explain principle of PWM switching control.
8. Differentiate between ON line ups and OFF line ups.
9. How speed of induction motor can be controlled by varying stator frequency and voltage ?
10. Draw circuit diagram of half bridge inverter and explain its operation.

**PART – B**Answer **any two** questions from **each** Module. **Each** question carries **10** marks.**Module – 1**

11. With schematics explain different types of dc generators.
12. Explain operating characteristics of dc series motor.



13. The armature of a 12 pole dc shunt generator has 50 slots and is wave wound with 12 conductors per slot. The generator is driven at a speed of 625 rpm and supplies a load of 15Ω at a terminal voltage of 300 V. Armature and shunt resistances are 0.5Ω and 60Ω respectively. Find armature current, generated emf and flux per pole.

Module – 2

14. a) Give the construction of power BJT showing doping concentration and thickness of each layer.
b) Explain the switching characteristics of power BJT.
15. With circuit diagram explain the operation of four quadrant converter.
16. With circuit diagram and waveforms explain single phase full wave controlled rectifier with RL load.

Module – 3

17. With circuit diagram, explain push pull inverter.
18. With schematics, explain sinusoidal PWM.
19. a) Explain the principle of vector control.
b) Compare scalar control and vector control.