Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 60848

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Third Semester

Mechanical Engineering

ME 2205/ME 36/EE 1205 A/080120013/10122 ME 306 — ELECTRICAL DRIVES AND CONTROL

(Common to Production Engineering, Chemical Engineering, Petrochemical Engineering, Petrochemical Technology and Mechanical Engineering (Sandwich))

(Regulations 2008/2010)

(Also common to 10122 ME 306 – Electrical Drives and Control for B.E. (Part-Time) Second Semester – Mechanical Engineering – Regulations 2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define cooling curve.

2. What are load variation factors?

3. Draw the mechanical characteristics of d.c. series motor.

4. What are the methods of braking of electric motors?

5. List out the types of d.c. motor starters.

6. What is the function of OLR coil in DC Motor Starters?

7. What is meant by armature control?

8. What are the advantages of thyristor control on speed control of DC Motor?

9. What are the advantages of Slip-power recovery system?

10. What is meant by AC Voltage controller?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss in detail the determination of power rating of motors. (16)

Or

(b) Explain in detail about the various types of electric drives. (16)

12. (a) Explain the Speed-Torque characteristics of three phase induction motor with neat diagrams. (16)

Or

(b) Explain how an induction motor is brought to stop by (i) Plugging and (ii) dynamic braking. (16)

13. (a) Draw a neat schematic diagram of a four point starter and explain its working. (16)

Or

(b) Draw and explain the manual auto-transformer starter for three phase induction motor. (16)

14. (a) Explain with neat sketch the chopper control method of speed control of DC Motors. (16)

Or

(b) Explain the single phase half wave converter drive speed control for DC drive with waveforms. (16)

15. (a) Explain in detail about Slip power recovery scheme. (16)

Or

(b) Explain the various methods of speed control of a three phase induction motor when fed through semiconductor devices. (16)