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Question Paper Code : 21561

12th RN

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Third Semester

Mechanical Engineering

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

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

(Regulation 2008/2010)

(Also common to PTME 2205 Electrical Drives and Control for B.E. (Part-Time)
Third Semester – Production Engineering – Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are types of electrical drives?
2. List the factors to be considered for the selection of electrical drives.
3. Draw speed-torque characteristics during regenerative braking of induction motor.
4. What are the types of electric braking of electric motor?
5. State the basic principle in DOL for 3-phase induction motor.
6. What is the basic principle in starting 3-phase induction motor using rotor resistance starter?
7. Draw the speed-torque characteristics of DC series motor by armature resistance method.
8. Draw the block diagram of phase controlled rectifier fed DC drives.
9. Draw the block diagram of conventional scherbius system.
10. What are the variable frequency AC drive applications?

PART B — (5 × 16 = 80 marks)

11. (a) Explain various classes of motor drives. (16)

Or

(b) Describe the selection of motor rating for continuous duty load. (16)

12. (a) Explain speed-torque characteristics of different types of load with graph. (16)

Or

(b) Explain with speed-torque characteristics of DC series motor under dynamic braking. (16)

13. (a) Describe with diagram working of 3-point starter for DC shunt motor. (16)

Or

(b) With diagram explain auto transformer starter for three phase induction motor. (16)

14. (a) With circuit describe DC motor Ward-Leonard control system. (16)

Or

(b) Explain first quadrant chopper control of separately excited motor for continuous conduction. (16)

15. (a) Explain voltage/frequency control of 3-phase induction motor. (16)

Or

(b) Describe Kramer system slip power recovery system of 3-phase induction motor. (16)