

Roll No.

24421

B. Tech. 7th Sem. (Electrical Engg.)

Examination – June, 2016

ELECTRIC DRIVES & CONTROL

Paper : EE-403-F

Time : Three Hours]

[Maximum Marks : 100

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory*. Attempt *one* question from each Section.

1. (a) State the advantages and disadvantages of electric drives.
- (b) Define load equalization & explain.
- (c) Give the characteristics of DC shunt motors. Why are such motors not suitable for traction purpose ?
- (d) Give the applications of induction motors.

5 × 4 = 20

24421-2,100-(P-3)(Q-9) (16)

P. T. O.

SECTION - A

2. (a) Explain various types of load torques. 10
(b) Explain group drive, individual drive and multimotor drive and state applications. 10
3. Discuss the control of electrical drives with the help of as microprocessor. State its benefits over other control techniques. 20

SECTION - B

4. (a) State and explain the multi-quadrant operation of electrical motor drives. 10
(b) Explain classes of duty. 10
5. Define heating and cooling of a motor. Derive the heating and cooling curves of a motor with necessary assumptions. 20

SECTION - C

6. Define various types of electric braking and discuss the various braking characteristics of dc shunt and dc series motors. 20
7. (a) State the functioning and need for a starter in DC motors. 10
(b) Write a brief note on switched reluctance machine drives. 10

24421-2,100-(P-3)(Q-9) (16) (2)

24421-2,100-(P-3)(Q-9) (16) (3)

SECTION - D

8. (a) A three phase star connected 6.6 kV, 20 pole, 50Hz. induction motor has rotor resistance of 0.12Ω and standstill reactance of 1.12Ω . The motor runs at a speed of 292.5 rpm at full load. Find slip at maximum torque and ratio of maximum torque to full load torque. 10
- (b) Explain the slip power recovery control of slip ring induction motor. 10
9. Write notes on : 10×2
- (i) Vector control in induction motors.
(ii) Transient conditions in electrical drives.