Roll No. ..... Total Pages : 2

BT-6/M-20 **36026**

ELECTRIC DRIVES AND TRACTION

Paper : EE-310E

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *five* questions, select at least *one* question from each unit.

UNIT–I

1. Discuss the various breaking methods of AC and DC drives. 20

2. A 250 V DC series motor drives a fan, the load torque being proportional to the 1.5th power of the speed. At the certain speed the motor takes 40 A. The machine resistance is 0.6 Ohm. Find the extra resistance needed to reduce the speed to one-half of the original speed. Neglect saturation. 20

UNIT–II

3. Explain the two quadran transistorized chopper drive for a dc separately exited motor control. 20

4. A 7 KW, 220 V, 1400 rpm separately excited dc motor speed is controlled using a single phase full converter. If the ac supply voltage is 230 V, 50 Hz and the motor rated current is 25 A at near full load, find, for $\alpha = 65°$, the speed of motor and its torque. Assume the armature resistance to be 0.4 Ohm, machine constant is 0.2 V/rpm and continuous armature current. 20

UNIT–III

5. (a) Drive the load–torque equation of an electric drive. 10

(b) Write down the application areas and functions of Microprocessors in drives. 10

6. (a) Discuss the variable frequency control of induction motor from voltage source and its advantages. 10

(b) Discuss the comparison of VSI and CSI drives in induction motor. 10

UNIT–IV

7. Explain in brief: static scherbius drive and commutator less Kramer drive. 20

8. (a) Explain the different types of duty cycles of a drive. 10

(b) Draw the thermal model of motor for heating. 10