Total No. of Questions :6]

SEAT No. :

P132

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APR. -16/BE/Insem. - 35

B.E. (Electrical)

POWER ELECTRONIC CONTROLLED DRIVES

(2012 Pattern) (403148) (Semester - II)

Time : 1½ Hours] *[Max. Marks :30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Draw neat diagram of electrical drive system and give function of each block. **[5]**

b) Explain four quadrant operation of a motor driving a hoist load. **[5]**

OR

Q2) a) How load torques are clarified as function of speed? **[4]**

b) A drive has following parameters

T = (150 – 0.1 N) N-m. Where N is speed in RPM.

T_L = (100) N-m Test steady state stability of this motor - load using condition for stability. **[6]**

Q3) a) Draw characteristics and define constant torque mode and constant power mode of operation of drive. **[4]**

b) Explain with neat block diagram, the scheme for closed loop speed control of seperately excited dc motor below and above base speed. **[6]**

OR

P.T.O.

Q4) a) Explain with neat diagram, chopper fed seperately excited dc motor operation with two quandrant operation. **[5]**

b) A 200 v 875 rpm. 150 A seperately excited dc motor with armature resistance of 0.06Ω ,is fed from single phase fully controlled rectifier with ac source of 220v, 50Hz. Calculate firing angle for rated torque, and 750 rpm. Assuming continuous conduction. **[5]**

Q5) a) Explain speed control of Induction motor using v/f control. What is the advantage? **[5]**

b) Draw speed torque characteristics and explain plugging in Induction motor. What are the precautions required while plugging? **[5]**

OR

Q6) a) With neat block diagram explain closed loop speed control of Induction motor drives. **[6]**

b) Explain DC dynamic braking in case of Induction motor. **[4]**