

Total No. of Questions : 4]

SEAT No. :

PD-276

[Total No. of Pages : 2

[6411]-51

B.E. (Electrical Engineering) (Insem.)
ADVANCED ELECTRICAL DRIVES AND CONTROL
(2019 Pattern) (Semester - VIII) (403149)

Time : 1Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) *Solve Q.1 OR Q.2, Q.3 OR Q.4*
- 2) *Neat diagrams must be drawn wherever necessary*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*
- 5) *Use of non-programmable calculator is allowed.*

Q1) a) What is an electric drive? Discuss essential parts of electric drive with the help block diagram. [8]

b) A drive has following equations for motor and load torques:

$T = (1 + 2w_m)$ and $T_l = 3\sqrt{w_m}$ Obtain equilibrium points and determine their steady state stability. [7]

OR

Q2) a) What are different components of load torque? Explain with their characteristics. [7]

b) Explain four quadrant operation of drive with the help of hoist example. [8]

Q3) a) Explain speed control operation of single phase fully converter fed separately excited DC motor and also draw speed - torque characteristics. [8]

b) A 220V, 875 rpm and 150A D.C separately excited motor has an armature resistance of 0.06Ω . it is fed from single phase fully controlled converter with an ac source voltage of 230V, 50Hz. Assuming continuous conduction calculate firing angle for rated motor torque and 750 rpm. [7]

OR

P.T.O.

- Q4) a)** Explain motoring operation of chopper controlled separately excited DC motor drive with neat diagrams. [7]
- b) Explain closed - loop speed control of DC motor below and above base speed. [8]

