B.TECH. SEM -VII ELECTRICAL 2014 COURSE (CBCS) :
SUMMER - 2018
SUBJECT: AC–DC DRIVES

Day: **Monday** | **S-2018-2489** | Time: **02.30 PM TO 05.30 PM**
Date: **21/05/2018** | Max Marks: 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data if necessary.

Q.1 **a)** Define and explain about active and passive load torques. **(05)**

b) A drive has following parameters j = 10kg m^2, T=100-0.1 N, Nm, passive load torque Tt = 0.05 N, Nm. Where N is speed in rpm. Initially the drive is operating in steady state. Now it is to be reverse. For this motor characteristics is changes to T = -100-0.1N, Nm. Calculate reversal time. **(05)**

OR

a) What are the reasons of load equalization consideration in case of electrical drive? **(05)**

b) What are essential parts of electrical drives, explain each in brief. **(05)**

Q.2 **a)** State and explain important features of various braking method of DC motor. **(05)**

b) State drawbacks of plugging type of braking in 3phase Induction Motor. **(05)**

OR

a) What are advantages of regenerative braking over other braking types. **(05)**

b) Write a note on rheostatic braking for DC shunt motor. **(05)**

Q.3 **a)** Explain 4 quadrant operation of a drive in hoist application. **(05)**

b) Explain chopper control of DC series motor with regenerative braking action. **(05)**

OR

a) Compare advantages and disadvantages of open loop and closed loop control system. **(05)**

b) Write a note on fully controlled converter. **(05)**

Q.4 **a)** Differentiate between CSI and VSI. **(05)**

b) What do you understand by v/f ratio and v/f control method? **(05)**

OR

a) Write overview of multilevel inverter. **(05)**

b) Explain thyristorised stator frequency control. **(05)**

Q.5 **a)** Explain energy saving using rotor resistance. **(05)**

b) Write down step wise procedure to calculate energy savings. **(05)**

OR

a) Write a note on derating of motor. **(05)**

b) Explain effect of harmonic current in drives. **(05)**

Q.6 **a)** What do you understand by latest trends in drives and drive evolution? **(05)**

b) Write a note on commutatorless motor drive. **(05)**

OR

a) What are industrial applications of servo and stepper motor drive? **(05)**

b) Write a note on Centrifuged drive. **(05)**

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