

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014****Subject Code: 162003****Date: 23-05-2014****Subject Name: Control of Electrical Drives****Time: 10:30 am - 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) List and explain different parts of Electrical Drive. **07**
(b) Write a short note on 'Nature and classification of load torques'. **07**

- Q.2** (a) List and explain three operating modes of electric drive. **07**
(b) Explain that the steady state stability of a drive depends on relative characteristics of the motor and load and not just on motor or load characteristics. Support your answer with different cases of stable and unstable operating points. **07**

OR

- (b) Explain different transients produced when a DC shunt motor is started with no load. **07**

- Q.3** (a) Draw the speed-torque curves of different motors on a common plot and explain the same. **07**
(b) Explain dynamic braking in dc series motor. **07**

OR

- Q.3** (a) Explain field control method for speed control in dc motor. State merits and demerits of field control in dc motor. **07**
(b) Explain how starting current of dc motor is controlled between two limits of I_{max} and I_{min} using starting resistors. **07**

- Q.4** (a) Explain three phase full controlled converter with all the necessary waveforms with RLE load. **07**
(b) Explain single phase dual converter. **07**

OR

- Q.4** (a) Explain separately excited DC drive controlled by chopper. **07**
(b) Explain single phase full controlled converter with all the necessary waveforms. **07**

- Q.5** (a) What do you mean by single phase capacitor start and run motor? Explain in details. **07**
(b) List and explain important features of stepper motor. **07**

OR

- Q.5** (a) List different control strategies in single phase Induction motors. How stator voltage is controlled using semiconductor controllers in single phase Induction motors? **07**
(b) Explain hybrid stepper motor in detail. **07**
