

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-VI Examination-Nov/Dec-2011

Subject code: 162003**Date: 25/11/2011****Subject Name: Control of Electric Drives****Time: 10.30 am -1.00 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) Write and explain power balance equation in electromechanical drives. Also derive equation of stored energy in mechanical loads. **07**
(b) State and explain advantages of electric drives. **07**

- Q.2** (a) Explain start of a motor with shunt type characteristic at no load. **07**
(b) Explain field control of DC shunt motor in details. **07**

OR

- (b) Explain armature control of DC shunt motor in details. **07**

- Q.3** (a) Explain half wave controlled rectifier with RL load without freewheeling diode using necessary waveforms and equations **07**
(b) Explain full wave controlled rectifier with R load using necessary waveforms and equations. **07**

OR

- Q.3** (a) Explain in detail: Ideal dual converters. **07**
(b) Explain three phase full wave converter with necessary waveforms and equations with R load. **07**

- Q.4** (a) Explain four quadrant type E chopper. **07**
(b) What are the control strategies in chopper based electric drives? Explain all of them. **07**

OR

- Q.4** (a) Draw and explain static V-I characteristics of TRIAC. **07**
(b) List types of stepper motor. Explain any one of them. **07**

- Q.5** (a) Explain DC drive operated by single phase half wave controlled rectifier. **07**
(b) State types of single phase AC motors and explain any one of them. **07**

OR

- Q.5** (a) Explain operation of electric drive in all four quadrants. **07**
(b) Explain regenerative braking control in chopper based DC drive. **07**