

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014

Subject code: 2710313

Date: 12-01-2015

Subject Name: Advance Industrial Drives and Control

Time: 02:30 pm - 05:00 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) Give Classification of Electric Drives. Explain the Requirements of Electric Drives. **07**
(b) Write short note on Permanent magnet synchronous motor **07**

- Q.2** (a) Explain the modeling procedure of induction machine. **07**
(b) Describe the speed and position control methods in DC Motor drives. **07**

OR

- (b) Draw and explain speed -torque characteristics of DC Shunt motor Drive. **07**

- Q.3** (a) What is the Principle of Vector control in induction Motor? Explain it in detail. **07**
(b) Write down the scalar control of Induction Motor. **07**

OR

- Q.3** (a) Give advantages and applications of utility friendly induction motor drive. **07**
(b) Explain the working principle of PMDC with Diagram. **07**

- Q.4** (a) List out the steps of modeling of DC machine and explain in brief. **07**
(b) Write short note on Cycloconverter-fed synchronous motor drive **07**

OR

- Q.4** (a) Give comparison between permanent magnet synchronous motor and brushless dc motor. **07**
(b) Explain the torque and flux control of Induction motor. **07**

- Q.5** (a) Write a short note on switched reluctance motor. **07**
(b) Explain stepper motor and its control in detail. **07**

OR

- Q.5** (a) Derive the scheme of sensor less control and flux observers in Induction Motor. **07**
(b) What is the model reference adaptive system (MARS). **07**