

GUJARAT TECHNOLOGICAL UNIVERSITY
ME – SEMESTER II (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2724501**Date: 25/05/2016****Subject Name: Solid State AC Drives****Time: 10:30 am to 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) Explain constant torque and constant power region in three phase induction motor drive. **07**
- (b) Explain slip power recovery scheme of three phase induction motor. **07**
- Q.2** (a) Explain torque speed curve at constant V/f in three phase induction motor. **07**
- (b) Make comparison between Current Source Inverter (CSI) and Voltage Source Inverter (VSI) drives. **07**
- OR**
- (b) Why stator voltage control is suitable for speed control of induction motors in Fan and Pump drives? **07**
- Q.3** (a) Explain closed loop speed control with V/f control and slip regulation. Give limitation of model. **07**
- (b) Explain closed loop Current Source Inverter (CSI) drives. **07**
- OR**
- Q.3** (a) Explain open loop V/f speed control of induction motor with voltage fed inverter. **07**
- (b) Explain speed control of induction motor with closed loop torque and flux control for V/f control with help of block diagram. **07**
- Q.4** (a) Explain direct vector control of induction motor with voltage model. **07**
- (b) Explain self-controlled synchronous motor drive employing load commutated thyristor inverter. **07**
- OR**
- Q.4** (a) Explain the field oriented control method for induction motor. **07**
- (b) What is Direct torque control of induction motor? Explain how it is useful for fast torque response. **07**
- Q.5** (a) Explain control strategy for DTC drives with help of block diagram **07**
- (b) Explain Chopper based rotor resistance control of an induction motor **07**
- OR**
- Q.5** (a) Explain indirect vector control of induction motor with open loop flux control. **07**
- (b) Explain Brush and Brushless D.C. excitation for wound field synchronous machine. **07**
