

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII(OLD) • EXAMINATION – WINTER 2016

Subject Code: 172402**Date: 21/11/2016****Subject Name: Industrial Drives and Control - II****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) Define Electric Motor Drive. Draw the detailed block diagram of AC Motor Drive. **07**
- (b) List the different types of braking method of Induction Motor and explain any one in detail. **07**
- Q.2** (a) Explain the advantages and disadvantages AC Motor Drive over DC Motor Drive. **07**
- (b) Draw and Explain block diagram of single quadrant closed loop speed control of 3- Φ IM using 3- Φ Voltage controller. **07**
- OR**
- (b) Draw and Explain block diagram of four quadrant closed loop speed control of 3- Φ IM using 3- Φ Voltage controller. **07**
- Q.3** (a) Explain the operation of induction motor on unbalanced source voltage. **07**
- (b) Discuss IM's behavior for non-sinusoidal source voltage. **07**
- OR**
- Q.3** (a) Compare Kramer Drive and PWM VSI in terms of motor type, power, Speed range, accuracy, maximum speed, performance, advantage, disadvantage and application. **07**
- (b) Explain with diagram slip power recovery scheme. **07**
- Q.4** (a) Draw and explain four phase SRM drive using waveform explaining commutation angle generation for one phase. **07**
- (b) Explain the working of self controlled synchronous motor with electronic commutation. **07**
- OR**
- Q.4** (a) Explain the speed control of induction motor with rotor resistance control. **07**
- (b) Draw and explain indirect vector control block diagram with open loop flux control **07**
- Q.5** (a) Explain principle of direct torque control scheme using necessary block diagram and switching logic. **07**
- (b) Explain using a diagram, the working of a static scherbius system and also explain its advantages over static Kramer drive. **07**
- OR**
- Q.5** (a) With necessary equation and diagram explain stator, rotor and synchronously rotating reference frame models. **07**
- (b) Draw and explain variable frequency PWM inverter drive with regeneration and minimum loss control. **07**
