

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – III(NEW) • EXAMINATION – SUMMER 2015

Subject Code: 2133402**Date: 29/05/2015****Subject Name: Electrical Drives and Controls****Time: 02.30pm-05.00pm****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) Draw block diagram of an electrical drive and explain. Give the advantages of variable speed drives. **07**
(b) Write a note on factors influencing the choice of electrical drives. **07**
- Q.2** (a) State the different types of DC motors with diagrams and explain briefly. **07**
(b) Draw and explain T/I_a , N/I_a , and N/T characteristics of DC series motors.(where T is torque, I_a is armature current and N is speed). **07**
(b) Draw and explain T/I_a , N/I_a , and N/T characteristics of DC shunt motors.(where T is torque, I_a is armature current and N is speed). **07**
- Q.3** (a) Draw and explain torque/speed curve of 3-phase induction motor. **07**
(b) What is the need of starter in DC motor. Explain 3-point starter with diagram. **07**
- OR**
- Q.3** (a) Write a note on construction of 3-phase induction motor. **07**
(b) List different types of starting methods of induction motor. Explain any one in detail. **07**
- Q.4** (a) Explain armature control and field control of DC shunt motor. **07**
(b) Explain rotor rheostat control of slip-ring induction motor. **07**
- OR**
- Q.4** (a) Explain Ward-Leonard system for DC motor speed control. **07**
(b) List the methods of speed control of induction motor and explain any one in detail. **07**
- Q.5** (a) Explain separately excited DC motor drive with controlled rectifier. **07**
(b) Explain speed control of induction motor by frequency control using inverter. **07**
- OR**
- Q.5** (a) Explain DC series motor drive with controlled rectifier. **07**
(b) Explain static Kramer drive. **07**
