

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– III(OLD) EXAMINATION – SUMMER 2019****Subject Code: 133402****Date: 04/06/2019****Subject Name: Electrical Drives And Controls****Time: 02:30 PM TO 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) What is an electrical drive? Draw the block diagram of electrical drives and explain it. Also discuss its advantages? **07**
(b) Explain motors used in steel rolling mills, cranes & hoists, coal & mining industry. **07**
- Q.2** (a) What are the different electrical braking methods used in electrical drives. Explain the method applied to dc motor? **07**
(b) Explain types of DC motors with equation. **07**
- OR**
- (b) Calculate the value of torque developed by the armature of a 4 pole motor having 774 conductors, two paths in parallel, 24mWb flux per pole, when loaded the total armature current is 50 A. **07**
- Q.3** (a) Derive torque equation of Induction motor, starting torque. Also explain the condition for maximum torque. **07**
(b) Explain shaded pole induction motor with neat diagram. **07**
- OR**
- Q.3** (a) Explain the starting method of slip ring induction motor? **07**
(b) What are the needs of starter? Explain the 3-point starter with neat diagram? **07**
- Q.4** (a) Explain the chopper control of separately excited DC motor? **07**
(b) Explain plugging and regenerative braking for induction motor. **07**
- OR**
- Q.4** (a) Describe the ward-Leonard speed control method? **07**
(b) Explain voltage/frequency speed control method for induction motor. **07**
- Q.5** (a) Compare half controlled & full controlled rectifier. **07**
(b) Compare VSI and CSI. **07**
- OR**
- Q.5** (a) Explain Static slip power recovery scheme. **07**
(b) Explain the method of control of three phase induction motor by
(1) Stator voltage control (2) frequency control **07**
