

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – SUMMER • 2014****Subject Code: 133402****Date: 26-05-2014****Subject Name: Electrical 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 comparison between AC and DC drives. **07**
(b) Explain types of electric drive and explain factor affecting selection of drive. **07**
- Q.2** (a) Explain methods of electrical braking for DC shunt motor with diagram. **07**
(b) Explain capacitor start and split phase induction motor. **07**
- OR**
- (b) A dc series motor is running with speed of 800 rpm while taking a current of 20 Amp from the supply. If the load is changed such that the current drawn by the motor is increased to 50 Amp, Calculate the speed of the motor on new load. The armature and series field winding resistances are 0.2 and 0.3 ohms respectively. Assume the flux produced is proportional to the current. Assume supply voltage as 250 volts. **07**
- Q.3** (a) Explain 4 point starter with neat diagram. **07**
(b) Explain necessity of starter in 3 phase Induction motor and explain Auto transformer starter. **07**
- OR**
- Q.3** (a) Explain star-delta starter and Direct-on-line Starter. **07**
(b) Explain Automatic starter using contactor. **07**
- Q.4** (a) Explain Ward-Leonard system of Speed Control. **07**
(b) Explain V/F control for AC drives. **07**
- OR**
- Q.4** (a) Explain speed control of DC series motor and DC shunt motor. **07**
(b) A 250 volts dc shunt motor has a shunt field resistance of 200 ohms and an armature resistance of 0.3 ohm. For a given load, motor runs at 1500 rpm drawing a current of 22 Amps from the supply. If a resistance of 150 ohm is added in series with the field winding, find the new armature current and the speed. Assume load torque constant and magnetization curve to be linear. **07**
- Q.5** (a) Explain classification of choppers with neat diagram. **07**
(b) Explain single phase full bridge inverter for AC drives using inductive load. **07**
- OR**
- Q.5** (a) Explain Static slip power recovery scheme. **07**
(b) Compare Half controlled and full controlled rectifiers. **07**
