Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (OLD) EXAMINATION – WINTER 2018

Subject Code:133402 **Date:28/11/2018**

Subject Name:Electrical Drives And Controls

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 the classes of motor duty in details.	**07**
	(b)	Whatis an electrical drive? Draw and explain the block diagram of electrical drives. Also write down its advantages?	**07**
Q.2	**(a)**	Write a short note on various characteristic of DC shunt motor	**07**
	(b)	A 4-pole,240 V,wave connected shunt motor gives 1119 kW when running at 1000 rpm and drawing armature and field currents of 50 A and 1.0 A respectively. It has 540 conductors and its resistance is 0.1 ohms. Assuming a drop of 1 Volt per brush, find (1)total torque(2)useful torque(3)useful flux/pole(4)rotational losses and(5) Efficiency	**07**
		OR	
	(b)	A 250 V shunt motor with armature resistance of 0.5 Ω runs at 600 r.p.m on full load and takes an armature current of 20A. If resistance of 1.0 Ω is placedin the armature circuit, find the speed at (i) full load torque (ii) half full loadtorque.	**07**
Q.3	**(a)**	State and explain the different classes of Squirrel cage motor.	**07**
	(b)	Explain Split phase & Shaded pole Induction motor with a neat sketch.	**07**
		OR	
Q.3	**(a)**	Describe in detail the braking of DC shunt motor with neat sketch.	**07**
	(b)	Explain Autotransformer starter with neat diagram	**07**
Q.4	**(a)**	What is the need of starter in DC motor? Explain 3-point starter with diagram	**07**
	(b)	Describe the Ward-Leonard speed control method?	**07**
		OR	
Q.4	**(a)**	Explain the speed control methods of three phase induction motor by (1) Stator voltage control (2) Frequency control	**07**
	(b)	Explain the different slip power recovery schemes?	**07**
Q.5	**(a)**	Explain types of Choppers with neat sketch.	**07**
	(b)	Explain Single phase Full bridge inverter with Resistive load	**07**
		OR	
Q.5	**(a)**	Explain V/F control for AC drives.	**07**
	(b)	Explain Single phase Half wave controlled rectifiers with Resistive load.	**07**

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