

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

Subject Code: 2133402

Date: 28/11/2019

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.

		MARKS
Q.1	(a) Indicate the importance of power rating & heating of electric drives.	03
	(b) What are the advantages and disadvantages of Group drive (Shaft drive)?	04
	(c) Explain Classes of motor duty with example.	07
Q.2	(a) Why is the regenerative braking not possible in dc series motor?	03
	(b) Explain the characteristics of dc shunt motors with a neat diagram.	04
	(c) Explain various Electric braking methods of DC series motor.	07
OR		
	(c) Explain construction and working principle of three phase induction motor.	07
Q.3	(a) Why DC series motor should not be started without loaded conditions?	03
	(b) Draw and explain Speed-Armature current characteristic of DC shunt motor.	04
	(c) What is the main difference between three point and four-point starter? Explain three-point starter with neat sketch.	07
OR		
Q.3	(a) Explain Direct on-line starter with neat diagram	03
	(b) Explain necessity of starter for ac motors	04
	(c) Draw and explain rotor rheostat control of slip-ring induction motor in brief.	07
Q.4	(a) What do you mean by time ratio control in dc choppers?	03
	(b) With circuit describe DC motor Ward-Leonard control system.	04
	(c) Explain first quadrant chopper control of separately excited motor for continuous conduction.	07
OR		
Q.4	(a) What are the speed control methods available for speed control of induction motor on stator side?	03
	(b) Explain how the speed of a DC Shunt Motor can be varied both above and below the speed at which it runs with full field current	04
	(c) Compare VSI and CSI	07
Q.5	(a) With diagram explain auto transformer starter for three phase induction motor.	03
	(b) How is the speed control of the dc drive achieved using fully controlled rectifier?	04
	(c) Explain the slip recovery scheme in induction motor?	07
OR		
Q.5	(a) Explain first quadrant chopper control of separately excited motor for continuous conduction.	03
	(b) Explain voltage/frequency control of 3-phase induction motor.	04
	(c) What are the types of slip power recovery scheme? Explain any one.	07
