Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VIII EXAMINATION – SUMMER 2016

Subject Code:X80903 **Date:07/05/2016**

Subject Name:Electrical Drives & Traction

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 different factors that will affected for selection of electric drive.	**07**
	(b)	Explain & compare group drive, individual drive and multi motor drive.	**07**
Q.2	**(a)**	Enlist different methods of speed control of three-phase induction motor. Explain any two of them.	**07**
	(b)	Explain torque speed characteristics of a three-phase induction motor.	**07**
		OR	
	(b)	Draw and explain running characteristics of D.C. shunt and D.C. series motor.	**07**
Q.3	**(a)**	Write technical note on heating and cooling curves.	**07**
	(b)	Write technical note on “Load equalization and flywheel”.	**07**
		OR	
Q.3	**(a)**	Explain the concept of rheostatic braking in D.C. shunt and series motors.	**07**
	(b)	Explain Types of enclosures used in electric motor.	**07**
Q.4	**(a)**	State the main requirements for an ideal traction system. Give merits and demerits of electric traction over steam engine traction.	**07**
	(b)	Explain speed time curves for different traction services.	**07**
		OR	
Q.4	**(a)**	A train runs with an average speed of 40 kmph on a level track. Distance between stations is 2 km, values of acceleration and retardation are 1.5 kmphps and 2.5 kmphps respectively. Find the maximum speed of train assuming trapezoidal speed time curve.	**07**
	(b)	What are the advantages of regenerative braking? Explain how regenerative braking can be obtained in DC locomotive.	**07**
Q.5	**(a)**	Define average speed, crest speed and schedule speed. Discuss the factors, which affect schedule speed of a train.	**07**
	(b)	Drive an expression for specific energy output and specific energy.	**07**
		OR	
Q.5	**(a)**	Using the simplified trapezoidal speed time curve, derive an expression for the maximum speed in kmph in terms of acceleration, retardation, distance between stops and actual time of run between stops.	**07**
	(b)	Explain series parallel control by shunt transition method.	**07**

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