Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) - EXAMINATION – SUMMER 2016

Subject Code:2160907 **Date:21/05/2016**

Subject Name: Utilization of Electrical Energy and 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)**	Discuss rheostatic braking applied to DC motor with neat sketch	**07**
	(b)	State the methods of speed control of 3-Ø induction motor and explain any one method in detail.	**07**
Q.2	**(a)**	Compare AC and DC traction system.	**07**
	(b)	Explain following term (1) co-efficient of adhesion (2) schedule speed (3) specific energy consumption.	**07**
		OR	
	(b)	Explain four quadrant operation of a drive with suitable diagrams.	**07**
Q.3	**(a)**	Define average speed, crest speed and schedule speed and discuss the factors which affect schedule speed of a train.	**07**
	(b)	Discuss advantages of electric welding and give classification of electric welding.	**07**
		OR	
Q.3	**(a)**	Discuss the process of electric arc welding.	**07**
	(b)	Explain dielectric heating.	**07**
Q.4	**(a)**	Discuss track electrification in detail.	**07**
	(b)	Discuss factors affecting in designing in lighting scheme.	**07**
		OR	
Q.4	**(a)**	State and explain square law of illumination.	**07**
	(b)	Explain laws of electrolysis.	**07**
Q.5	**(a)**	Explain operation of an electrical drive in all the four quadrants	**07**
	(b)	Explain Ward-Leonard system of speed control with diagram. Also state the advantages & disadvantages of this method.	**07**
		OR	
Q.5	**(a)**	What do you understand by Tractive efforts? Derive the expression for the same.	**07**
	(b)	Explain factors affecting for selection of drive.	**07**

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