GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2160907 Subject Name: Utilization of Electrical Energy and Traction Time: 10:30 AM to 01:00 PM Instructions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.			16
			: 70
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. OR	07
	(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. OR	07
Q.3	(a) (b)	Discuss the process of electric arc welding. Explain dielectric heating.	07 07
ΩA	(a)	Discuss track electrification in detail.	07
Q.4	(a) (b)	Discuss factors affecting in designing in lighting scheme. OR	07
Q.4	(a)	State and explain square law of illumination.	07
	(b)	Explain laws of electrolysis.	07
Q.5	(a) (b)	Explain operation of an electrical drive in all the four quadrants Explain Ward-Leonard system of speed control with diagram. Also state the advantages & disadvantages of this method.	07 07
Q.5	(a)	OR What do you understand by Tractive efforts? Derive the expression for the same.	07
•	(b)	Explain factors affecting for selection of drive.	07
