

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2020****Subject Code:2160907****Date:05/02/2021****Subject Name:Utilization of Electrical Energy and Traction****Time:02:00 PM TO 04:00 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Give the meaning of following terms related to electric traction: (i) Crest speed (ii) Average speed (iii) Schedule speed.	03
	(b) Compare AC and DC traction system.	04
	(c) Explain various factors affecting selection of drive.	07
Q.2	(a) Explain following terms with respect to illumination: (i) Luminous Intensity (ii) Illumination (iii) Candle Power	03
	(b) Name the motor used as a drive for particular services with reason: (i) Cranes (ii) Water pumps (iii) Fans (iv) Electric traction	04
	(c) State and describe the types of electric braking in detail.	07
Q.3	(a) Define Electrolysis process and state its applications.	03
	(b) State and explain Faraday's law of electrolysis.	04
	(c) State and explain Inverse square law and Lambert's cosine law of Illumination.	07
Q.4	(a) Briefly describe the factors affecting schedule speed of a train.	03
	(b) Discuss the factors affecting in electro deposition.	04
	(c) Draw a diagram of AC electric locomotive and explain function of each part of it.	07
Q.5	(a) Give the applications of a high frequency eddy current heating.	03
	(b) State the advantages of electric heating.	04
	(c) Name various electric heating methods and explain direct resistance heating in detail.	07
Q.6	(a) Briefly describe the process of anodizing.	03
	(b) Explain Direct core type induction furnace with neat sketch.	04
	(c) Explain dielectric heating with its applications.	07
Q.7	(a) Explain carbon arc welding with sketch.	03
	(b) Compare resistance welding and arc welding.	04
	(c) Draw and explain refrigeration cycle.	07

- Q.8** (a) Compare AC and DC arc welding. **03**
(b) Give detail classification of various welding processes. **04**
(c) State the principle of air conditioning and explain window type air conditioner with neat sketch. **07**
