

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

- 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**

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