

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:2160907****Date:16/06/2022****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.
4. Simple and non-programmable scientific calculators are allowed

		MARKS
<b>Q.1</b>	(a) State advantages of electric heating.	<b>03</b>
	(b) Compare AC and DC traction system.	<b>04</b>
	(c) Explain speed-Time curve of a main line electric traction system.	<b>07</b>
<b>Q.2</b>	(a) Write classification of electrical drive in detail.	<b>03</b>
	(b) Explain factors affecting selection of drive.	<b>04</b>
	(c) State and describe the types of electric braking in detail.	<b>07</b>
<b>OR</b>		
	(c) How selection of a motor is done for a particular application?	<b>07</b>
<b>Q.3</b>	(a) Different modes of heat transfer.	<b>03</b>
	(b) State and explain Faraday's law of electrolysis.	<b>04</b>
	(c) Explain the design procedure of heating element.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Compare AC and DC arc welding.	<b>03</b>
	(b) Write short note on induction heating.	<b>04</b>
	(c) Draw and explain electrical circuit used in domestic refrigerator.	<b>07</b>
<b>Q.4</b>	(a) Explain the terms: 1) Lumen 2) Luminous flux 3) luminous intensity	<b>03</b>
	(b) Compare Resistance and Arc welding.	<b>04</b>
	(c) Explain Ajax-Wyatt Furnace with advantages, disadvantages and applications.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Compare AC and DC Traction system.	<b>03</b>
	(b) What is electro plating? Describe it in detail.	<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 and explain laws of illumination.	<b>04</b>
	(c) Explain dielectric heating with its applications.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Write principle of air-conditioning and enlist advantages of it.	<b>03</b>
	(b) What is flood lighting? Where it is used?	<b>04</b>
	(c) Write principle of resistance welding. Explain Butt welding.	<b>07</b>

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