

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-I&II EXAMINATION – SUMMER 2025****Subject Code:3110001****Date:25-06-2025****Subject Name:Chemistry****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) Define the following terms: Chemistry, Ions, Atomic Size	<b>03</b>
	(b) Discuss the periodic property for a periodic table.	<b>04</b>
	(c) Explain chemical bondings with suitable examples.	<b>07</b>
<b>Q.2</b>	(a) Define the following terms: Ionization Energy, Hard Acid, Covalent Bond	<b>03</b>
	(b) Mention various sources and impurities present in water.	<b>04</b>
	(c) Explain various boiler problems & how can it be solved by engineering applications.	<b>07</b>
	<b>OR</b>	
	(c) Explain various softening methods with suitable diagrams.	<b>07</b>
<b>Q.3</b>	(a) Define the following terms: Soft Water, Brine, Coagulant	<b>03</b>
	(b) Mention various properties of metals with examples.	<b>04</b>
	(c) Explain domestic water treatment and also desalination of brackish water.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Define the following terms: Metals, Non-Metals, Alloy	<b>03</b>
	(b) What are alloys, classify them with examples?	<b>04</b>
	(c) Explain the metallurgy of copper with industrial applications.	<b>07</b>
<b>Q.4</b>	(a) Define the following terms: Polymers, Fibers, Rubber	<b>03</b>
	(b) Mention difference type of rubber and why it is vulcanized?	<b>04</b>
	(c) Classify in detail fibers along with their importance to society.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Define the following terms: Nano Material, Fuel, Catalyst	<b>03</b>
	(b) What are the sources, properties and applications of fullerenes?	<b>04</b>
	(c) Explain application of nano materials in catalysts, textile and medicine.	<b>07</b>
<b>Q.5</b>	(a) Define the following terms: Combustion, Biotechnology, Enzyme	<b>03</b>
	(b) What is fractional distillation?	<b>04</b>
	(c) What is proximate analysis for coal?	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Define the following terms: pH, Spectra, Conductance	<b>03</b>
	(b) How is biotechnology helpful in agriculture, food and in medicine?	<b>04</b>
	(c) Mention the principles of spectroscopy along with their application.	<b>07</b>

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