

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-I & II (NEW) EXAMINATION – SUMMER 2024

Subject Code:3110001

Date:10-07-2024

Subject Name:Chemistry

Time:02:30 PM TO 05:00 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
Q.1 (a) Differentiate between addition and condensation polymerisation.	03
(b) Explain the principle of UV-VIS spectroscopy and list down main components of UV-VIS spectrophotometer.	04
(c) What is meant by hardness of water? what are the common units of measurement of hardness of water? Give relationship between various unit.	07
Q.2 (a) Draw a well labelled diagram of fractional distillation of crude petroleum showing its various fractions.	03
(b) State Lambert and Beer's law and deduce its mathematical expression.	04
(c) Describe sacrificial anodic method for corrosion prevention with an example.	07
OR	
(c) What do you understand by electrochemical corrosion? Explain mechanism of electrochemical corrosion.	07
Q.3 (a) Outline the applications of nanotechnology in medicine.	03
(b) Write a brief note on pH Meter.	04
(c) Explain the suitable method to analyze the percentage of moisture, volatile matter and ash content in a coal sample.	07
OR	
Q.3 (a) What are the effects of nanoscale dimension on mechanical and optical properties of material?	03
(b) What is spectroscopy? Write the application of IR spectroscopy.	04
(c) Write a note proximate and ultimate analysis of coal.	07
Q.4 (a) Define terms: a. Electron negativity b. Ionization enthalpy c. Electron affinity	03
(b) What is an enzyme? Give its application in alcohol synthesis.	04
(c) What is corrosion? Do you think rusting is electrochemical process? Justify with the help of involved redox reactions.	07
OR	
Q.4 (a) Write a brief note on physical properties of metals.	03
(b) Define terms: Covalent bond, Ionic bond, polar covalent bond, and non-polar covalent bond.	04
(c) Explain the fermentation processes for preparation of Ethanol.	07

- Q.5** (a) Distinguish between absorption and emission spectra. **03**
(b) What is vulcanization of Rubber? Why vulcanization is done? **04**
(c) Write short note on softening of hard water by Lime soda process. **07**

OR

- Q.5** (a) Give labelled schematic diagram for treatment of waste water. **03**
(b) What are alloys? Give example and explain why alloying is done? **04**
(c) Explain the preparation, properties and use of the following polymers:- (a) **07**
Buna-S rubber (b) Nylon 6:6
