

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-IV EXAMINATION – WINTER 2025

Subject Code:3140508

Date:20-11-2025

Subject Name:Unit Processes & Chemical Technology

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
<b>Q.1</b> (a) What is pigment? Briefly describe their types.	<b>03</b>
(b) Distinguish between unit process and unit operation.	<b>04</b>
(c) Give details about diaphragm and membrane cell process for production of chlorine.	<b>07</b>
<b>Q.2</b> (a) What is PVC ratio? Why paints are failure many times?	<b>03</b>
(b) Give the classification of drugs.	<b>04</b>
(c) Give the detailed process for manufacturing of H-acid.	<b>07</b>
<b>OR</b>	
(c) Explain DCDA process with major Engineering problems.	<b>07</b>
<b>Q.3</b> (a) Why Friedel-Craft alkylation of nitrobenzene is disfavoured?	<b>03</b>
(b) Give the details about raw materials used in ceramic industries.	<b>04</b>
(c) Explain the manufacturing process of paints with neat flow diagram	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) What is NPK fertilizer?	<b>03</b>
(b) Discuss the mechanism for alkylation of chlorobenzene.	<b>04</b>
(c) Explain the manufacturing process of Ammonia with major engineering problems.	<b>07</b>
<b>Q.4</b> (a) Write the important properties of petroleum products.	<b>03</b>
(b) Write basic prerequisites of good fermentation process.	<b>04</b>
(c) Explain the manufacturing process of sugar from sugar cane.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Describe in detail settling and hardening of cement.	<b>03</b>
(b) Explain the major engineering problem in the manufacturing of H <sub>3</sub> PO <sub>4</sub> by wet process.	<b>04</b>

- (c) Describe the manufacturing process of chrome blue black. **07**
- Q.5** (a) Explain preparation of Phenobarbital with chemical reaction. **03**
- (b) Discuss the advantages of catalytic cracking over thermal cracking. **04**
- (c) Explain pulp manufacturing by Kraft process. **07**

**OR**

- Q.5** (a) List out the advantages and disadvantages of Solvay Process. **03**
- (b) Explain the classification of dyes according to its application. **04**
- (c) What are antibiotics? Explain the manufacture of penicillin with a neat process flow diagram. **07**

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