

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV EXAMINATION – SUMMER 2025

Subject Code:3140508

Date:17-05-2025

Subject Name: Unit Processes & Chemical Technology

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
Q.1 (a) Discuss the reductive alkylation reaction of aniline	03
(b) Discuss the oxidation of xylene	04
(c) Write a note on friedel crafts alkylation reaction of benzene, benzoic acid and phenol	07
Q.2 (a) Write the reaction mechanism of nitration of benzene.	03
(b) Discuss the chlorination of toluene and hydrogenation of nitrobenzene	04
(c) Describe the process description of H ₂ SO ₄ by DCDA process and discuss its major engineering problems	07
OR	
(c) Explain the manufacturing process of urea.	07
Q.3 (a) Differentiate the dye, paint and pigment	03
(b) Write a note on dispersive reactive and azo dye	04
(c) Discuss the manufacturing process of H-acid dye	07
OR	
Q.3 (a) Explain the manufacturing process of aspirin	03
(b) Discuss the classification of drug.	04
(c) Discuss the manufacturing process of penicillin	07
Q.4 (a) Define cement and refractory and discuss the calcination of CaCO ₃	03
(b) Write a note on setting and hardening of cement	04
(c) Write a note on manufacturing process of cement.	07
OR	
Q.4 (a) Define petroleum, paper and sugar.	03
(b) Write a note on cracking of petroleum.	04
(c) Define the fermentation and write a note on manufacturing process of alcohol	07
Q.5 (a) Write a note on process description of ammonia	03
(b) Draw the schematic diagram of nitric acid production.	04
(c) Discuss the hydrochloric acid leaching method for the production of phosphoric Acid.	07
OR	
Q.5 (a) Discuss the chemical reaction of Kraft (Pulp) Process.	03
(b) Write a note on LPG, Gasoline and Diesel.	04
(c) Write a note on pigments.	07
