

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2021****Subject Code:3140508****Date:24/12/2021****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) Define the term pigment. Briefly describe their types.	03
	(b) Write a note on types of refractory materials and their applications.	04
	(c) Explain diaphragm and membrane cell process for production of chlorine.	07
Q.2	(a) Why Friedel-Craft alkylation of nitrobenzene is disfavoured?	03
	(b) Discuss the mechanism for alkylation of chlorobenzene.	04
	(c) Discuss continuous nitration with fortified spent-acid process for manufacturing of nitrobenzene from benzene.	07
OR		
	(c) Describe the mechanistic view for alkylation of phenol to ortho cresol, meta cresol and para cresol.	07
Q.3	(a) What are NPK fertilizers?	03
	(b) Compare wet process and electric process in phosphoric acid manufacture.	04
	(c) Explain sulphuric acid manufacture with a neat flow diagram.	07
OR		
Q.3	(a) Describe classification of dyes based on their application.	03
	(b) Describe the manufacture of caustic soda by electrolytic process using mercury cell.	04
	(c) Explain the manufacturing process of chrome blue black and H-acid.	07
Q.4	(a) What are antiseptic and analgesic drugs?	03
	(b) Describe industrial production of penicillins.	04
	(c) Explain the manufacturing process of aspirin and ascorbic acid.	07
OR		
Q.4	(a) Enlist types of cements and their uses.	03
	(b) Discuss fermentation of molasses and its products.	04
	(c) Explain in detail manufacture cane sugar from sugar cane with flow sheet diagram.	07
Q.5	(a) Enlist three methods of pulp production.	03
	(b) Explain pulp manufacturing by Kraft process.	04
	(c) Explain in detail settling and hardening of cement.	07
OR		
Q.5	(a) Discuss composition of crude oil.	03
	(b) Describe a catalytic cracking method for the production of gasoline.	04
	(c) Describe the method of manufacture of vinyl Chloride and acetaldehyde.	07
