

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– III(NEW) EXAMINATION – WINTER 2022****Subject Code:3131306****Date:24-02-2023****Subject Name:Unit Operations & Processes in Chemical Industries****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 Unit operation and Unit process.	03
	(b) Define Unit process (a) Esterification and (b) Nitrification	04
	(c) Explain manufacturing process of Acetic Acid along with Flow diagram.	07
Q.2	(a) Explain the importance of this subject in environmental engineering.	03
	(b) Define Unit operation with two examples.	04
	(c) Draw only a neat flow diagram of Aniline production.	07
	OR	
	(c) Draw a neat process flow diagram of Furfural production.	07
Q.3	(a) Write down Properties of (a) Vinyl Chloride (b) Methane (c) Phenol	03
	(b) Explain the health and safety aspects involved with Hydrogen Cyanide manufacturing.	04
	(c) Explain manufacturing process of Nitric Acid along with Flow diagram.	07
	OR	
Q.3	(a) Write down Properties of (a) Ammonia (b) Sulfuric Acid (c) Ethylene	03
	(b) Explain the health and safety aspects involved with Phenol manufacturing.	04
	(c) Explain manufacturing process of Urea along with Flow diagram.	07
Q.4	(a) Identify the unit operation and process in Ethanol manufacturing process.	03
	(b) Apply engineering concept for problems occur during manufacturing process of Urea.	04
	(c) Apply the concept of Halogenation for the manufacturing process of Mono-Chloro-Acetic Acid with the help of a flow sheet.	07
	OR	
Q.4	(a) Identify the unit operation and process in Ethyl Acetate manufacturing process.	03
	(b) Apply engineering concept for problems occur during manufacturing process of Nitric Acid.	04
	(c) Apply the concept of hydrolysis for the manufacturing process of Phenol with the help of a flow sheet.	07
Q.5	(a) Identify and describe sources of pollution from the manufacturing process of cellulose acetate.	03
	(b) Draw only a neat flow diagram of Vinyl Acetate production.	04
	(c) Apply the concept of ammonolysis for the manufacturing process of Hydrogen Cyanide with the help of a flow sheet.	07

OR

- Q.5** (a) Identify and describe sources of pollution from manufacturing process of Hydrogenation of cotton seed oil. **03**
- (b) Draw only a neat flow diagram of Ethanol production from Ethylene. **04**
- (c) Apply the concept of Halogenations for the manufacturing process of Vinyl Chloride with the help of a flow sheet **07**
