

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2021****Subject Code:3140508****Date:07/09/2021****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.

- Q.1** (a) Briefly explain the role of vitamins in human life. **03**  
(b) Discuss about the raw materials used in ceramic industries. **04**  
(c) Define analgesics and antipyretics. Explain the manufacturing process of aspirin with a neat flow diagram. **07**
- Q.2** (a) Define PVC of paints. What is its significance? **03**  
(b) What are dyes? How are they classified according to application? **04**  
(c) Describe the manufacture of caustic soda and chlorine by membrane cell process. Also state the advantages of using membrane cell. **07**
- OR**
- (c) State the applications of sulfuric acid. Describe the manufacture of sulfuric acid by DCDA process. **07**
- Q.3** (a) What are the main constituents of paints? Explain. **03**  
(b) Write a short note on industrial coatings. **04**  
(c) With a neat flow diagram, describe the manufacturing process of chrome blue black. **07**
- OR**
- Q.3** (a) Discuss about the classification of drugs and pharmaceuticals. **03**  
(b) What is ascorbic acid? How is it produced? **04**  
(c) What are antibiotics? Explain the manufacture of penicillin with a neat process flow diagram. **07**
- Q.4** (a) What is absolute alcohol? How is it produced from industrial alcohol? **03**  
(b) Briefly explain the manufacturing of paper. **04**  
(c) Describe the manufacturing of butyl alcohol and citric acid by fermentation. **07**
- OR**
- Q.4** (a) What are refractories? State its types. **03**  
(b) Briefly explain setting and hardening of cement. **04**  
(c) With a neat diagram describe the manufacturing of cement by wet process. Also write the reactions involved in the process. **07**
- Q.5** (a) What is mixed acid? Cite and explain one industrial application of it. **03**  
(b) Briefly explain the mechanism of hydrogenation of nitrobenzene. **04**  
(c) Describe the pulp manufacturing by Kraft (sulfate) process. Also discuss the difference between sulfate process and sulfite process. **07**
- OR**
- Q.5** (a) What do you understand by C1, C2 and C3 chemicals? State one use of each. **03**  
(b) State four properties of petroleum products and their significance. **04**  
(c) Write short notes on processing of petroleum and treatment techniques. **07**

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