

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023

Subject Code:3140508**Date:17-07-2023****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

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| Q.1 | (a) Discuss following unit processes: Oxidation, Reduction, Acylation | 03 |
| | (b) Define drugs and write the classification of drugs. | 04 |
| | (c) Write the electrophile for the Nitration, Sulphonation, and Alkylation reaction and also write the stepwise mechanism of formation of nitrobenzene from benzene. | 07 |
| | | |
| Q.2 | (a) Write major applications of Drugs. | 03 |
| | (b) Discuss classification of dyes based on application. | 04 |
| | (c) Explain manufacturing process of H acid with the help of diagram. | 07 |
| | OR | |
| | (c) Explain following terms: Dyes, Pigments, Varnishes, C1,C2,C3 Chemicals, Vitamin B12, Fermentation, Refining | 07 |
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| Q.3 | (a) Draw a neat diagram for manufacturing process of Sodium Bicarbonate. | 03 |
| | (b) Write a note on Fertilizer industry and its major pros and cons. | 04 |
| | (c) Construct neat flow diagram for one of the antibiotic and state its major engineering problems. | 07 |
| | OR | |
| Q.3 | (a) Draw a neat diagram for membrane cell process of manufacturing Chlorine. | 03 |
| | (b) Write a note in favor of advancements of Chemical Industries by major use of unit processes. | 04 |
| | (c) Explain manufacturing of sulphuric acid with a neat flow diagram and chemistry involved. | 07 |
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| Q.4 | (a) What are refractories? Write their applications. | 03 |
| | (b) Explain in detail settling and hardening of cement. | 04 |
| | (c) Explain pulp manufacturing by Kraft process | 07 |
| | OR | |
| Q.4 | (a) Write a note on types of refractories. | 03 |
| | (b) Explain in brief about methods of making pulp. | 04 |
| | (c) Write details about the manufacturing of cement by dry process with the help of a neat schematic diagram. | 07 |
| | | |
| Q.5 | (a) Explain properties which make Petroleum versatile. | 03 |
| | (b) Discuss the reaction mechanism of thermal cracking. | 04 |
| | (c) Explain the manufacturing process of sugar from sugar cane with proper diagram | 07 |
| | OR | |
| Q.5 | (a) Draw process flow diagram for manufacturing of citric acid. | 03 |
| | (b) Discuss the advantages of catalytic cracking over thermal cracking. | 04 |
| | (c) Describe the process of atmospheric distillation and vacuum distillation for petroleum refining. | 07 |