

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022****Subject Code:3140508****Date:02-07-2022****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) Explain the mechanism of acylation of benzene. | 03 |
| | (b) Explain the role of sulfuric acid in nitration process. | 04 |
| | (c) Explain the role of four pass converter to convert SO ₂ into SO ₃ by drawing. | 07 |
| Q.2 | (a) Write the application of various dyes. | 03 |
| | (b) Define dye. How are dyes classified on the basis of structure? | 04 |
| | (c) Explain the manufacturing process of chrome blue black dye with neat sketch diagram. | 07 |
| | OR | |
| | (c) Explain the manufacturing process of H-acid dye with neat sketch diagram. | 07 |
| Q.3 | (a) Write a note on Disperse dyes. | 03 |
| | (b) Explain the mining of sulfur by claus methods. | 04 |
| | (c) Explain the manufacturing process of caustic soda by membrane cell. | 07 |
| | OR | |
| Q.3 | (a) Write a note on Vat dyes. | 03 |
| | (b) Explain the Frasch process for sulfur. | 04 |
| | (c) Explain the manufacturing process of NPK fertilizer with major engineering problems. | 07 |
| Q.4 | (a) Explain the reason for failure of paints. | 03 |
| | (b) Write a note on any one pigments. | 04 |
| | (c) Explain the manufacturing process of paints with neat flow diagram. | 07 |
| | OR | |
| Q.4 | (a) Explain the role of plasticizer/Binder/Oil as an ingredient used in paint | 03 |
| | (b) Write a note on Lithophone as a pigment. | 04 |
| | (c) Explain the manufacturing process of sugar from sugar cane with proper diagram. | 07 |
| Q.5 | (a) What are drugs? Write the types of drugs. | 03 |
| | (b) Explain preparation of Barbitol with chemical reaction | 04 |
| | (c) Explain the manufacturing process of Erythromycin with flow diagram. | 07 |
| | OR | |
| Q.5 | (a) Write various chemical reaction for setting and hardening of cement. | 03 |
| | (b) What is the basic prerequisites of good fermentation. | 04 |
| | (c) Explain the manufacturing process of cement with proper flow diagram. | 07 |
