

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

**Subject Code: 2131304**

**Date: 3/12/2019**

**Subject Name: Chemical Engg Processes**

**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.

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|------------|--|-----------|
| <b>Q.1</b> | (a) List the different unit process with examples.   | <b>03</b> |
|            | (b) Differentiate between Absorption process and Adsorption process.                         | <b>04</b> |
|            | (c) Draw only a neat process flow diagram of Vinyl chloride manufacturing.                   | <b>07</b> |
| <b>Q.2</b> | (a) Differentiate between Oxidation process and Reduction process.                           | <b>03</b> |
|            | (b) Why an environmental engineer needs to learn the subject Chemical Engineering Processes? | <b>04</b> |
|            | (c) Describe the manufacturing process of Acetic acid by oxidation process with a flowsheet. | <b>07</b> |
| <b>OR</b>  |  |           |
|            | (c) Describe the manufacturing process of Phenol with a neat flowsheet.                      | <b>07</b> |
| <b>Q.3</b> | (a) List the raw materials which are used in manufacturing process of acetic acid.           | <b>03</b> |
|            | (b) Discuss the health hazards related to Hydrogen Cyanide production.                       | <b>04</b> |
|            | (c) Discuss the sources of pollution and health & safety aspects of Nitric acid.             | <b>07</b> |
| <b>OR</b>  |  |           |
| <b>Q.3</b> | (a) Write down the reactions involved in monochloroacetic acid production.                   | <b>03</b> |
|            | (b) Discuss the health hazards related to Esterification.                                    | <b>04</b> |
|            | (c) Discuss the sources of pollution and health & safety aspects of Ethanol.                 | <b>07</b> |
| <b>Q.4</b> | (a) Enlist the uses of Phenol.   | <b>03</b> |
|            | (b) What is Biuret? How to prevent its formation?  | <b>04</b> |
|            | (c) Explain the different ways of air pollution control in chemical manufacturing process.   | <b>07</b> |
| <b>OR</b>  |  |           |
| <b>Q.4</b> | (a) Write short note on Sulphur production.  | <b>03</b> |
|            | (b) State advantage of producing granular urea. How granular urea can be produced?           | <b>04</b> |
|            | (c) Write a note on MSDS.  | <b>07</b> |
| <b>Q.5</b> | (a) Discuss the uses of methanol.  | <b>03</b> |
|            | (b) Define amination process by reduction method.  | <b>04</b> |
|            | (c) Draw only a neat process flow diagram of Cellulose Acetate manufacturing.                | <b>07</b> |
| <b>OR</b>  |  |           |
| <b>Q.5</b> | (a) Enlist the steps necessary to manage waste.  | <b>03</b> |
|            | (b) Write short note on different types of heat exchangers.                                  | <b>04</b> |
|            | (c) Write short note on hydrogenation of oils.   | <b>07</b> |

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