

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 3 – EXAMINATION – SUMMER 2026

Subject Code: BE03005021

Date: 22/06/2026

Subject Name: CHEMICAL PROCESS 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) Define unit operation and unit process with one suitable example of each. 03
(b) Discuss batch vs continuous processes with suitable examples. 04
(c) Describe the production of sulfuric acid using DCDA process with neat flow sheet. 07
- Q.2** (a) Draw the flow sheet of sulfur production using sulfur mining process. 03
(b) Compare between membrane cell and diaphragm cell process for the synthesis of Chlorine-Caustic soda. 04
(c) Describe the manufacturing of ammonia with neat flow sheet. 07
- OR
- Q.2** (c) Describe the manufacturing of urea with neat flow sheet. 07
- Q.3** (a) Define Vat Dye with example. 03
(b) Draw the membrane cell, mercury cell and diaphragm cell with cell notations for chlorine -caustic soda synthesis. 04
(c) Explain the manufacturing process of Koch-Acid with a process flow diagram. 07
- OR
- Q.3** (a) Define Azo dye with example. 03
(b) Write short note on paints & Pigments. 04
(c) Construct process flow Diagram of manufacturing of H acid also explain it with the help of reactions. 07
- Q.4** (a) Differentiate between soap and detergent with suitable example. 03
(b) Draw the flow sheet for the manufacturing of Glycerine. 04
(c) With a neat process flow diagram, describe the process of manufacturing of ascorbic acid (Vitamin C). 07
- OR
- Q.4** (a) Define antibiotics and write the name of any four. 03
(b) Define and differentiate the terms Drug and Medicine with examples of each. 04
(c) Give details of the manufacturing process of sugar from sugar cane with the help of diagram. 07
- Q.5** (a) Define rare gases with suitable examples. 03
(b) Discuss the major engineering problems associated with the manufacturing of pulp using Kraft process. 04
(c) With a neat process flow diagram, describe the process of manufacturing of Penicillin. 07

OR

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| Q.5 | (a) Write short note on importance of Cryogenics in gases production. | 03 |
| | (b) Discuss the major engineering problems associated with the manufacturing of cement. | 04 |
| | (c) Write details about the manufacturing of cement by dry process with the help of a neat schematic diagram. | 07 |
