

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2130505

Date:21/05/2018

Subject Name:Chemical Process Industries-1

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.

- Q.1** (a) Differentiate between batch and continuous processing with an illustration. **03**
(b) With a suitable example, explain energy recovery from the process **04**
(c) Describe the manufacture of urea with a neat process flow diagram. **07**
- Q.2** (a) Justify the need for water treatment for industrial and domestic use. **03**
(b) With a neat diagram, explain the principle of reverse osmosis. **04**
(c) Describe the manufacture of sulfuric acid by DCDA process with a process flow diagram. **07**
- OR**
- (c) With a neat sketch of membrane cell, describe the manufacture of caustic soda and chlorine by membrane cell process. **07**
- Q.3** (a) State the uses and applications of ammonia. **03**
(b) State the merits and demerits of mercury cell process used for the manufacture of caustic soda. **04**
(c) Describe the manufacture of sodium bicarbonate with reactions. **07**
- OR**
- Q.3** (a) Discuss the major engineering problems associated with the production of nitric acid. **03**
(b) Write a short note on NPK fertilizer. **04**
(c) Discuss about the various processes of making pulp for paper industries in detail. **07**
- Q.4** (a) What are the different types of glasses produced by glass industries? **03**
(b) Mention the types of Portland cement and their applications. **04**
(c) Stating the types of propellants, discuss about their properties and applications in detail. **07**
- OR**
- Q.4** (a) State the types of papers and their uses. **03**
(b) Briefly describe Frasch process of mining sulfur. **04**
(c) With a neat diagram, describe any one deionization process used in water treatment. **07**
- Q.5** (a) Write a brief note on toxic chemical agents. **03**
(b) What do you understand by rare gases? Discuss about any one. **04**
(c) With a neat sketch, describe the separation of nitrogen and oxygen by Linde process. **07**
- OR**
- Q.5** (a) State the sources and uses of hydrogen. **03**
(b) Briefly discuss about activated carbon. **04**
(c) With a neat diagram, describe the production of graphite. **07**
