

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 2130505****Date: 20-12-2014****Subject Name: Chemical Process Industries - I****Time: 02.30 pm - 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.

- Q.1** (a) What do you understand by the term ‘desalination’? With a neat sketch, describe any one desalination process in detail. **07**
- (b) Describe the manufacture of sulfuric acid by DCDA process with process flow diagram. **07**
- Q.2** (a) Stating the uses of urea, discuss all major engineering problems in urea production by ammonium carbamate decomposition process. **07**
- (b) Describe the manufacture of soda ash by Solvay process, with a neat process flow diagram. **07**
- OR**
- (b) With a neat sketch of membrane cell, explain the process of manufacturing caustic soda and chlorine. State the advantages and the disadvantages of membrane cell process. **07**
- Q.3** (a) Stating the major engineering problems, explain the manufacture of ammonia with a neat flow diagram. **07**
- (b) Discuss the scope of fertilizer industries in India. **07**
- OR**
- Q.3** (a) Stating the raw materials and chemical reactions, discuss all major engineering problems in the manufacture of phosphoric acid by wet process. **07**
- (b) State the sources and uses of hydrogen. Explain its manufacture from any one source. **07**
- Q.4** (a) Describe the production of oxygen and nitrogen by Linde process. Also state the properties and uses of oxygen and nitrogen. **07**
- (b) State various forms of carbon and discuss about any one in detail. **07**
- OR**
- Q.4** (a) Explain the manufacturing process of Portland cement with a neat flow sheet. **07**
- (b) Stating the classification of commercial glasses, explain the manufacture of flat glass. **07**
- Q.5** (a) Mention the types of propellants. Discuss the basic criteria for developing high performance chemical propellant system. **07**
- (b) State the various types of explosives and discuss about any one in detail. **07**
- OR**
- Q.5** (a) With a neat diagram explain paper making process. **07**
- (b) Briefly discuss Kraft (sulfate) process of pulping and compare with sulfite process. **07**
