

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-III Examination May 2012****Subject code: 130505****Subject Name: Chemical Process Industries-I****Date: 11/05/2012****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 is 'conditioning of water' ? Discuss Ion-exchange process with all chemical reactions for conditioning fresh water . **07**
(b) Discuss major engineering problems in DCDA process for the manufacturing of sulphuric acid . **07**
- Q.2** (a) Discuss Mercury cell process for manufacture of chlorine and caustic soda .Discuss merits and demerits of this process over other processes. **07**
(b) With neat flow diagram and reactions ,discuss manufacture of Urea by any recent process. **07**
- OR**
- (b) Discuss major engineering problems in manufacture of Phosphoric acid via Wet process(sulphuric acid leaching) **07**
- Q.3** (a) Discuss with neat flow diagram, manufacture of sodium carbonate by Solvay process. **07**
(b) Discuss the difference between sulphate and sulphite process for pulping . **07**
- OR**
- Q.3** (a) Describe various engineering problems which occur during the manufacturing of Ammonia. **07**
(b) Discuss with neat sketch Frasch process for mining of sulfur. **07**
- Q.4** (a) Discuss Linde's process for manufacture of O₂ and N₂ . **07**
(b) State various forms of carbon and discuss any one in detail. **07**
- OR**
- Q.4** (a) Discuss manufacture of Portland cement with neat flow-sheet. **07**
(b) Discuss manufacture of artificial graphite electrodes. **07**
- Q.5** (a) Discuss chemical recovery from black liquor. **07**
(b) Discuss manufacture of CO₂. **07**
- OR**
- Q.5** (a) Write briefly on Glass industries. **07**
(b) Write short note on Explosives and hazardous chemicals. **07**
