

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-III Examination-Dec.-2011

Subject code: 130505**Date: 20/12/2011****Subject Name: Chemical Process Industries-I****Time: 2.30 pm -5.00 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) Define the term 'conditioning of water'. State various methods for conditioning fresh water and discuss any one in detail. **07**

(b) Discuss DCDA process for the manufacturing of sulphuric acid with neat flow diagram and chemical reactions. **07**

Q.2 (a) Discuss Membrane 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 Ammonia **07**

OR

(b) Discuss manufacture of Phosphoric acid via Wet process (sulphuric acid leaching) and discuss the advantages and disadvantages of Wet process over electric furnace process. **07**

Q.3 (a) Discuss the effect of variables on production of sodium carbonate by Solvay process **07**

(b) Discuss the difference between sulphate process and sulphite process for the production of pulp. **07**

OR

Q.3 (a) Describe various engineering problems which occur during the manufacturing of urea. **07**

(b) Discuss with neat sketch Frasch process for mining of sulfur. **07**

Q.4 Write short note on followings:

(a) Types and uses of Explosives **(5)**

(b) Types of glasses **(5)**

(c) Advantages and disadvantages of V_2O_5 catalyst in sulfuric acid manufacture. **(4)**

OR

Q.4 (a) Electro dialysis **(5)**

(b) Ceramic industries **(5)**

(c) Industrial diamonds **(4)**

Q.5 (a) Define the term 'cement'. Discuss properties and types of cement in brief. **07**

(b) Discuss manufacture of artificial graphite electrodes and also state the difference between graphite and carbon. **07**

OR

Q.5 (a) Discuss recovery of chemicals from black liquor. **07**

(b) Discuss Linde's process for manufacture of O_2 and N_2 . **07**
