

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-III(Chemical Engg)Examination December 2009

Subject code: 130505

Subject Name: Chemical Process Industries-I

Date: 17 / 12 / 2009

Time: 11.00 am – 1.30 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) Describe manufacturing of H_2SO_4 by DCDA process. **07**
(b) Discuss major engineering problems associated with the production of Urea. **07**
- Q.2** (a) Attempt all: **07**
(i) What do you mean by 65 % Oleum ?
(ii) Draw a schematic symbol of distillation operation.
(iii) Differentiate: Distilled and Mineral water.
(iv) What is biuret in Urea?
(v) Explain concept of Reverse Osmosis.
(vi) List out four Cement manufacturing unit.
(vii) Write the formula of Soda ash and Caustic soda.
- (b) Describe in details: Unit operation and Unit process **07**
- OR**
- (b) Write a short note on Ion-exchange process for water softening. **07**
- Q.3** (a) Write a short note on Montecatini process for Nitric acid production. **07**
(b) Discuss major engineering problems associated with the production of Nitric acid. **07**
- OR**
- Q.3** (a) Explain the manufacturing process of Urea with flow diagram. **07**
(b) Discuss scope of Chemical Industries in India. **07**
- Q.4** (a) Write a short note on Solvay process for the production of Soda ash. **07**
(b) Explain manufacturing of Caustic and Chlorine with flow diagram. **07**
- OR**
- Q.4** (a) Write a short note on manufacturing process of Paper with neat flow diagram. **07**
(b) Distinguish Sulfate and Sulfite process for pulp manufacturing. **07**
- Q.5** (a) Define Cement. Write types of cements with characteristics. **07**
(b) Discuss major engineering problems associated with the production of Cement. **07**
- OR**
- Q.5** (a) Describe manufacturing of pure CO_2 . List out uses of dry CO_2 . **07**
(b) Write a short note on Explosives. **07**
