Roll No.										

Paper code: CH-504

B.TECH
(SEM V) ODD SEMESTER EXAMINATION, 2016-17
CHEMICAL TECHNOLOGY-II

[Time: 3 Hours] **[Max. Marks: 100]**

Note: Attempt all questions. All questions carry equal marks.

1. Attempt any **FOUR** parts of the following: **(4x5=20)**

   (a) Briefly describe the current status of fertilizer industries in Indian context.
   (b) Give the flowsheet for the production of soda ash.
   (c) Explain the production of hydrochloric acid with the help of a neat flow diagram.
   (d) Write the major engineering problems in the manufacturing of caustic and chlorine by electrochemical process?
   (e) Describe a method for chlorine production.
   (f) Write the advantages and disadvantages of Solvay process. What is modified Solvay process?

2. Attempt any **FOUR** parts of the following: **(4x5=20)**

   (a) Draw a flowsheet for the production of phosphoric acid by strong acid process.
   (b) Write the chemical reactions for the production of following from their basic raw materials
      (i) Calcium phosphate
      (ii) ammonium phosphate
   (c) How sulfuric acid is manufactured by contact process? Explain with flow diagram.
   (d) Write the Frasch process for the mining of sulfur.
   (e) What are major engineering problem in manufacturing of sulfuric acid by contact process.
   (f) What is the current status of cement industries in India?

3. Attempt any **TWO** parts of the followings: **(2x10=20)**

   (a) Give suitable material of construction for handling of Nitric acid, Ammonium nitrate, Ammonia and prilled urea.
   (b) Define superphosphates? Discuss the production of triple superphosphate from rock. How the various impurities are removed during the production.
   (c) Explain the method for the manufacturing of Nitric acid. Also, give the flow sheet for Ammonia-oxidation process for manufacturing of Nitric acid.

4. Attempt any **TWO** parts of the following: **(2x10=20)**

(a) What are the latest developments made in reformer technology in fertilizer industries? Also, discuss the latest technology available today for the production of urea in India.
(b) Differentiate between mixed fertilizer and complex fertilizers. Classify all types of biofertilizers. What are the advantages of using biofertilizers?
(c) Write the process of manufacturing of Ammonia with the help of a neat sketch. What are the major engineering problems in it?

5. Write any **TWO** of the following: **(2x10=20)**

(a) Describe the partial combustion process for the manufacturing of synthesis gas. What are inert gases and why they are used in chemical industries?
(b) Explain the liquefaction process for the production of nitrogen and oxygen by air. What is the industrial importance of oxygen?
(c) Describe the different processes available for the production of hydrogen. Give flow diagram for water gas and producer gas manufacturing.