B. Tech.

(SEM. VI) EXAMINATION, 2006-07

CHEMICAL TECHNOLOGY - II

Time : 3 Hours] [Total Marks : 100

Note : (i) Answer all questions
(ii) All questions carry equal marks
(iii) In case of numerical problems assume data wherever not permitted.
(iv) Be precise in your answer

1 Attempt any four of the following. 5×4

(a) Describe the manufacture of caustic soda by electrolytic process using mercury cell.
(b) What are the disadvantages of Solvay process and how to overcome them?
(c) Discuss important applications of chlorine and hydrogen in industry.
(d) What are the various chemicals obtained from sea water? Describe the process to obtain common salt from sea water.
(e) What are the various methods for production of hydrochloric acid? Explain any one in detail.
(f) What are the major uses of hydrochloric acid? Explain them in detail.

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2 Attempt any two of the following: 10x2

(a) Discuss the occurrence of phosphatic materials in India. Describe with the help of a neat flow sheet how phosphoric acid is manufactured by strong sulfuric acid method. What are the major engineering problems encountered?

(b) What are the various resources available in India for generating SO₂ for sulfuric acid industry? With a neat flow diagram describe the manufacture of sulfuric acid by contact process. What are the major engineering problems encountered?

(c) What are Super Phosphates? Describe the manufacture of Triple Super Phosphate with neat flow diagram. List the major industries that manufacture superphosphate in India.

3 Attempt any two of the following: 10x2

(a) Describe the process for the manufacture of nitric acid by ammonia oxidation process. What are the important chemical reactions involved? Also discuss the various pollution problems associated during the process.

(b) What are the principal raw materials utilized in the manufacture of ammonia and what are various sources for obtaining them? Starting from these raw materials describe with a neat sketch the process of manufacture of ammonia. Also give its major uses.

(c) What are the mixed fertilizers? Explain the various types of mixed fertilizers and with the help of the neat flow diagram discuss the manufacturing of any one of them.

4 Attempt any two of the following: 10x2

V-9266] 2 [Contd...
(a) What is Portland cement and how is it classified? Explain the manufacturing of Portland cement using a neat flow sheet. What are the parameters responsible for the economics of the industry?

(b) What is industrial importance of oxygen? Explain a process in details showing the manufacturing of oxygen by air liquefaction. How purity of oxygen can be improved?

(c) What is Glass? Explain a modern process for the making of float glass in a continuous plant. What are the various operations involved in making of the glass? Give names of some specialty glasses along with their uses?

5 Write short note on any four of the following: 5×4
(a) Industrial Carbon
(b) Silicon Carbide
(c) Varnishes and Intermediates
(d) Uranium
(e) Titanium dioxide
(f) Magnesium Chloride.