

Code No: R05320806

Set No. 1

III B.Tech II Semester Regular Examinations, Apr/May 2008
FERTILIZER TECHNOLOGY
(Chemical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Write short notes on :
 - (a) Electrolytic method process,
 - (b) Partial oxidation process,
of hydrogen production. [8+8]
2. Write short notes on:
 - (a) Methanation
 - (b) CO removal process. [8+8]
3. Give short notes on:
 - (a) Raw materials for ammonia production
 - (b) Catalyst used
 - (c) Chemical reaction
 - (d) Process description. [4+2+2+8]
4.
 - (a) What are the manufacturing procedures for the production of nitric acid?
 - (b) What are the catalyst used for the production of nitric acid?
 - (c) Describe manufacturing process of nitric acid. [4+4+8]
5.
 - (a) Discuss indetail the manufacture of ammonium sulfate by using anhydrous ammonia and concentrated sulfuric acid with a neat flow diagram. [10]
 - (b) How do you controll P^H in the ammonium sulfate production and how much it should be manufactured to avoid inferior shape and size of the crystals? [6]
6. Draw a neat process flow diagram and discuss manufacture of triple super phosphate by Kuhlman process. [16]
7. Discuss indetail about the Resources & Occurrences of Potash. [16]
8. Discuss various Methods used in applying Fertilizers, with suitable examples. [16]

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Set No. 2

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FERTILIZER TECHNOLOGY
(Chemical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain in detail production of hydrogen, with a neat flow diagram and write the applications of hydrogen. [16]
2. Explain the gas purification process in detail with neat flow sheet. [16]
3. Write short notes on:
 - (a) History of nitrogenous industries
 - (b) Process description of any one of the nitrogenous product.
 - (c) Safety measures to be taken. [4+8+4]
4. (a) What are the Raw materials used for the production of nitric acid?
(b) What are the uses of nitric acid?
(c) Describe the manufacturing process. [4+4+8]
5. (a) What are the various methods available for the production of Ammonium sulfate. [4]
(b) Discuss the Manufacture of Ammonium sulfate by using any one of the method.
6. Discuss in brief transportation, handling and storage methods of unground phosphate rock. [16]
7. Discuss with a neat flow diagram this recovery process & potash from Searles Lake Brines at Trona. [16]
8. Compare the production economics of phosphorous between Wetprocess and Electric furnace process. [16]

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Set No. 3

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FERTILIZER TECHNOLOGY
(Chemical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Write short notes on:
 - (a) Destructive distillation of coal
 - (b) Coking of coal. [8+8]

2. Write short notes on:
 - (a) Natural gas
 - (b) Coke oven gas
 - (c) Producer gas
 - (d) Water gas
 - (e) Synthesis gas. [3+3+4+2+4]

3.
 - (a) Explain the manufacturing process of ammonia.
 - (b) What are the nitrogenous fertilizers produced from the ammonia?
 - (c) Write about the major engineering problems. [10+3+3]

4.
 - (a) Describe the manufacturing process of nitric acid by dual-pressure process.
 - (b) Draw the flow sheet with a neat sketch and labelling. [10+6]

5. Give a brief report on the following
 - (a) source of ammonium sulfate
 - (b) physical characteristics of ammonium nitrate. [8+8]

6. Discuss in brief the chemistry of calcium phosphate compounds in fertilizers and write the chemical reactions in the acidulation process. [16]

7. Discuss in detail about the Resources & Occurrences of Potash. [16]

8. Discuss various fertilizer application techniques used for different soils. [16]

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Set No. 4

III B.Tech II Semester Regular Examinations, Apr/May 2008
FERTILIZER TECHNOLOGY
(Chemical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are various sources of hydrogen?
(b) Explain the process of steam-hydro carbon reforming process. [3+13]
2. Write short notes on:
 - (a) Removal of sulphur compounds
 - (b) Removal of CO₂ from the converted gas.
 - (c) Removal of CO from the gas. [5+5+6]
3. (a) What are the different phases in manufacturing process of ammonia?
(b) Describe any four phases. [4+12]
4. (a) What is urea?
(b) Give the places where urea plants are located.
(c) Detail description of manufacturing process of urea. [2+4+10]
5. (a) Discuss the manufacturing process for the production of commercial ammonium nitrate with a neat process flow diagram. [10]
(b) What were the reasons for not using ammonium nitrate as fertilizer till the recent years and how it was overcome from this problem to use as fertilizer? [6]
6. Write a brief notes on digest of TVA studies on curing normal superphosphate. [16]
7. Discuss indetail the extraction process by solution and recrystalization of potassium chloride. [16]
8. Discuss the growth of Fertilizer Industry in India. [16]
