

IV B.Tech. II Semester Supplementary Examinations, July -2005

FERTILIZER TECHNOLOGY

(Chemical Engineering)

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. Explain the proximate analysis of coal and its importance.
2. Describe the importance of suitable solvents for gas purification.
3. Describe in detail the by-product ammonia recovery by direct method.
4. Explain the principles involved in the safe storage and handling of urea. Give its uses.
5. Discuss in detail the major engineering problems encountered in production of Ammonium Sulphate.
6. Explain in detail the strong acid process for the manufacturing of phosphoric acid with a neat flow diagram.
7. Explain the recrystallization process for the extraction of potassium?
8. Write a detailed note on nitrogenous-based fertilizer application on seasonal crop soils?

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1. Explain the proximate analysis of coal and its importance.
2. Discuss the high temperature shift conversion process in detail with a neat flow chart.
3. What is the nature of ammonia synthesis reaction? Explain in detail with flow sheet, if any.
4. (a) What are the raw materials used for the manufacture of Nitric Acid?
(b) Explain the manufacturing process for nitric acid.
5. Explain in detail the prilling process for manufacturing of Ammonium nitrate with neat flow diagram.
6. Discuss in detail about the economic evaluation and process for manufacture of phosphoric acid.
7. Explain the chemical reactions, which occur in fertilizer mixers?
8. Write a detailed note on nitrogenous-based fertilizer application on seasonal crop soils?

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1. Explain the proximate analysis of coal and its importance.
2. Discuss the various methods by which methanation process can be carried out.
3. What is the nature of ammonia synthesis reaction? Explain in detail with flow sheet, if any.
4. (a) What are the raw materials used for the manufacture of Nitric Acid?
(b) Explain the manufacturing process for nitric acid.
5. Write detailed note on plant location and process for Ammonium Sulphate.
6. Write short note on
 - (a) Economics of Superphosphate industries
 - (b) Engineering problems in Super phosphate industries
7. Write about the cooling of potash mixed fertilizers?
8. Discuss about the future plans and the role of technical advances on production economics of fertilizer industry.

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1. Describe the various processes available for the manufacture of Nitrogen.
2. Discuss the application of various synthesis gases.
3. Describe in detail the by-product ammonia recovery by direct method.
4. What is the effect of large excess of water during conversion of Ammonium Carbamate into urea? Discuss in detail.
5. Explain in detail the crystallization process for manufacturing of Ammonium nitrate with neat flow diagram.
6. Compare and discuss the advantages and disadvantages in the various processes for manufacturing phosphoric acid.
7. Write about the constitution of potassium in mineral soils?
8. Enumerate different techniques applied for fertilizer application in varied soils?
