

IV B.Tech. II Semester Regular Examinations, April/May -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. Discuss the application of various synthesis gases.
3. What is the nature of ammonia synthesis reaction? Explain in detail with flow sheet, if any.
4. Which is the catalyst used in the manufacture of Urea from Ammonia and CO_2 ? Explain the process.
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. Write about secondary and minor elements in mixed fertilizers?
8. Enumerate different techniques applied for fertilizer application in varied soils?

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1. Explain the proximate analysis of coal and its importance.
2. Explain the importance of methanation process in fertilizer industry.
3. Describe in detail the manufacture of ammonia by partial oxidation process.
4. What is the effect of large excess of water during conversion of Ammonium Carbamate into urea? Discuss in detail.
5. Discuss in detail the economics and process of Ammonium Sulphate nitrate.
6. Describe the manufacturing process for production of triple superphosphate with a neat diagram.
7. Describe the quality control aspects in the mixed fertilizer industry?
8. Write a detailed note on nitrogenous-based fertilizer application on seasonal crop soils?

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1. Explain the steam reforming process for manufacture of hydrogen.
2. Explain the process of carbon monoxide removal.
3. Describe in detail the by-product ammonia recovery by direct method.
4. At what temperature is the equilibrium favored in the oxidation of NO to NO_2 , which is a slow reaction? Explain in detail.
5. Explain in detail the modified process for manufacturing nitrolime with a neat flow diagram.
6. Discuss in detail major engineering problems encountered in Ammonium phosphate production industries.
7. Describe the occurrence of potash minerals?
8. Enumerate different techniques applied for fertilizer application in varied soils?

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1. Explain the winkler process for the gasification of coal.
2. Discuss the application of various synthesis gases.
3. Describe in detail the manufacture of ammonia by partial oxidation process.
4. What is the effect of large excess of water during conversion of Ammonium Carbamate into urea? Discuss in detail.
5. Write short note on economics of
 - (a) Ammonium Sulphate
 - (b) Ammonium Sulphate nitrate
6. Discuss in detail the economics of Nitro phosphate production industries.
7. Write about caking of mixed fertilizers?
8. Write a detailed note on nitrogenous-based fertilizer application on seasonal crop soils?
