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Question Paper Code: 2034234

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV / DEC 2024
Fourth Semester
Chemical Engineering
U20CH403 – INDUSTRIAL CHEMICAL TECHNOLOGY
(Regulation 2020)

Time: Three Hours Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. Mention one significant historical development in chemical technology.

2. What is the chemical reaction that occurs in the chlor-alkali process?

3. Write the chemical equation for the synthesis of sulfuric acid using the Contact process.

4. Explain the role of sulfur dioxide in the Contact process.

5. What is clinker, and why is it important in cement production?

6. What is kraft pulping, and why is it widely used in the paper industry?

7. What is a common environmental concern associated with the production of Nylon 6?

8. What is the significance of vinyl chloride monomer (VCM) in the production of PVC?

9. Describe the Haber-Bosch process in the context of fertilizer production.

10. Explain the difference between straight and compound fertilizers.

PART – B (5 x 16 = 80 Marks)

11. (a) Discuss potential future advancements in chlor-alkali technologies and their implications for industrial development and sustainability. (16)

(OR)

(b) Explain the chlor-alkali process for the production of caustic soda, including the chemical reactions involved. (16)

12. (a) Describe the production process of sulfuric acid using the Contact process, including the key reactions involved. (16)

(OR)

(b) Explain the manufacturing of sulfur and sulfur dioxide from pyrite involves several step? (16)

13. (a) Describe the Kraft pulping process used in the paper industry, including its advantages and disadvantages. (16)

(OR)

(b) Describe the process of sugar extraction from sugarcane, including milling, clarification, and crystallization. (16)

14. (a) Explain the key aspects of the oil industry, covering production processes, diverse applications, and environmental considerations. (16)

(OR)

(b) Describe the process of cotton fiber production, including cultivation, harvesting, and processing into textile-grade fibers. (16)

15. (a) Explain the chemical reaction involved in the synthesis of urea from ammonia and carbon dioxide, including the process conditions. (16)

(OR)

(b) Explain in detail about manufacturing of single super phosphate (SSP) and triple super phosphate (TSP)? (16)

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