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Question Paper Code: 94905

B.E./B.Tech. DEGREE EXAMINATION, NOV 2022

Fourth Semester

Chemical Engineering

19UCH405 – Chemical Process Industries

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

1. What is the molecular weight of sucrose? CO1- U
(a) 162 (b) 180 (c) 342 (d) 340
2. _____ is a fresh pulping liquor for the Kraft process, consisting of the active pulping species NaOH and Na₂S, small amounts of Na₂CO₃ CO1- U
(a) Black liquor (b) White liquor (c) Red liquor (d) Green liquor
3. Which commercial product is produced by Frasch Process? CO1- U
sulfur (b) ammonia (c) nitric acid (d) sulfuric acid
4. Concentration of NaOH produced in mercury cell process is _____ CO1- U
(a) 10-12% (b) 30-33% (c) 50% (d) 70%
5. Which one doesn't come under Calcareous Rocks? CO1- U
(a) limestone (b) cement rock (c) chalk (d) marine shell deposits
6. The % weight of detergent in washing powders is _____ CO1- U
(a) 5-10 (b) 50-70 (c) 15-30 (d) 30-45
7. Which of the following is not a process involved in glass production? CO1- U
(a) Extrusion (b) Forming and shaping (c) Heat treatment (d) Finishing
8. Which method of forming cannot be used to produce sheet glass? CO1- U
(a) Floating (b) Rolling (c) Drawing (d) Casting

9. Which of these is a natural fibre? CO1- U
 (a) rayon (b) cotton (c) nylon (d) polyester
10. Solvent used for dewaxing of petroleum products are CO4- U
 (a) Furfural (b) Methyl ethyl ketone (c) Propane (d) Both (b) & (c)

PART – B (5x 2= 10 Marks)

11. What is the use of centrifuge equipment? CO1- U
12. Give the industrial uses of sulfur. CO1- U
13. Give the chemical composition and physical properties of vegetable oils. CO1- U
14. Name the antifoaming agent used in water based paints. CO1- U
15. What is the most common source for synthetic fibres? CO1- U

PART C - (5 x 16 = 80 Marks)

16. (a) Discuss in detail how raw sugar is produced from sugarcane with a neat process flow diagram. CO1 -U (16)
 Or
- (b) Demonstrate the importance of starch derivatives and draw the process flow diagram to show the production process involved in dextrin production and give suggestions when ammonia is added what happens? CO3 -Ana (16)
17. (a) Explain manufacturing of Caustic and Chlorine with flow diagram. CO1 -U (16)
 Or
- (b) Explain with the flow sheet the process involved in production of nitric acid by ammonia oxidation process. CO1 -U (16)
18. (a) List out the factors to be considered in cement industry and detail the process with neat diagram on manufacture of Portland cement and give solutions for the major engineering problems.. CO3-Ana (16)
 Or
- (b) List out the advantages of continuous hydrolysis and saponification process in soap production process and also demonstrate the continuous process for soap production CO1 -U (16)

19. (a) Discuss the different methods involved in manufacture of glass CO1 -U (16)
Or
(b) Explain the raw materials needed for the glass industries with their application CO1 -U (16)
20. (a) Explain in detail the petrochemical industries operating in India. CO1 -U (16)
Or
(b) Explain in detail about pyrolysis and moving bed catalytic cracking process. CO1 -U (16)

