A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 53904

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Third Semester

Chemical Engineering

15UCH304-CHEMICAL PROCESS INDUSTRIES - I

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Solvay process is used to make CO1- R

   (a) Potassium carbonate (b)Sodium carbonate (c) NaoH (d) NaCl

2. Le-Blanc process is a primitive process for the manufacture of CO1 -R

   (a) Caustic soda (b) Soda ash

   (c) Bromine from sea water (d) Hydrochloric acid

3. Function of sodium thiosulphate in development of photographic film/plate is to CO2- R

   (a) Brighten the faint images (b) Remove metallic silver

   (c) Convert silver chloride to silver (d) Remove unexposed silver halide

4. During the manufacturing of sulphuric acid, the temperature of molten sulphur is not increased beyond 160^0C as CO2- R

   (a) It is very corrosive at elevated temperature

   (b) Its velocity is not reduced on further heating (hence pressure drop on pumping it cannot be further reduced)

   (c) It decomposes on further increasing the temperature

   (d) None of these

5. Pick out the wrong statement CO3- R

(a) Dry process is used for the manufacturing of cement, when the raw material is blast furnace slag

(b) Portland cement is made employing wet process

(c) Gypsum is added to Portland cement to lengthen its setting time

(d) None of these

6. Type of glass used in optical work is the _____ glass. CO3- R

(a) Soda-lime (b) fiber (c) Lead (d) Borosilicate

7. High purity nitrogen is used in CO4- R

(a) Making protective gas for annealing of cold roll steel strip coils

(b) Fire fighting purposes

(c) Both (a) and (b)

(d) Neither (a) nor (b)

8. Percentage of nitrogen(N) in urea (CH_4N_2O) is CO4- R

(a) 50% (b) 46.60% (c) 40% (d) 20%

9. Triple superphosphate is manufactured by reacting CO5- R

(a) Phosphate rock with phosphoric acid

(b) Phosphate rock with sulphuric acid

(c) Phosphate rock with nitric acid

(d) Ammonium phosphate with phosphoric acid

10. Fertilizer which doesn't affect texture of soil is CO5- R

(a) Urea (b) Ammonium sulphate

(c) Ammonium phosphate (d) Super phosphate

PART – B (5 x 2= 10Marks)

11. Write the advantages and disadvantages of solvay process. CO1- R

12. Write about the catalyst used for the conversion of SO_2 to SO_3 in the manufacturing of sulphuric acid and give its advantages and disadvantages. CO2- R

13. What is meant by Refractory and give its types with example? CO3- R

14. What is meant by benefication of phosphate rock? CO4- R

15. Write the important of ammonium nitrate. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Write in detail about ammonium-soda process with neat sketch. CO1- U (16)

Or

(b) Explain in detail about electrolytic process of chlorine-caustic soda production with neat sketch. CO1- U (16)

17. (a) Write in detail about the production of sulphuric acid with neat sketch. CO2- U (16)

Or

(b) Explain briefly about the production of naturally occurring sodium sulfate with flowchart. CO2- U (16)

18. (a) Explain briefly about the production of Portland cement with neat sketch. CO3- U (16)

Or

(b) Illustrate and explain the manufacture of glass and types of glass. CO3- U (16)

19. (a) With a neat flow diagram, describe the manufacture of nitric acid by single pressure process. CO4- U (16)

Or

(b) Describe the production of phosphoric acid from phosphate rock by strong acid process. CO4- U (16)

20. (a) Write in detail about herbicides, pesticide and insecticides CO5- U (16)

Or

(b) Write in detail about the production of KCl with neat skech CO5- U (16)

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