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**Question Paper Code: 53904**

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Chemical Engineering

15UCH304-CHEMICAL PROCESS INDUSTRIES - I

(Regulation 2015)

Duration: 1:15hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

**(Answer any six of the following questions)**

1. The formula of baking soda is \_\_\_\_\_. CO1- R  
(a) NaOH                      (b) NaHCO<sub>3</sub>                      (c) Na<sub>2</sub>CO<sub>3</sub>                      (d) Na<sub>2</sub>O
2. Bleaching powder is prepared by passing \_\_\_\_\_. CO1- U  
(a) Chlorine over slaked lime                      (b) Oxygen over slaked lime  
(c) Carbon dioxide over slaked lime                      (d) Chlorine over quick lime
3. The conversion of SO<sub>2</sub> to SO<sub>3</sub> is \_\_\_\_\_ reaction. CO2- U  
(a) Reversible                      (b) Irreversible                      (c) Dynamic                      (d) Static
4. The chemical formula of alum is \_\_\_\_\_. CO2- R  
(a) K<sub>2</sub>Al(SO<sub>4</sub>)<sub>2</sub>                      (b) KAl(SO<sub>4</sub>)<sub>2</sub>                      (c) KAl<sub>2</sub>(SO<sub>4</sub>)<sub>2</sub>                      (d) K<sub>2</sub>Al<sub>2</sub>(SO<sub>4</sub>)<sub>2</sub>
5. The addition of gypsum to the cement in order to \_\_\_\_\_. CO3- R  
(a) Prolong hydration                      (b) Increase strength after hydration  
(c) Decrease heat of hydration                      (d) Reduce curing time
6. The approximate composition of ordinary glass is \_\_\_\_\_. CO3- R  
(a) Na<sub>2</sub>O.CaO.SiO<sub>2</sub>                      (b) Na<sub>2</sub>O.CaO.SiO<sub>3</sub>                      (c) Na<sub>2</sub>CO<sub>3</sub>.6SiO<sub>2</sub>                      (d) Na<sub>2</sub>O.CaO.6SiO<sub>2</sub>
7. The byproduct of urea is \_\_\_\_\_. CO4- R  
(a) Thiourea                      (b) Hydrazine                      (c) Ammonia                      (d) Biuret
8. The reaction of dilute sulphuric acid with phosphate rock produces \_\_\_\_\_. CO4- R  
(a) Phosphoric acid                      (b) Phosphorous acid  
(c) Triple superphosphate                      (d) Superphosphate

9. The commercial fertilizers are available mostly in the form of \_\_\_\_\_ CO5- R  
(a) powder (b) lumps (c) granules (d) flakes
10. Organic farming is the technique of raising crops through \_\_\_\_\_. CO5- R  
(a) Manures (b) Resistant materials (c) Biofertilizers (d) All the above

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. With a neat sketch of flow diagram, outline briefly the production of soda ash by Solvay process. CO1- U (8)
12. With a neat flow sheet, explain briefly the production of sulphuric acid by contact process involving raw materials, chemical reactions and process description. CO2- U (8)
13. Explain briefly the raw materials and process description involved in the manufacture of Portland cement with a neat flow diagram. CO3- U (8)
14. Outline briefly the manufacture of urea from ammonium carbamate and production of synthetic ammonia with a neat flow sheet. CO4- U (8)
15. Discuss the raw materials, chemical reaction and process description involved in the manufacture of super phosphate and triple super phosphate. CO5- U (8)