

9. Dehydration of ammonium carbamate to yield urea is a/an _____ reaction.
[] exothermic [] endothermic [] autocatalytic [] catalytic
10. Triple superphosphate is made by reacting phosphate rock with _____ acid.
[] phosphoric [] nitric [] sulfuric [] hydrochloric

Fill in the blank(s) by most appropriate VALUE or WORD.

11. Ammonium sulfate fertilizer contains _____% nitrogen and _____% sulfur.
12. High welding temperature is obtained by mixing acetylene with _____.
13. Carbon dioxide is selectively absorbed in _____.
14. During the manufacture of CO_2 from coke, flue gases are scrubbed by _____.
15. While purifying hydrogen, CO can be removed by converting it to hydrogen as shown in the reaction _____.
16. In cement technology, addition of gypsum in tricalcium aluminate forms _____.
17. In Hargreaves process, _____ is obtained as the important chemical.
18. Manufacture of baking soda involves the reaction of carbon dioxide with _____.
19. The process of treating phosphate rock with acids to make valuable fertilizer products is called _____.
20. The exothermic reaction step in the manufacture of nitric acid by Arc process is _____.

KATHMANDU UNIVERISTY
End Semester Examination
May/June, 2022

Level : B.E.
Year : II
Time : 2 hrs. 30 mins.

Course : CHEG 210
Semester : II
F.M. : 40

SECTION "B"
[5Q. × 3 = 15 marks]

Attempt *ANY FIVE* questions.

1. Lime and silica are important in cement. What constituents do they form after burning and what is their role? What is the function of gypsum in cement?
2. With the help of chemical equations, show that ammonia can be used to make various fertilizers. Mention the effect of high pressure in the manufacture of ammonia by Haber process.
3. List out the important steps of urea manufacturing process.
4. How can carbon dioxide gas as a impurity be removed from the system?
5. What is clarification process in water treatment?
6. What happens when brine solution is electrolyzed? List the important steps of manufacture of NaCl from brine solution.
7. What do you know about Frasch process?

SECTION "C"
[5Q. × 5 = 25 marks]

Attempt *ANY FIVE* questions. **Use flow diagram wherever necessary.**

8. Mention the major sources of commercial production of carbon dioxide gas. Discuss any one method in detail.
9. What are the methods of manufacture of hydrochloric acid? Discuss one method with the help of necessary chemical equations and labelled flow diagram.
10. What is phosphate rock? How can it be processed? How can elemental phosphorous be produced from ore?
11. Compare dry and wet process of cement production with necessary diagrams. Shed light on the rotatory kiln used in the burning process of cement manufacturing steps.
12. Discuss in detail the manufacturing of sodium carbonate by Solvay process. Show with necessary chemical equations the applications of by-products generated from this process.

13. Write a very short note on
- i. lithopone
 - ii. properties of refractories
 - iii. types of glass
 - iv. bio-fertilizers
 - v. potassium fertilizers