TOPPERZ @ WORK EDUCATION CENTRE

CLASS: ICSE X TIME: 45 MINUTES

TOPIC: AMMONIA

Q. 1. What do you observe when ammonia gas is bubbled through red litmus solution?

Q. 2. Write an equation for solutions of ammonium chloride and sodium hydroxide are heated.

Q. 3.(i) What is the purpose of Haber's Process ?

(ii) Name the gaseous inputs of the Haber's Process and state the ratio by volume in which the gases are mixed.

(iii) What is done to increase the rate of reaction in the Haber process?

(iv) Give two different ways by which the product can be separated from the reactants.

Q. 4. Write equation for the following:

(i) Burning of ammonia in oxygen

(ii) Catalytic oxidation of ammonia. What would you observe in 1.(i) ?

Name the catalyst used in 1.(ii). In the reaction referred to in 1.(ii) the catalyst glows red hot . Why ? What is the name of the industrial process which starts with the reaction referred to in 1.(ii).

Q. 5.(i) How soluble is ammonia in water ? (ii) Give two reasons to show that the solution of ammonia in water contains hydroxide ions. [i.e.properties of base] (iii) Name a simple method you would employ to prepare ammonium salts in your laboratory.

Q. 6. State what you observe when a piece of moist red litmus paper is placed in a gas jar of ammonia.

Q. 7. Ammonium salts decomposes on heating. What other property do ammonium salts have in common ?

Q. 8. The following reactions are carried out :

A: Nitrogen + metal → compound X
B: X + water → ammonia + another compound
C: Ammonia + metal oxide → metal + water + N_2.
(1) One metal that can be used for reaction A is magnesium.

i. Write the formula of the compound X formed.
ii. Write the correctly balanced equation for reaction B where X is the compound formed.
iii. What property of ammonia is demonstrated by reaction C

Q. 9. Industrially, ammonia is obtained by direct combination between nitrogen and hydrogen. (i) Write the correctly balanced equation for the direct combination of nitrogen with hydrogen. (ii) Which of the metals iron, platinum or copper catalyse this direct combination. (iii) Is the formation of ammonia promoted by the use of high pressure or low pressure.

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Q. 10. Is ammonia more dense or less dense than air. What property of ammonia is demonstrated by the Fountain Experiment. Write the balanced equation for the reaction between ammonia and sulphuric acid.

Q. 11. Choose the correct word from the brackets for each sentence and write a balanced equation for the same:

ii Ammonium chloride is a soluble salt prepared by _____ [precipitation, neutralization.]
ii When ammonium chloride is heated, it undergoes thermal _____ [decomposition / dissociation.]
iii Heating ammonium chloride with sodium hydroxide produces _____ [ammonia, nitrogen.]

Q. 12. State what do you observe when :- Neutral litmus solution is added to an alkaline solution.

Q. 13. Name [formula is not acceptable] the gas produced in the following reaction :- Warming ammonium sulphate with sodium hydroxide solution.

Q. 14. Write the equation for the preparation of NH_3 from ammonium chloride and calcium hydroxide.

Q. 15. What are the product formed when ammonia is oxidized with copper oxide.

Q. 16. From the following gases :- ammonia, chlorine, hydrogen chloride, sulphur dioxide, select the gas that matches the description given below : (i) The gas [B] turns moist red litmus paper blue. (ii) Write the equation for the reaction that takes place when gas [B] is passed over heated CuO.

Q. 17. Name a gas whose solution in water is alkaline.

Q. 18. How would you distinguish between Zn^{2+} and Pb^{2+} using ammonium hydroxide solution.

Q.19. Write the equation for the formation of ammonia by the action of water on magnesium nitride.

Q. 20. How is ammonia collected. Why is ammonia not collected over water.

Q. 21. Which compound is normally used as a drying agent for ammonia.

Q. 22. From the gases - ammonia, hydrogen chloride, hydrogen sulphide, sulphur dioxide – Select the following :-

i. When this gas is bubbled through copper sulphate solution, a deep blue coloured solution is formed.
ii. This gas burns in oxygen with a green flame.

Q. 23. Write the equation for the reaction in the Habber's process that forms ammonia. State the purpose of liquefying the ammonia produced in the process.

Q. 24. Write an equation for the reaction of chlorine with excess of ammonia.

Q. 25. Name the ion other than ammonium ion formed when ammonia dissolves in water.

Q. 26. Write the equation for the following reactions which result in the formation of ammonia :-

i. A mixture of ammonium chloride and slaked lime is heated.
ii. Aluminium nitride and water.

Q. 27. Select the correct compound from the given – Ammonia, Copper oxide, Copper sulphate, Hydrogen chloride, Hydrogen sulphide, Lead bromide – which matches the description given below :

Although this compound is not a metal hydroxide, its aqueous solution is alkaline in nature.

Q. 28. From the list of substances given – Ammonium sulphate, Lead carbonate, Chlorine, Copper nitrate, Ferrous sulphate – State :

A compound which on heating with sodium hydroxide produces a gas which forms dense white fumes with hydrogen chloride.

Q. 29. State what is observed when excess of ammonia is passed through an aqueous solution of lead nitrate.

Q. 30. Name the substance used for drying ammonia.

Q. 31. Write a balanced chemical equation to illustrate the reducing nature of ammonia.

Q. 32. With reference to Haber's process for the preparation of ammonia, write the equation and the conditions required.

Q. 33. Write the balanced equation for the following reaction :

Ammonium sulphate from ammonia and dilute sulphuric acid.

Q. 34 (i) Of the two gases, ammonia and hydrogen chloride, which is more dense ? Name the method of collection of this gas.

(ii) Give one example of a reaction between the above two gases which produces a solid compound.

Q. 35. Write a balanced equation for a reaction in which ammonia is oxidized by :

i. A metal oxide
ii. A gas which is not oxygen.

Q. 36. You enter a laboratory after a Class has completed the Fountain Experiment. How will you be able to tell whether the gas used in the experiment was hydrogen chloride or ammonia