

8.4 Inorganic chemistry in the laboratory and in industry

(a) Ammonia

A. Objective Type Questions

Mark for each 1

(i) Very Short Answer Type Questions

Q.1. Name the chemicals required for the preparation of ammonia in laboratory.

Ans. Chemicals required :

(i) Ammonium chloride (NH_4Cl)

(ii) Quick lime (CaO) or dry slaked lime [$\text{Ca}(\text{OH})_2$]

Q.2. What is the characteristic smell of ammonia ?

Ans. Characteristic smell of ammonia : Pungent

Q.3. What is the nature of aqueous solution of ammonia ?

Ans. Nature of aqueous solution of ammonia : alkaline

Q.4. State one method for identification of ammonia.

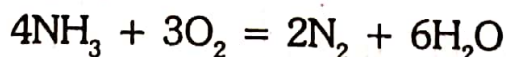
Ans. Ammonia has a typical pungent smell.

Q.5. Which particular substance is used to dry ammonia gas ?

Ans. Ammonia is dried with calcium oxide (CaO).

Q.6. What colour is obtained when ammonia burns in presence of oxygen ?

Ans. Ammonia burns in presence of oxygen with a greenish yellow flame forming nitrogen and water.



Q.7. What is Nessler's reagent ?

Ans. Nessler's reagent : Nessler's reagent is an alkaline solution (KOH) of potassium mercuric iodide [K_2HgI_4].

Q.8. What happens when red litmus paper is placed in aqueous solution of ammonia ?

Ans. The aqueous solution of ammonia is basic in nature so it turns red litmus to blue.

Q.9. State one use of ammonium sulphate.

Ans. Use of ammonium sulphate : as fertilizer.

Q.10. What is the amount of ammonia present in liquor ammonia ?

Ans. 35% (by weight)

Q.11. Is ammonia heavier or lighter than air ?

Ans. Ammonia is lighter than air.

[Vapour density of air = 14.4 ; vapour density of ammonia = 8.5]

Q.12. State one use of liquid ammonia.

Ans. Use of liquid ammonia : as a refrigerant in ice making.

Q.13. Give an example of formation of solid by the combination of two gases.

Ans. Ammonia gas reacts with hydrogen chloride gas forming solid ammonium chloride.



Q.14. How is ammonia collected in laboratory?

Ans. Collection of ammonia : Ammonia is lighter than air, it may be collected by the downward displacement of air.

Q.15. What colour is obtained when ammonia reacts with Nessler's reagent?

Ans. Ammonia produces brown colouration in Nessler's reagent.

Q.16. Which compound of nitrogen has fractional oxidation number?

Ans. Hydrazoic acid (HN_3).

Nitrogen has $(-\frac{1}{3})$ oxidation number in hydrazoic acid.

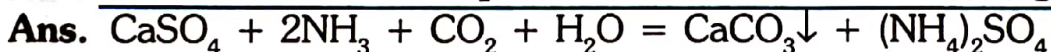
Q.17. Which hydride of nitrogen has no oxidising property?

Ans. Ammonia has no oxidising property.

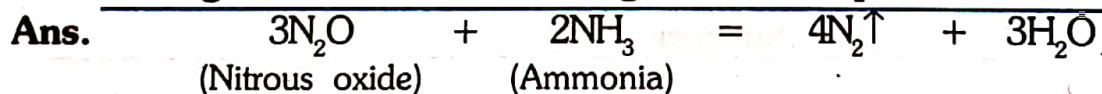
Q.18. Which gas is obtained when a mixture of ammonium sulphate and sodium hydroxide is heated?

Ans. Ammonia (NH_3) gas.

Q.19. How ammonium sulphate is obtained without using sulphuric acid?



Q.20. Two gaseous compounds of nitrogen react with each other to form nitrogen. What are the two gaseous compounds of nitrogen?



(ii) Fill in the blanks

Q.1. Ammonia gas is prepared by heating an ammonium salt mixed with a strong _____.

Ans. base

Q.2. Ammonia produces a white cloud with _____ acid.

Ans. hydrochloric

Q.3. Ammonia turns red litmus solution _____.

Ans. blue

Q.4. Ammonia has a typical _____ smell.

Ans. pungent

Q.5. Aqueous solution of ammonia is _____.

Ans. alkaline

Q.6. A _____ aqueous solution of ammonia is called liquor ammonia.

Ans. Concentrated

Q.7. Ammonia gas when passed over heated sodium amide salt and _____ gas produce.

Ans. hydrogen