# WORKSHEET 1

## Chapter 9 – Study of Compounds – Ammonia

**A. Fill in the blanks from the choices given within the brackets.**

1. The gas most difficult to liquefy is _____ (nitrogen/ammonia/hydrogen)
2. Ammonia in liquid form is _____ (basic/neutral/acidic)
3. The salt solution which gives white ppt. on the addition of ammonium hydroxide solution is _____ (sodium sulphate/potassiam nitrate/magnesium chloride)
4. Excess of ammonia reduces chlorine to _____ ($NH_4Cl/N_2/HCl$)
5. The alkaline behaviour of liquor ammonia is due to the presence of _____ ($NH_4^+$ ions/$OH^-$ ions/ $H_3O^+$ ions)

**B. Match the most probable reagents from Column B which must be added to distinguish the compounds given in Column A.**

| | Column A | Column B |
|---|---|---|
| 1. | Ammonium sulphate from ammonium chloride | Conc. Hydrochloric acid |
| 2. | Potassium sulphate from ammonium sulphate | Ammonia gas |
| 3. | Copper(II) oxide from Cu(II) chloride | Sodium hydroxide |
| 4. | Liquor ammonia from liquid ammonia | Barium chloride |
| 5. | Ammonia and sulphur dioxide gas | Phenolphthalein |

**C. State how ammonium hydroxide solution is used in identifying.**

1. $Fe^{2+}$
2. $Fe^{3+}$
3. $Zn^{2+}$
4. $Pb^{2+}$
5. $Cu^{2+}$ ions.

**D. Name the gas evolved by choosing from gases given in the box in the following statements.**

| $N_2O$ | NO | $N_2$ | $NO_2$ |
|---|---|---|---|

1. Ammonium nitrite undergoes a thermal decomposition.
2. A greenish-yellow gas reacts with excess of ammonia.
3. Dry ammonia and oxygen are ignited.
4. Dry ammonia and oxygen are passed over heated platinum and then allowed to cool.
5. Ammonia gas is passed over heated litharge.

Name: ..... Teacher's signature: .....

Class: X Date: .....

**E. The questions given below are related to the manufacture of ammonia.**

1. Name the process.
2. In what ratio must the reactants be taken?
3. Name the catalyst used.
4. Give the equation for the manufacture of ammonia.
5. Ammonia can act as a reducing agent – write a relevant equation for such a reaction.

# ANSWERS

## WORKSHEET 1

### A. Fill in the blanks from the choices given within the brackets.

1. hydrogen
2. neutral
3. magnesium chloride
4. $NH_4Cl$
5. $OH^-$ ions

### B. Match the most probable reagents from Column B which must be added to distinguish the compounds given in Column A.

| | Column A | Column B |
|---|---|---|
| 1. | Ammonium sulphate from ammonium chloride | Barium chloride |
| 2. | Potassium sulphate from ammonium sulphate | Sodium hydroxide |
| 3. | Copper(II) oxide from Cu(II) chloride | Ammonia gas |
| 4. | Liquor ammonia from liquid ammonia | Phenolphthalein |
| 5. | Ammonia and sulphur dioxide gas | Conc. Hydrochloric acid |

### C. State how ammonium hydroxide solution is used in identifying.

1. A solution with $Fe^{2+}$ ions, forms dirty green ppt. which is insoluble in excess of $NH_4OH$.
2. A solution with $Fe^{3+}$ ions, forms reddish-brown ppt. which is insoluble in excess of $NH_4OH$.
3. A solution with $Zn^{2+}$ ions, forms gelatinous-white ppt. which dissolves in excess of $NH_4OH$ to form colourless solution.
4. A solution with $Pb^{2+}$ ions, forms a chalky-white ppt. which is insoluble in excess of $NH_4OH$.
5. A solution with $Cu^{2+}$ ions, forms a bluish-white ppt. which dissolves in excess of $NH_4OH$ to form deep blue solution.

### D. Name the gas evolved by choosing from the gases given in the box in the following statements.

1. $N_2$
2. $N_2$
3. $N_2$
4. $NO_2$
5. $N_2$

**E. The questions given below are related to the manufacture of ammonia.**

1. Haber's Process
2. Nitrogen (one part) and hydrogen (3 parts)
3. Iron powder
4. $N_2 + 3H_2 \rightarrow 2NH_3$
5. $PbO + 2NH_3 \rightarrow 3Pb + 3H_2O + N_2$