WORKSHEET 1

CHAPTER 3 – ACIDS, BASES AND SALTS

A. Tick (✓) the correct option.

1. Select the acid which contains four hydrogen atoms in it.
   a. Formic acid
   b. Sulphuric acid
   c. Nitric acid
   d. Acetic acid
2. The metal oxide which can react with acid as well as alkali is
   a. silver oxide.
   b. copper(II) oxide.
   c. aluminium oxide.
   d. calcium oxide.
3. Dilute sulphuric acid will produce a white precipitate when added to a solution of
   a. copper nitrate.
   b. zinc nitrate.
   c. lead nitrate.
   d. sodium nitrate.
4. Which of the following hydroxides is not an alkali?
   a. Ammonium hydroxide
   b. Calcium hydroxide
   c. Copper hydroxide
   d. Sodium hydroxide
5. An example of a complex salt is
   a. sodium hydrogen sulphate.
   b. zinc sulphate.
   c. tetramine copper(II) sulphate.
   d. iron(II) ammonium sulphate.

B. Fill in the blanks from the choices given within the brackets.

1. An acid is a compound which when dissolved in water forms hydronium ions as the only _____ (positive/negative) ions.
2. A base is a compound which if soluble in water contains _____ (hydroxyl/hydronium) ions.
3. A base reacts with an acid to form a _____ (complex/salt) and water only. This type of reaction is known as _____ (neutralisation/complexation).
4. _____ (Hydracids/Oxyacids) are those acids that contain only hydrogen and a non-metallic element in their molecules.
5. An acid which produces three hydronium ions by the ionization of its one molecule is called a _____ (tribasic acid/tetrabasic acid).

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C. Write balanced equations for the following reactions.

1. Lead sulphate from lead nitrate solution and dilute sulphuric acid.
2. Copper sulphate from copper and concentrated sulphuric acid.
3. Lead chloride from lead nitrate solution and sodium chloride solution.
4. Ammonium sulphate from ammonia and dilute sulphuric acid.
5. Sodium chloride from sodium carbonate solution and dilute hydrochloric acid.

D. Match the following.

1. Acid salt	Sodium potassium carbonate
2. Mixed salt	Alum
3. Complex salt	Sodium carbonate
4. Double salt	Sodium zincate
5. Normal salt	Sodium hydrogen carbonate

E. Answer the following.

1. Name the gas evolved by the action of concentrated sulphuric acid on sodium chloride.
2. Name the gas produced by the action of dilute nitric acid on copper.
3. Give an example of a solution which is a weak alkali.
4. Name the term for a base which is soluble in water.
5. HCl, HNO_3 and H_2SO_4 are the formulae of three compounds. W hich of these compounds has the highest boiling point and which has the lowest?

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. d
2. c
3. c
4. c
5. c

B. Fill in the blanks from the choices given within the brackets.

1. positive
2. hydroxyl
3. salt, neutralization
4. Hydracids
5. tribasic acid

C. Write balanced equations for the following reactions.

1. $Pb(NO_3)_2 + H_2SO_4 \rightarrow PbSO_4 + 2HNO_3$
2. $Cu + 2H_2SO_4 \rightarrow CuSO_4 + 2H_2O + SO_2$
3. $Pb(NO_3)_2 + 2NaCl \rightarrow PbCl_2 + 2NaNO_3$
4. $H_2SO_4 + 2NH_3 \rightarrow (NH_4)_2SO_4$
5. $Na_2CO_3 + 2HCl \rightarrow 2NaCl + H_2O + CO_2$

D. Match the following.

1. Acidic salt	Sodium hydrogen carbonate
2. Mixed salt	Sodium potassium carbonate
3. Complex salt	Sodium zincate
4. Double salt	Alum
5. Normal salt	Sodium carbonate

E. Answer the following.

1. Hydrogen chloride gas is evolved by the action of concentrated sulphuric acid on sodium chloride
2. Nitric oxide gas is produced by the action of dilute nitric acid on copper.

3. Aluminium hydroxide solution
4. Alkali
5. H_2SO_4 – highest

   HNO_3 – lowest