WORKSHEET 1

CHAPTER 2 – ACIDS, BASES AND SALTS

A. Tick (✓) the correct option.

1. Which of the following is not a natural indicator?
   a. Litmus b. Phenolphthalein c. Turmeric d. Red cabbage juice
2. Which of the following gases is evolved when a zinc granule is added to dilute hydrochloric acid?
   a. Hydrogen b. Carbon dioxide c. Nitrogen d. Oxygen
3. The *p*H of acidic solutions is
   a. > 7 b. = 7 c. < 7 d. None of these
4. The acid present in ant sting is
   a. Acetic acid b. Lactic acid c. Citric acid d. Formic acid
5. Which of the following is the correct chemical formula of plaster of Paris?
   a. $CaSO_4$ b. $CaSO_4 \cdot 2H_2O$ c. $CaSO_4 \cdot \frac{1}{2} H_2O$ d. $CaSO_4 \cdot H_2O$

B. Fill in the blanks.

1. When the litmus solution is neither acidic nor basic, its colour is _____
2. Onion is a/an _____ indicator.
3. When NaOH reacts with Zn, _____ is formed.
4. Water soluble bases are called _____
5. The process of dissolving an acid in water is highly _____

C. State whether the following statements are true or false.

1. Acids change the colour of red litmus to blue.
2. Reaction of a metal with an acid results in the formation of a salt.
3. Limestone and marble are different forms of calcium carbonate.
4. Non-metallic oxides are basic in nature.
5. The number of water molecules present in one formula unit of Epsom salt is 10.

D. Match the following.

1. Weak acid	Synthetic indicator
2. Phenolphthalein	Acid present in apples
3. Malic acid	Natural indicator
4. Turmeric	Used to treat acidity of soil
5. Quick lime	Acetic acid

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

Class: ..... X ..... Date: .....

E. Answer the following questions.

Very Short Answer Questions

1. What are olfactory indicators? Give two examples.
2. What happens when electricity is passed through brine?

Short Answer Questions

1. Why does a bee sting cause pain and irritation? How can it be treated?
2. What happens when copper sulphate crystals are heated? Explain your observations.

Long Answer Questions

1. How is a strong acid different from a concentrated acid? Explain with the help of an example.
2. What happens when gypsum is heated at 373 K? List any four uses of the product obtained.

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

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

B. Fill in the blanks.

1. purple
2. olfactory
3. sodium zincate
4. alkalis
5. exothermic

C. State whether the following statements are true or false.

1. F
2. T
3. T
4. F
5. F

D. Match the following.

1. Weak acid	Acetic acid
2. Phenolphthalein	Synthetic indicator
3. Malic acid	Acid present in apples
4. Turmeric	Natural indicator
5. Quick lime	Used to treat acidity of soil

E. Answer the following questions.

Very Short Answer Questions

1. Substances which help in determining whether a given substance is acidic or basic by change in their smell are known as olfactory indicators. For example, onion, clove, etc.
2. Brine refers to an aqueous solution of sodium chloride. When electricity is passed through brine, it decomposes to form sodium hydroxide, chlorine and hydrogen gas.

Short Answer Questions

1. Bee sting venom contains formic acid (or methanoic acid). Thus, a bee sting leaves this acid, which causes pain and irritation. It can be treated by using a mild base, such a sodium bicarbonate, on the stung area. It will neutralise the acid, thereby providing relief from the pain.
2. Copper sulphate is a hydrated salt. One formula unit of copper sulphate contains five molecules of water of crystallisation, and is thus represented by the chemical formula $CuSO_4.5H_2O$. When heated, it loses these molecules of water of crystallisation and thus becomes anhydrous copper sulphate, which is white in colour.

Long Answer Questions

1. The strength of acids and bases depends upon the number of H^+ ions and OH^- ions produced, respectively. So, a strong acid is an acid which dissociates to a large extent and hence produces more H^+ ions in solution. For example, sulphuric acid, hydrochloric acid, and nitric acid are strong acids.

   On the other hand, a concentrated acid mainly contains the acid and very less water. For example, concentrated sulphuric acid mainly contains sulphuric acid and very less water, which makes it extremely corrosive.

   Thus, 'strong' refers to the strength of the acid, whereas 'concentrated' refers to the amount of acid present in a given solution.

2. When gypsum is heated at 373 K, it loses water molecules and becomes calcium sulphate hemihydrate, commonly known as plaster of Paris. The equation for the reaction is as follows:

$$CaSO_4 \cdot 2H_2O \rightarrow CaSO_4 \cdot \frac{1}{2} H_2O + 1½\ H_2O$$

The uses of plaster of Paris are as follows:

a. It is used for setting of fractured bones.

b. It is used for making casts in dentistry.

c. It is used for making casts for statues, toys and decorative objects.

d. It is used as a building material for making the surface of walls, ceilings, etc. smooth before painting.

e. It is used for making decorative designs on the pillars, ceilings, etc. in order to make the buildings beautiful.

f. It is used for the manufacture of fire-proof materials.

g. It is used for making chalks for writing on the blackboard.

h. It is used in the laboratory for making apparatus air-tight by sealing the air gaps.

(**Note:** Please use any four)