

BCM SCHOOL BASANT AVENUE DUGRI ROAD, LUDHIANA

SCIENCE ASSIGNMENT (2023 - 2024)

CLASS – X

CH – ACIDS, BASES & SALTS

1. A student prepared solutions of (I) an acid and (II) a base in two separate beakers. She forgot to label the solutions and litmus paper is not available in the laboratory. Since, both the solutions are colourless, how will she distinguish between the two?
2. What will you do if:
(A) Your mother has acute problem of acidity and feeling unwell
(B) a wasp bites your friends
(C) the soil in your farm is acidic and plants do not grow well?
3. Curd is not kept in copper and brass utensils. Why?
4. If a few drops of a concentrated acid accidentally spills over the hand of a student, what should be done?
5. Name the natural source of each of the following acid
(i) Citric acid.
(ii) Oxalic acid.
(iii) Lactic acid.
(iv) Tartaric acid.
6. A knife, which is used to cut a fruit, was immediately dipped into water containing drops of blue litmus solution. The colour of the solution changes to red, what is the nature of the fruit?
7. The conditions preferred by some plants are shown in the table below:

Plant	Apple	Potato	Black currant	Mint	Onion	Strawberry	Lettuce
pH	5.0-6.5	4.5-6.0	6.0-8.0	7.0-8.0	6.0-7.0	5.0-7.0	6.0-7.0

- (a) Which plants grow well over the largest range of pH values ?
 - (b) Which plant can grow in the most acidic soil ?
 - (c) Which plant can grow in the basic soil only?
 - (d) What is the pH range for onion to grow well ?
8. What will be the action of the following substances on litmus paper? Dry HCl gas, Moistened NH₃ gas, Lemon juice, carbonated soft drink, Curd, Soap solution.
 9. Take solutions of glucose, alcohol, hydrochloric acid, sulphuric acid, etc. Fix two nails on a cork, and place the cork in a 100 mL beaker. Connect the nails to the two terminals of a 6 volt battery through a bulb and a switch, as shown in. Now pour some dilute HCl in the beaker and switch on the current. Repeat with dilute sulphuric acid. What do you observe? Repeat the experiment separately with glucose and alcohol solutions. What do you observe now? Does the bulb glow in all cases?

Following the above paragraph, answer the following questions;

- i) What was the changes occur in case of acids i.e HCl, H₂SO₄?
- ii) Why do glucose and alcohol do not conduct electricity?
- iii) Why do acids do not show acidic behaviour in absence of water?
- iv) Does rain water or distilled water will conduct electricity?
- v) Why do aqueous solution of acids conduct electricity?

10. On heating gypsum at 373 K, it loses water molecules and becomes calcium sulphate hemihydrate (CaSO₄ · ½ H₂O). This is called Plaster of Paris. Plaster of Paris is a white powder and on mixing with water, it changes to gypsum once again giving a hard solid mass. Water of crystallisation is the fixed number of water molecules present in one formula unit of a salt. Five water molecules are present in one formula unit of copper sulphate. Chemical formula for hydrated copper sulphate is CuSO₄ · 5H₂O. Now you would be able to answer the question whether the molecule of Na₂CO₃ · 10H₂O is wet.

Answer the following questions on the basis of the above paragraph:

- I. What is the molecular formula of gypsum?
- II. Write the equation of formation of plaster of paris by heating gypsum?
- III. What are the uses of Plaster of Paris?
- IV. Give the equation when POP is mixed with water?
- V. What does this 2 denotes in CaSO₄ · 2 H₂O?