Class- X. Chemistry

Topic- Question-Ans.-3. Chapter-2

Q. Compounds such as alcohol and glucose also contain hydrogen but are not categorised as acid. Why?

Ans- The hydrogen containing compounds which produce H^+ ions on dissolving in water are categorised as acids. The hydrogen containing compounds such as alcohol and glucose are not categorised as acid, because they do not produce H^+ ion on dissolving in water.

Q. Why does distilled water not conduct electricity whereas rain water does?

Ans- Distilled water does not contain any ionic compound such as acids, bases or salts dissolved in it. When rain water falls on earth through atmosphere, carbon dioxide gets dissolved in it and forms carbonic acid (H_2CO_3). Carbonic acid provides H^+ ions and CO_3^{-2} ions (~~Calcium~~ Carbonate ion to rain water. Due to presence of ions, rain water conducts electricity.

Q. Why do acids not show acidic behaviour in the absence of water?

Ans. An acid shows acidic behaviour due to presence of $H^+(aq)$ ions. They produce $H^+(aq)$ ions in water on dissolving in it. But, in the absence of water, acids do not

produce $H^+(aq)$ ions, hence, they do not show acidic behaviour.

Q. Five solutions A, B, C, D and E when tested with universal indicator showed pH as 4, 1, 11, 7 and 9 respectively.

(a) which solution is

(i) neutral

Ans- Solution D is neutral having pH 7.

(ii) Strongly alkaline

Ans. Solution C is strongly alkaline having pH 11.

(iii) Strongly acidic

Ans. Solution B is strongly acidic having pH 1.

(iv) ~~Weakly acidic~~ Weakly acidic

Ans. Solution A is weakly acidic having pH 4.

(v) Weakly alkaline

Ans- Solution E is weakly alkaline having pH 9.

(b) Arrange the pH values in the increasing order of hydrogen ion concentration

Ans. Increasing order of H^+ ion concentration

$11 < 9 < 7 < 4 < 1$

Q. Equal lengths of magnesium ribbons are taken in test tubes A and B. Hydrochloric acid (HCl) is added to test tube A while acetic acid

(CH_3COOH) is added to test-tube B. In which test tube will the fizzing occur more vigorously and why?

Ans- Fizzing occurs due to the evolution of hydrogen gas. Hydrochloric acid is strong acid than acetic acid. Due to this ~~hydrogen~~ hydrochloric acid has more amount of hydrogen ion than acetic acid, hence fizzing will occur more vigorously in test tube A containing HCl than B.

Q- Fresh milk has a pH 6. How do you think the pH will change as it turns into curd? Explain your answer.

Ans- pH will fall below 6 as milk will turn into curd.

When milk turns into curd lactic acid is produced and hence pH will fall below 6.

Q- A milk man adds a very small amount of baking soda to fresh milk.

(a) Why does he shift pH of fresh milk 6 to slightly alkaline?

Ans- Fresh milk is slightly acidic by nature. Milkman adds little amount of baking soda in it to prevent souring of milk due to formation of lactic acid.

(b) Why does this milk take a longer time to set as curd?

Ans. The milk in which a little amount of baking soda is added takes longer time to set as curd, because

lactic acid produced during curdling has to first neutralise the alkali present in it.

Q. Plaster of Paris is ~~stor~~ stored in a moisture-proof container. Why?

Ans. In presence of moisture, Plaster of Paris may set slowly due to hydration, which will make it useless after some time. Due to this Plaster of Paris is stored in moisture-proof ~~container~~ container to prevent its hydration.

Q. What is neutralisation reaction? Give two examples.

Ans - The reaction between an acid and a base to form salt and water is called neutralisation reaction.

Acid + Base ⟶ Salt + Water

Examples—

(i) Magnesium hydroxide reacts with sulphuric acid to form magnesium sulphate and water.

$$Mg(OH)_2(aq) + H_2SO_4(aq) \rightarrow MgSO_4(aq) + 2H_2O(l)$$

(ii) Ammonium hydroxide reacts with hydrochloric acid to form ammonium chloride and water.

$$NH_4OH(aq) + HCl(aq) \rightarrow NH_4Cl(aq) + H_2O(l)$$