CHEMISTRY STUDY MATERIALS FOR CLASS 10
(NCERT Based notes of Chapter -02)

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ACIDS, BASES AND SALTS

EXERCISE QUESTIONS PAGE NO. 34 and 35

Question 7: Why does distilled water not conduct electricity, whereas rain water does?

Answer : Distilled water is a pure form of water and is devoid of any ionic species. Therefore, it does not conduct electricity. Rain water, being an impure form of water, contains many ionic species such as acids and tso it conducts electricity.

Question 8: Why do acids not show acidic behaviour in the absence of water?

Answer : Acids do not show acidic behaviour in the absence of water because the dissociation of hydrogen ions from an acid occurs in the presence of water only. It is the hydrogen ions that are responsible for the acidic behaviour.

Question 9: Five solutions A, B, C, D and E when tested with universal indicator showed pH as 4, 1, 11, 7 and 9, respectively, which solution is

(a)Neutral?

(b)Strongly alkaline?

(c) Strongly acidic?

(d)Weakly acidic?

(e) Weakly alkaline?

Arrange the pH in increasing order of hydrogen-ion concentration.

Answer :

(a) Neutral → Solution D with pH 7

(b) Strongly alkaline → Solution C with pH 11

(c) Strongly acidic → Solution B with pH 1

(d) Weakly acidic → Solution A with pH 4

(e) Weakly alkaline → Solution E with pH 9

The pH can be arranged in the increasing order of the concentration of hydrogen ions as: 11 < 9 < 7 < 4 < 1

Question 10: 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 (CH3COOH) is added to test tube B. In which test tube will the fizzing occur more vigorously and why?

Answer : The fizzing will occur strongly in test tube A, in which hydrochloric acid (HCl) is added. This is because HCl is a stronger acid than CH3COOH and therefore produces hydrogen gas at a faster speed due to which fizzing occurs.

Question 11: Fresh milk has a pH of 6. How do you think the pH will change as it turns into curd? Explain your answer.

Answer : The pH of milk is 6. As it changes to curd, the pH will reduce because curd is acidic in nature. The acids present in it decrease the pH.

Q 12: A milkman adds a very small amount of baking soda to fresh milk.

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

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

Answer : (a) The milkman shifts the pH of the fresh milk from 6 to slightly alkaline because in alkaline condition, milk does not set as curd easily.

(b) Since this milk is slightly basic than usual milk, acids produced to set the curd are neutralized by the base. Therefore, it takes a longer time for the curd to set.

Question 13: Plaster of Paris should be stored in a moisture-proof container. Explain why?

Answer : Plaster of Paris (POP) should be stored in a moisture-proof container because Plaster of Paris, a powdery mass, absorbs water (moisture) to form a hard solid known as gypsum.

$$\underset{\text{Plaster of Paris}}{CaSO_4 \cdot \frac{1}{2}H_2O} + \underset{\text{Water}}{1\frac{1}{2}H_2O} \longrightarrow \underset{\text{Gypsum}}{CaSO_4.2H_2O}$$

Question 14: What is a neutralization reaction? Give two examples.

Answer : A reaction in which an acid and base react with each other to give a salt and water is termed as neutralization reaction. In this reaction, energy is evolved in the form of heat.

For example:(i)

$$\underset{\text{(Base)}}{NaOH} + \underset{\text{(Acid)}}{HCl} \longrightarrow \underset{\text{(Salt)}}{NaCl} + \underset{\text{(Water)}}{H_2O}$$

(ii) During indigestion (caused due to the production of excess of hydrochloric acid in the stomach), we administer an antacid (generally milk of magnesia, $Mg(OH)_2$ which is basic in nature). The antacid neutralizes the excess of acids and thus gives relief from indigestion.

$$Mg(OH)_2 + 2HCl \rightarrow MgCl_2 + 2H_2O$$

Question 15: Give two important uses of washing soda and baking soda.

Answer : Two important uses of washing soda and baking soda are as follows:

(1) Washing soda:

(a) It is used in glass, soap, and paper industries.

(b) It is used to remove permanent hardness of water.

(2) Baking soda:

(a) It is used as baking powder. Baking powder is a mixture of baking soda and a mild acid known as tartaric acid. When it is heated or mixed in water, it releases CO_2 that makes bread or cake fluffy.

(b) It is used in soda-acid fire extinguishers.

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