

UNIT

6

Acids, Bases and Salts



TEXT BOOK EXERCISES

I. Choose the correct answer

1. $\text{Zn} + 2 \text{HCl} \rightarrow \text{ZnCl}_2 + \dots \uparrow (\text{H}_2, \text{O}_2, \text{CO}_2)$

Ans: H_2

2. Apple contains malic acid. Orange contains _____ (citric acid, ascorbic acid)

Ans: ascorbic acid

3. Acids in plants and animals are organic acids. Whereas Acids in rocks and minerals are _____ (Inorganic acids, Weak acids)

Ans: Inorganic acids

4. Acids turn blue litmus paper to _____ (Green, Red, Orange)

Ans: Red

5. Since metal carbonate and metal bicarbonate are basic they react with acids to give salt and water with the liberation of _____ (NO_2 , SO_2 , CO_2)

Ans: CO_2

6. pH value of human blood is _____ (7.0, 7.4, 7.6)

Ans: 7.4

7. The nature of the tooth paste commonly used is _____ in nature (acidic, basic, neutral)

Ans: basic

8. You are given pure water to test the pH value using pH paper. It shows _____ colour (White, black, green)

Ans: green

9. The hydrated salt of copper sulphate has _____ colour (Red, White, Blue)

Ans: Blue

II. Answer in brief

1. Name any two metals which do not react with sodium hydroxide.

Ans: Ag - silver

Cu - Copper

2. Write any four uses of acids.

- ✧ Hydrochloric acid is used as a cleansing agent in toilets.
- ✧ Citric acid is used in the preparation of effervescent salts and as a food preservative.
- ✧ Nitric acid is used in the manufacture of fertilizers, dyes, paints and drugs.
- ✧ Carbonic acid is used in aerated drinks
- ✧ Tartaric acid is a constituent of baking powder.

3. Give the significance of pH of soil in agriculture.

Citrus fruits require slightly alkaline soil, while rice requires acidic soil and sugarcane requires neutral soil.

4. When does the acid rain occur?

Acid rain is caused by a chemical reaction that beings when compounds like sulphur dioxide and nitrogen oxides are released in to the air. These substances can rise very high into the atmoshere,where they mix and react with water,oxygen, and other chemicala to form more acidic pollutants, known as acid rain.

5. What are the uses of Plaster of Paris?

- It is used for plastering bones
- It is used for making casts for statues.

6. Two acids 'A' and 'B' are given. Acid A gives one hydrogen ion per molecule of the acid in solution. Acid B gives two hydrogen ions per molecule of the acid in solution.

- Find out the acid A and acid B.
- Which acid is called the King of Chemicals?

- A= HCl (Hydrochloric acid)
B= H₂SO₄(Sulphuric acid)

- H₂SO₄(Sulphuric acid)

7. Define aquaregia.

Aquaregia is a mixture of hydrochloric acid and nitric acid prepared optimally in a molar ratio of 3:1.

8. Correct the mistakes:

- Washing soda is used for making cakes and bread soft, spongy.
- Calcium sulphate hemihydrate is used in textile industry.

Ans:

- Baking** soda is used for making cakes and bread soft, spongy.
- Calcium oxy chloride** is used in textile industry.

9. Find the odd one out: Lemon juice, Tomato juice, House hold ammonia, Coffee

Ans: House hold ammonia

10. What is neutralization reaction? Give an example.

Acids react with bases to give salt and water is called neutralization reaction.

Eg: $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$

III. Answer in detail

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

- * Distilled water is neutralized.
- * No ions in it.
- * Ions required to conduct electricity.
- * Salts are removed during the distillation process.
- * Because ions pollutants and salts present in the rain water andso conduct electricity.

2. Plaster of Paris should be stored in a moisture proof container. why?

The plaster of paris should be stored in a moisture-proof container as it absorbs water from moisture and turn into hard substance (Gypsum) as shown in following chemical equaaation.



(plastter of paris)

(Gypsum)

3. Write any four uses of bases.

- Sodium hydroxide is used in the manufacture of soap.
- Calcium hydroxide is used in white washing of building.
- Magnesium hydroxide is used as a medicine for stomach disorder.
- Ammonium hydroxide is used to remove grease stains from cloths.

4. The solutions A, B, C, D and E when tested with universal indicator showed pH as 4, 1, 11, 7 and 9 respectively. Among these which solution is

- (i) neutral
- (ii) strongly alkaline
- (iii) strongly acidic
- (iv) weakly acidic
- (v) weakly alkaline

Ans:

- (i) neutral (**D solution pH=7**)
 - (ii) strongly alkaline (**C solution pH=11**)
 - (iii) strongly acidic (**B solution pH=1**)
 - (iv) weakly acidic (**A solution pH=4**)
 - (v) weakly alkaline (**E solution pH=9**)
5. Write any five uses of salts.

Common Salt (NaCl)

It is used in our daily food and used as a preservative.

Washing Soda (Sodium Carbonate-)

- i. It is used in softening hard water.
- ii. It is used in glass, soap and paper industries.

Baking Soda (Sodium bicarbonate - NaHCO_3)

- i. It is used in making of baking powder which is a mixture of baking soda and tartaric acid.
- ii. It is used in soda-acid fire extinguishers.
- iii. Baking powder is used to make cakes and bread, soft and spongy.
- iv. It neutralizes excess acid in the stomach and provides relief.



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Bleaching powder

(Calcium Oxychloride - CaOCl_2)

- i. It is used as disinfectant.
- ii. It is used in textile industry for bleaching cotton and linen.

Plaster of Paris (Calcium Sulphate

Hemihydrate - $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$)

- i. It is used for plastering bones
- ii. It is used for making casts for statues.

6. Sulphuric acid is called King of Chemicals. Why is it called so?

* Sulphuric acid is called King of Chemicals because it is used in the preparation of many other compounds. It is used in car batteries also.

⚙ Sulphuric acid is familiar to use as the electrolyte in the lead acid batteries in automobiles.

⚙ H_2SO_4 is called king of chemicals because of its high reactivity and corrosive nature.

⚙ It is directly or indirectly used in preparation of most fertilizer and also it can melt large number of metals.

⚙ Sulphuric acid is used in petroleum refining to make high-Octane petrol, which burns efficiently.

⚙ These cleaned up rolls are used to make cars, trucks, as well as household appliances.

⚙ Lost of sulphuric acid used to clean up rust from steel rolls.

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