

Time : 1 Hour 30 Minute

STD 10 Science
Chapter Based Test

Total Marks : 50

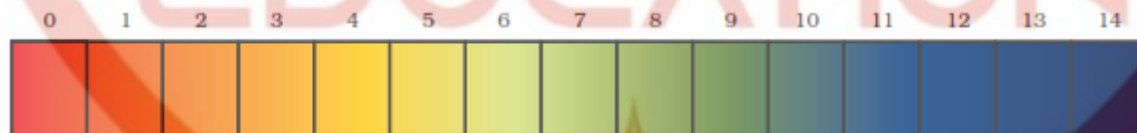
SECTION A

* Select and write one most appropriate option out of the four options given for each of the questions [7]

1. Following are the steps involved in the experiment 'to determine the percentage of water absorbed by raisins'. They are not in proper sequence.
- Soak the raisins in fresh water.
 - Weigh dry raisins.
 - Weigh soaked raisins.
 - Wipe out soaked raisins.

The correct sequence of steps is

- (A) I, II, III, IV (B) II, I, IV, III (C) II, I, III, IV (D) I, II, IV, III
2. Equal volumes of hydrochloric acid and sodium hydroxide solutions of same concentration are mixed and the pH of the resulting solution is checked with a pH paper. What would be the colour obtained? (You may use colour guide given in Figure:



- (A) Red. (B) Yellow. (C) Yellowish green. (D) Blue.
3. A solution reacts with zinc granules to give a gas which burns with a 'pop' sound. The solution contains:
- (A) $Mg(OH)_2$ (B) Na_2CO_3 (C) $NaCl$ (D) HCl
4. $Na_2CO_3 \cdot 10H_2O$ is:
- (A) Washing soda (B) Baking soda (C) Bleaching powder (D) Tartaric acid
5. Which of the following is a weak acid?
- (A) Acetic acid (B) Hydrochloric acid (C) Sulphuric acid (D) Nitric acid
6. Which of the following substance will not give carbon dioxide on treatment with dilute acid?
- Marble.
 - Limestone.
 - Baking soda.
 - Lime.
7. The property which is common between vinegar and curd is that they:
- Have sweet taste.
 - Have bitter taste.
 - Are tasteless.

d. Have sour taste.

* **Assertion - Reasoning based questions.** [3]

8. For question two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- Both A and R are true, and R is correct explanation of the assertion.
- Both A and R are true, but R is not the correct explanation of the assertion.
- A is true, but R is false.
- A is false, but R is true.

Assertion: Common salt is used for the preparation of many chemicals such as sodium hydroxide, bleaching powder, baking soda, washing soda etc.

Reason: Main source of sodium chloride is sea water.

9. For question two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- Both A and R are true, and R is correct explanation of the assertion.
- Both A and R are true, but R is not the correct explanation of the assertion.
- A is true, but R is false.
- A is false, but R is true.

Assertion: Baking soda is prepared by chlor-alkali process.

Reason: Brine decomposes to sodium hydroxide on passing electricity through it.

10. For question two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- Both A and R are true, and R is correct explanation of the assertion.
- Both A and R are true, but R is not the correct explanation of the assertion.
- A is true, but R is false.
- A is false, but R is true.

Assertion: CH_3COOH is used as vinegar in cooking and food preservatives.

Reason: Strong acids are those acids which ionise almost completely in aqueous solution and hence produce a large amount of H^+ ions.

* **Fill in the blank with correct answer.[1 Mark each]** [2]

11. Onion and vanilla extract are _____ indicator.

12. Chemical formula of washing soda is _____.

* **Answer the questions.[1 Mark each]** [2]

13. Which element is common to all acids?

14. Name the product formed when Cl and H produced during the electrolysis of brine are made to combine.

SECTION B

* **Answer the following question. :** [10]

- Write the role of HCl present in the stomach.
- What happens when carbon dioxide gas is passed through lime water:

- i. for a short time?
- ii. for a considerable time?

Write equations of the reactions involved.

3. Why do HCl, HNO₃, etc. show acidic characters in aqueous solutions while solutions of compounds like alcohol and glucose do not show acidic character?
4. What happens when a solution of sodium hydrogencarbonate is heated? Write equation of the reaction involved.
5. Crystals of a substance changed their colour on heating in a closed test tube but regained it after sometime when they were allowed to cool down. Name the substance and write its formula and explain the phenomenon involved.

SECTION C

* Answer short answer questions. [3 Mark each]

[12]

1. What happens when an acid or a base is added to the water? Why does the beaker appear warm? Why should we always add acid or base to the water and not water to the acid or base?
2. When zinc metal is treated with a dilute solution of a strong acid, a gas is evolved, which is utilised in the hydrogenation of oil. Name the gas evolved. Write the chemical equation of the reaction involved and also write a test to detect the gas formed.
3. Write the name and formula of one salt each which contains:
 - a. Two molecules of water of crystallisation.
 - b. Five molecules of water of crystallisation.
 - c. Ten molecules of water of crystallisation.
4. Write the name and formula of one salt each which contains:
 - a. Two molecules of water of crystallisation.
 - b. Five molecules of water of crystallisation.
 - c. Ten molecules of water of crystallisation.

SECTION D

* Long answer questions [5 Mark each]

[10]

1.
 - a. Complete and balance the following chemical equations:
 - i. $\text{Al}_2\text{O}_3 + \text{HCl} \longrightarrow$
 - ii. $\text{K}_2\text{O} + \text{H}_2\text{O} \longrightarrow$
 - iii. $\text{Fe} + \text{H}_2\text{O} \longrightarrow$
 - b. An element 'X' displaces iron from the aqueous solution of iron sulphate. List your observations if the element 'X' is treated with the aqueous solutions of copper sulphate, zinc sulphate and silver nitrate. Based on the observations arrange X, Zn, Cu and Ag in increasing order of their reactivities.
2. Solution A turns universal indicator blue to purple whereas solution B turns universal indicator orange to red.
 - a. What will be the action of solution A on litmus?
 - b. What will be action of solution B on litmus?
 - c. Name any two substances which can give solutions like A.
 - d. Name any two substances which can give solutions like B.
 - e. What sort of reaction takes place when solution A reacts with solution B?

SECTION E

* case - based/data -based questions

[4]

1. A metal carbonate X on heating with an acid gives a gas which when passed through a solution Y gives the carbonate back. On the other hand, a gas G that is obtained at anode during electrolysis of brine is passed on dry Y , it gives a compound Z , used for disinfecting drinking water.
- (i) Identify X , Y , G and Z .
- (ii) What is the nature of the gas evolved when X is heated ?
- (iii) Write the reaction involved in the formation of G ?
- or
- (iv) Write the reaction involved when G reacts with Y .

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