

GIRI SIR'S CLASSES
HATIGAON, GUWAHATI

ACIDS, BASES AND SALTS

Class 10 - Science

Time Allowed: 1 hour and 30 minutes

Maximum Marks: 50

General Instructions:

ALL THE QUESTIONS ARE COMPULSORY.

Section A

1. Sodium bicarbonate solution is added to dilute ethanoic acid. It is observed that [1]
 - a) the mixture becomes light yellow
 - b) the mixture becomes warm
 - c) a solid settles at the bottom
 - d) a gas evolves
2. Washing soda has the formula [1]
 - a) $\text{Na}_2\text{CO}_3 \cdot 7\text{H}_2\text{O}$
 - b) Na_2CO_3
 - c) $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$
 - d) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
3. Bleaching powder is produced by the action of chlorine on [1]
 - a) calcium chloride
 - b) calcium hydroxide
 - c) dry slaked lime
 - d) moist slaked lime
4. Normal salt is [1]
 - a) acidic with $\text{pH} > 7$
 - b) acidic with $\text{pH} < 7$
 - c) basic with $\text{pH} > 7$
 - d) neutral with $\text{pH} = 7$
5. Which of the following conducts electricity? [1]

Rainwater, distilled water, potable water.

 - a) rain water, distilled water
 - b) rain water, potable water
 - c) distilled water, potable water
 - d) Rain water, distilled water, potable water
6. Which of the following compound is/are acidic in nature? [1]
 - a) C_3H_8
 - b) $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
 - c) CH_4
 - d) C_2H_2
7. Acetic acid, when dissolved in water, dissociates into ions reversibly because it is: [1]
 - a) Weak base
 - b) Strong base
 - c) A weak acid
 - d) Strong acid
8. Sodium carbonate is a basic salt because it is a salt of [1]
 - a) Weak acid and strong base
 - b) Weak acid and weak base
 - c) Strong acid and weak base
 - d) Strong acid and strong base

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9. Which one of the following solutions would you use to test the pH of a given sample? [1]

- a) Universal indicator solution b) Blue litmus solution
c) Red litmus solution d) Mixture of red and blue litmus solution

10. Common salt besides being used in kitchen can also be used as raw material for making ? [1]

- i. Washing soda
ii. Bleaching powder
iii. Baking soda
iv. Slaked lime

- a) All of these b) A and D
c) A and C d) B and D

Section B

11. **Assertion (A):** H_2CO_3 is a strong acid. [1]

Reason (R): A strong acid dissociates completely or almost completely in water.

- a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false. d) A is false but R is true.

12. **Assertion (A):** pH of ammonium chloride solution is in acidic range. [1]

Reason (R): Solution of a salt of weak base and strong acid is acidic.

- a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false. d) A is false but R is true.

13. **Assertion (A):** Calcium starts floating when added in water. [1]

Reason (R): Calcium starts floating because the bubbles of oxygen gas which are formed during the reaction stick to the surface of the metal.

- a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false. d) A is false but R is true.

14. **Assertion (A):** Most of the metals do not give hydrogen while reacting with nitric acid. [1]

Reason (R): Nitric acid is a weak oxidising agent.

- a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false. d) A is false but R is true.

15. **Assertion (A):** pH = 7 signifies pure water. [1]

Reason (R): At this pH, $[\text{H}^+] = [\text{OH}^-] = 10^{-7}$

- a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false. d) A is false but R is true.

Section C

16. What is the name of compound present in lemon, which is chiefly responsible for its sour taste? [1]
17. Which acid is present in vinegar? write its molecular formula. [1]
18. Name an indicator which is red in acid solution but turns blue in basic solution. [1]
19. A teacher provided acetic acid, water, lemon juice, aqueous solution of sodium hydrogen carbonate and sodium hydroxide to students in the school laboratory to determine the pH values of these substances using pH papers. One of the students reported the pH values of the given substances as 3, 12, 4, 8 and 14 respectively. Which one of these values is not correct? Write its correct value stating the reason. [1]
20. If the pH value of a solution is 6, then solution will be of what type? [1]
21. Write the chemical formula of bleaching powder. How is bleaching powder prepared? For what purpose it is used in drinking water? [2]
22. An element P does not react with dilute sulphuric acid. It forms an oxide PO which turns red litmus blue. Will you call P as a metal or a non-metal? Give reason for your answer. [2]
23. List the important products of the Chlor-alkali process. Write one important use of each. [2]
24. i. Two solutions X and Y are tested with universal indicator. Solution X turns orange whereas solution Y turns red. Which of the solutions is a stronger acid? [2]
ii. State the meaning of strong acids and weak acids. Give example of each.
25. A compound X of sodium is commonly used in kitchen for making crispy pakoras. It is also used for curing acidity in the stomach. Identify X. What is its chemical formula? State the reaction which takes place when it is heated during cooking. [2]
26. 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 and also write a test to detect the gas formed. [3]
27. A white shirt has a yellow stain of curry. When soap is rubbed on this shirt during washing, the yellow stain turns reddish-brown. On rinsing the shirt with plenty of water, the reddish-brown stain turns yellow again. [3]
i. Name the natural indicator present in curry stain.
ii. Explain the changes in colour of this indicator which take place during washing and rinsing the shirt.
iii. What is the nature of soap (acidic/basic) as shown by the indicator present in curry stain?
28. While eating food, you spill some curry on your white shirt. You immediately scrub it with soap. What happens to its yellow colour on scrubbing with soap? What happens to this stain when the shirt is washed with plenty of water? [3]
29. To the three solutions listed below, a few drops of phenolphthalein and blue litmus were added separately. Specify the colour change in each case, if any: [3]

	Name of the solution	Colour change with phenolphthalein	Colour change with blue litmus
(a)	Sodium carbonate		
(b)	Hydrochloric acid		
(c)	Sodium chloride		

30. A dry pellet of a common base B, when kept in open absorbs moisture and turns sticky. The compound is also a by-product of chlor-alkali process. Identify B. What type of reaction occurs when B is treated with an acidic oxide? Write a balanced chemical equation for one such solution. [3]

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[5]

