



Class 10 - Science

acid base and salt

Maximum Marks: 100

Time Allowed: 2 hours

General Instructions:

answer all questions

Section A

1. With the help of a chemical equation, explain how a soda-acid fire extinguisher helps in putting out a fire. 3
2. What is bleaching powder. Give equations for its reactions with (i) HCl (ii) CO_2 (iii) H_2SO_4 . 3
3. Compounds such as alcohols and glucose also contain hydrogen but are not categorized as acids. Describe an activity to prove it. 3
4. Which gas is usually liberated when an acid reacts with a metal? Illustrate with an example. How will you test for the presence of this gas? 3
5. How would you obtain a base from other base, an alkali from a base, salt from another salt. 3
6. How will you show that acetic acid is monobasic acid. 3
7. How would you distinguish between baking powder and washing soda by heating? 3
8. Experiment to show that blue vitriol crystals contain water of crystallization : 3
9. Give some practical uses of neutralization. 3
10. Give two important uses of washing soda and baking soda. 3
11. What is the chemical formula of washing soda? What happens when this soda is exposed to air? 3
12. Explain why- 3
 - (i) Anhydrous calcium chloride is used in desiccators
 - (ii) If bottle full of concentrated H_2SO_4 is left open in the atmosphere by accident, the acid starts flowing out of the bottle of its own.

13. A metal carbonate X on reacting with an acid gives a gas which when passed 3

13. A metal carbonate X on reacting 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. Identify X, Y, G, and Z. 3

14. The conditions preferred by some plants are shown in the table below: 3

Plant	Apple	Potato	Black currant	Mint	Onion	Strawberry	Lettuce
pH	5.0 - 6.5	4.5 - 6.0	6.0 - 8.0	7.0 - 8.0	6.0 - 7.0	5.0 - 7.0	6.0 - 7.0

(i) Which plants grow well over the largest range of pH values?

(ii) Which plant can grow in the most acidic soil?

(iii) Which plant can grow in the basic soil?

15. When CO_2 gas pass through saturated solution of ammonical brine, two compound 'X' and 'Y' are formed. 'Y' is used as antacid and decomposes to form another solid 'Z'. Identify 'X', 'Y', 'Z' and write the chemical equations. 3

16. A compound 'X' on electrolysis in aqueous solution produces a strong base 'Y' along with two gases 'A' and 'B'. 'B' is used in the manufacture of bleaching powder. Identify X, Y, A, and B. Write the chemical equations. 3

17. Under what soil condition do you think a farmer would treat the soil of his field with quicklime (calcium oxide) or slaked lime (calcium hydroxide) or chalk (calcium carbonate). 3

18. Which gas is usually liberated when an acid reacts with a metal? Illustrate with an example. How will you test for the presence of this gas? 3

19. Differentiate between a strong acid and weak acid. 3

20. A road tanker carrying an acid was involved in an accident and its contents spilled on the road. At the side of the road iron drain cover began melting and fizzing as the acid ran over them. A specialist was called to see if the acid actually leaked into the nearby river. 3

(a) Explain why specialist could carry out sample test to see if the river water contains some acid or not (b) Suggest a better report name for the word 'melting' (c) Explain why the drain covers began fizzing as the acid ran over them.

21. Why do acids not show acidic behavior in the absence of water? 2

22. How is common salt obtained from sea water? 2

23. What is efflorescence? Give an example? 2
24. What is the action of dil. Hydrochloric acid with sodium carbonate ? 2
25. What are strong base ? Give two example of strong bases. 2
26. (i) Name the products formed when sodium hydrogen carbonate is heated. 2
(ii) Write the chemical equation for the reaction involved in (i)
27. Name the substance obtained by the action of chlorine on dry slaked lime. Write chemical equation of the reaction. 2
28. What happens when nitric acid is added to an egg shell? 2
29. Plaster of Paris should be stored in moisture-proof container. Explain why? 2
30. Fresh milk has a pH of 6. What will be the PH value if milk changes into a curd. 2
Justify.
31. (a) Why does an aqueous solution of acid conduct electricity? 5
(b) How does the concentration of hydrogen ions $[H_3O]^+$ changes when the solution of an acid is diluted with water?
(c) Which has higher pH. A concentrated or dilute solution of HCL?
(d) What would you observe on adding dil HCL acid to
(i) Sodium bicarbonate placed in a test tube.
(ii) Zinc metal in a test tube.
32. (a) The PH of rain water collected from two cities A and B was found to be 6 and 5 5
respectively. Water of which city is more acidic? Find out the ratio of hydrogen ion concentration in the two samples of rain water?
(b) Arrange the following in order (ascending) of their PH values.
NaOH solution, Blood, lemon Juice.
33. How are bases classified based upon their strength and concentration? 5
34. What are hydrated salts and water of crystallization ? 5