UNIQUE SCHOOL OF STUDIES

SEKHA ROAD SMALSAR

WORKSHEET

Class 10 - Science

Time Allowed: 3 hours **Maximum Marks: 80**

1. Bottle A contains oxalic acid and bottle B contains sodium carbonate solution. When pH paper is dipped in each of the solutions, the colour seen in A and B respectively be **[1]**

   a) orange, blue
   b) green, blue
   c) blue, orange
   d) orange, green

2. Which one of the following can be used as an acid–base indicator by a visually impared student? **[1]**

   a) Petunia leaves
   b) Vanilla essence
   c) Litmus
   d) Turmeric

3. What happens when dilute HCl is slowly added to copper oxide in a beaker? **[1]**

   a) solution turns blue
   b) solution turns blue - green
   c) solution turns green
   d) solution turns brown

4. Which of the following salts contains water of crystallization? **[1]**

   A. Gypsum
   B. Epsom salt
   C. Blue vitriol
   D. Glauber’s salt

   a) A and B
   b) C and D
   c) B and D
   d) A, B, C and D

5. Bleaching powder is a **[1]**

   a) transparent crystalline solid
   b) white crystalline solid
   c) greyish white powder
   d) pale yellow powder

6. Which of the following gives CO_2 on heating? **[1]**

   a) Limestone
   b) Slaked lime
   c) Soda ash
   d) Quick lime

7. An aqueous solution **A** turns phenolphthalein solution pink. When another aqueous solution **B** is added to the pink solution, the pink colour disappears. Now when a few drops of solution **A** are added to this reaction, the mixture appears pink again. The respective changes in the nature of the solution are from: **[1]**

   a) acidic $\rightarrow$ basic $\rightarrow$ basic
   b) acidic $\rightarrow$ basic $\rightarrow$ acidic
   c) basic $\rightarrow$ acidic $\rightarrow$ acidic
   d) basic $\rightarrow$ acidic $\rightarrow$ basic

8. Which one of the following natural sources contains Oxalic acid? **[1]**

a) Tamarind
b) Nettle sting
c) Tomato
d) Ant sting

9. A solution reacts with crushed egg shells to give a gas that turns lime water milky. The solution contains **[1]**

a) LiCl
b) NaCl
c) HCl
d) KCl

10. A sample of soil is mixed with water & allowed to settle. The clear supplement solution turns the pH paper yellowish-orange. Which of the following would change the colour of this paper to greenish-blue? **[1]**

a) An antacid
b) Lemon juice
c) Vinegar
d) Common salt

11. Lime water is: **[1]**

a) Calcium oxide
b) Calcium carbonate
c) Calcium hydroxide
d) Calcium Chloride

12. Normal salt is **[1]**

a) basic with pH > 7
b) neutral with ph - 7
c) acidic with pH < 7
d) acidic with pH > 7

13. The difference of water molecules in gypsum and Plaster of Paris is **[1]**

a) 2
b) $\frac{5}{2}$
c) $\frac{1}{2}$
d) $\frac{3}{2}$

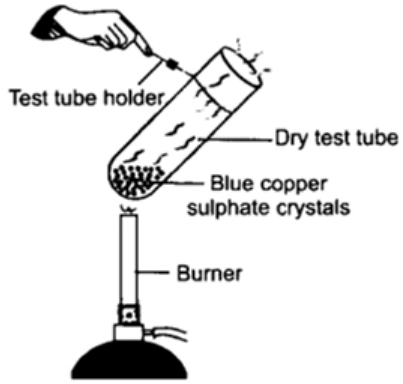
14. Calcium phosphate is present in tooth enamel. Its nature is **[1]**

a) Basic
b) Acidic
c) Amphoteric
d) Neutral

15. Soda-lime is a mixture of NaOH and CaO. What is the ratio of NaOH and CaO in soda-lime? **[1]**

a) 0.04375
b) 0.126388888889
c) 0.125694444444
d) 0.0854166666667

16. Observe the given figure carefully. **[1]**



Which of the following observations are correct?

I. A white coloured residue is left behind in the test tube.
II. Water droplets are observed on the upper cooler part of the test tube.
III. On adding water to the residue, the colour changes to green.

a) II and III only
b) I and III only
c) I, II and III
d) I and II only

17. Which one of the following compounds changes blue litmus to red? **[1]**

a) CH_3COCH_3
b) C_2H_5OH
c) C_2H_5CHO
d) C_2H_5COOH

18. The oxide which can react with HCl as well as KOH to give corresponding salt and water is **[1]**

a) K_2O
b) Na_2O
c) CuO
d) Al_2O_3

19. Why is copper sulphate pentahydrate coloured? **[2]**

20. 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]**

21. Name a salt of a weak base like NH_4OH and a strong acid like HNO_3. Represent the reaction that takes place. **[2]**

22. What happens when a base is dissolved in water? Name the reaction. **[2]**

23. A soil sample solution was analyzed with universal pH indicator paper and the colour of the paper turned yellowish. **[2]**

i. What is the nature of soil?
ii. What type of substance should the farmer add to the soil in order to get a suitable soil for farming?

24. What will happen if the solution of sodium hydrogen carbonate is heated ? **[2]**

25. 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]**

26. A compound which is prepared from gypsum has the property of hardening when mixed with a proper quantity of water. Identify the compound. Write the chemical equation for its preparation. For what purpose is it used in hospitals? **[3]**

27. Does Tartaric acid helps in making cake or bread fluffy. Justify. **[3]**

28. A milkman adds a very small amount of baking soda to fresh milk. **[3]**

i. Why does he shift the pH of the fresh milk from 6 to slightly alkaline?
ii. Why does this milk take a long time to set as curd?
iii. What do you expect to observe when milk comes to boil?

29. During the reaction of some metals with dilute hydrochloric acid, the following observations were made by a student: **[3]**

i. Silver does not show any change.
ii. Some bubbles of a gas are seen when lead is reacted with the acid.
iii. The reaction of sodium is found to be highly explosive.
iv. The temperature of the reaction mixture rises when aluminium is added to the acid.

Explain these observations giving appropriate reason.

30. 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]**

31. 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		

32. Write the chemical name for Plaster of paris. Write the chemical equation of its preparation. Why should Plaster of Paris be stored in a dry place. **[3]**

33. With the help of a chemical equation, explain how a soda-acid fire extinguisher helps in putting out a fire. **[3]**

34. A chemical compound X is prepared using sodium chloride as starting material. The compound X is used for faster cooking. It also finds use as an ingredient in medicine to treat indigestion. **[3]**

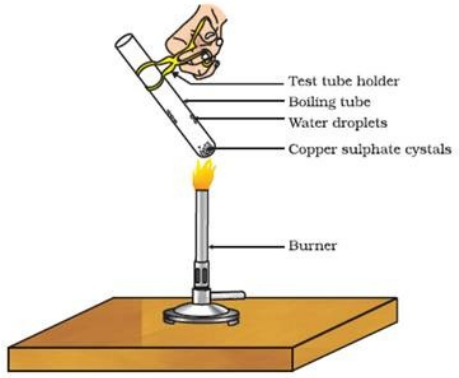
i. Identify the compound X.

ii. Give an equation for the chemical reaction which takes place upon heating X during cooking.

iii. Which quality of compound X makes it suitable for treating indigestion?

35. **Read the following text carefully and answer the questions that follow:** **[4]**

Copper sulphate crystal contains water of crystallisation when the crystal is heated the water is removed and salt turns white. The crystal can be moistened again with water. The water of crystallisation is the fixed number of water molecules present in 1 formula unit of copper sulphate. On heating gypsum at 373K, it loses water molecules and became calcium sulphate hemihydrate.



i. If the crystal is moistened with water, then which colour of the crystal reappears?

ii. What is the commercial name of calcium sulphate hemihydrate?

iii. How many water molecules are present in one formula unit of copper sulphate?

OR

What is obtained when gypsum is heated at 373K?

36. **Read the following text carefully and answer the questions that follow:** **[4]**

The teacher while conducting practicals in the laboratory divided the students into three groups and gave them various solutions to find out their pH and classify them into acidic, basic and neutral solutions.

Group A - Lemon juice, vinegar, colourless aerated drink

Group B - Tomato juice, coffee, ginger juice

Group C - Sodium hydroxide, sodium chloride, lime water

i. For the solutions provided, which group is/are likely to have pH value (i) less than 7, and (ii) greater than 7? (1)

ii. List two ways of determining pH of a solution. (1)

iii. Explain, why the sour substances such as lemon juice are effective in cleaning the tarnished copper vessels. (2)

OR

pH has great importance in our daily life. Justify this statement by giving two examples. (2)

37. a. If you have phenolphthalein as an indicator, how will you test for acid and base? **[2]**

b. What will be the colour of a blue litmus paper on bringing it in contact with a drop of dil. NaOH?

38. a. What happens when dilute hydrochloric acid is added to sodium carbonate ? Write a balanced chemical equation of the reaction involved. **[2]**

b. Which gas is liberated when dilute hydrochloric acid reacts with sodium carbonate ? How will you test for the presence of this gas?

39. What happens when zinc granules are added to dil NaOH solution? Also write the chemical equation for the reaction. **[2]**

40. Write two precautions which should be observed while carrying any reaction of zinc metal with dil HCl. **[2]**

41. **Assertion (A):** Plaster of Paris is used by doctors by setting fractured bones. **[1]**

Reason (R): When Plaster of Paris is mixed with water and applied around the fractured limbs, it sets into a hard mass.

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.

42. **Assertion (A):** It is advised that while diluting an acid one should add water to acid and not acid to water keeping the solution continuously stirred. **[1]**

Reason (R): The process of dissolving an acid into water is highly exothermic.

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.

43. **Assertion (A):** Curd and sour substances should not be stored in copper vessels. **[1]**

Reason (R): Curd and other sour substances should not be kept in brass and copper vessels as they contain acids.

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.

44. **Assertion (A):** The aqueous solution of glucose and alcohol does not show acidic character. **[1]**

Reason (R): Aqueous solutions of glucose and alcohol do not give H^+ ions.

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.