



SHIKSHA CLASSES

Sub. : Science
Std. : Xth - CBSE

Answer Paper
2. Acids, bases and Salts.

Marks : 30
Time : 1 Hour.

SECTION (A)

(Each - 1 Mark)

Q.1 : What is the range of pH universal indicator solution?

Ans. : The range of pH universal indicator solution is 0 – 14.

OR

On putting two drops of dilute hydrochloric acid on the pH paper the colour developed on the pH paper is.

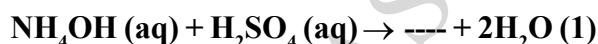
Ans. : a) Red

Q.2 : Copper sulphate crystals when heated strongly lose their water of crystalization to give anhydrous copper sulphate accompanied by a change in colour. What is the colour change occurred?

Ans. : Colour is changes from Blue to white.

OR

: In the following reaction, identify the salt formed.



Ans. : b) $(\text{NH}_4)_2\text{SO}_4$

Q.3 : Assertion (A) : NaCl is basic salt.

Reason (R) : Hydrolysis of NaCl reveals the formation of NaOH and HCl.

Ans. : d) A is false but R is true.

Q.4: Assertion (A) : The acid must always be added to water with constant stirring.

Reason (R) : Mixing of an acid with water decreases the concentration of H⁺ ions per unit volume.

Ans. : b) Both A and R are true but R is not the correct explanatoin of the assertion.

Q.5: Assertion (A) : HCl gas does not change the colour of dry blue litmus paper.

Reason (R) : HCl gas dissolves in the water present in wet litmus paper to form H⁺ ions

Ans. ∴ a) Both A and R are true and R is correct explanation of the assertion.

Q.6 : Write two uses of bleaching powder.

Ans. : i) Bleaching powder is used as an oxidising agent in many chemical industries.
ii) To make drinking water free from germs.

OR

: The sample of soil from a particular place was tested for its pH value. It came out to be 5. Which one of the following should be added to the soil to make it suitable for

the plant growth?

i. Calcium chloride ii. Calcium Hydroxide iii. Calcium oxide

Choose the correct option :

Ans. : b) Both (ii) and (iii)

Q.7 : Read the following and answer any two questions from 5(i) to 5(iii). (2 Mark)

Equal length of magnesium ribbon ----- the test tube B in equal amounts.

i) Identify the test tube showing vigorous reaction.

Ans. : a) Test tube A

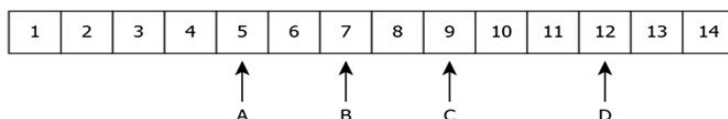
ii) Name the gas liberated in both the tubes.

Ans. : a) H_2

iii) Out of two acid which one will have lower pH value?

Ans. : a) H_2SO_4

Q.8 : The image shows the pH values of four solutions on a pH scale.



Which solutions are alkaline in nature?

Ans. :c) C and D

Q.9: The pH of a solution is 7. How can you increase its pH?

Ans. : b) By adding a small amount of base.

Q.10 : Which one of the given is incorrect?

Ans. : d) None of these

Q.11: At what temperature is gypsum heated to form Plaster of Paris?

Ans. : b) $100^\circ C$

Q.12: Which of the following acids are edible?

(A) Citric acid (B) Tartaric acid (C) Hydrochloric acid (D) Carbonic acid

Ans. : b) (A), (B) and (D) are correct

Q.13: Bleaching powder's chemical name is _____

Ans. :b) Calcium Oxychloride

Q.14: Common salt beside being used in the kitchen can also be used as the raw material for the production of

(A) Baking powder (B) Washing soda (C) Black ash (D) Slaked lime

Ans. : c) (A) and (B)

SECTION (B)

(Each - 2 Mark)

Q.15: Name the acid present in the following.

i) Tomato ii) Vinegar

Ans. : i) Tomato – Oxalic acid

ii) Vinegar – Acetic acid

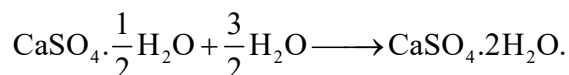
Q.16: A student detected the pH of four unknown solution A, B, C and D as follows 11, 5, 7 and 2. Predict the nature of the solution.

Ans. : A – Basic, B – Acidic, C – Neutral, D – Strongly acidic.

OR

State the chemical name of plaster of paris. Write a chemical equation to show the reaction between plaster of paris and water.

Ans. : Calcium sulphate hemihydrate.



SECTION (C)

(Each - 3 Mark)

Q.17: What is neutralisation reaction? Give two examples.

Ans. : The reaction between an acid and a base to give a salt and water is called neutralisation reaction eg. 1) $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$ 2) $\text{Mg}(\text{OH})_2 + 2\text{HCl} \rightarrow \text{MgCl}_2 + 2\text{H}_2\text{O}$.

OR

: Compounds such as alcohols and glucose also contain hydrogen but are not categorised as acids. Describe an activity to prove it.

Ans. : Glucose and alcohol contain hydrogen but they are not acids because they do not form H^+ ions in the solution.

This can be explained well with the help of following experiment.

- 1) Take solutions of glucose, alcohol in a beaker.
- 2) Take a cork and fix two nails on the cork upto the end.
- 3) Keep the cork in the beaker.
- 4) Connect the nails to two terminals of a 6 volt battery through a bulb and a switch.
- 5) Switch on the current.
- 6) You will see the bulb does not glow or the current does not pass through the circuit.
- 7) This means no ions or H^+ ions are present in the solution.
- 8) This shows that glucose and alcohol are not acids.

Q.18: When electricity is passed through a common salt solution sodium hydroxide is produced along with the liberation of two gases x and y. The gas x burns with a pop sound whereas y is used for disinfecting drinking water.

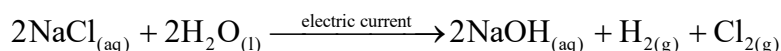
i) Identify x and y.

ii) Give the chemical equation for the reaction stated above.

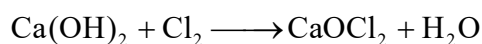
iii) State the reaction of y with dry slaked lime.

Ans. : i) The gas x is H_2 and gas y is Cl_2 .

ii) The chemical equation for the reaction is



iii) Cl_2 reacts with slaked lime to form bleaching powder.



SECTION (D)

(5 Mark)

Q.19: State and explain what is fire extinguisher? Also write which gas is used as a fire extinguisher.

Ans. : CO_2 gas is used as a fire extinguisher.

Construction of a fire extinguisher :

- 1) A soda acid fire extinguisher consists of a metal container filled with a solution of sodium bicarbonate.
- 2) A glass bottle kept inside the container has sulphuric acid in it.
- 3) At the top it has a knob.
- 4) At the side it has a nozzle.

Working :

- 1) When the knob of the extinguisher is pressed, the bottle breaks.
- 2) The acid comes in contact with sodium bicarbonate and carbon dioxide is produced.
- 3) The carbon dioxide comes out through the nozzle which is directed towards the fire.
- 4) CO_2 cuts off the supply of air and extinguishes the fire.

Reaction :

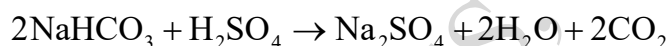
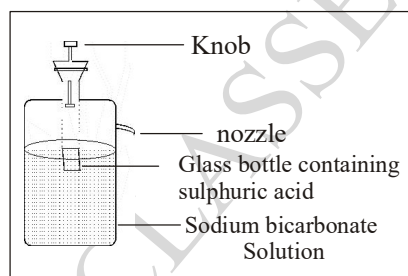


Diagram :



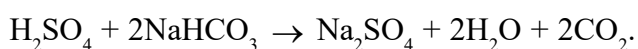
Fire Extinguisher

OR

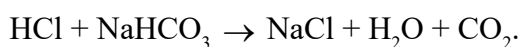
: A compound 'A' is used in fire extinguishers as an antacid and its small amount is also used in making bakery items. Identify the compound and also explain the reason for above mentioned uses of the compound 'A'.

Ans. : Compound 'A' is sodium hydrogen carbonate - NaHCO_3 .

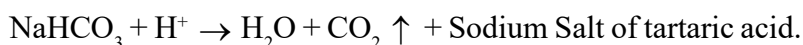
- i) It is used in fire extinguishers because it produces CO_2 gas on reaction with acid.



- ii) It is used as an antacid because it neutralises excess acid (HCl) present in stomach.



- iii) It is used in making bakery items because on reaction with acid it produces CO_2 gas which makes bread, cake etc. soft and spongy.



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