RAVI MATHS TUITION CENTER , WHATSAPP - 8056206308

Acids, Bases And Salts TEST 2

10th Standard

Science

ANSWERS AVAILABLE ONLY IN MY PAID GROUP. FEES RS.200 PER MONTH OR RS.2000 PER YEAR

20 x 1 = 20

1) During the preparation of hydrogen chloride gas on a humid day, the gas is usually passed through the guard tube containing calcium chloride. The role of calcium chloride taken in the guard tube is to

(a) absorb the evolved gas (b) moisten the gas (c) absorb moisture from the gas

(d) absorb Cl-ions from the evolved gas

2) Calcium phosphate is present in tooth enamel. Its nature is

(a) basic (b) acidic (c) neutral (d) amphoteric

3) Which of the following gives the correct increasing order of acidic strength?

(a) Water < Acetic acid < Hydrochloric acid (b) Water < Hydrochloric acid < Acetic acid

(c) Acetic acid < Water < Hydrocholoric acid (d) Hydrochloride acid < Water < Acetic aicd

4) Sodium hydrogen carbonate when added to acetic acid evolves a gas. Which of the following statements are true about the gas evolved?

(i) It turns lime water milky
(ii) It extinguishes a burning splinter
(iii) It dissolves in a solution of sodium hydroxide
(iv) It has a pungent odour

(a) (i) and (ii) (b) (i), (ii) and (iii) (c) (ii), (iii) and (iv) (d) (i) and (iv)

5) Common salt besides being used in kitchen can also be used as the raw meterial for making.

(i) washing soda
(ii) bleaching powder
(iii) baking soda
(iv) slaked lime

(a) (i) and (ii) (b) (i), (ii) and (iv) (c) (i) and (iii) (d) (i), (iii) and (iv)

6) Which of the following statements is correct about an aqueous solution of an acid and of a base?

(i) Higher the pH, stronger the acid
(ii) Higher the pH, weaker the acid
(iii) Lower the pH, stronger the base
(iv) Lower the pH, weaker the base

(a) (i) and (iii) (b) (ii) and (iii) (c) (i) and (iv) (d) (ii) and (iv)

7) Which of the following is not a mineral acid?

(a) Hydrochloric acid (b) Citric acid (c) Sulphuric acid (d) Nitric acid

8) Which among the following is not a base?

(a) NaOH (b) KOH (c) NH_4OH (d) CH_2H_5OH

9) Match the chemical substances given in Column (A) with their appropriate application given in Column (B).

Column (A)	**Column (B)**
(A) Bleaching Powder (B) Baking Soda (C) Washing Soda (D) Sodium Chloride	(i) Preparation of glass (ii) Production of H_2 and Cl_2 (iii) Decolourisation (iv) Antacid

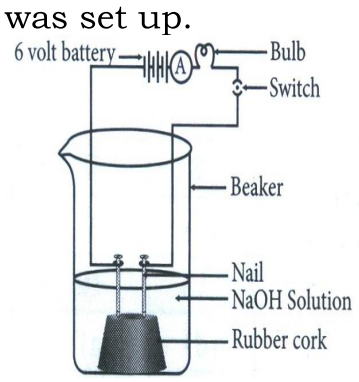
(a) A - (ii), B - (i), C - (iv), D - (iii) (b) A - (iii), B - (ii), C - (iv), D - (i) (c) A - (iii), B - (iv), C - (i), D - (ii)

(d) A - (ii), B - (iv), C - (i), D - (iii)

10) Which of the following are present in a dilute aqueous solution of hydrochloric acid?

(a) $H_3O^+ + CH^-$ (b) $H_3O^+ + OH^-$ (c) $Cl^- + OH^-$ (d) unionised HCl

11) In an attempt to demonstrate electrical conductivity through an electrolyte, the following apparatus shown below was set up.



which among the following statement(s) is (are) correct?
(i)Bulb will not glow because electrolyte is not acidic
(ii)Bulb will glow because NaOH is a strong base and furnishes ions for conduction.
(iii)Bulb will not glow because circuit is incomplete.
(iv)Bulb will not glow because it depends upon the type of electrolytic solution.

(a) (i) and (iii) (b) (ii) and (iv) (c) (ii) only (d) (iv) only

12) Lime water is

(a) CaO (b) Ca(OH)2 (c) CaCO3 (d) CaCI2

13) The pH of a solution of HCl is 4. This shows that the molarity of the solution is

(a) 4.0M (b) 0.4 (c) 0.0001M (d) 0.001M

14) The compound used for neutralisation of excess HCI in the stomach is

(a) $NaHCO_3$ (b) $Mg(OH)_2$ (c) Both (d) None of these

15) The aqueous solution of which of the following salt will have higher OH^- ions?

(a) NaCI (b) Na_2SO_4 (c) CH_3COONa (d) None of these

16) Which of the following substances will not give carbon dioxide on treatment with dilute acid?

(a) Marble (b) Limestone (c) Lime (d) Baking soda

17) An element 'X' forms a solid oxide which dissolves in water forming solution which turns blue litmus paper red, 'X' is

(a) Ca (b) Cu (c) Fe (d) P

18) The formula of washing soda is

(a) $NaHCO_3$ (b) $Na_2CO_3.H_2O$ (c) Na_2CO_3 (d) $Na_2CO_3.10H_2O$

19) If tartaric acid is not added in baking powder, the cake will taste bitter due to the presence of

(a) sodium hydrogen carbonate (b) sodium carbonate (c) carbon dioxide (d) same unreacted tartaric acid

20) Milk of magnesia is

(a) solid magnesium oxide (b) insoluble magnesium hydroxide (c) soluble magnesium hydroxide
(d) insoluble magnesium carbonate

5 x 1 = 5

21) **Assertion:** Bleaching powder reacts with dilute acids to evolve chlorine.
Reason: The chlorine liberated by the action of dilute acids on bleaching powder is called available chlorine.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

22) **Assertion:** Sodium carbonate pentahydrate is also known as washing soda.
Reason: Chief raw materials for the manufacture of washing soda are NH_3,NaCI and $CaCO_3$.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

23) **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.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true

24) **Assertion**: $AlCl_3$ is a basic salt.

Reason: $AlCl_3$ is a salt of strong acid and a weak base.

Codes

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

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

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

Codes

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

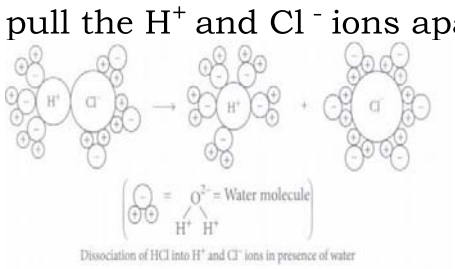
6 x 5 = 30

26) Which gas is usually liberated when an acid reacts with a metal? Illustrate with an example, How will you test for the presence of the gas?

27) Compounds such as alcohols and glucose also categorised as acids. Describe an activity to prove it.

28) State reason for the following statements:
(i) Tap water conducts electricity whereas distilled water does not.
(ii) Dry hydrogen chloride gas does not turn blue litmus red whereas dilute , hydrochloric acid does.
(iii) During summer season, a milk man usually adds a very small amount of baking soda to fresh milk.
(iv) For a dilution of acid, acid is added into water and not water into acid.
(v) Ammonia is a base but does not contain hydroxyl group.

29) The acidic behaviour of acids is due to the presence of hydrogenil(H^+)ions in them. They produce hydrogen ions in the presence of water. Water is a polar solvent and this property of water helps in weakening the bond between the ions and makes them soluble. Hence, acids and bases produce ions in aqueous solutions.
It may be noted that a dry Hel gas or a solution of hydrogen chloride in organic, nonpolar solvents like toluene or benzene do not show acidic properties. This is because hydrogen chloride does not undergo ionization in toluene.
The reason why Hel splits into H^+ and CI^- ions in presence of water lies in the fact that water molecules, being polar, pull the H^+ and Cl^- ions apart and thus, the bond in Hel is broken



Dissociation of HCl into H^+ and Cl^- ions in presence of water

(i) Identify the wrong statement.
(a) Higher the hydronium ion concentration, lower is the pH value
(b) Universal indicator is used to judge how strong a given acid or base is
(c) As the pH value increases from 7 to 14, it represents increase in H^+ ion concentration in the solution
(d) Value less than 7 on the pH scale represents an acidic solution
(ii) If the pH of a solution is 8, then its $[H^+]$ ion is
(a) log 10^{-8} (b) 10^8 (c) 10^{-8} (d) 8
(iii) In terms of acidic strength, which one of the following is in the correct increasing order?
(a) Water < Acetic acid < Hydrochloric acid
(b) Water < Hydrochloric acid < Acetic acid
(c) Acetic acid < Water < Hydrochloric acid
(d) Hydrochloric acid < Water < Acetic acid
(iv) Which of the following compounds does not give H^+ ions in aqueous solution?
(a) H_3PO_4 (b) C_2H_5OH (c) H_2CO_3 (d) CH_3COOH
(v) Four solutions labelled as P, Q, Rand Shave pH values 1, 9, 3 and 13 respectively.
Which of the following statements about the given solutions is incorrect?
(a) Solution P has higher concentration of hydrogen ions than solution R.
(b) Solution Q has lower concentration of hydroxide ions than solution S.
(c) Solutions P and Q will turn red litmus solution blue.
(d) Solution P is highly acidic while solution Q is weakly basic.

30) Chemically, Plaster of Paris (POP) is calcium sulphate hemihydrate, i.e., containing half molecule of water of crystallisation. It is represented by the formula, $CaSO_4 .1/2H_2O$. Half molecule of water of crystallisation means that one water molecule is shared by two formula units of $CaSO_4$. Hence, we also represent its formula as $(CaSO_4)_2.H_2O$. The name, plaster of Paris, was given to this compound because for the first time, it was made from gypsum which was mainly found in Paris.

(i) The difference of water molecules in gypsum and plaster of Paris is

(a) 5/2 (b) 2 (c) 1/2 (d) 3/2

(ii) Plaster of Paris hardens by

(a) giving off CO_2 (b) changing into $CaCO_3$

(c) combining with water (d) giving out water

(iii) Which of the following statements is incorrect?

(a) Plaster of Paris is used to ornate designs on walls and ceilings

(b) On heating gypsum above 373 K, $CaSO_4$ is obtained

(c) Dead burnt plaster is $CaSO_4 \cdot 2H_2O$

(d) Setting of plaster is due to its hydration into gypsum

(iv) Select the incorrect statement with respect to gypsum

(a) It is slightly soluble in water

(b) It is also known as alabaster

(c) On heating gypsum at 373 K, it loses water molecules and becomes calcium sulphate hemihydrate

(d) Chemical formula of gypsum is $CaSO_4 \cdot 1/2H_2O$

(v) Plaster of Paris is obtained by

(a) adding water to calcium sulphate.

(b) adding sulphuric acid to calcium hydroxide

(c) heating gypsum to a very high temperature

(d) heating gypsum to 100° C