

Chemical Reaction and Equations Science | MCQs | Class 10

Set-1

Question 1. Which of the following reactions involves the combination of two elements :-

- a) $\text{CaO} + \text{CO}_2 \rightarrow \text{CaCO}_3$
- b) $4\text{Na} + \text{O}_2 \rightarrow 2\text{Na}_2\text{O}$
- c) $\text{SO}_2 + (\frac{1}{2})\text{O}_2 \rightarrow \text{SO}_3$
- d) $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$

Question 2. When hydrogen sulphide gas is passed through a blue solution of copper sulphate, a black precipitate of copper sulphide is obtained and the sulphuric acid so formed remains in the solution. The reaction is an example of :-

- a) A combination reaction
- b) A displacement reaction
- c) A decomposition reaction
- d) A double decomposition reaction

Question 3. What happens when copper rod is dipped in iron sulphate solution :-

- a) Copper displaces iron
- b) Blue color of copper sulphate solution is obtained
- c) No reaction takes place
- d) Reaction is exothermic

Question 4. A student added dilute HCl to a test tube containing zinc granules and made following observations :-

- a) The zinc surface became dull and black
- b) A gas evolved which burnt with a pop sound
- c) The solution remained colorless
- d) The solution becomes green in color.

Question 5. A dilute solution of sodium carbonate was added to two test tubes one containing dilute HCl (a) and the other containing dilute NaOH (b). the correct observation was :-

- a) A brown colored gas liberated in test tube A
- b) A brown colored gas liberated in test tube B
- c) A colorless gas liberated in test tube A

d) A colorless gas liberated in test tube B

Question 6. A balanced chemical equation is in accordance with

- a) Avogadro's law
- b) Law of multiple proportion
- c) Law of conservation of mass
- d) Law of gaseous volumes

Question 7. The equation



The values of x and y are

- a) 3 and 5
- b) 8 and 6
- c) 4 and 2
- d) 7 and 1

Question 8. $\text{Zn} + \text{H}_2\text{SO}_4(\text{dil}) \rightarrow \text{ZnSO}_4 + \text{H}_2$

Above reaction is

- a) Decomposition reaction
- b) Single displacement reaction
- c) Combination reaction
- d) Synthesis reaction

Question 9. The reaction in which two compounds exchange their ions to form two new compounds is

- a) A displacement reaction
- b) A decomposition reaction
- c) An isomerization reaction
- d) A double displacement reaction

Question 10. When the gases sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction is



- a) An oxidizing agent
- b) A reducing agent
- c) A dehydrating agent
- d) A catalyst

Question 11. $\text{CuO} + \text{H}_2 \rightarrow \text{H}_2\text{O} + \text{Cu}$, reaction is an example of

- a) Redox reaction

- b)Synthesis reaction
- c)Neutralization
- d)Analysis reaction

Question 12.A substance which oxidizes itself and reduces other is known as

- a)Oxidizing agent
- b)Reducing agent
- c)Both of these
- d)None of these

Question 13.A redox reaction is one in which

- a)Both the substance are reduced
- b)Both the substance are oxidized
- c)An acid is neutralized by the base
- d)One substance is oxidized while the other is reduced

Question 14.In the following equation:

$\text{Na}_2\text{CO}_3 + x\text{HCl} \rightarrow 2\text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$, the value of x is

- a)1
- b)2
- c)3
- d)4

Question 15.In the equation, $\text{NaOH} + \text{HNO}_3 \rightarrow \text{NaNO}_3 + \text{H}_2\text{O}$ nitric acid is acting as

- a)An oxidizing agent
- b)An acid
- c)A nitrating agent
- d)A dehydrating agent

Question 16. $\text{Fe}_2\text{O}_3 + 2\text{Al}_2\text{O}_3 + 2\text{Fe}$

The above reaction is an example of a

- a)Combination reaction
- b)Double displacement reaction
- c)Decomposition reaction
- d)Displacement reaction

Question 17.White silver chloride in sunlight turns to

- a)Grey
- b)Yellow

- c)Remain white
- d)Red

Question 18.Black and white photography uses

- a)Decomposition of silver chloride
- b)Decomposition of silver bromide
- c)Both
- d)None of these

Question 19.When copper powder is heated it gets coated with

- a)Black copper oxide
- b)Yellow copper oxide
- c)Red copper oxide
- d)None of these

Question 20.Combination of phosphorus and oxygen is an example of

- a)Oxidation
- b)Reduction
- c)Rancidity
- d)None of these

Question 21.Rusting of an iron is an example of

- a)Reduction
- b)Ionization
- c)Oxidation
- d)Dissociation

Question 22.Which of the following does not corrode when exposed to the atmosphere-

- a)Iron
- b)Copper
- c)Gold
- d)Silver

Question 23.Take about 1.0g CaCO_3 in a test tube. Heat it over a flame, when a colorless gas comes out. The reaction is called a

- a)Decomposition reaction
- b)Displacement reaction
- c)Double decomposition reaction

d) Double displacement reaction

Question 24. Hydrogen sulphide (H_2S) is a strong reducing agent. Which of the following reactions shows its reducing action

- a) $\text{Cd}(\text{NO}_3)_2 + \text{H}_2\text{S} \rightarrow \text{CdS} + 2\text{HNO}_3$
- b) $\text{CuSO}_4 + \text{H}_2\text{S} \rightarrow \text{CuS} + \text{H}_2\text{SO}_4$
- c) $2\text{FeCl}_3 + \text{H}_2\text{S} \rightarrow 2\text{FeCl}_2 + 2\text{HCl} + \text{S}$
- d) $\text{Pb}(\text{NO}_3)_2 + \text{H}_2\text{S} \rightarrow \text{PbS} + 2\text{CH}_3\text{COOH}$

Question 25. When P reacts with caustic soda, the products are PH_3 and NaH_2PO_2 . This reaction is an example of

- a) Oxidation
- b) Reduction
- c) Oxidation and reduction (redox)
- d) Neutralization

Question 26. $2\text{CuI} \rightarrow \text{Cu} + \text{CuI}_2$, the reaction is

- a) Redox
- b) Neutralization
- c) Oxidation
- d) Reduction

Question 27. When copper turnings are added to silver nitrate solution, a blue coloured solution is formed after some time. It is because, copper

- a) Displaces silver from the solution
- b) Forms a blue colored complex with AgNO_3
- c) Is oxidized to Cu^2+
- d) Is reduced to Cu^2+

Question 28. $\text{Zn}^{2+}(\text{aq}) + 2\text{e}^- \rightarrow \text{Zn}(\text{s})$. this is

- a) Oxidation
- b) Reduction
- c) Redox reaction
- d) None of these

Answer

1. (b) Except (b) all other reactions involve compounds.

2. (d) $\text{CuSO}_4 + \text{H}_2\text{S} \rightarrow \text{CuS} + \text{H}_2\text{SO}_4$

It is a Double decomposition

3.(c) Iron is more reactive than copper, hence Cu will not displace iron from iron sulphate, hence no reaction will take place.

4.(b) $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$

5.(c) $\text{Na}_2\text{CO}_3 + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$

6.(c)

7.(c) $\text{Cu} + 4\text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{NO}_2 + 2\text{H}_2\text{O}$

8.(b)

9.(d)

10.(b) Here H_2S is oxidizing in to H_2O , hence behave as a reducing agent.

11.(a)

12.(b)

13.(d)

14. (b) $\text{Na}_2\text{CO}_3 + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$

15.(b) The reaction represents a neutralization reaction in which base (NaOH) reacts with an acid (HNO_3) to form salt (NaNO_3) and water (H_2O).

16.(d)

17.(a) Write silver chloride in sunlight turns to grey.

18.(b)

19.(a) $2\text{Cu} + \text{O}_2 \rightarrow 2\text{CuO}$

Black

20.(a) $4\text{P} + 3\text{O}_2 \rightarrow 2\text{P}_2\text{O}_3$

(Oxidation)

Or $4\text{P} + 5\text{O}_2 \rightarrow 2\text{P}_2\text{O}_5$

(Oxidation)

21.(c) During rusting iron get oxidized to form rust ($\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$)

22.(c) Gold is very least reactive hence does not corrode at all.

23.(a)

24.(c)

In the given reaction H_2 is undergoing oxidation, hence behave as reducing agent.

25.(c)

It shows oxidation and reduction (redox) properties.

26.(a) Oxidation and reduction both occur so the reaction is redox.

27.(c) Cu is above of Ag in electrochemical series and thus

$\text{Cu} + 2\text{Ag}^+ \rightarrow \text{Cu}^{2+} + 2\text{Ag}$ reaction occurs.

28.(b) reduction.

Set-2

Question 1. Before burning in air, the magnesium ribbon is cleaned by rubbing with a sand paper to:

- Make the ribbon surface shinier
- Remove the layer of magnesium oxide from the ribbon surface
- Remove the layer of magnesium carbonate from the ribbon surface
- Remove the moisture from the ribbon surface

Answer. c. Remove the layer of magnesium carbonate from the ribbon surface.

Question 2. In a chemical reaction between sulphuric acid and barium chloride solution the white precipitates formed are of:

- Hydrochloric acid
- Barium sulphate
- Chlorine
- Sulphur

Answer. b. Barium sulphate

Question 3. The respiration process during which glucose undergoes slow combustion by combining with oxygen in the cells of our body to produce energy, is a kind of:

- Exothermic process
- Endothermic process
- Reversible process
- Physical process

Answer. a. Exothermic process

4. A chemical reaction does not involve:

- Formation of new substances having entirely different properties than that of the reactants
- Breaking of old chemical bonds and formation of new chemical bonds
- Rearrangement of the atoms of reactants to form new products
- Changing of the atoms of one element into those of another element to form new products

Answer. d. Changing of the atoms of one element into those of another element to form new products

Question 5. One of the following processes does not involve a chemical reaction. That is:

- Melting of candle wax when heated
- Burning of candle wax when heated
- Digestion of food in our stomach
- Ripening of banana

Answer. a. Melting of candle wax when heated

Question 6. It is necessary to balance a chemical equation in order to satisfy the law of:

- Conservation of motion

- b. Conservation of momentum
- c. Conservation of energy
- d. Conservation of mass

Answer. d. Conservation of mass

Question 7. All the methods mentioned below can be used to prevent the food from getting rancid except:

- i. Storing the food in the air-tight containers
 - ii. Storing the food in refrigerator
 - iii. Keeping the food in clean and covered containers
 - iv. Always touching the food with clean hands
- a. (i) and (ii)
 - b. (i) and (iii)
 - c. (i), (iii) and (iv)
 - d. (iii) and (iv)

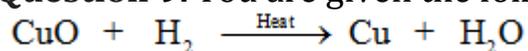
Answer. d. (iii) and (iv)

Question 8. Rusting of iron involves a chemical reaction which is a combination of:

- a. Reduction as well as combination reactions
- b. Oxidation as well as combination reactions
- c. Reduction as well as displacement reactions
- d. Oxidation as well as displacement reactions

Answer. b. Oxidation as well as combination reactions

Question 9. You are given the following chemical reaction:



This reaction represents:

- a. Combination reaction as well as double displacement reaction
- b. Redox reaction as well as displacement reaction
- c. Double displacement reaction as well as redox reaction
- d. Decomposition reaction as well as displacement reaction

Answer. b. Redox reaction as well as displacement reaction

Question 10. When ferrous sulphate is heated strongly it undergoes decomposition to form ferric oxide as a main product accompanied by a change in colour from:

- a. Blue to green.
- b. Green to blue.
- c. Green to brown.
- d. Green to yellow.

Answer. c. Green to brown

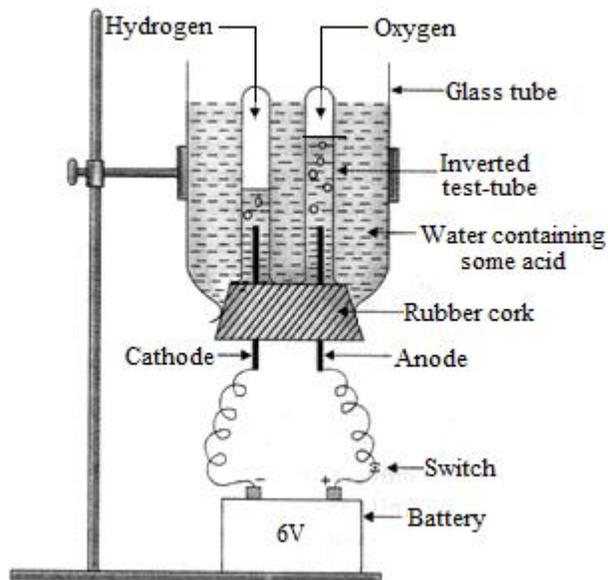
Question 11. Which of the following gases is used in the storage of fat and oil containing foods for a long time?

- a. Carbondioxide gas

- b. Nitrogen gas
- c. Oxygen gas
- d. Neon gas

Answer. b. Nitrogen gas

Question 12. Following is given a diagram showing an experimental set-up:



The given set-up is used to carry out:

- a. Distillation of water
- b. Purification of water
- c. Electrolysis of water
- d. Hydrolysis

Answer. c. Electrolysis of water

Question 13. The displacement reaction between iron (III) oxide and a metal X is used for welding the rail tracks. Here X is:

- a. Copper granules
- b. Magnesium ribbon
- c. Sodium pellets
- d. Aluminium dust

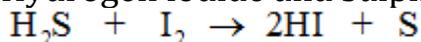
Answer. d. Aluminium dust

Question 14. The neutralization reaction between an acid and a base is a type of:

- a. Double displacement reaction
- b. Displacement reaction
- c. Addition reaction
- d. Decomposition reaction

Answer. a. Double displacement reaction

Question 15. The chemical reaction between Hydrogen sulphide and iodine to give Hydrogen iodide and sulphur is given below:



The reducing and oxidizing agents involved in this redox reaction are:

- a. Iodine and sulphur respectively
- b. Iodine and hydrogen sulphide respectively
- c. Sulphur and iodine respectively
- d. Hydrogen sulphide and sulphur

Answer. b. Iodine and hydrogen sulphide respectively

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