

Chemical reactions and equations

- The chemical formula of lead sulphate is
 - Pb_2SO_4
 - $\text{Pb}(\text{SO}_4)_2$
 - PbSO_4
 - $\text{Pb}_2(\text{SO}_4)_3$
- Which information is not conveyed by a balanced chemical equation?
 - Physical states of reactants and products
 - Symbols and formulae of all the substances involved in a particular reaction
 - Number of atoms/molecules of the reactants and products formed
 - Whether a particular reaction is actually feasible or not
- Chemically rust is
 - hydrated ferrous oxide
 - only ferric oxide
 - hydrated ferric oxide
 - none of these
- Both CO_2 and H_2 gases are
 - heavier than air
 - colourless
 - acidic in nature
 - soluble in water
- Which of the following gases can be used for storage of fresh sample of an oil for a long time?
 - Carbon dioxide or oxygen
 - Nitrogen or helium
 - Helium or oxygen
 - Nitrogen or oxygen
- The electrolytic decomposition of water gives H_2 and O_2 in the ratio of
 - 1 : 2 by volume
 - 2 : 1 by volume
 - 8 : 1 by mass
 - 1 : 2 by mass
- In the decomposition of lead (II) nitrate to give lead (II) oxide, nitrogen dioxide and oxygen gas, the coefficient of nitrogen dioxide (in the balanced equation) is
 - 1
 - 2
 - 3
 - 4
- Fatty foods become rancid due to the process of
 - oxidation
 - corrosion
 - reduction
 - hydrogenation
- We store silver chloride in a dark coloured bottle because it is
 - a white solid
 - undergoes redox reaction
 - to avoid action by sunlight
 - none of the above
- Silver article turns black when kept in the open for a few days due to formation of
 - H_2S
 - AgS
 - AgSO_4
 - Ag_2S
- When crystals of lead nitrate are heated strongly in a dry test tube
 - crystals immediately melt
 - a brown residue is left

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- (c) white fumes appear in the tube
 (d) a yellow residue is left
- 12.** Dilute hydrochloric acid is added to granulated zinc taken in a test tube. The following observations are recorded. Point out the correct observation.
- (a) The surface of metal becomes shining
 (b) The reaction mixture turns milky
 (c) Odour of a pungent smelling gas is recorded
 (d) A colourless and odourless gas is evolved
- 13.** When carbon dioxide is passed through lime water,
- (a) calcium hydroxide is formed
 (b) white precipitate of CaO is formed
 (c) lime water turns milky
 (d) colour of lime water disappears.
- 14.** When a magnesium ribbon is burnt in air, the ash formed is
- (a) black
 (b) white
 (c) yellow
 (d) pink
- 15.** In which of the following, heat energy will be evolved?
- (a) Electrolysis of water
 (b) Dissolution of NH_4Cl in water
 (c) Burning of L.P.G.
 (d) Decomposition of AgBr in the presence of sunlight
- 16.** Rancidity can be prevented by
- (a) adding antioxidants
 (b) storing food away from light
 (c) keeping food in refrigerator
 (d) all of these
- 17.** The reaction of H_2 gas with oxygen gas to form water is an example of
- (a) combination reaction
 (b) redox reaction
 (c) exothermic reaction
 (d) all of these reactions
- 18.** The reaction in which two compound exchange their ions to form two new compounds is called
- (a) displacement reaction
 (b) combination reaction
 (c) double displacement reaction
 (d) redox reaction
- 19.** On immersing an iron nail in CuSO_4 solution for few minutes, you will observe
- (a) no reaction takes place
 (b) the colour of solution fades away
 (c) the surface of iron nails acquire a black coating
 (d) the colour of solution changes to green
- 20.** An element X on exposure to moist air turns reddish-brown and a new compound Y is formed. The substance X and Y are
- (a) $\text{X} = \text{Fe}$, $\text{Y} = \text{Fe}_2\text{O}_3$
 (b) $\text{X} = \text{Ag}$, $\text{Y} = \text{Ag}_2\text{S}$
 (c) $\text{X} = \text{Cu}$, $\text{Y} = \text{CuO}$
 (d) $\text{X} = \text{Al}$, $\text{Y} = \text{Al}_2\text{O}_3$

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Answers

1. (c) 2. (d) 3. (c) 4. (b) 5. (b)
 6. (b) 7. (d) 8. (a) 9. (c) 10. (d)
 11. (b) 12. (d) 13. (c) 14. (b) 15. (c)
 16. (d) 17. (a) 18. (c) 19. (d) 20. (a)

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Question: 1: Which of the following does denote chemical reaction take place?

- a. Formation of new product
- b. Change of state
- c. Evolution of heat
- d. Reversible reaction

Answer: (a) Formation of new product

Question: 2: Which of the following reaction is also be termed as thermal decomposition reaction?

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

Answer: (b) Decomposition reaction

Question: 3: Which of the following is termed as oxidizing agent?

- a. Which gives oxygen
- b. Which removes oxygen
- c. Which gives hydrogen
- d. All of the above

Answer: (a) Which gives oxygen

Question: 4: Which of the following termed as reducing agent?

- a. Which gives oxygen
- b. Which removes oxygen
- c. Which removes hydrogen
- d. All of the above

Answer: (b) Which removes oxygen

Question: 5: Which of the following does show oxidation reaction?

- a. Gain of oxygen
- b. Loss of oxygen
- c. Gain of hydrogen
- d. None of the above

Answer: (a) Gain of oxygen

Question: 6: Which of the following does show reduction reaction?

- a. Gain of oxygen
- b. Loss of oxygen
- c. Loss of hydrogen
- d. None of the above

Answer: (b) Loss of oxygen

Question: 7: Which of the reaction is used in black and white photography?

- a. Combination reaction
- b. Decomposition reaction
- c. Displacement reaction
- d. Oxidation reaction

Answer: (b) Decomposition reaction

Question: 8: In which of the following heat is evolved?

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

Answer: (a) Combination reaction

Question: 9: In which of the following heat is absorbed generally?

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

Answer: (b) Decomposition reaction

Question: 10: Which of the following is termed as endothermic reaction?

- a. Reaction in which heat is evolved
- b. Reaction in which heat is absorbed
- c. Reaction in which there is loss of oxygen
- d. Reaction in which there is gain of hydrogen

Answer: (b) Reaction in which heat is absorbed

Question: 11: Which of the following is termed as exothermic reaction?

- a. Reaction in which heat is evolved
- b. Reaction in which heat is absorbed
- c. Reaction in which there is loss of oxygen
- d. Reaction in which there is gain of hydrogen

Answer: (a) Reaction in which heat is evolved

Question: 12: Which of the following is termed as endothermic reaction?

- a. Reaction in which heat is evolved
- b. Reaction in which heat is absorbed
- c. Reaction in which there is loss of oxygen
- d. Reaction in which there is gain of hydrogen

Answer: (b) Reaction in which heat is absorbed

Question: 13: What is the name of reaction which decomposes after supply of heat?

- a. Combination reaction
- b. Thermal decomposition
- c. Displacement reaction
- d. Redox reaction

Answer: (b) Thermal decomposition

Question: 14: What is the name of reaction in which both oxidation and reduction takes place?

- a. Combination reaction
- b. Thermal decomposition
- c. Displacement reaction
- d. Redox reaction

Answer: (d) Redox reaction

Question: 15: What is the name of substance which does get deposited over iron because of moisture present in air?

- a. Sulphide
- b. Rust
- c. Carbonate
- d. Oxygen

Answer: (b) Rust

Question: 16. Why magnesium ribbon is cleaned before burning?

- a. To remove dust
- b. To remove magnesium oxide
- c. To remove ribbon oxide
- d. All of the above

Answer: (b) To remove magnesium oxide

Question: 17. On the basis of evolution or absorption of heat, chemical reactions can be divided in how many types?

- a. Two
- b. Three
- c. Four
- d. One

Answer: Two

Question: 18. Which of the following gas is produced when carbon is burnt in air?

- a. Carbon dioxide
- b. Sulphur dioxide
- c. Oxygen
- d. Hydrogen

Answer: (a) Carbon dioxide

Question: 19. Which of the following gives energy while respiration?

- a. Burning of coal
- b. Burning of natural gas
- c. Burning of oxygen
- d. Burning of glucose

Answer: (d) Burning of glucose

Question: 20. What happens when hydrogen reacts with oxygen?

- a. Carbon dioxide is formed
- b. Water is formed
- c. Hydrogen carbonate is formed
- d. All of the above

Answer: (b) Water is formed

Question: 21. Which of the following product is formed when calcium oxide reacts with water?

- a. Slaked lime
- b. Carbon dioxide
- c. Calcium oxide
- d. Oxygen gas

Answer: (a) Slaked lime

Question: 22. What is the another name of quick lime?

- a. Calcium hydroxide
- b. Calcium oxide
- c. Carbon dioxide
- d. Sodium oxide

Answer: (b) Calcium oxide

Question: 23. What is the chemical name for slaked lime?

- a. Calcium carbonate
- b. Calcium oxide
- c. Calcium hydroxide
- d. Carbon monoxide

Answer: (c) Calcium hydroxide

Question: 24. Heating of ferrous sulphate gives which of the following product?

- a. Ferric oxide
- b. Sulphur dioxide
- c. Sulphur trioxide
- d. All of the above

Answer: (d) All of the above

Question: 25. In which of the following category will you put the reaction of heating of ferrous sulphate?

- a. Decomposition reaction
- b. Combination Reaction
- c. Displacement reaction
- d. All of the above

Answer: (a) Decomposition reaction

Question: 26. In which of the following category will you put the reaction of heating of calcium carbonate?

- a. Decomposition reaction
- b. Thermal decomposition reaction
- c. Endothermic reaction
- d. All of the above.

Answer: (d) All of the above

Question: 27. Which of the following product is formed after heating of limestone?

- a. Calcium oxide
- b. Calcium carbonate
- c. Hydrogen gas
- d. All of the above

Answer: (a) Calcium oxide

Question: 28. What happens when silver chloride is put under sunlight?

- a. Silver metal and chlorine gas are formed
- b. Silver metal and hydrogen gas are formed
- c. Only silver metal is formed
- d. Only hydrogen gas is formed

Answer: (a) Silver metal and chlorine gas are formed

Question: 29. Which of the following is formed when lead nitrate is put under thermal decomposition?

- a. Lead oxide
- b. Nitrogen dioxide
- c. Oxygen gas
- d. All of the above

Answer: (d) All of the above

Question: 30. What happens when carbon dioxide is passed in lime water?

- a. Lime water turns milky because of formation of calcium carbonate
- b. Lime water turns milky because of formation of water
- c. Lime water turns red because of formation permanganate
- d. Lime water turns red because of formation of copper sulphate

Answer: (a) Lime water turns milky because of formation of calcium carbonate

Question: 31. What happens when silver bromide is exposed to sunlight?

- a. Hydrogen gas is formed
- b. Bromine gas is formed
- c. Chlorine gas is formed
- d. Iodine gas is formed

Answer: (b) Bromine gas is formed

Question: 32. Which metal is displaced when lead is put in the solution of copper chloride?

- a. Lead
- b. Copper
- c. Chlorine
- d. All of the above.

Answer: (b) Copper

Question: 33. Which of the following is formed when lead metal reacts with the solution of copper chloride?

- a. No reaction takes place
- b. Copper chlorine
- c. Lead chloride
- d. Copper-lead chloride

Answer: (c) Lead chloride

Question: 34. Which metal is displaced when zinc metal is put in the solution of copper sulphate?

- a. Copper
- b. Zinc
- c. Sulphate
- d. All of the above

Answer: (a) Copper

Question: 35. What happens when sodium sulphate solution is mixed with the solution of barium chloride?

- a. Barium sulphate is formed
- b. Sodium sulphate is formed
- c. Sulphur dioxide gas is formed
- d. No reaction takes place

Answer: (a) Barium sulphate is formed

Question: 36. What happens when Copper metal is dipped in the solution of zinc sulphate?

- a. Copper sulphate is formed
- b. Oxygen gas is formed
- c. Zinc metal is separated
- d. No reaction takes place

Answer: (d) No reaction takes place

Explanation: Copper is less reactive than zinc, hence no reaction takes place.

Question: 37. What happens when zinc metal is dipped in the solution of copper sulphate?

- a. Zinc sulphate is formed
- b. Zinc oxide is formed
- c. Zinc sulphide is formed
- d. No reaction takes place

Answer: (a) Zinc sulphate is formed

Question: 38. Why are articles made of iron painted to prevent rust?

- a. Paint makes articles made of iron beautiful
- b. Paint prevents iron articles to come in contact with moisture present in air.
- c. Paint prevents iron articles to getting sticky
- d. All of the above

Answer: (b) Paint prevents iron articles to come in contact with moisture present in air.

Question: 39. Which of the following is termed as rancidity?

- a. Reduction of oxygen present in food

- b. Oxidation of oil present in food
- c. Oxidation of sugar present in food
- d. All of the above

Answer: (b) Oxidation of oil present in food

Question: 40. How rancidity can be prevented?

- a. By adding antioxidants in food
- b. By adding more oxygen to food
- c. By keeping food items in open
- d. All of the above

Answer: (a) By adding antioxidants in food

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Question: 1: Which substance is flushed in bags of potato chips to prevent rancidity?

Answer: Nitrogen

Question: 2: What is the name of reaction in which an atom, molecule or ion gains oxygen?

Answer: Oxidation reaction

Question: 3: Question: 2: What is the name of reaction in which an atom, molecule or ion loses oxygen?

Answer: Reduction reaction

Question: 4: What is the chemical name of rust?

Answer: Iron oxide

Question: 5: Which substance does get oxidized in rancidity of food?

Answer: Fats present in food

Question: 6: In which reaction generally heat is evolved?

Answer: Combination reaction

Question: 7: In which reaction generally heat is absorbed?

Answer: Decomposition reaction

Question: 8: Which reaction is used in black and white photography?

Answer: Thermal decomposition

Question: 9: Which chemical substance is used to print impression of black and white photography paper?

Answer: Silver chloride or Silver bromide

Question: 10: What is the chemical name of quick lime?

Answer: Calcium oxide

Question: 11: What is the chemical name of limestone?

Answer: Calcium carbonate

Question: 12: What is the chemical name of slaked lime?

Answer: Calcium hydroxide

Question: 13: Which chemical substance is used in white washing?

Answer: Calcium hydroxide (Slaked lime)

Question: 15: What is a chemical equation?

Answer: Symbolic representation of chemical reaction is called chemical equation.

Question: 16. What is rancidity?

Answer: Spoilage of food because of oxidation of fats present in them is called rancidity.

Question: 17. What is corrosion of metals?

Answer: Degradation of metals because of formation of a layer of respective oxides, sulphide, etc. over them is called corrosion of metals.

Question: 18. Why silver metals appear black if kept in open for some days?

Answer: Silver metals appear black because of formation of a layer of sulphide over them if kept open for some days.

Question: 19. Why it is advisable to show the physical states of substance when writing a chemical equation.

Answer: Writing the physical states of substances makes chemical equations more informative.

Question: 20. Why displacement reaction is also known as single displacement reaction?

Answer: In displacement reaction only one atom or ion is displaced, that's why it is also known as single displacement reaction.

Question: 21. Which substance is used in white washing?

Answer: Calcium hydroxide (slaked lime) is used in white washing.

Question: 22. What is endothermic reaction?

Answer: Chemical reactions, in which heat is absorbed, are called endothermic reaction, for example: decomposition of calcium carbonate.

Question: 23. What is exothermic reaction?

Answer: Chemical reactions, in which heat is evolved, are called endothermic reaction, for example: reaction of calcium oxide with water.

Question 1: What is rust?

- (a) Sodium Oxide
- (b) Iron oxide.
- (c) Copper Oxide.
- (d) Silver Oxide.

Incorrect, Right answer is (b)Iron Oxide

Question 2:- Because of the formation of which of the following lime water turns milky when carbon dioxide is passed in it?

- (a) Calcium Carbonate
- (b) Calcium bicarbonate
- (c) Calcium hydroxide
- (d) Sodium carbonate

Incorrect, Right answer is (a)Calcium Carbonate

Question 3: Which of the following is formed when sodium hydroxide reacts with hydrochloric acid?

- (a) Calcium chloride
- (b) Hydrogen Chloride
- (c) Sodium Hydroxide
- (d) Sodium Chloride

Incorrect, Right answer is (d)Sodium Chloride

Question 4: Hydrolysis of water is which type of following reactions?

- (a) Endothermic
- (b) Decomposition
- (c) Both (a) and (b)

- (d) Combination

Incorrect, Right answer is (c)Both (a) and (b)

Question 5: Silver chloride turns grey because of the formation of which of the following when placed in sun?

- (a) Silver Metal
 (b) Carbon dioxide
 (c) Silver Oxide
 (d) Silver sulphate

Incorrect, Right answer is (a)Silver Metal

Question 6: When sulphuric acid is poured over zinc, which of the following gas is formed?

- (a) Sulphur dioxide
 (b) Hydrogen
 (c) Oxygen
 (d) Zinc dioxide

Incorrect, Right answer is (b)Hydrogen

Question 7: When copper sulphate solution reacts with iron metal, copper metal is formed. This reaction comes under which of the following category?

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

Incorrect, Right answer is (b)Single Displacement Reaction

Question 8: When copper oxide is heated with hydrogen, copper metal and water are formed. What happens to the copper oxide in this reaction?

- (a) Reduction
 (b) Oxidation
 (c) Oxidation & reduction
 (d) Decomposition

Incorrect, Right answer is (a)Reduction

Question 9: When copper oxide is heated with hydrogen, copper metal and water are formed. What happens to the Hydrogen in this reaction?

- (a) Reduction
 (b) Oxidation
 (c) Both oxidation & Reduction

- (d) Decomposition

Incorrect, Right answer is (b)Oxidation

Question 10: When copper oxide is heated with hydrogen, copper metal and water are formed. Which of the following is oxidising agent in this reaction?

- (a) Copper oxide
- (b) Hydrogen
- (c) Copper
- (d) Water

Incorrect, Right answer is (a)Copper Oxide

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MCQs

Q1: Which of the following is not a decomposition reaction?

- (a) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
- (b) $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$
- (c) $\text{H}_2\text{CO}_3 \rightarrow \text{H}_2\text{O} + \text{CO}_2$
- (d) $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$

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Q2: Which of the following is not an oxidising agent?

- (a) Oxygen
- (b) Conc. Sulphuric acid
- (c) Chlorine
- (d) Hydrogen

Q3: The oxidation reaction which produces heat and light is

- (a) endothermic
- (b) photochemical
- (c) combustion
- (d) exothermic

Q4: $2\text{Pb}(\text{NO}_3)_2 \rightarrow 2\text{PbO} + n\text{A} + \text{O}_2$

What is nA in the given reaction?

- (a) 4NO
- (b) 4NO_2
- (c) 2PbNO_2
- (d) NO_2

Q5: A slow combustion in which glucose present in the body cells combine with oxygen to provide energy is

- (a) digestion
- (b) excretion
- (c) respiration
- (d) none of the above

Q6: The equation

$\text{Cu} + \text{X}\text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + \text{Y}\text{NO}_2 + 2\text{H}_2\text{O}$, the value of X and Y are

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

Q7: When the gases sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 2\text{H}_2\text{O} + 3\text{S}$ occurs. Here hydrogen sulphide is acting as

- (a) an oxidising agent
- (b) a reducing agent
- (c) a dehydrating agent
- (d) a catalyst

Q8: What is the chemical name of quick lime ?

- (a) Calcium oxide
- (b) Calcium carbonate
- (c) Calcium hydroxide
- (d) Carbon dioxide

Q9: Which of the following reaction will not take place?

- (a) $\text{Zn} + \text{FeSO}_4 \rightarrow \text{ZnSO}_4 + \text{Fe}$
- (b) $2\text{KI} + \text{Cl}_2 \rightarrow 2\text{KCl} + \text{I}_2$
- (c) $\text{Zn} + \text{MgSO}_4 \rightarrow \text{ZnSO}_4 + \text{Mg}$
- (d) $\text{Mg} + \text{CuSO}_4 \rightarrow \text{MgSO}_4 + \text{Cu}$

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Q10: In the reaction, $2\text{FeCl}_2 + \text{Cl}_2 \rightarrow 2\text{FeCl}_3$, chlorine may be regarded as

- (a) an oxidizing agent
- (b) a reducing agent
- (c) a catalyst
- (d) providing an inert medium

Q11: The conversion of $\text{K}_2\text{Cr}_2\text{O}_7$ into $\text{Cr}_2(\text{SO}_4)_3$ is a process of

- (a) Oxidation
- (b) Reduction
- (c) Decomposition
- (d) Substitution

Q12: An element, which never has a positive oxidation state in any of its compounds, is

- (a) Boron
- (b) Oxygen
- (c) Chlorine
- (d) Fluorine

Q13: Amino acid is formed by decomposition of which component of our diet?

- (a) Carbohydrate
- (b) Starch
- (c) Protein
- (d) Fat

Q14: Loss of electrons is called _____

- (a) reduction
- (b) oxidation
- (c) can be oxidation or reduction
- (d) none of these

Answers:

- 1: (b) $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$
- 2: (d) Hydrogen
- 3: (c) combustion
- 4: (b) 4NO_2
- 5: (c) respiration
- 6: (c) 4 and 2 respectively
- 7: (b) a reducing agent
- 8: (a) Calcium oxide
- 9: (c) $\text{Zn} + \text{MgSO}_4 \rightarrow \text{ZnSO}_4 + \text{Mg}$
- 10: (a) an oxidizing agent
- 11: (b) Reduction
- 12: (d) Fluorine
- 13: (c) Protein
- 14: (b) oxidation