CHEMISTRY

BOOKS - ZEN CHEMISTRY (KANNADA ENGLISH)

CHEMICAL REACTIONS AND EQUATIONS

Question Section In Text Questions

1. Explain the action of dilute hydrochloric acid on the following with chemical equation.

(a) Magnesium ribbon (b) Sodium hydroxide

(c) Crushed egg shells

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2. Write the balanced chemical equation for the following chemical reactions :

Barium chloride + Aluminium sulphate $\rightarrow$ barium sulphate and aluminium chloride.

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3. Write the balanced chemical equation for the following chemical reactions :

Sodium + water $\rightarrow$ sodium hydroxide and hydrogen.

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4. Write a balanced chemical equation with the state symbols for the following reactions :

Solutions of barium chloride and sodium sulphate in water react to give insoluble sulphate and the solution of sodium chloride.

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5. Write a balanced chemical equation with the state symbols for the following reactions :

Sodium hydroxide solution (in water) reacts with hydrochloric acid solution (in water) to produce sodium chloride solution and water.

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6. A solution of a substance 'X' is used in whitewashing.

(i) Name the substance 'X' and write its formula.

(ii) Write the reaction of the substance 'X' named in (i) above with water

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7. During electrolysis of water the amount of gas collected in one of the test tubes is double the amount collected in the other why ?

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8. Why does the colour of copper sulphate solution change when an iron nail is dipped in it ?

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9. Give an example of a double - displacement reaction.

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10. Identify the substances that are oxidized and the substances that are reduced in the following reactions :

$4Na(s) + O_2(g) \rightarrow 2Na_2O(s)$

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11. Identify the substances that are oxidized and the substances that are reduced in the following reactions :

$CuO(s) + H_2(g) \rightarrow Cu(s) + H_2O(l).$

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Question Section Textual Exercise

1. Which of the statements about the reaction below are incorrect ?

$2PbO(s) + C(s) \rightarrow 2Pb(s) + CO_2(g)$

A. Lead is getting reduced.

B. Carbon dioxide is getting oxidized.

C. Carbon is getting oxidized.

D. Lead dioxide is getting reduced.

Answer: A::B::C::D

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2. $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe.$

The above reaction is an example of a

A. combination reaction

B. double - displacement reaction

C. decomposition reaction

D. displacement reaction

Answer: D

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3. What happens when dilute hydrochloric acid is added to iron fillings ? Tick the correct answer.

A. hydrogen gas and iron chloride are produced

B. chlorine gas and iron hydroxide are produced

C. no reaction takes place

D. iron salt and water are produced

Answer: A

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4. What is a balanced chemical equation ? Why should a chemical equation be balanced ?

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5. Translate the following statements into chemical equations and balance them.

Hydrogen gas combines with nitrogen to form ammonia

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6. Translate the following statements into chemical equations and balance them.

Hydrogen sulphide gas burns in air to give water and sulphur dioxide.

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7. Translate the following statements into chemical equations and balance them.

Barium chloride reacts with aluminium sulphate to give aluminium chloride and a precipitate of barium sulphate.

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8. Translate the following statements into chemical equations and balance them.

Potassium metal reacts with water to give potassium hydroxide and hydrogen gas.

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9. Balanced the following chemical equations :

$HNO_3 + Ca(OH)_2 \rightarrow Ca(NO3)_2 + H_2O$

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10. Balanced the following chemical equations :

$NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O.$

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11. Balanced the following chemical equations :

$NaCl + AgNO_3 \rightarrow AgCl + NaNO_3.$

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12. Balanced the following chemical equations :

$BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + HCl.$

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13. Write the balanced chemical equation for the following reactions.

Calcium hydroxide + Carbon dioxide $\rightarrow$ calcium carbonate + water.

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14. Write the balanced chemical equation for the following reactions.

Zinc + Silver nitrate $\rightarrow$ Zinc nitrate + silver.

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15. Write the balanced chemical equation for the following reactions.

Aluminium + Copper chloride $\rightarrow$ Aluminium chloride + Copper.

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16. Write the balanced chemical equation for the following reactions.

Barium chloride + potassium sulphate $\rightarrow$ barium sulphate + potassium chloride.

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17. Write the balanced chemical equation for the following and identify the type of chemical reaction in each case.

potassium bromide (aq.) + Barium iodide (aq.) $\rightarrow$ potassium iodide (aq.) and barium bromide (aq.)

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18. Write the balanced chemical equation for the following and identify the type of chemical reaction in each case.

zinc carbonate (s) $\rightarrow$ zinc oxide (s) + carbon dioxide(g)

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19. Write the balanced chemical equation for the following and identify the type of chemical reaction in each case.

hydrogen (g) + chlorine (g) $\rightarrow$ Hydrochloric acid (g)

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20. Write the balanced chemical equation for the following and identify the type of chemical reaction

in each case.

magnesium (s) + hydrochloric acid (aq.) $\rightarrow$ magnesium chloride (aq.) + hydrogen (g)

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21. What does one mean by exothermic and endothermic reactions ? Give examples.

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22. Why is respiration considered an exothermic reaction ? Explain.

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23. Why are decomposition reactions called the opposite of combination reactions ? Write equations for these reactions.

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24. Write one equation for decomposition reactions where energy is supplied in the form of heat, light or electricity.

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25. What is the difference between displacement and double displacement reactions ? Write equations for these reactions.

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26. In the refining of silver, the recovery of silver from silver nitrate solution involves displacement by copper metal. Write down the reaction involved.

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27. What do you mean by a precipitation reaction ? Explain by giving examples.

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28. Explain the following in terms of gain or loss of oxygen with two examples each.

Oxidation.

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29. Explain the following in terms of gain or loss of oxygen with two examples each.

reduction.

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30. A shiny brown -coloured elemnt 'X' on heating in air becomes black in colour. Name the element 'X' and the black - coloured compound formed.

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31. Why do we apply paint on iron articles ?

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32. Oil and fat containing food items are flushed with nitrogen. Why ?

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33. Explain the following terms with one example each.

corrosion.

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34. Explain the following terms with one example each.

rancidity.

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Zen Additional Questions Section Multiple Choice Questions

1. Which among the following is a decomposition reaction ?

A. electrolysis

B. rusting

C. photosynthesis

D. corrosion

Answer: A

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2. Photochemical reactions are carried out in the presence of

A. heat

B. electricity

C. light

D. air

Answer: C

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3. Choose combination reaction from the following

:

A. $2NaCl \rightarrow 2Na + Cl_2$

B. $CuO + H_2 \rightarrow Cu + H_2O$

C. $KOH + HCl \rightarrow KCl + H_2O$

D. $2H_2 + O_2 \rightarrow 2H_2O$

Answer: D

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4. One of the following is not an example for a redox reaction , it is :

A. reaction of barium chloride with sodium dulphate

B. digestion of food

C. decolourizing of potassium dichromate by SO_2

D. decomposition of calcium carbonate.

Answer: A

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5. When a white crystalline solid is heated strongly, it decomposes to gives a yellow residue, reddish brown gas, and rekindles a glowing splinter. Identify the reddish - brown gas.

A. Oxygen

B. Nitrogen dioxide

C. nitrogen

D. hydrogen

Answer: B

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6. Which of the following is a physical change ?

A. burning of natural gas

B. process of respiration

C. decomposition of silver chloride

D. heating and cooling of ZnO

Answer: B

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7. The mole ratio hydrogen and oxygen gases liberated during electrolysis of water is

A. $1:1$

B. $2:1$

C. $4:1$

D. $1:2$

Answer: B

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8. The chemical change when the solutions of barium chloride and sodium sodium sulphate are mixed is indicated by :

A. formation of a white precipitate

B. evolution of heat

C. evolution of a colourless gas

D. rekinding of a glowing splinter

Answer: A

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9. Identify the correct balanced chemical equation among the following :

A.

$$Zn(s) + H_2SO_4(aq.) \rightarrow ZnSO_4(l) + H_2(g)$$

B. $Zn(s) + H_2SO_4(l) \rightarrow ZnSO_4(l) + H_2(g)$

C.

$$An(s) + H_2SO_4(l) \rightarrow ZnSO_4(aq.) + H_2(g)$$

D.

$$Zn(s) + H_2SO_4(aq.) \rightarrow ZnSO_4(aq.) + H_2(g)$$

Answer: D

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10. When copper vessels are kept in open air, over a period of time they coated with a green layer. The green layer is

A. Copper oxide

B. copper sulphide

C. copper sulphate

D. copper chloride

Answer: A

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11. X is a reddish - brown metal used in electrical wires. When the same metal in powdered form is heated strongly, it turns black. When hydrogen gas

is passed over this black substance it regains its original colour. The metal X is

A. silver

B. iron

C. copper

D. gold

Answer: C

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12. When hydrogen sulphide is treated with chlorine gas, it gives hydrochloric acid and sulphur precipitates out. The type oof chemical reaction involved is

A. combination reaction

B. double - displacement reaction

C. decomposition reaction

D. displacement reaction

Answer: B

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13. A dilute ferrous sulphate solution was added to the beaker containing acidified permanganate solution. The light - purple colour of the solution fedes and then disappears. Which of the following of the correct explanation for the observation ?

A. Permanganate is an oxidizing agent and it oxidizes sulphate.

B. Ferrous sulphate is an oxidizing agent and it oxidizes permanganate.

C. The colour disappears due to dilution, no reaction is involved.

D. Permanganate is an unstable compound and undergoes decomposition in the presence of ferrous sulphate to a coloured compound.

Answer: A

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14. In the following reaction the substance which is reduced is

$$PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$$

A. H_2O_2

B. PbS

C. H_2O

D. $PbSO_4$

Answer: A

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15. Which of the following gases can be used for storage of fresh sample of oil for a long time ?

A. CO_2 or O_2

B. N_2 or O_2

C. CO_2 or He

D. N_2 or He

Answer: D

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16. Which of the following is a physical change ?

A. Milk turning into curd

B. Ripening of fruit

C. Extracting salt from sea water

D. Burning of wood

Answer: C

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17. Which of the following reactions is characterised by an yellow product ?

A. $Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$

B. $2Pb_3O_4 \xrightarrow{\Delta} 6PbO(s) + O_2(g)$

C. $2KClO_3 \xrightarrow{\Delta} 2KCl + 3O_2$

D.

$$Na_2CO_2 + H_2SO_4 \rightarrow Na_2SO_4 + H_2O + CO_2$$

Answer: B

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18. Which of the following statements about the given reaction are correct ?

$$3Fe(s) + 4H_2O(l) \rightarrow Fe_3O_4(s) + 4H_2(g)$$

A. Iron is oxidised

B. water is reduced

C. water acts as reducing agent

D. water acts as oxidising agent

Answer: A

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19. $Fe2O3 + 2Al \rightarrow Al2O3 + 2Fe.$ This reaction is a

A. combination reaction

B. double decomposition

C. decomposition reaction

D. displacement reaction

Answer: D

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20. Which of the following is not a physical change ?

A. combustion of LPG

B. melting of ice

C. dissolution of salt in water

D. boiling of water

Answer: A

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21. When copper undergoes corrosion the colour of the coating formed on it is

A. silvery

B. black

C. reddish

D. green

Answer: D

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22. Decomposition of silver chloride takes place in

A. electrolysis

B. sunlight

C. heating

D. cooling

Answer: B

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23. Chips manufacturers flush bags of chips with _____ gas.

A. oxygen

B. hydrogen

C. nitrogen

D. chlorine

Answer: C

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24. $2Cu + O_2 \rightarrow 2CuO$. This reaction is

A. oxidation

B. reduction

C. displacement

D. decomposition

Answer: A

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25. Decomposition of water takes place by

A. heating

B. by sunlight

C. melting

D. by electricity

Answer: D

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26. Burning of candle is

A. physical change

B. chemical change

C. both (a) and (b)

D. none

Answer: C

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27. Which one of the following acts as a reducing agent ?

A. oxygen

B. carbon

C. calcium

D. potassium

Answer: B

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28. Corrosion of iron can be prevented by

A. heating

B. melting

C. painting

D. galvanising

Answer: C

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29. When iron reacts with dilute Hydrochloric acid the liberated gas is

A. hydrogen

B. oxygen

C. chlorine

D. nitrogen

Answer: A

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30. $2KCiO_3 \rightarrow 2KCl + 3O_2$. This reaction is

A. combination

B. Double displacement

C. decomposition

D. displacement

Answer: C

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31. Identify 'x,'y' and 'z' in the following balanced equation :

$$xPb(NO_3)_2(s) \xrightarrow{\text{Heat}} yPbO(s) + zNO(g) + O_2(g)$$

A. 2,4,2

B. 2,2,4

C. 2,4,4

D. 4,2,2

Answer: B

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32. Which of the following is an endothermic reaction ?

A. burning of coal

B. decomposition of vegetable matter

C. process of respiration

D. decomposition of calcium carbonate into calcium oxide and carbondioxide

Answer: D

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33. In the reaction $MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl,$ the oxidised reactant is :

A. MnO_2

B. HCl

C. Cl_2

D. H_2

Answer: B

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34. Rusting of iron is a

A. displacement reaction

B. decomposition reaction

C. oxidation reaction

D. reduction reaction

Answer: C

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35. Which of the following is double displacement reaction ?

A. $2FeSO_4 \rightarrow Fe_2O_3 + SO_2 + SO_3$

B. $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$

C. $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

D. $CaCO_3 + H_2O + CO_2 \rightarrow Ca(HCO_3)_2$

Answer: B

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36. The possible chemical reaction among the following is

A. $FeSO_4 + Pb \rightarrow PbSO_4 + Fe$

B. $ZnSO_4 + Fe \rightarrow FeSO_4 + Zn$

C. $2AgNO_3 + Cu \rightarrow Cu(NO_3)_2 + 2Ag$

D. $PbCl_2 + Cu \rightarrow CuCl_2 + Pb.$

Answer: C

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37. $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$

The type of above chemical reaction is

A. combination reaction

B. double displacement reaction

C. decomposition reaction

D. displacement reaction.

Answer: D

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38. The chemical equation that represents neutralization reaction among the following is

A. $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$

B. $MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$

C. $2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$

D. $AgNO_3 + HCl \rightarrow AgCl + HNO_3$

Answer: C

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Zen Additional Questions Section Very Short Answer Vsa Type Questions

1. Define a chemical equation.

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2. Differentiate between physical and chemical change.

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3. State one difference between physical and chemical change.

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4. On what basis is a chemical equation belanced ?

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5. Name and state the law which is kept in mind while we balanced a chemical equation

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6. What change in colour is observed when white silver chloride is left exposed to sunlight ? State the type of chemical reaction in this change.

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7. What happens chemically when quicklime is added to water filled in a bucket ?

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8. Is burning of a candle wax a physical change or a chemical change ?

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9. Why do fireflies glow at night

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10. Name the type of reaction in which energy is abdorbed.

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11. Grapes hanging on plant do not ferment but after being plucked from the plant they can be fermented. Under what conditions do these grapes ferment ? Is it a chemical or physical change ?

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12. The internal energy of the system increases when the following reaction is carried out :

$A + B \rightarrow C$

State whether the reaction is exothermic and endothermic.

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13. Classify the following as exothermic and endothermic reactions.

Photosynthesis

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14. Classify the following as exothermic and endothermic reactions.

respiration

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15. Write the type of chemical reaction in the following.

reaction between acid and base

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16. Write the type of chemical reaction in the following.

rusting of iron

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17. Which two gases are evolved when ferrous sulphate is heated ?

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18. What is a redox reaction ?

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19. Why do potato - chips manufactures fill the packest of chips with nitrogen gas ?

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20. Surface of metals loses their brightness when kept in air for a long time. Why ?

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21. Give two wxamples from daily where redox reactions are taking place.

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22. Which one is a chemical change - rusting or iron or melting of ice ?

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23. Hydrogen being a highly inflammable gas oxygen being a supporter of combustion, yet water up of hydrogen and oxygen is used to extinguish fire why ?

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24. Write balanced chemical equation

$$FeSO_4(s) \xrightarrow{\text{heat}} Fe_2O_3(s) + SO_2(g) + SO_3(g)$$

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25. Write the chemical equation for reaction when lead nitrate and potassium iodied are mixed.

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26. $AgNO_3 + NaCl \rightarrow AgCl \downarrow + NaNO_3$

$FeS + H_2SO_4 \rightarrow FeSO_4 + H_2S \uparrow$

What do the upward and downward arrow marks indicate in the above chemical equations ?

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27. What is neutralisation reaction?

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28. An iron ring is to be coated with copper. How can we do this without using electricity ?

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Zen Additional Questions Section Short Answer Sa Type 1 Questions

1. Classify the following into physical and chemical changes.

Freezing of water

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2. Classify the following into physical and chemical changes.

Burning of wax

Watch Video Solution

3. Classify the following into physical and chemical changes.

Ripening of fruits

Watch Video Solution

4. Classify the following into physical and chemical changes.

Rusting of iron

Watch Video Solution

5. Classify the following into physical and chemical changes.

Glowing of a bulb

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6. Write down the balanced chemical equation for the following :

When sodium reacts with chlorine to form sodium chloride

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7. Write down the balanced chemical equation for the following :

When water is added to quicklime it yields slaked lime.

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8. Give the symbols used for representing the following in a chemical equation :

Formation of a precipitate

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9. Give the symbols used for representing the following in a chemical equation :

Solution of compound in water

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10. Give the symbols used for representing the following in a chemical equation :

A gaseous reactant

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11. Give the symbols used for representing the following in a chemical equation :

Formation of gaseous product.

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12. Write the skeletal equation for the following reactions :

Hydrogen sulphide reacts with sulphur dioxide to form sulphur and water.

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13. Write the skeletal equation for the following reactions :

Methane on burning combines with oxygen to produce carbon dioxide and water.

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14. Define a combination reaction. Give one example of a combination reaction which is exothermic.

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15. What happens when magnesium ribbon burns in the presence of oxygen ? Write the balanced chemical equation.

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16. The blue colour of copper sulphate starts fading when a zinc rod is dipped in ti. State the reason and write the chemical equation for the reaction involved.

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17. Write chemical equations for the following reactions :

Aluminium oxide reacts with sodium hydroxide.

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18. Write chemical equations for the following reactions :

Steam is passed over hot aluminium.

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19. Name the reduching agent in the following reaction.

$3MnO_2 + 4Al \rightarrow 2Al_2O_3 + 3Mn.$

State which is more reactive - Mn or Al and why ?

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20. A blue - coloured salt becomes white on heating. Give reason for the above observation. What happens when we add water to the salt obtained after heating ? Also write its formula.

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21. Can a displacement reaction be a redos reaction ? Explain with the help of an example .

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22. Give reason :

Iron grills are frequently painted.

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23. Give reason :

Gold ornament do not lose their lusture.

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24. When a magnesium ribbon burns in air with a dazzling white flame and forms a white ash, is magnesium oxidzed or reduced ? Justify your answer with the help of a chemical equation.

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25. Identify the oxidizing and reducing agent in the following reactions.

$CuSO_4 + Zn \rightarrow ZnSO_4 + Cu$

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26. Identify the oxidizing and reducing agent in the following reactions.

$Pb_3O_4 + 8HCl \rightarrow 3PbCl_2 + Cl_2 + 4H_2O$

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27. Write the balanced chemical equation for the following chemical reactions.

Sodium hydroxide solution is treated with acetic acid to form sodium acetate and water.

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28. Write the balanced chemical equation for the following chemical reactions.

Ethene is burnt in the presence of oxygen to form carbon dioxide, water and releases heat and light.

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29. Zinc liberates hydrogen gas when reacted with dilute nitric acid whereas copper does not. Why ?

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30. Give the characteristic test for the following gases.

CO_2

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31. Give the characteristic test for the following gases.

SO_2

Watch Video Solution

32. Give the characteristic test for the following gases.

O_2

Watch Video Solution

33. Give the characteristic test for the following gases.

H_2

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34. You are provided with two containers made up of copper and aluminium. You are also provided with solutions of dilute HCl, dilute HNO_3, $ZnCl_2$, and H_2O. In which of the above containers can these solution be kept ?

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35. List four observation that helps us to determine whether a chemical reaction has taken place.

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36. What is observed after about I hour of adding strips of Cu and Al suspended in $FeSO_4$ solution in two beakers. Name the reaction and change observed. Also write the chemical equations.

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37. What happens when $NaCl$ solution reacts with $AgNO_3$ solution. Name the two types of reaction to which it belongs.

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38. State the law is followed in balancing chemical equation.

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39. Balance the following chemical equation :

$Fe + H_2O \rightarrow Fe_3O_4 + H_2$

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40. What is observed when carbondioxide gas is passed through lime water

For a short duration ?

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41. What is observed when carbondioxide gas is passed through lime water

For a long duration ? Write the chemical equation.

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42. Consider the following chemical reaction :

$$X + \text{Barium chloride} \rightarrow \underset{\text{white ppt}}{Y} + \text{Sodium chloride}$$

Identify 'X' and 'Y'.

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43. Consider the following chemical reaction :

$$X + \text{Barium chloride} \rightarrow \underset{\text{white ppt}}{Y} + \text{Sodium chloride}$$

Write the type of reaction.

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44. Name the reduching agent in the following reaction.

$3MnO_2 + 4Al \rightarrow 2Al_2O_3 + 3Mn.$

State which is more reactive - Mn or Al and why ?

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45. What is observed when a solution of potassium iodide is added to a solution of lead nitrate ? Name the type of reaction. Write a balanced chemical equation to represent the above chemical reaction.

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46. Write balanced chemical equations for the following reactions :

Silver bromide on exposure to sunlight decomposes, into silver and bromine.

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47. Write balanced chemical equations for the following reactions :

Sodium metal react with water ro form sodium hydroxide and hydrogen.

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48. Identify the type of chemical reactions in the following equations :

$CH_4 + 2O_2 \rightarrow CO_2 + H_2O$

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49. Identify the type of chemical reactions in the following equations :

$Pb(NO_3)_2 + Kl \rightarrow Pbl_2 + 2KNO_3$

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50. Identify the type of chemical reactions in the following equations :

$CaO + H_2O \rightarrow Ca(OH)_2$

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51. Identify the type of chemical reactions in the following equations :

$CuSO_4 + Zn \rightarrow ZnSO_4 + Cu$

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52. Give an example for thermal decomposition and photochemical decomposition reactions. Write the relevant balanced chemical equation.

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53. Why are decomposition reactions called the opposite of combination reactions ? Write equations for these reactions.

Watch Video Solution

54. Why does the colour of copper suphate solution change when an iron nail is dipped in it ? Write the chemical equation.

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55. Write the chemical equation involved in the following reaction

White washing

Watch Video Solution

56. Write the chemical equation involved in the following reaction

Black and white photography.

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57. Give reaction of calcium and magnesium with dilute nitric acid.

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58. When hydrogen gas is passed over heated copper oxide ,copper and steam are formed. Write the balanced chemical equation with physical states. State what kind of chemical reaction is this.

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59. Write the chemical equation for the following :

Hydrogen sulphide reacts with sulphur dioxide to form sulphur and water

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60. Write the chemical equation for the following :

Methane on burning combines with oxygen to form carbon dioxide and water. What is the need of balancing the equation ?

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Zen Additional Questions Section Short Answer Sa Type 2 Questions

1. Give an example to explain a skeletal and a balanced chemical equation.

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2. What is meant by a skeletal chemical equation ? Using a suitable example differentiate between a skeletal and a balanced chemical equation.

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3. How is a chemical equation written ? Illustrate with an example.

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4. Write any observations in an activity which may suggest that a chemical reaction has taken place. Give an example in support of your answer.

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5. Write a chemical equation of a reaction where the following change have taken place.

change in colour

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6. Write a chemical equation of a reaction where the following change have taken place.

change in temperature

Watch Video Solution

7. Write a chemical equation of a reaction where the following change have taken place.

formation of a precipitate

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8. Difine a chemical reaction. Which observations help you to determine whether a chemical reaction has taken place ?

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9. Balance the following chemical equations :

$Mg + N_2 \rightarrow Mg_3N_2$

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10. Balance the following chemical equations :

$Al + Cl_2 \rightarrow AlCl_3$

Watch Video Solution

11. Balance the following chemical equations :

$NH_3 + CuO \rightarrow Cu + N_2 + H_2O$

Watch Video Solution

12. What are thermochemical reactions ? Give two examples.

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13. Write the balanced chemical equation for the process of photosynthesis and the conditions of the reaction giving the physical states of all the substances.

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14. Classify the following reactions as exothermic or endothermic.

(i) electrolysis of water

(ii) burning of natural gas

(iii) decomposition of calcium carbonate

(iv) burning magnesium ribbon in air.

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15. 2g of ferrous sulphate crystals are heated in a dry tude.

List any two observations.

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16. 2g of ferrous sulphate crystals are heated in a dry tude.

Name the type of chemical reaction taking place.

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17. 2g of ferrous sulphate crystals are heated in a dry tude.

Name the type of chemical reaction taking place.

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18. Discuss the importance of decomposition reaction in metal industry with three points.

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19. On passing excess carbon dioxide gas through lime water, it first turns milky and then becomes colourless, explain why ? Write all the chemical equation related to it.

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20. A student dropped a few pieces of marble chips in dilute hydrochloric acid contained in a test tube. The gas evolved was passed through lime water. What changes would be observed lime water ? Write the chemical equations for both the changes observed.

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21. Write the chemical equation for reaction when lead nitrate and potassium iodied are mixed.

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22. A student has mixed the solution of lead (II) nitrate and potassium iodide.

Write a balanced chemical equation for the reaction.

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23. A student has mixed the solution of lead (II) nitrate and potassium iodide.

Suggest an alternative name for the above precipitation reaction. Give justification for your answer.

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24. A brown substance 'X' on heating in air forms a substance 'Y'. When hydrogen gas is passed over heated 'Y', it again changes back into 'X'.

Name the substances X and Y.

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25. A brown substance 'X' on heating in air forms a substance 'Y'. When hydrogen gas is passed over heated 'Y', it again changes back into 'X'.

Name the substances X and Y.

Watch Video Solution

26. A brown substance 'X' on heating in air forms a substance 'Y'. When hydrogen gas is passed over heated 'Y', it again changes back into 'X'.

Name the substances X and Y.

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27. Give three ways of preventing rusting of iron.

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28. Define rancidity. To prevent rancidity of food containing oils and fats, some substances are added to them. What are these substances called ? some other methods to prevent rancidity.

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29. What is meant by rancidity ? State any two methods to prevent it.

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30. Write the balanced chemical equation and identify the type of reaction in each case.

Chlorine gas is passed in an aqueous potassium iodide solution to form potassium chloride solution and solid iodine.

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31. Write the balanced chemical equation and identify the type of reaction in each case.

Ethanol is burnt in air to form carbon dioxide, water, and heat.

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32. Write the balanced chemical equation and identify the type of reaction in each case.

Lead acetate solution is treated with dilute hydrochloric acid to form lead chloride and acetic acid solution.

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33. Define the term decomposition reaction. Give one example each for thermal decomposition and electrolytic decomposition reaction.

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34. In the reaction

$$MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$$

(i) Name the compound oxidised (ii) reduced

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35. In the reaction

$$MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$$

(i) Name the compound oxidised (ii) reduced

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36. Decomposition reaction requires energy in the form of heat or light or electricity for breaking the reactants. Write one example for each with equation.

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37. Write the essential condition for the following reaction to take place : $2AgBr \rightarrow 2Ag + Br_2$

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38. Complete the following chemical equation :

$2FeSO_4 \xrightarrow{\text{heat}} Fe_2O_3 +$_____$+$_____

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39. What happens chemically when quicklime is added to water filled in a bucket ?

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40. Name the brown fumes liberated when lead nitrate is heated. Write the balanced chemical

equation for this reaction.

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41. Write the balanced chemical equation for the reaction that takes place during respiration. Identify the type of combination reaction that taken place during this process and justify the name. Give one more example for this type of reaction.

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42. What is redox reactions ? Identity the substance oxidised and the substance reduced in the following reactions :

$PbO + C \rightarrow 2Pb + CO_2$

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43. What is redox reactions ? Identity the substance oxidised and the substance reduced in the following reactions :

$MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2 + Cl_2$

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44. Write the balanced chmical equation for the following reaction and identify the type of reaction in each case Thermite reaction, Iron (III) oxide reacts with aluminium and gives molten iron and aluminium oxide.

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45. Translate the following statements into chemical equations and balance them.

Barium chloride reacts with aluminium sulphate to give aluminium chloride and a precipitate of barium sulphate.

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Zen Additional Questions Section Long Answer La Type Questions

1. Balance the following chemical equation

$P_4 + O_2 \rightarrow P_2O_5$

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2. Balance the following chemical equation

$Zn + HCl \rightarrow ZnCl_2 + H_2$

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3. Balance the following chemical equation

$FeCl_2 + H_2S \rightarrow FeS + HCl$

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4. Balance the following chemical equation

$MnO_2 + HCl \rightarrow MnCl_2 + H_2O + Cl_2$

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5. Balance the following chemical equation :

$Fe + H_2O \rightarrow Fe_3O_4 + H_2$

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6. How can a chemical equation be made more informative ?

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7. Write the balanced chemical equation for each of the following.

Barium chloride solution is mixed with copper sulphate solution and a white precipitate is observed.

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8. Write the balanced chemical equation for each of the following.

On heating copper powder in a china dish the surface of the copper becomes black.

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9. Write the balanced chemical equation for each of the following.

On heating green - coloured ferrous sulphate crystals a reddish - brown solid is left and gases having a smell of burning sulphur are released.

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10. Write the balanced chemical equation for each of the following.

Iron nails become brownish in colour and the blue colour of copper sulphate is converted into light green.

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11. Write the balanced chemical equation for each of the following.

Quicklime reacts with water releasing a large amount of heat.

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12. In the following chemical reaction, "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide."

$ZnO + C \rightarrow Zn + CO$

(a) Identify the substance getting oxidized and the one getting reduced.

(b) State the reason for choosing the substances in (a).

(c) Name the type of reaction and give another example of similar type of reaction.

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13. A metal 'X' forms a salt XSO_4. The salt forms a clear solution in water which reacts with sodium hydroxide solution to form a blue precipitate Y.

Metal X is used in making electric wires and alloys like brass.

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14. During the reaction of some metals with dilute hydrochloric acid, following observations were made.

(a) Silver metal does not show any change

(b) The temperature of the reaction mixture raises when aluminium is added.

(c) The reaction of sodium metal is found to be highly explosive.

(d) Some bubbles of a gas are seen when lead reacts with the acid.

Explain these observations giving suitable reasons.

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15. Identify the reducing agent and oxidizing agent in the following reactions :

$H_2O + F_2 \rightarrow HF + HOF$

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16. Identify the reducing agent and oxidizing agent in the following reactions :

$2H_2 + O_2 \rightarrow 2H_2O$

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17. Identify the reducing agent and oxidizing agent in the following reactions :

$Pb_3O_4 + 8HCl \rightarrow 3PbCl_2 + Cl_2 + 4H_2O$

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18. Identify the reducing agent and oxidizing agent in the following reactions :

$V_2O_5 + 5Ca \rightarrow 2V + 5CaO$

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19. Identify the reducing agent and oxidizing agent in the following reactions :

$CuO + H_2 \rightarrow Cu + H_2O$

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20. What is double displacement reaction ? Explain with the help of an example.

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21. A small amount of quick lime is added to water in a beaker.

(i) Name and define the type of reaction that has taken place.

(ii) Write the balanced equation for the reaction and chemical names of the product formed.

(iii) List two main observations in the reaction.

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22. What is a balanced chemical equation ? Why should a chemical equation be balanced ?

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23. Write the balanced chemical equation for the following reactions :

(i) Phosphorus burns in presence of chlorine to form phosphorur pentachloride.

Burning of natural gas

(iii) The process of resporation

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24. Explain two ways by which food industry prevents rancidity.

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25. Discuss the importance of decomposition reaction in metal industry with three points.

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26. Write one equation for decomposition reactions where energy is supplied in the form of heat, light or electricity.

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27. Which of the following statement is correct and why Copper can displace silver from silver nitrate and silver can not displace copper from copper sulphate solution.

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