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Revision

Question Bank - Oswaal

1.) When we add quick lime into the water then the slaked lime produced as shown in the reaction :-

$$CaO(s) + H_2O(l) \longrightarrow Ca(OH)_2(aq) + Heat$$

2.) In the given equation the water should be in the form of steam not in liquid. Therefore the correct equation is :-

$$3Fe(s) + 4H_2O(g) \longrightarrow Fe_3O_4(s)$$

3.) The balanced chemical equation for $Pb(NO_3)_2 + KI \longrightarrow KNO_3 + PbI_2$ is $Pb(NO_3)_2 + 2KI \longrightarrow 2KNO_3 + PbI_2$.

4.) The symbol (aq) represents aqueous which means a solution in water.

5.) $6CO_2 + \overset{6}{\cancel{12}}H_2O \longrightarrow C_6H_{12}O_6 + 6O_2$ is the balanced chemical eq. for the process of photosynthesis.

6.) Calcium hydroxide reacts with carbon dioxide present in the atmosphere to form Calcium Carbonate which is milky in nature or white precipitate formed. The reaction is :

$$Ca(OH)_2 + CO_2 \longrightarrow CaCO_3 + H_2O$$

7.) When Ferrous Sulphate is heated in dry test tube we can observe the following changes :

i.) The pale green colour of Ferrous Sulphate converted into Reddish brown colour due to the formation of Ferric oxide.

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ii) The colourless gas is evolved.

8) Sodium Chloride and Hydrogen gas will be produced when we add 1 ml of dillute HCl is added into 1g of sodium metal.

9) When dillute HCl is added to a small amount of ~~Fe~~ CuO in a beaker, a blue green colour is observed due to formation of copper chloride.

$$CuO + 2HCl \longrightarrow CuCl_2 + H_2O$$

10) When two chemicals reacted simultaneously with each other to form another chemical this process is called chemical reaction.

E.g.- $Mg + O_2 \longrightarrow MgO$

11) When we heat 1g of copper powder in a china dish then the brown colour of copper powder converted into black powder because of ~~decompsi~~ Combination tion reaction takes place, and the copper is oxidised.

$$2Cu + O_2 \xrightarrow{Heat} 2CuO$$

we

But if pass hydrogen gas through the black powder formed then the Copper will be reduced and hydrogen will be oxidised and converted into the normal colour as before which means brown colour and reaction takes place reversely. $2CuO + H_2 \longrightarrow Cu_2 + H_2O$

12) i) The solution turned bluish green due to the displacement reaction takes place such that the Copper is more reactive ~~then~~ than silver therefore it displaces silver.

ii) $Cu_2 + 2AgNO_3 \longrightarrow CuNO_3)_2 + 2Ag$ is the balanced chemical equation for this reaction.

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13.) i.) a) Change in state and colour
b) Evolution of Gas
ii.) Decomption Reaction is taking place in this reaction.
iii.) $2FeSO_4(s) \xrightarrow{\Delta} Fe_2O_3(s) + SO_2(g) + SO_3(g)$

14.) i.) Substance X :- Calcium hydroxide

$$Ca(OH)_2(aq) + CO_2(g) \rightarrow \underset{\text{(white ppt.)}}{CaCO_3(s)} + H_2O(l)$$

ii.) The substance X is formed when Calcium oxide is reacted with water. It is an exothermic reaction

$$CaO(s) + H_2O(l) \longrightarrow Ca(OH)_2(aq) + Heat$$

15.) White Washing :-

$$Ca(OH)_2(aq) + CO_2(g) \longrightarrow CaCO_3(s) + H_2O(l)$$

Black and White Photography :-

$$2AgBr(s) \xrightarrow{\text{Sunlight}} 2Ag(s) + Br_2(g)$$

16.) i.) When Silver chloride exposed to Sunlight, it decomposes into Silver metal and Chlorine gas therefore the white colour of Silver chloride changed into greyish colour. It performs photo chemical decomposition reaction and also Endothermic reaction.

$$2AgCl(s) \xrightarrow{\text{Sunlight}} 2Ag(s) + Cl_2(g)$$

ii.) When we dropped a piece of zinc into Copper sulphate, Coppersulphate as being more reactive than zinc, displaces it and formed a

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new substance. Therefore it is a displacement reaction.

$$Zn(s) + CuSO_4(aq) \longrightarrow ZnSO_4(aq) + Cu(s)$$

b.) Yellow colour of lead iodide is formed.

17.) A reaction in which a new substance is formed with new properties this type of reaction is called chemical reaction.

→ Observations which help us to determine that a chemical reaction has taken place :-

i.) Change in Temperature :- Reaction between Calcium oxide and water.

$$CaO(s) + H_2O(l) \longrightarrow Ca(OH)_2(aq) + Heat$$

ii.) Change in Colour :- ~~Reaction of silver and chlorine in the presence of~~ Decomposition of silver chloride in the presence of sunlight.

$$2AgCl(s) \xrightarrow{Sunlight} 2Ag(s) + Cl_2(g)$$

iii.) Evolution of Gas :- Decomposition of Ferrous Sulphate in the presence of heat to produce Ferrous oxide, ~~Nitrogen~~ Sulphur dioxide and ~~Nitrogen~~ Sulphur trioxide.

$$2FeSO_4(s) \longrightarrow Fe_2O_3(s) + SO_2(g) + SO_3(g)$$

iv.) Formate of Precipitate :- Reaction between Calcium hydroxide and Carbon dioxide

$$Ca(OH)_2(aq) + CO_2(g) \longrightarrow \underset{\text{(white ppt.)}}{CaCO_3(s)} + H_2O(l)$$

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18.) a.) $Ca(OH)_2 + CO_2 \longrightarrow CaCO_3 + H_2O$

b.) $Zn + 2AgNO_3 \longrightarrow Zn(NO_3)_2 + 2Ag$

c.) $2Al + 3CuCl_2 \longrightarrow 2AlCl_3 + 3Cu$

d.) $ZnCO_3 \longrightarrow ZnO + CO_2$

e.) $2K + 2H_2O + 2KOH + H_2$

19.) It happens because Silver Chloride decomposes in the presence of Sunlight.

$$2AgCl(s) \xrightarrow{\text{Sunlight}} 2Ag(s) + Cl_2(g)$$

20.) ~~$6O_2$~~ $6H_2O + 6CO_2 \longrightarrow C_6H_{12}O_6 + 6O_2$

21.) The Chips manufacturers usually use flush bags with gas such as nitrogen to prevent it from ~~rancidin~~ rancidity and ~~reacted~~ oils and fats reacted with air and get oxidised.

22.) Double Displacement Reaction:-

$$Na_2SO_4(aq) + BaCl_2(aq) \longrightarrow BaSO_4(s) + 2NaCl(aq)$$

23.) i.) $CuO(s) + H_2(g) \xrightarrow{\Delta} Cu(s) + H_2O(g)$

ii.) Redox Reaction

24.) A reaction in which two or more simpler substances combine to form a single product.

E.g.- $C + O_2 \xrightarrow{\Delta} CO_2$

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25.) (i) is double displacement reaction and (ii) is displacement reaction.

26.) Yes, it will lead to ~~displ~~ double displacement reaction, In this ~~reactor~~ reaction the ions perform mutual exachange of atoms therefore Copper exchanged with Sodium. ~~and~~

$$Na_2SO_4 + CuCl_2 \longrightarrow CuSO_4 + 2NaCl$$

27.) The reactions in which oxidation and reduction take place simultaneously are called redox reactions.

$$2Mg(s) + O_2(g) \longrightarrow 2MgO(s)$$

{Magnesium} {oxygen} {Magnesium oxide}

~~Magesi~~ Magnesium is getting oxidised because it is losing electrons to form Mg^{2+} and oxygen is gaining electrons to form O^{2-}, therefore it is getting reduced.

28.) i.) Displacement Reaction:-

$$Fe(s) + CuSO_4(aq) \longrightarrow FeSO_4(aq) + Cu(s)$$

ii.) Double Displacement Reaction:-

$$Na_2SO_4(aq) + BaCl_2(aq) \longrightarrow BaSO_4(aq) + 2NaCl(aq)$$

29.) a.) White to Grey

Reason:- Silver chloride decomposes to produce silver and chloride.

b.) Brown to Black

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Reason:- Copper oxide is produced on heating.

c) Blue to Colourless

Reason:- Zinc is displaced by Copper and Zinc Sulphate is formed.

30.) a) Exothermic Reaction:-

$$\underset{\{\text{quick lime}\}}{CaO(s)} + H_2O(l) \longrightarrow \underset{\{\text{slaked lime}\}}{Ca(OH)_2(aq)} + \text{heat}$$

b) Precipitation Reaction (double displacement reaction)

$$\underset{\{\text{Sodium Sulphate}\}}{Na_2SO_4(aq)} + \underset{\{\text{Barium Chloride}\}}{BaCl_2(aq)} \longrightarrow \underset{\{\text{white ppt.}\}}{BaSO_4(aq)} + 2\underset{\{\text{Sodium Chloride}\}}{NaCl(aq)}$$

31.) i) The black substance has been formed due to the oxidation of Copper powder.

ii) The black substance so formed is Copper oxide (CuO).

iii) $\underset{\{\text{Copper}\}}{2Cu(s)} + \underset{\{\text{oxygen}\}}{O_2(g)} \longrightarrow \underset{\{\text{Copper oxide}\}}{2CuO(s)}$

iv) The black coating on the surface be turned reddish brown by passing hydrogen gas through it.

$$\underset{\{\text{Copper oxide}\}}{CuO(s)} + \underset{\{\text{Hydrogen}\}}{H_2(g)} \longrightarrow \underset{\{\text{Copper}\}}{Cu(s)} + \underset{\{\text{water}\}}{H_2O(l)}$$

32.) If we add zinc granules to ferrous sulphate solution, it would be

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displaced by zinc because zinc is more reactive. Therefore the colour of Ferrous Sulphate which is green is converted into greyish white colour.

$$FeSO_4(aq) + Zn(s) \longrightarrow ZnSO_4(aq) + Fe(s)$$

{Ferrous Sulphate} {zinc granules} {Zinc Sulphate} {Iron}

33.) i) White Silver chloride turns grey in Sunlight and decomposes into Silver and chlorine.

ii) $2AgCl(s) \xrightarrow{\text{Sunlight}} 2Ag + Cl_2$

iii) Decomposition Reaction or Photolytic decomposition reaction.

34.) a) Decomposition Reaction / Electrolytic Decomposition Reaction

b) This is an example of endothermic reaction because the Electrical energy is absorbed during the reaction to decompose Hydrogen and Oxygen.

c) $2H_2O + \text{Energy} \xrightarrow{\text{Electricity}} 2H_2 + O_2$

35.) i) Thermal decomposition reaction :-

$$2FeSO_4(s) \xrightarrow{\Delta} Fe_2O_3(s) + SO_2(g) + SO_3(g)$$

{green crystals of Ferrous Sulphate} {Ferric Oxide} {Sulphur dioxide} {Sulphur trioxide}

ii) Photolytic ~~ther~~ decomposition reaction :-

$$2AgCl(s) \xrightarrow{\text{Sunlight}} 2Ag(s) + Cl_2(g)$$

{White Coloured} {Grey Coloured}

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iii.) Electrolytic decomposition reaction :-

$$2H_2O \xrightarrow{\text{Electricity}} 2H_2 + O_2$$

36.) a.) Corrosion is a process in which metals are deteriorated by action of air, moisture, chemicals etc.

b.) Rusting.

c.) Silver turns black on its surface.

d.) It causes destruction of car bodies, bridges and railing etc.

e.) By Painting, alloying, greasing etc.

37.) a.) Decomposition Reaction :- Carbohydrates break down to form glucose.

b.) Oxidation Reaction :- Iron is reacted with the oxygen present in the air and get oxidised.

c.) Displacement Reaction :- More reactive metal displaces less reactive metal from its salt solution.

d.) Displacement Reaction :- More reactive metal displaces less reactive metal from its salt solution.

e.) Neutralization Reaction :- When Acid and Base reacts with each other they produce salt and water.

38.) a.) i.) $2H_2O \xrightarrow{\text{electricity}} 2H_2 + O_2$

ii.) $CaCO_3 \xrightarrow{\Delta} CaO + CO_2$

iii.) $2AgCl \xrightarrow{\text{Sunlight}} 2Ag + Cl_2$

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b) Statement I is correct because Copper is more reactive than Silver.

$$Cu + 2AgNO_3(aq) \longrightarrow Cu(NO_3)_2(aq) + 2Ag(s)$$