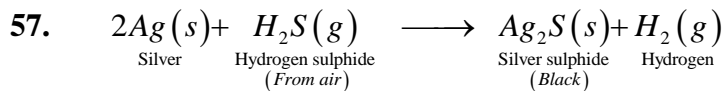
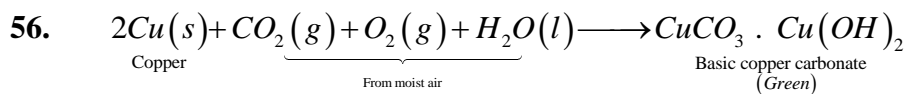
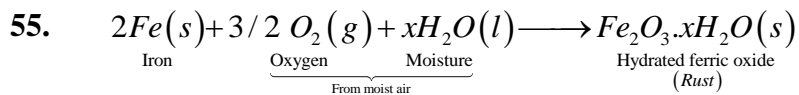
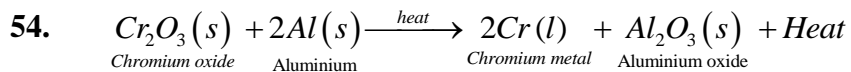
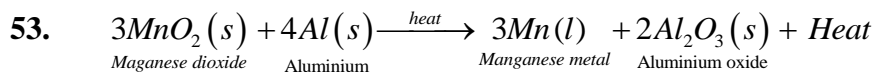


18. $2Al(s) + 3H_2O(g) \longrightarrow Al_2O_3(s) + 3H_2(g)$
Aluminium Steam Aluminium oxide Hydrogen
19. $Mg(s) + H_2O(g) \longrightarrow MgO(s) + H_2(g)$
Magnesium Steam Magnesium oxide Hydrogen
20. $Zn(s) + H_2O(g) \longrightarrow ZnO(s) + H_2(g)$
Zinc Steam Zinc oxide Hydrogen
21. $3Fe(s) + 4H_2O(g) \longrightarrow Fe_3O_4(s) + 4H_2(g)$
Iron Steam Iron(II, III) oxide Hydrogen
22. $2Na + 2HCl \longrightarrow 2NaCl + H_2$
Sodium Hydrochloric acid Sodium chloride Hydrogen
23. $2K + H_2SO_4 \longrightarrow K_2SO_4 + H_2$
Potassium Sulphuric acid Potassium sulphate Hydrogen
24. $Mg + 2HCl \longrightarrow MgCl_2 + H_2$
Magnesium Hydrochloric acid Magnesium chloride Hydrogen
25. $Zn + H_2SO_4 \longrightarrow ZnSO_4 + H_2$
Zinc Sulphuric acid Zinc Sulphate Hydrogen
26. $\underbrace{3HCl + HNO_3}_{\text{Aqua regia}} \longrightarrow \underbrace{NOCl}_{\text{Nitrosyl chloride}} + 2H_2O + \underbrace{2[Cl]}_{\text{Nascent chlorine}}$
27. $Au + 3[Cl] \longrightarrow AuCl_3$
Gold Gold (III) chloride
28. $Pt + 4[Cl] \longrightarrow PtCl_4$
Platinum (IV) chloride
29. $Mg + 2HNO_3 \longrightarrow Mg(NO_3)_2 + H_2 \uparrow$
Magnesium Nitric acid (Very dilute) Magnesium nitrate Hydrogen
30. $Mn + 2HNO_3 \longrightarrow Mn(NO_3)_2 + H_2 \uparrow$
Manganese Nitric acid (Very dilute) Manganese nitrate Hydrogen
31. $Fe + CuSO_4 \longrightarrow FeSO_4 + Cu$
Iron (grey) Copper sulphate (blue) Iron sulphate (green) Copper (reddish brown)
32. $2Al + 3CuSO_4 \longrightarrow Al_2(SO_4)_3 + 3Cu$
Aluminium (silvery white) Copper sulphate (blue) Aluminium sulphate (colourless) Copper (reddish brown)
33. $Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu$
Zinc (Silvery white) Copper sulphate (blue) Zinc sulphate (colourless) Copper (reddish brown)
34. $Cu + 2AgNO_3 \longrightarrow Cu(NO_3)_2 + 2Ag$
Copper (reddish brown) Silver nitrate (colourless) Copper nitrate (blue) Silver (silvery white)

35. $Ag + CuSO_4 \longrightarrow \text{No reaction}$
Silver *Copper sulphate*
36. $C(s) + O_2 \xrightarrow{\Delta} CO_2(g) + \text{Heat}$
Carbon *Oxygen* *Carbon dioxide*
37. $2F_2(g) + 2H_2O(l) \longrightarrow 4HF(aq) + O_2(g)$
Fluorine *Water* *Hydrogen fluoride* *Oxygen*
38. $3F_2(g) + 3H_2O(l) \longrightarrow 6HF(aq) + O_3(g)$
Fluorine *Water* *Hydrogen fluoride* *Oxygen*
39. $2H_2O(l) + 2F_2(g) \longrightarrow 4HF(aq) + O_2(g)$
Water *Fluorine* *Hydrogen fluoride* *Oxygen*
40. $S_8(s) + 24F_2(g) \longrightarrow 8SF_6(g)$
Sulphur *Fluorine* *Sulphur hexafluoride*
41. $Al_2O_3(s) + 2NaOH(aq) \longrightarrow 2NaAlO_2(aq) + H_2O(l)$
Aluminium oxide *Sodium aluminate*
(Present in the ore) *(Water - soluble)*
42. $SiO_2 + 2NaOH \longrightarrow Na_2SiO_3 + H_2O$
Silica *Sodium silicate*
(Present in the ore) *(water-soluble)*
43. $NaAlO_2(aq) + 2H_2O(l) \longrightarrow Al(OH)_3(s) + NaOH(aq)$
Sodium aluminate *Aluminium hydroxide (ppt.)*
44. $2Al(OH)_3 \xrightarrow[\text{(Strong heating)}]{\text{Ignition}} Al_2O_3 + 3H_2O(g)$
Aluminium hydroxide *Alumina* *Water vapour*
45. $2HgS(s) + 3O_2 \xrightarrow{\text{Roasting}} 2HgO(s) + 2SO_2(g)$
Cinnabar *Oxygen* *Mercury(II) oxide* *Sulphur dioxide*
46. $2HgO(s) \xrightarrow{\text{Heat (Reduction)}} 2Hg(l) + O_2(g)$
Mercury(II) oxide *Mercury metal* *Oxygen*
47. $Cu_2S(s) + 3O_2 \xrightarrow[\text{Heating}]{\text{Roasting}} 2Cu_2O + 2SO_2(g)$
Copper(I) sulphide *Oxygen from air* *Copper(I) Oxide* *Sulphur dioxide*
48. $2Cu_2O + Cu_2S(s) \xrightarrow{\text{Reduction}} 6Cu + SO_2$
Copper(I) oxide *Copper(I) sulphide* *Copper metal* *Sulphur dioxide*
49. $ZnO + C \xrightarrow{\text{Heat}} Zn + CO(g)$
Zinc oxide *Carbon* *Zinc metal* *Carbon monoxide*
50. $ZnO + CO \xrightarrow{\text{Heat}} Zn + CO_2(g)$
Zinc oxide *Carbon monoxide* *Zinc metal* *Carbon dioxide*
51. $Fe_2O_3 + 3C \xrightarrow{\text{Heat}} 2Fe + 3CO$
Haematite *Carbon* *Iron* *Carbon dioxide*
52. $Fe_2O_3(s) + 3CO(g) \xrightarrow{\text{Heat}} 2Fe(s) + 3CO_2(g)$
Ferric oxide *Carbon monoxide* *Iron* *Carbon dioxide*



TOPIC: CARBON & ITS COMPOUNDS

1. $C(s) + O_2(g) \xrightarrow{\text{Combustion}} CO_2(g) + \text{Heat} + \text{light}$
2. $CH_4(g) + O_2(g) \xrightarrow{\text{Combustion}} CO_2(g) + H_2O(g) + \text{Heat} + \text{Light}$
3. $C_4H_{10}(g) + \frac{13}{2}O_2(g) \xrightarrow{\text{Combustion}} 4CO_2(g) + 5H_2O(g) + \text{Heat} + \text{Light}$
4. $(C_6H_{10}O_5)_n(s) + 6nO_2(g) \xrightarrow{\text{burn}} 6nCO_2(g) + 5nH_2O(g) + \text{Heat} + \text{light}$
5. $C_2H_5OH(l) + 3O_2(g) \xrightarrow{\text{burn}} 2CO_2(g) + 3H_2O(g) + \text{Heat} + \text{light}$
6. $CH_3CH_2OH(l) + [O] \xrightarrow[\text{CH}_3\text{COOH}]{\text{CrO}_3 \text{ in}} CH_3CHO + H_2O$
7. $CH_3CH_2OH(l) + 2[O] \xrightarrow[\text{KMnO}_4, \text{Heat}]{\text{Alkaline}} CH_3COOH + H_2O$
8. $CH_3CH_2OH \xrightarrow[\text{or } K_2Cr_2O_7 / H_2SO_4, \text{Heat}]{\text{Alkaline, KMnO}_4, \text{Heat}} CH_3COOH + H_2O$
9.
$$\begin{array}{ccc}
 \begin{array}{c} H & & H \\ & \diagdown & / \\ & C = C & \\ & / & \diagdown \\ H & & H \end{array} + H_2(g) & \xrightarrow{Ni, 250^\circ C} & \begin{array}{c} H & H \\ | & | \\ H - C - C - H \\ | & | \\ H & H \end{array}
 \end{array}$$

Ethene
(Double bond containing unsaturated carbon compound)
Ethane
(Saturated hydrocarbon)
10.
$$\begin{array}{ccc}
 H - C \equiv C - H + H_2(g) & \xrightarrow{Ni, \text{Heat}} & \begin{array}{c} H & & H \\ & \diagdown & / \\ & C = C & \\ & / & \diagdown \\ H & & H \end{array} + H_2(g) & \xrightarrow{Ni, \text{Heat}} & \begin{array}{c} H & H \\ | & | \\ H - C - C - H \\ | & | \\ H & H \end{array}
 \end{array}$$

Ethyne (acetylene)
Ethene (ethylene)
Ethane
11. $CH_4(g) + Cl_2(g) \xrightarrow{\text{Sunlight}} CH_3Cl(g) + HCl(g)$
12. $CH_3Cl(g) + Cl_2(g) \xrightarrow{\text{Sunlight}} CH_2Cl_2(g) + HCl(g)$
13. $CH_2Cl_2(g) + Cl_2(g) \xrightarrow{\text{Sunlight}} CHCl_3(g) + HCl(g)$
14. $CHCl_3(g) + Cl_2(g) \xrightarrow{\text{Sunlight}} CCl_4(l) + HCl(g)$
15. $C_{12}H_{22}O_{11} + H_2O \xrightarrow{\text{Invertase}} C_6H_{12}O_6 + C_6H_{12}O_6$
16. $C_6H_{12}O_6 \xrightarrow{\text{Zymase}} 2C_2H_5OH + 2CO_2(g)$

