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Solution 46:
(a) Lead nitrate.
(b) Lead iodide.
(c) Formation of a precipitate.
(d) $Pb(NO_3)_2$ (aq) + 2KI (aq) → PbI_2 (s) + $2KNO_3$ (aq)
Solution 47:
(a) Calcium oxide, CaO.
(b) Calcium hydroxide, $Ca(OH)_2$
(c) Lime water.
(d) CaO + H_2O → $Ca(OH)_2$
(e) Change in temperature.
Solution 48:
(a) Zinc and Iron.
(b) Dilute hydrochloric acid and dilute sulphuric acid.
(c) Hydrogen.
(d) Lighter than air.
(e) Exothermic.
(f) Suppose metal X is zinc (Zn) and acid Y is dilute hydrochloric acid (HCl) ;
Zn (s) + 2HCl (aq) → $ZnCl_2$ (aq) + H_2 (g)
Solution 49:
(a) Calcium carbonate (limestone), $CaCO_3$
(b) Calcium oxide, CaO
(c) Carbon dioxide, CO_2
(d) Calcium hydroxide, $Ca(OH)_2$; Lime water.
(e) Calcium carbonate; Limestone and Marble.

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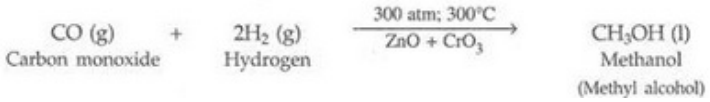
Solution 50:
(a) Magnesium, Mg.
(b) Magnesium oxide, MgO
(c) Oxygen (of air),O_2
(d) Magnesiumhydroxide, $Mg(OH)_2$; Used as antacid to relieve indigestion
(e) 2Mg + O_2 → 2MgO
Solution 51:
(a) Copper, Cu.
(b) Copper sulphate, $CuSO_4$, Blue colour.
(c) Copper hydroxide, $Cu(OH)_2$
(d) $CuSO_4$ (aq) + 2NaOH (aq) → $Cu(OH)_2$ (s) + Na_2S0_4 (aq)
Solution 52:
(a) Sodium, Na.
(b) Sodium hydroxide
solution (NaOH solution), Alkaline. (c) Hydrogen, H_2
(d) 2Na + $2H_2O$ → 2NaOH + H_2
(e) Exothermic.
Solution 53:
(a) X is carbon monoxide gas (CO); Y is hydrogen gas (H_2) ; Z is methanol (or Methyl alcohol) (CH_3OH)
(CH_4O = CH_3OH)

(b) Formation of Z:



The conditions for this reaction to take place are: a pressure of 300 atmospheres (written as 300 atm), a temperature of 300^{o}C, and a catalyst which is a mixture of zinc oxide and chromium oxide (ZnO + CrO_3).

Solution 54:

(a) Potassium chlorate, $KClO_3$

(b) Potassium chloride, KCl

(c) Oxygen, O_2

(d) Manganese dioxide, MnO_2; It acts as a catalyst in the decomposition of potassium chlorate to form oxygen gas

(e) Catalysts

Solution 55:

(a) Carbon dioxide,CO_2

(b) Water, H_2O

(c) Sunlight.

(d) Chlorophyll;Green leaves of plants.

(e) Glucose, $C_6H_{12}O_6$

(f) Oxygen; Photosynthesis.

********** END **********