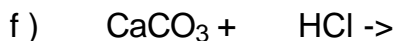
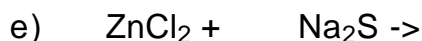
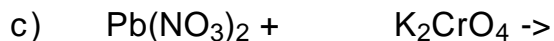
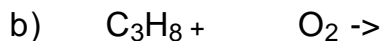


## Chem11 Chemical Reactions : Test 1 - 170

- 1) a) Define : Chemical reaction.
- b) Give an example of an endothermic reaction. Write down the equation.
- c) Give any example of a combustion reaction. Write the equation for the reaction.
- 2) Name the type of reaction (synthesis, decomposition, water forming, combustion, single replacement, double replacement) :
- a)  $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$
- b)  $2\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$
- c)  $2\text{PbO} \rightarrow 2\text{Pb} + \text{O}_2$
- d)  $\text{Zn} + \text{CuSO}_4 \rightarrow \text{Cu} + \text{ZnSO}_4$
- e)  $\text{Cu} + \text{S} \rightarrow \text{CuS}$
- 3) Balance the following reactions :
- a)  $\text{C}_3\text{H}_8 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- b)  $\text{Al} + \text{Cl}_2 \rightarrow \text{AlCl}_3$
- c)  $\text{NH}_4\text{NO}_3 \rightarrow \text{N}_2\text{O} + \text{H}_2\text{O}$
- d)  $\text{Al}(\text{OH})_3 + \text{H}_2\text{SO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + \text{H}_2\text{O}$
- e)  $\text{Na} + \text{H}_2\text{O} \rightarrow \text{H}_2 + \text{NaOH}$
- f)  $\text{C}_2\text{H}_6 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- g)  $\text{Fe}_2\text{O}_3 + \text{CO} \rightarrow \text{Fe} + \text{CO}_2$
- h)  $\text{Cu} + \text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + \text{NO} + \text{H}_2\text{O}$
- i)  $\text{FeS}_2 + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3 + \text{SO}_2$

4) Complete these equations and balance :

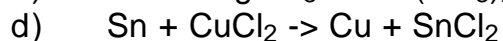
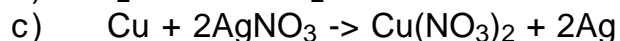
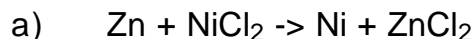


5) Write an equation to represent the following and balance :

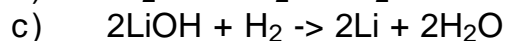
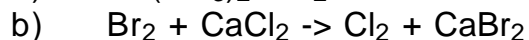
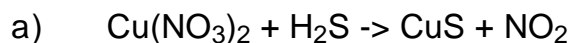
a) Magnesium nitride reacts with water to form magnesium hydroxide and ammonia ( $\text{NH}_3$ )

b) Lithium hydroxide combines with carbon dioxide to form lithium carbonate and water.

6) Which reaction will **NOT** occur ?



7) Which reaction **WILL** occur ?



- 8) Explain how we get metallic iron from an ore that is an oxide of the iron. Write down the equation for the chemical reaction.

Answers : 1) a) A chemical reaction occurs when one or more atoms and/or compounds react to form one or more new atoms and/or compounds. b) e.g. photosynthesis :  $\text{CO}_2 + \text{H}_2\text{O} + \text{Energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$  ... and others. c) e.g. burning methane :  $\text{CH}_4 + \text{O}_2 \rightarrow \text{H}_2\text{O} + \text{CO}_2$  ... and others, 2)a) double replacement, b) water forming, c) decomposition, d) single replacement, e) synthesis, 3)a) 1, 5, 3, 4, b) 2, 3, 2, c) 1, 1, 2, d) 2, 3, 1, 6, e) 2, 2, 1, 2, f) 2, 7, 4, 6, g) 1, 3, 2, 3, h) 3, 8, 3, 2, 4, i) 4, 11, 2, 8, 4)a) N.R., b)  $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$ , c)  $\text{Pb}(\text{NO}_3)_2 + \text{K}_2\text{CrO}_4 \rightarrow 2\text{KNO}_3 + \text{PbCrO}_4$ , d)  $2\text{K} + \text{Cl}_2 \rightarrow 2\text{KCl}$ , e)  $\text{ZnCl}_2 + \text{Na}_2\text{S} \rightarrow 2\text{NaCl} + \text{ZnS}$ , f)  $\text{CaCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2$ , 5)a)  $\text{Mg}_3\text{N}_2 + 6\text{H}_2\text{O} \rightarrow 3\text{Mg}(\text{OH})_2 + 2\text{NH}_3$ , b)  $2\text{LiOH} + \text{CO}_2 \rightarrow \text{Li}_2\text{CO}_3 + \text{H}_2\text{O}$ , 6) b, 7) d, 8) Iron ore is ground to a powder and combined with coal (carbon) and heated until the mixture ignites. Liquid iron will settle to the bottom of the mixture.  $\text{CO}_2$  is given off. Impurities (slag) in the ore float to the top of the mixture. The basic equation is :  $2\text{Fe}_2\text{O}_3(\text{s}) + 3\text{C}(\text{s}) \rightarrow 4\text{Fe}(\text{l}) + 3\text{CO}_2(\text{g})$ . (see Important Reactions Worksheet)