1. Balance the following chemical reactions:

(5 x 2 marks each - 10 marks)

a.
$$Zn_{(s)} + Pb(NO_3)_{4(aq)} \rightarrow Zn(NO_3)_{2(aq)} + Pb_{(s)}$$

b. ____ Mg
$$_{\text{(s)}}$$
 + ____ H $_2\text{SO}_{_4\,\text{(aq)}}$ \rightarrow ____ MgSO $_{_4\,\text{(aq)}}$ + ____ H $_{_2(g)}$

c. ____ Mg(NO₃)_{2 (aq)} + ____ K₃PO_{4 (aq)}
$$\rightarrow$$
 ____ Mg₃(PO₄)_{2 (s)} + ___ KNO_{3 (aq)}

d. ____NO
$$_{(g)}$$
 + ____NO $_{2\,(g)}$ \rightarrow ____NO $_{2\,(g)}$

e. _____C_4H____O_(g) + _____O_{2(g)}
$$\rightarrow$$
 _____ H_2O_(I) + _____CO_{2(g)}

2. For each of the following reactions NEATLY write the: (4 x 4 marks each – 16 marks)

i) Balanced Chemical Equation (including states) ii) Type of Reaction

a. calcium metal + dihydrogen monoxide → aqueous calcium hydroxide + hydrogen gas

Type: _____

Type: _____

c. solid calcium carbonate → solid calcium oxide + carbon dioxide gas

Type: _____

d. calcium chloride solution + silver nitrate solution → solid silver chloride + aqueous calcium nitrate

Type: _____

3. For each of the following reactions, write the word equation (<u>no states</u> are required here) (2 x 2 marks each – 4 marks)

a.
$$FeSO_{4(aq)}$$
 + $Na_2S_{(aq)}$ \rightarrow $Na_2SO_{4(aq)}$ + $FeS_{(s)}$

b.
$$SO_{2(s)}$$
 + $NO_{2(g)}$ \rightarrow $SO_{3(g)}$ + $NO_{(g)}$