Student Worksheet
Classifying Chemical Reactions

1. (a) Classify each of the following reactions as formation, simple decomposition, single replacement, or double replacement reactions.
   (b) Balance each equation and add symbols to indicate states of matter for all reactants and products.

(i)	Cu	+	O_2	→	CuO			_____
(ii)	Al	+	Fe_2O_3	→	Al_2O_3	+	Fe	_____
(iii)	Ag	+	S	→	Ag_2S			_____
(iv)	H_2O	+	electricity	→	H_2	+	O_2	_____
(v)	FeS	+	HCl	→	$FeCl_2$	+	H_2S	_____
(vi)			NaCl	→	Na	+	Cl_2	_____
(vii)	NaOH	+	HCl	→	H_2O	+	NaCl	_____
(viii)	Zn	+	HCl	→	$ZnCl_2$	+	H_2	_____

2. Write balanced chemical equations for the following:
   (a) The decomposition reaction of hydrogen sulfide.

   (b) The single displacement reaction of copper metal and silver nitrate.

   (c) The synthesis reaction of sodium and fluorine.

   (d) The double displacement reaction of aluminium sulfate and calcium hydroxide.