MEGA LECTURE

Topic 6 Exercise 1 – redox reactions

1. Define the terms:

a) Oxidation

b) Reduction

c) Oxidising agent

d) Reducing agent

e) Redox reaction

2. Deduce the oxidation numbers of the following atoms:

a)	Si in SiF_4	k)	Tl in TlCl
b)	S in H_2S	l)	C in CaC_2
c)	Pb in PbO_2	m)	H in AlH_3
d)	S in H_2SO_4	n)	C in $C_2O_4^{2-}$
e)	N in NO_3^-	o)	I in IO_3^-
f)	N in NO_2^-	p)	Cl in Cl_2O_7
g)	I in I_2	q)	O in OF_2
h)	S in $S_2O_3^{2-}$	r)	Fe in Fe_3O_4
i)	Cl in ClO^-	s)	S in $S_4O_6^{2-}$
j)	Cl in ClO_3^-	t)	C in HCN

3. Turn the following processes into redox reactions by writing out half-equations and combining them:

a) $PbO_2 \rightarrow Pb^{2+}$, $Cl^- \rightarrow Cl_2$

b) $S_2O_3^{2-} \rightarrow S_4O_6^{2-}$, $I_2 \rightarrow 2I^-$

c) $IO_3^- \rightarrow I_2$, $I^- \rightarrow I_2$

d) $ClO^- \rightarrow ClO_3^-$, $ClO^- \rightarrow Cl^-$

e) $H_2SO_4 \rightarrow SO_2$, $Br^- \rightarrow Br_2$

f) $H_2SO_4 \rightarrow S$, $I^- \rightarrow I_2$

g) $H_2SO_4 \rightarrow H_2S$, $I^- \rightarrow I_2$

h) $ClO^- \rightarrow Cl^-$, $I^- \rightarrow I_2$

i) $PbO_2 \rightarrow Pb^{2+}$, $SO_3^{2-} \rightarrow SO_4^{2-}$

4. Identify the oxidising and reducing agents in the equations in question 2.

5. Identify any disproportionation reactions in question 2.