KEY SKILL – Writing Half Equations

Using the rules for writing ½ equations write ½ equations for the following and state if an oxidation or reduction ½ equation.

Redox Change	Half Equation	Ox/Red?
$H_2SO_3 \rightarrow S$		
$UO_2^{2+} \rightarrow U^{4+}$		
$As \rightarrow H_3AsO_3$		
$CO_2 \rightarrow HCOOH$		
$N_2H_5^+ \rightarrow N_2$		
$AsH_3 \rightarrow As$		
$IO_3^- \rightarrow I_2$		
$CO_2 \rightarrow H_2C_2O_4$		
$HClO_2 \rightarrow ClO_3^-$		
$Cr^{3+} \rightarrow Cr_2O_7^{2-}$		
$AgO \rightarrow Ag_2O$		
$I_3^- \rightarrow I^-$		
$S_4O_6^{2-} \rightarrow S_2O_3^{2-}$		
$VO^{2+} \rightarrow V^{3+}$		
$NO_3^- \rightarrow NO_2$		
$ClO_4^- \rightarrow Cl^-$		
$O_2 \rightarrow OH^-$		

SOLNS.

KEY SKILL – Writing Half Equations

Using the rules for writing ½ equations write ½ equations for the following and state if an oxidation or reduction ½ equation.

Redox Change	Half Equation	Ox/Red?
$H_2SO_3 \rightarrow S$	$4e^- + 4H^+ + H_2SO_3 \rightarrow S + 3H_2O$	Red.
$UO_2^{2+} \rightarrow U^{4+}$	$2e^- + 4H^+ + UO_2^{2+} \rightarrow U^{4+} + 2H_2O$	Red.
$As \rightarrow H_3AsO_3$	$3H_2O + As \rightarrow H_3AsO_3 + 3H^+ + 3e^-$	Ox
$CO_2 \rightarrow HCOOH$	$2e^- + 2H^+ + CO_2 \rightarrow H_2CO_2$	Red
$N_2H_5^+ \rightarrow N_2$	$N_2H_5^+ \rightarrow N_2 + 5H^+ + 4e^-$	Ox
$AsH_3 \rightarrow As$	$AsH_3 \rightarrow As + 3H^+ + 3e^-$	Ox
$IO_3^- \rightarrow I_2$	$10e^- + 12H^+ + 2IO_3^- \rightarrow I_2 + 6H_2O$	Red.
$CO_2 \rightarrow H_2C_2O_4$	$2e^- + 2H^+ + 2CO_2 \rightarrow H_2C_2O_4$	Red.
$HClO_2 \rightarrow ClO_3^-$	$H_2O + HClO_2 \rightarrow ClO_3^- + 3H^+ + 2e^-$	Ox
$Cr^{3+} \rightarrow Cr_2O_7^{2-}$	$7H_2O + 2Cr^{3+} \rightarrow Cr_2O_7^{2-} + 14H^+ + 6e^-$	Ox
$AgO \rightarrow Ag_2O$	$2e^- + 2H^+ + 2AgO \rightarrow Ag_2O + H_2O$	Red
$I_3^- \rightarrow I^-$	$2e^- + I_3^- \rightarrow 3I^-$	Red.
$S_4O_6^{2-} \rightarrow S_2O_3^{2-}$	$2e^- + S_4O_6^{2-} \rightarrow 2S_2O_3^{2-}$	Red
$VO^{2+} \rightarrow V^{3+}$	$e^- + 2H^+ + VO^{2+} \rightarrow V^{3+} + H_2O$	Red.
$NO_3^- \rightarrow NO_2$	$e^- + 2H^+ + NO_3^- \rightarrow NO_2 + H_2O$	Red.
$ClO_4^- \rightarrow Cl^-$	$8e^- + 8H^+ + ClO_4^- \rightarrow Cl^- + 4H_2O$	Red.
$O_2 \rightarrow OH^-$	$4e^- + 2H^+ + O_2 \rightarrow 2OH^-$	red