CHEMISTRY

Redox Reactions

Redox Reactions in Terms of Electron Transfer Reaction

1. In the reaction given below, identify the species undergoing redox reaction,

$$2Na(s) + H_2(g) \rightarrow 2NaH(s)$$

(1) Na is reduced and hydrogen is oxidised
(2) Na is oxidised and hydrogen is reduced
(3) Na undergoes oxidation and hydrogen undergoes reduction
(4) Both (2) and (3)

2. Match the columns

Column I		Column II	
(A)	$2Mg + O_2 \rightarrow 2MgO$	(p)	Removal of hydrogen
(B)	$Mg + Cl_2 \rightarrow MgCl_2$	(q)	Removal of electropositive element
(C)	$2H_2S + O_2 \rightarrow 2S + 2H_2O$	(r)	Addition of oxygen
(D)	$2KI + H_2O + O_3 \rightarrow 2KOH + I_2 + O_2$	(s)	Addition of electronegative element, chlorine

(1) A-(s), B-(q), C-(p), D-(r)
(2) A-(r), B-(s), C-(p), D-(q)
(3) A-(s), B-(r), C-(q), D-(p)
(4) A-(r), B-(p), C-(s), D-(q)

3. When Sn^{2+} changes to Sn^{4+} in a reaction
(1) It loses two electrons
(2) It gains two electrons
(3) It loses two protons
(4) It gains two protons

4. The number of electrons involved in the reduction of one nitrate ion to hydrazine is
(1) 8 (2) 5
(3) 3 (4) 7

5. In which of the following reactions, there is no change in valency?
(1) $4KClO_3 \rightarrow 3KClO_4 + KCl$
(2) $SO_2 + 2H_2S \rightarrow 2H_2O + 3S$
(3) $BaO_2 + H_2SO_4 \rightarrow BaSO_4 + H_2O_2$
(4) $3BaO + O_2 \rightarrow 2BaO_2$

6. If rod of a metal is put in a metal ion solution which is blue in colour, solution turn colourless. The metal rod and solution respectively are?
(1) Zinc and Cu(II)
(2) Zinc and Ni(II)
(3) Aluminium and Cu(II)
(4) Both (1) and (3)

Classical Idea of Redox Reactions – Oxidation and Reduction Reaction

7. In the balanced equation,
$MnO_4^- + H^+ + C_2O_4^{2-} \rightarrow Mn^{2+} + CO_2 + H_2O$,
the moles of CO_2 formed are
(1) 2 (2) 4
(3) 5 (4) 10

8. Which one is the oxidising agent in the reaction given below?

$$2CrO_4^{2-} + 2H^+ \rightarrow Cr_2O_7^{2-} + H_2O$$

(1) H^+ (2) $Cr_2O_7^{2-}$
(3) Cr^{2+} (4) None

9. The number of electrons required to balance the following equation are

$$NO_3^- + 4H^+ \rightarrow 2H_2O + NO$$

(1) 2 on right side
(2) 3 on left side
(3) 3 on right side
(4) 5 on left side

10. In the reaction,
$8Al + 3Fe_3O_4 \rightarrow Al_2O_3 + 9Fe$, the number of electrons transferred from reductant to oxidant is
(1) 8 (2) 4
(3) 16 (4) 24