Redox Reactions

Q.1. Which of the following arrangements represent increasing oxidation number of the central atom?

a) CrO_2^- ,ClO_3^- ,CrO_4^{2-} ,MnO_4^-
b) ClO_3^- ,CrO_4^{2-} ,MnO_4^-,CrO_2^-
c) MnO_4^-,CrO_2^- ,ClO_3^- ,CrO_4^{2-}
d) CrO_4^{2-} ,MnO_4^-,CrO_2^- ,ClO_3^-

Q.2. What products are expected from the disproportionation reaction of hypochlorous acid?

a) HCl and Cl_2O
b) HCl and $HClO_3$
c) $HClO_3$ and Cl_2O
d) $HClO_2$ and $HClO_4$

Q.3. In which of the following compounds, nitrogen has an oxidation state of –1 ?

a) N_2O
b) NO_2^-
c) NH_2OH
d) N_2H_4

Q.4. The brown ring complex is formulated as $[Fe(H_2O)_5\ NO]SO_4$. The oxidation number of iron is

a) +1
b) +2
c) +4
d) 0

Q.5. A, B and C are three elements forming a part of compound in oxidation states of +2, +5 and –2 respectively. What could be the compound ?

a) $A_2(BC)_2$
b) $A_2(BC_4)_3$
c) $A_3(BC_4)_2$
d) ABC

Q.6. The oxidation number of S in $H_2S_2O_8$ is

a) +2
b) +4
c) +6
d) +7

Q.7. The equivalent weight of Mohr's salt,$FeSO_4,(NH_4)_2SO_4,6H_2O$ is equal to

a) its molecular weight
b) one-fourth its atomic weight
c) half its molecular weight
d) one-third its molecular weight

Q.8. The equivalent weight of phosphoric acid (H_3PO_4) in the reaction:

$NaOH + H_3PO_4 \rightarrow NaH_2PO_4 + H_2O$

a) 59
b) 49
c) 25
d) 98

Q.9. Given that the oxidation number of sulphur is –2. the equivalent weight of sulphur is

a) 16
b) 32
c) 9
d) 4

Q.10. The oxidation state of chromium in the final product formed by the reaction between KI and acidified potassium dichromate solution is:

a) +3
b) +2
c) +6
d) +4

Q.11. The oxidation number of Cr in $Cr(CO)_6$ is

a) 0
b) +2
c) +3
d) +6

Q.12. Which of the following is not a redox reaction?

a) Dissolving Zinc in dil. H_2SO_4
b) Rusting of iron
c) Burning of candle
d) Dissolving salt in water

Q.13. The most powerful oxidising agent among the following is:

a) H_2SO_4
b) HPO_3
c) H_3BO_3
d) H_3PO_4

Q.14. Which of the following is not a reducing agent?

a) SO_2
b) H_2O_2
c) CO_2
d) NO_2^-

Q.15. Number of moles of $K_2Cr_2O_7$ reduced by 1 mole of Sn^{2+} is

a) 1/6
b) 1/3
c) 2/3
d) 1

Q.16. Oxidation state of osmium (Os) in OsO_4 is

a) +4
b) +6
c) +7
d) +8

Q.17. Oxidation number of sodium in sodium amalgam is

a) +1
b) 0
c) -1
d) +2

Q.18. The reaction $3ClO^-(aq) \rightarrow ClO_3^-(aq) + 2Cl^-(aq)$ is an example of-

a) Oxidation reaction
b) Reduction reaction
c) Disproportionation reaction
d) Decomposition reaction

Q.19. Which of the following is a redox reaction?

a) $NaCl + KNO_3 \rightarrow NaNO_3 + KCl$
b) $CaC_2O_4 + 2HCl \rightarrow CaCl_2 + H_2C_2O_4$
c) $Mg(OH)_2 + 2NH_4Cl \rightarrow MgCl_2 + 2NH_4OH$
d) $Zn + 2AgCN \rightarrow 2Ag + Zn(CN)_2$

Q.20. Oxidation state of oxygen in CrO_5 is

a) -1
b) -2
c) +1
d) Both -1 & -2

Q.21. The number of peroxide linkages in CrO_5 and H_2SO_5 respectively are

a) 1,1
b) 2,0
c) 2,1
d) 1,2

Q.22. Oxidation number of chlorine atoms in $CaOCl_2$ are

a) 0,0
b) – 1, – 1
c) – 1, + 1
d) – 2, + 7

Q.23. When ethane is burnt in excess of oxygen, the oxidation number of carbon changes by

a) + 8
b) + 7
c) + 6
d) + 4

Q.24. Oxidation number of iodine varies from

a) 1 to + 1
b) 1 to + 7
c) + 3 to + 5
d) 1 to + 5

Q.25. In alkaline solution $KMnO_4$ reacts as follows

$2KMnO_4 + 2KOH \longrightarrow 2K_2MnO4 + H_2O + O$. Therefore, its equivalent weight will be

a) 31.6
b) 52.7
c) 79.0
d) 158.0