

Redox-Reaction Assignment

- In which of the following reactions oxidation and reduction is occurring
 - $AgNO_3 + HCl \rightarrow AgCl + HNO_3$
 - $H_2 + Cl_2 \rightarrow 2HCl$
 - $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$
 - $KI + HCl \rightarrow KCl + HI$
- Consider the following statements. In the chemical reaction $MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$
 - Manganese ion is oxidised
 - Manganese ion is reduced
 - Chloride ion is oxidised
 - Chloride ion is reduced
 Which of these statements are correct
 - 1 and 3
 - 1 and 4
 - 2 and 3
 - 2 and 4
- Which of the following is redox reaction
 - H_2SO_4 with $NaOH$
 - In atmosphere, O_3 from O_2 by lightning
 - Evaporation of H_2O
 - Nitrogen oxides form nitrogen and oxygen by lightning
- Which of the following is not a redox reaction
 - $2Rb + 2H_2O \rightarrow 2RbOH + H_2$
 - $2CuI_2 \rightarrow 2CuI + I_2$
 - $2H_2O_2 \rightarrow 2H_2O + O_2$
 - $4KCN + Fe(CN)_2 \rightarrow K_4Fe(CN)_6$
- Which of the following is a redox reaction
 - $NaCl + KNO_3 \rightarrow NaNO_3 + KCl$
 - $CaC_2O_4 + 2HCl \rightarrow CaCl_2 + H_2C_2O_4$
 - $Mg(OH)_2 + 2NH_4Cl \rightarrow MgCl_2 + 2NH_4OH$
 - $Zn + 2AgCN \rightarrow 2Ag + Zn(CN)_2$
- Which of the following reaction is a redox-reaction
 - $P_2O_5 + 2H_2O \rightarrow H_4P_2O_7$
 - $2AgNO_3 + BaCl_2 \rightarrow 2AgCl + Ba(NO_3)_2$
 - $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$
 - $Cu + 2AgNO_3 \rightarrow 2Ag + Cu(NO_3)_2$
- When Fe^{2+} changes to Fe^{3+} in a reaction
 - It loses an electron
 - It gains an electron
 - It loses a proton
 - It gains a proton
- Which of the following reactions involves oxidation-reduction both
 - $NaBr + HCl \rightarrow NaCl + HBr$
 - $HBr + AgNO_3 \rightarrow AgBr + HNO_3$
 - $H_2 + Br_2 \rightarrow 2HBr$
 - $2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$
- When Sn^{2+} changes to Sn^{4+} in a reaction
 - It loses two electrons
 - It gains two electrons
 - It loses two protons
 - It gains two protons
- The conversion of sugar $C_{12}H_{22}O_{11} \rightarrow CO_2$ is
 - Oxidation
 - Reduction
 - Neither oxidation nor reduction
 - Both oxidation and reduction
- In the following reaction, $4P + 3KOH + 3H_2O \rightarrow 3KH_2PO_2 + PH_3$
 - P is oxidized as well as reduced
 - P is reduced only
 - P is oxidised only
 - None of these
- Following reaction describes the rusting of iron $4Fe + 3O_2 \rightarrow 4Fe^{3+} + 6O^{2-}$
Which one of the following statement is incorrect
 - This is an example of a redox reaction
 - Metallic iron is reduced to Fe^{3+}
 - Fe^{3+} is an oxidising agent
 - Metallic iron is a reducing agent
- The decomposition of $KClO_3$ to KCl and O_2 on heating is an example of
 - Intermolecular redox change
 - Intramolecular redox change
 - Disproportionation or auto redox change
 - None of these
- Which one is oxidising agent in the reaction, $2CrO_4^{2-} + 2H^+ \rightarrow Cr_2O_7^{2-} + H_2O$
 - H^+
 - $Cr_2O_4^{2-}$
 - Cr^{++}
 - None of these
- In the reaction $H_2S + NO_2 \rightleftharpoons H_2O + NO + S$, H_2S is
 - Oxidised
 - Reduced
 - Precipitated
 - None of these
- The reaction $H_2S + H_2O_2 \rightarrow 2H_2O + S$, shows
 - Oxidizing action of H_2O_2
 - Reducing action of H_2O_2
 - Alkaline nature of H_2O_2
 - Acidic nature of H_2O_2

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17. The oxide which cannot act as a reducing agent is
(a) SO_2 (b) NO_2 (c) CO_2 (d) ClO_2
18. H_2S acts only as a reducing agent while SO_2 can act both as a reducing and oxidizing agent because
(a) S in H_2S has -2 oxidation state (b) S in SO_2 has oxidation state $+4$
(c) Hydrogen in H_2S more +ve than oxygen (d) Oxygen is more -ve in SO_2
19. In the reaction between ozone and hydrogen peroxide. H_2O_2 acts as
(a) Oxidising agent (b) Reducing agent
(c) Bleaching agent (d) Both oxidising and bleaching agent
20. In the equation
 $H_2S + 2HNO_3 \rightarrow 2H_2O + 2NO_2 + S$
The equivalent weight of hydrogen sulphide is
(a) 16 (b) 68 (c) 34 (d) 17
21. A solution of sulphur dioxide in water reacts with H_2S precipitating sulphur. Here sulphur dioxide acts as
(a) An oxidising agent (b) A reducing agent (c) An acid (d) A catalyst
22. The product of oxidation of I^- with MnO_4^- in alkaline medium is
(a) IO_3^- (b) I_2 (c) IO^- (d) IO_4^-
23. In alkaline condition $KMnO_4$ reacts as $2KMnO_4 + 2KOH \rightarrow 2K_2MnO_4 + H_2O + O_2$. The equivalent weight of $KMnO_4$ would be (Atomic mass of $K = 39$, $Mn = 55$, $O = 16$)
(a) 158.0 (b) 79.0 (c) 52.7 (d) 31.6
24. In which of the following reactions H_2O_2 is a reducing agent
(a) $2FeCl_2 + 2HCl + H_2O_2 \rightarrow 2FeCl_3 + 2H_2O$ (b) $Cl_2 + H_2O_2 \rightarrow 2HCl + O_2$
(c) $2HI + H_2O_2 \rightarrow 2H_2O + I_2$ (d) $H_2SO_3 + H_2O_2 \rightarrow H_2SO_4 + H_2O$
25. $SnCl_2$ gives a precipitate with a solution of Hg_2Cl_2 . In this process Hg_2Cl_2 is
(a) Reduced
(b) Oxidised
(c) Converted into a complex compound containing both Sn and Hg
(d) Converted into a chloro-complex of Hg
26. Oxidation of thiosulphate ($S_2O_3^{2-}$) ion by iodine gives
(a) SO_3^{2-} (b) SO_4^{2-} (c) $S_4O_6^{2-}$ (d) $S_2O_6^{2-}$
27. $KMnO_4$ acts as an oxidising agent in the neutral medium and gets reduced to MnO_2 . The equivalent weight of $KMnO_4$ in neutral medium
(a) Mol. wt/2 (b) Mol. wt/3 (c) Mol. wt/4 (d) Mol. wt/7
28. Which substance is serving as a reducing agent in the following reaction, $14H^+ + Cr_2O_7^{2-} + 3Ni \rightarrow 2Cr^{3+} + 7H_2O + 3Ni^{2+}$
(a) H_2O (b) Ni (c) H^+ (d) $Cr_2O_7^{2-}$
29. The equivalent weight of phosphoric acid (H_3PO_4) in the reaction, $NaOH + H_3PO_4 \rightarrow NaH_2PO_4 + H_2O$ is
(a) 25 (b) 49 (c) 59 (d) 98
30. The correct order of reducing power of halide ions is
(a) $Cl^- > Br^- > I^- > F^-$ (b) $Cl^- > I^- > Br^- > F^-$ (c) $Br^- > Cl^- > I^- > F^-$ (d) $I^- > Br^- > Cl^- > F^-$
31. In which of the following reactions has the underlined substance been reduced?
(a) Carbon monoxide + copper oxide \rightarrow carbon dioxide + copper
(b) Copper oxide + hydrochloric acid \rightarrow copper chloride + water
(c) Hydrogen + iron oxide \rightarrow iron + water
(d) Steam + iron \rightarrow iron oxide + hydrogen
32. Why is the following reaction is not possible?
 $Cr_2O_7^{2-} + Fe^{3+} + H^+ \rightarrow \dots + \dots + \dots$
(a) Both $Cr_2O_7^{2-}$ and Fe^{3+} are reducing agents
(b) Both $Cr_2O_7^{2-}$ and Fe^{3+} are oxidising agents
(c) $Cr_2O_7^{2-}$ is a strong oxidising agent while Fe^{3+} is a weak oxidising agent
(d) The solution is acidic in nature

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33. When SO_2 is passed through acidic solution of potassium dichromate, then chromium sulphate is formed. Change in valency of chromium is
(a) + 4 to + 2 (b) + 5 to + 3 (c) + 6 to + 3 (d) + 7 to + 2
34. The most common oxidation state of an element is - 2. The number of electrons present in its outermost shell is
(a) 4 (b) 2 (c) 6 (d) 8
35. The oxidation state of iodine in ICl_2^- is
(a) + 1 (b) - 1 (c) + 2 (d) - 3
36. When $K_2Cr_2O_7$ is converted to K_2CrO_4 , the change in the oxidation state of chromium is
(a) 0 (b) 6 (c) 4 (d) 3
37. Oxidation state of chlorine in perchloric acid is
(a) - 1 (b) 0 (c) - 7 (d) + 7
38. In which reaction there is a change in valency
(a) $2NO_2 \rightarrow N_2O_4$ (b) $2NO_2 + H_2O \rightarrow HNO_2 + HNO_3$
(c) $NH_4OH \rightarrow NH_4^+ + OH^-$ (d) $CaCO_3 \rightarrow CaO + CO_2$
39. In which of the following compounds the oxidation number of carbon is maximum
(a) $HCHO$ (b) $CHCl_3$ (c) CH_3OH (d) $C_{12}H_{22}O_{11}$
40. The oxidation state of Mo in $Mo_2Cl_8^{4-}$ ion is
(a) - 4 (b) - 2 (c) + 6 (d) + 2
41. During oxidation by $KMnO_4$ under acidic conditions, as represented by the equation,
 $2KMnO_4 + 3H_2SO_4 \rightarrow K_2SO_4 + 2MnSO_4 + 3H_2O + 5(O)$ the oxidation number of Mn changes from
(a) 7 to 2 (b) 14 to 4 (c) 6 to 2 (d) 7 to 4
42. Sulphur has highest oxidation state in
(a) SO_2 (b) H_2SO_4 (c) $Na_2S_2O_3$ (d) $Na_2S_4O_6$
43. In which of the following compounds iron has lowest oxidation state
(a) $FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$ (b) $K_4Fe(CN)_6$ (c) $Fe(CO)_5$ (d) Fe_2O (e) K_2FeO_4
44. The oxidation states of the most electronegative element in the products of the reaction of BaO_2 with dilute H_2SO_4 are
(a) 0 and - 1 (b) - 1 and - 2 (c) - 2 and 0 (d) - 2 and + 1
45. If HNO_3 changes into N_2O , the oxidation number is changed by
(a) + 2 (b) - 1 (c) 0 (d) + 4
46. The oxidation number and the electronic configuration of sulphur in H_2SO_4 is
(a) + 4; $1s^2 2s^2 2p^6 3s^2$ (b) + 2; $1s^2 2s^2 2p^6 3s^2 3p^2$ (c) + 3; $1s^2 2s^2 2p^6 3s^2 3p^1$ (d) + 6; $1s^2 2s^2 2p^6$
47. Fluorine exhibits only -1 oxidation state, while iodine exhibits oxidation states of - 1, +1, +3, +5 and +7. This is due to
(a) Fluorine being a gas (b) Available d -orbitals in iodine
(c) Non-availability of d -orbitals in iodine (d) None
48. The oxidation number of phosphorus in ATP (adenosine triphosphate) is
(a) + 4 (b) + 3 (c) + 5 (d) + 2
49. The pair of the compounds in which both the metals are in the highest possible oxidation state in
(a) $[Fe(CN)_6]^{3-}$, $[Co(CN)_6]^{3-}$ (b) CrO_2Cl_2 , MnO_4^-
(c) TiO_3 , MnO_2 (d) $[Co(CN)_6]^{3-}$, MnO_3
50. Which of the following sequence is correct with reference to the oxidation number of iodine
(a) $I_2 < ICl < HI < HIO_4$ (b) $HIO_4 < ICl < I_2 < HI$
(c) $I_2 < HI < ICl < HIO_4$ (d) $HI < I_2 < ICl < HIO_4$