



CHEMISTRY

BOOKS - ARIHANT CHEMISTRY (HINGLISH)

REDOX REACTIONS

Practice Exercise

1. When zinc is added to $CuSO_4$ solution, copper is precipitated. It is because of

A. reduction of zinc

B. reduction of Cu^{2+}

C. hydrolysis of $CuSO_4$

D. reduction of SO_4^{2-}

Answer: B

2. Which of the following is the most powerful oxidising agent ?

A. F_2

 $B. Cl_2$

 $\mathsf{C}.\,Br_2$

D. l_2

Answer: A

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3. The strongest reducing agent is

A. HNO_3

 $\mathsf{B}.\,H_2S$

 $\mathsf{C}.\,H_2SO_3$

D. $SnCl_2$

Answer: B



4. Which of the following is a reducing agent ?

A. $NaHCO_3$

B. $NaHSO_3$

 $\mathsf{C}. Na_2O_2$

D. $NaHSO_4$

Answer: B



5. In which one of the following reactions, hydrogen is acts as an oxidising agent ?

A. With Li to form LiH

B. with l_2 to form Hi

C. with N_2 to form NH_3

D. with S to form H_2S

Answer: A

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6. Which of the following reactions has the underlined substance been reduced ?

A.

 $\underline{\operatorname{Carbon\,monoxide}} + \underline{\operatorname{Copper\,oxide}} \rightarrow \underline{\operatorname{Carbon\,dioxide}} + \underline{\operatorname{Copper}}$

Β.

 $\operatorname{Copper oxide} + \operatorname{Hydrochloric acid} \rightarrow \operatorname{Copper chloride} + \operatorname{Water}$

 ${\tt C.\,Hydrogen+\ Iron\ oxide\ \rightarrow\ Iron\ +Water}$

 $D. \underline{Steam} + Iron \rightarrow Iron oxide + Hydrogen$

Answer: D

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7. Nitric oxide acts as a reducing agent in which of the following reaction

?

A.
$$4NH_3+5O_2
ightarrow 2NO+6H_2O$$

B. $2NO+3l_2+4H_2O
ightarrow 2NO_3^-+6l^-+8H^+$

C. $2NO + H_2SO_3
ightarrow N_2SO_4$

D. $2NO + H_2S
ightarrow N_2O + S + H_2O$

Answer: B

8. In acidic medium, equivalent weight of $K_2 C r_2 O_7$ (molecular weight

= M) is

A. M/3

 $\mathsf{B}.\,M/4$

C.M/6

D. M/2

Answer: C

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9. In the reaction, $l_2+2S_2O_3^{2-}
ightarrow 2l^-+S_4O_6^{2-}$, equivalent weight of

iodine will be equal to

 $\mathsf{B.}\,M/2$

 $\mathsf{C}.M/4$

 $\mathsf{D.}\,2M$

Answer: B

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10. The process in which oxidation number increase, is

A. reduction

B. hydrolysis

C. oxidation

D. decomposition

Answer: C

11. In which of the following, oxidation number of chloride is +5 ?

A. Cl_2O_7

 $\mathsf{B.}\,ClO_3^{\,-}$

C. ClO^{-}

D. ClO_4^-

Answer: B

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12. Carbon has zero oxidation number in

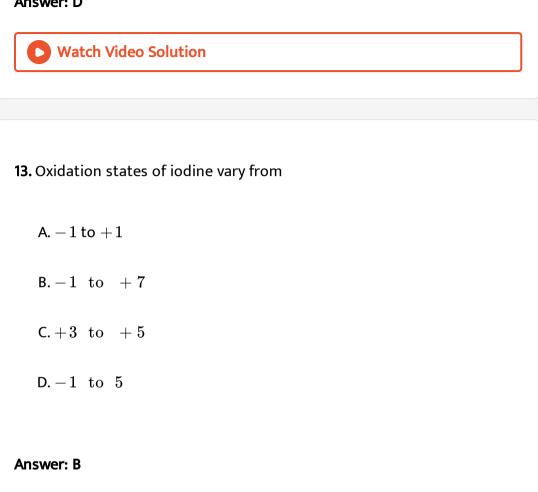
A. CH_4

 $\mathsf{B.}\,CH_3Cl$

 $C. CCl_4$

 $\mathsf{D.}\, CH_2 Cl_2$

Answer: D



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14. The oxidation number of S in $Na_2S_4O_6$ is

C. 3

D. 2

Answer: B

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15. The brown ring complex compound is formulated as $[Fe(H_2O)_5NO]SO_4$. The oxidation state of Fe is

A. 1

B. 2

C. 3

D. 0

Answer: B

16. Oxidation number of oxygen in F_2O is

A. -1

- B. + 1
- C. + 2
- $\mathsf{D.}-2$

Answer: C

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17. The oxidation state of nitrogen in N_3H is

A.
$$+\frac{1}{2}$$

 $\mathsf{B.}+3$

$$\mathsf{C}.-1$$

$$\mathsf{D.}-rac{1}{3}$$

Answer: D Watch Video Solution 18. The oxidation state of chromium in ${\it Cr(CO)}_6$ is A. 0 B. + 2C. -2D. + 6

Answer: A



19. Phosphorus has the oxidation state +3 in

A. orthophosphoric

B. phosphorous acid

C. metaphosphoric acid

D. pyrophosphoric acid

Answer: B

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20. In which of the following, increasing orders the oxidation number of

oxygen has been arranged ?

- A. $BaO_2 < O_3 < OF_2 < KO_2$
- B. $BaO_2 < KO_2 < O_3 < OF_2$
- C. $OF_2 < KO_2 < BaO_2 < O_3$

D. $KO_2 < OF_2 < O_3 < BaO_2$

Answer: B

21. The oxidation number of an element in a compound is evaluated on the basis of certain rules. Which of the following rules is not correct in this respect ?

A. The oxidation number of hydrogen is always +1

B. The algebraic sum of all the oxidation number in a compuound is

zero

C. An element in the free or the uncombined state bears oxidation number zero

D. In all of its compound, the oxidation number of fluorine is -1

Answer: A



22. In which of the following pairs, there is greatest difference in the oxidation number of the underlined elements ?

- A. $\underline{N}O_2$ and \underline{N}_2O_4
- **B**. $\underline{P}_2 O_5$ and $\underline{P}_4 O_{10}$
- C . $\underline{N}_2 O$ and $\underline{N} O$
- D. \underline{SO}_2 and \underline{SO}_3

Answer: D

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23. A compound contains atoms A, B and C. the oxidation number of A is

+2, of B is +5 and of C is -2. The possible formula of the compound is

A. ABC_3

B. $B_2(AC_3)_2$

C. $A_3(BC_4)_2$

D. $A_3(BC_3)_2$

Answer: C

24. Which of the following reactions is a redox reaction?

A. NaBr + HCl
ightarrow NaCl + HBr

B. $HBr + AgNO_3 \rightarrow AgBr + HNO_3$

C. $H_2 + Br_2
ightarrow 2HBr$

D. $Na_2O + H_2SO_4
ightarrow Na_2SO_4 + H_2O$

Answer: C

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25. White phosphorus reacts with caustic soda to form PH_3 and NaH_2PO_2 . This reaction is an example of

A. oxidation

B. reduction

C. hydrolysis

D. disproportionation

Answer: D

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26. Following reaction is an example of

 $Ag^{2+}(aq)+Ag(s) \Leftrightarrow 2Ag^+(aq)$

A. reduction

B. oxidation

C. comproportionation

D. disproportionation

Answer: C

27. Which of the following is a redox reaction?

A. Formation of glucose from CO_2 and water

B. Reaction of potassium cyanide with silver cyanide

C. Hydration of rubidium

D. Reaction of barium chloride with sulphuric acid

Answer: A

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28. Identify the disproportionation reaction.

A.
$$CH_4+2O_2
ightarrow CO_2+2H_2O$$

 $\mathsf{B.}\,CH_4 + 4Cl_2 \rightarrow CCl_4 + 4HCl$

C. $2F_2+2OH^-
ightarrow 2F^-+OF_2+H_2O$

D. $2NO_2+2OH^-
ightarrow NO_2^- + NO_3^- + H_2O$

Answer: D



29. Which of the following is not an intermolecular redox reaction?

A.
$$MgCO_3
ightarrow MgO + CO_2$$

B. $O_2 + 3H_2
ightarrow 2H_3O^+$
C. $K + H_2O
ightarrow KOH + \left(rac{1}{2}
ight)H_2$
D. $MnBr_3
ightarrow MnBr_2 + \left(rac{1}{2}
ight)Br_2$

Answer: A

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30. Consider the following reactions,

(I) $2Mn_2O_7
ightarrow 4MnO_2 + 3O_2$

(II) $SnCl_2 + 2FeCl_3
ightarrow SnCl_4 + 2FeCl_2$

A. intermolecular redox reaction and intramolecular redox reactions

respectively

B. Both reaction I and II are intermolecular redox reaction

C. Both reaction I and II are intramolecular redox reactions

D. intramolecular redox reactions and intermolecular redox reaction

respectively

Answer: D

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31. For the redox reaction,

$$MnO_4^{-} + C_2O_4^{2-} + H^+
ightarrow Mn^{2+} + CO_2 + H_2O$$

the correct coefficients of the reactants for the balanced reaction are

A.
$$\frac{MnO_4^-}{2}$$
 $C_2O_4^{2-}$ H^+
2 5 16
B. $\frac{MnO_4^-}{16}$ $C_2O_4^{2-}$ H^+
16 5 2
C. $\frac{MnO_4^-}{5}$ $C_2O_4^{2-}$ H^+
5 16 2

D.
$$\frac{MnO_4^-}{2}$$
 $\frac{C_2O_4^{2-}}{16}$ H^+

Answer: A



32. Consider the following reactions,

 $C_2H_6(g)+nO_2
ightarrow CO_2(g)+H_2O(l)$

In this equation, ratio of the coefficient of CO_2 and H_2O is

A.1:1

B. 2:3

C.3:2

 $\mathsf{D}.\,1\!:\!3$

Answer: B

33. Which of the following statement is true regarding the following balanced half-reaction?

 $CN^-
ightarrow CNO^-$

A. Carbon is losing two electrons per atom

B. Oxidation number of carbon increase from +1 to +3

C. Oxidation number of nitrogen remains constant

D. Both (a) and (c)

Answer: D

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34. In the ions equatio, $BrO_3^{-}+6H^{+}+xe^{-}
ightarrow Br^{3+}+3H_2O$, the

value of x is

A. 6

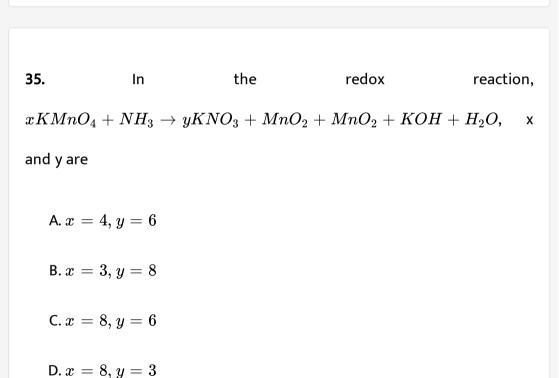
B. 2

C. 4

D. 3

Answer: B

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Answer: D

36. Consider the following reaction $2Fe^{3+}+2l^-
ightarrow 2Fe^{2+}+l_2$

The half-reactions for the given reaction are

A.
$$2l^-
ightarrow l_2 + 2e^-$$
 and $Fe^{3+} + e^-
ightarrow Fe^{2+}$

B. $l_2
ightarrow 2l^- + 2e^-$ and $Fe^{2+} + e^-
ightarrow Fe^{3+}$

C. $l_2
ightarrow 2\Theta^- + 2l^-$ and $Fe^{2+}
ightarrow Fe^{3+} + e^-$

D. None of the above

Answer: A

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1. The ratio of oxidation states of Cl in potassium chloride to that in potassium chlorate is

$$\mathsf{A.} + \frac{1}{5}$$

B.
$$-\frac{1}{5}$$

C. $-\frac{2}{5}$
D. $+\frac{3}{5}$

Answer: B

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2. The oxidation number of sulphur in $Na_2S_4O_6$ is

A. +6
B. +
$$\frac{3}{2}$$

$$C. + \frac{5}{2}$$

$$\mathsf{D}.-2$$

Answer: C

3. $2MnO_4^- + 5H_2O_2 + 6H^+
ightarrow 2Z + 5O_2 + 8H_2O$ Identify Z in the

above reaction.

A. $Mn^{2\,+}$

B. Mn^{4+}

 $\mathsf{C}.\,Mn$

D. MnO_2

Answer: A

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4. The oxidation number of N and Cl in $NOClO_4$ respectively are

A. +2 and +7

B.+3 and +7

C.-3 and +5

D.+2 and -7

Answer: B



5. Which one of the following reactions represent the oxidising properly of H_2O_2 ?

A.

$$2KMnO_4+3H_2SO_4+5H_2O_2
ightarrow K_2SO_4+2MnSO_4+8H_2O+5C_4$$

Β.

 $2K_3 ig[Fe(CN)_6ig] + 2KOH + H_2O_2
ightarrow 2K_4 ig[Fe(CN)_6ig] + 2H_2O + O_2$ C. $PbO_2 + H_2O_2
ightarrow PbO + H_2O + O_2$

 $\mathsf{D}.\,2Kl+H_2SO_4+H_2O_2\rightarrow K_2SO_4+l_2+2H_2O$

Answer: D

6. The speicies that undergoes disproportionation in an alkaline medium

is

A. $MnO_4^{2\,-}$

 $\operatorname{B.}ClO_4^{\,-}$

 $\mathsf{C}.NO_2$

D. All of these

Answer: C

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7. A compound contains X, Y and Z atoms. The oxidation state of X, Y and

Z are +2, +2 and -2 respectively. The possible formula of the

compound is

A. XYZ_2

B. $Y_2(XZ_3)_2$

C. $X_3(Y_4Z)_2$

D. $X_3(YZ_4)_3$

Answer: A



8. The oxidation number of oxygen in hydrogen peroxide is

 $\mathsf{A.}+1$

- $\mathsf{B.}-1$
- C.+2
- $\mathsf{D.}-2$

Answer: B

