



## 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**



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

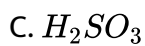
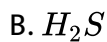


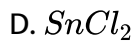
Answer: A



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3. The strongest reducing agent is

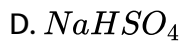
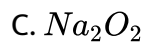
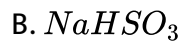
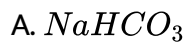




**Answer: B**

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4. Which of the following is a reducing agent ?



**Answer: B**

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

A. With  $Li$  to form  $LiH$

B. with  $I_2$  to form  $HI$

C. with  $N_2$  to form  $NH_3$

D. with  $S$  to form  $H_2S$

**Answer: A**



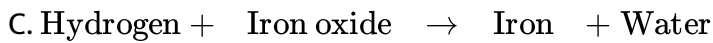
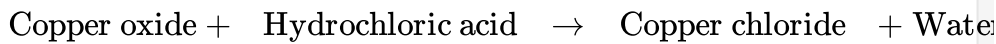
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6. Which of the following reactions has the underlined substance been reduced ?

A.

Carbon monoxide + Copper oxide  $\rightarrow$  Carbon dioxide + Copper

B.

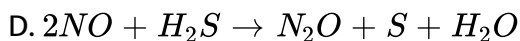
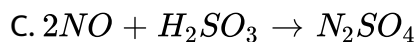
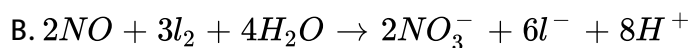
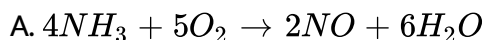


**Answer: D**

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

?



**Answer: B**

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8. In acidic medium, equivalent weight of  $K_2Cr_2O_7$  (molecular weight =  $M$ ) is

A.  $M/3$

B.  $M/4$

C.  $M/6$

D.  $M/2$

**Answer: C**

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9. In the reaction,  $I_2 + 2S_2O_3^{2-} \rightarrow 2I^- + S_4O_6^{2-}$ , equivalent weight of iodine will be equal to

A.  $M$

B.  $M/2$

C.  $M/4$

D.  $2M$

**Answer: B**



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10. The process in which oxidation number increase, is

A. reduction

B. hydrolysis

C. oxidation

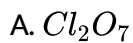
D. decomposition

**Answer: C**



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

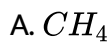


**Answer: B**



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12. Carbon has zero oxidation number in





**Answer: D**

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**13.** Oxidation states of iodine vary from

- A.  $-1$  to  $+1$
- B.  $-1$  to  $+7$
- C.  $+3$  to  $+5$
- D.  $-1$  to  $5$

**Answer: B**

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

- A. 1.5

B. 2.5

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**



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16. Oxidation number of oxygen in  $F_2O$  is

A.  $-1$

B.  $+1$

C.  $+2$

D.  $-2$

**Answer: C**



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17. The oxidation state of nitrogen in  $N_3H$  is

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

B.  $+3$

C.  $-1$

D.  $-\frac{1}{3}$

**Answer: D**

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**18.** The oxidation state of chromium in  $Cr(CO)_6$  is

A. 0

B. +2

C. -2

D. +6

**Answer: A**

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**19.** Phosphorus has the oxidation state +3 in

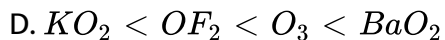
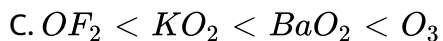
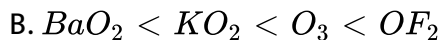
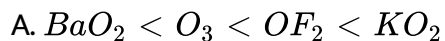
A. orthophosphoric

- 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 ?



**Answer: B**

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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 compound is zero

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

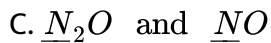
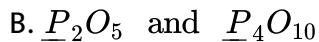
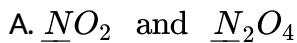
D. In all of its compound, the oxidation number of fluorine is  $-1$

**Answer: A**



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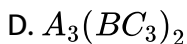
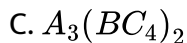
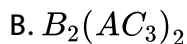
22. In which of the following pairs, there is greatest difference in the oxidation number of the underlined elements ?



**Answer: D**

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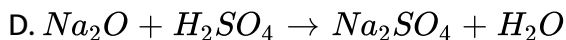
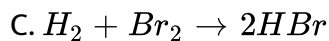
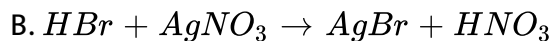
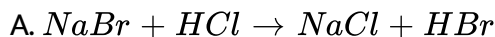
**23.** A compound contains atoms A, B and C. the oxidation number of A is +2, of B is +5 and of C is -2. The possible formula of the compound is



**Answer: C**

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



Answer: C

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25. White phosphorus reacts with caustic soda to form  $\text{PH}_3$  and  $\text{NaH}_2\text{PO}_2$ . This reaction is an example of

A. oxidation

B. reduction



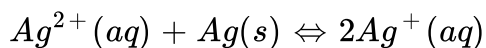
C. hydrolysis

D. disproportionation

**Answer: D**

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**26.** Following reaction is an example of



A. reduction

B. oxidation

C. comproportionation

D. disproportionation

**Answer: C**

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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.

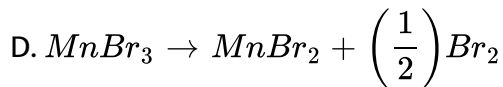
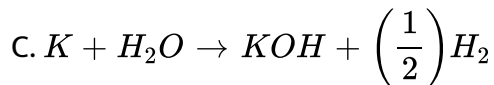
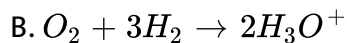
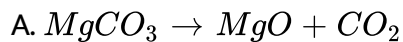
- A.  $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$
- B.  $CH_4 + 4Cl_2 \rightarrow CCl_4 + 4HCl$
- C.  $2F_2 + 2OH^- \rightarrow 2F^- + OF_2 + H_2O$
- D.  $2NO_2 + 2OH^- \rightarrow NO_2^- + NO_3^- + H_2O$

**Answer: D**



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

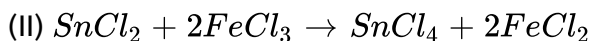
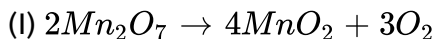


**Answer: A**



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**30.** Consider the following reactions,

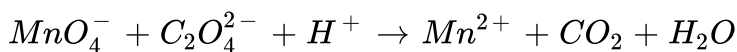


- A. intermolecular redox reaction and intramolecular redox reactions respectively
- B. Both reaction I and II are intermolecular redox reaction
- C. Both reaction I and II are intramolecular redox reactions
- D. intramolecular redox reactions and intermolecular redox reaction respectively

**Answer: D**

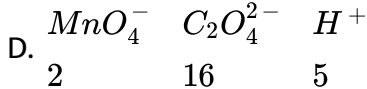
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**31.** For the redox reaction,



the correct coefficients of the reactants for the balanced reaction are

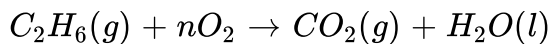
- A.  $\text{MnO}_4^-$     $\text{C}_2\text{O}_4^{2-}$     $\text{H}^+$   
2            5            16
- B.  $\text{MnO}_4^-$     $\text{C}_2\text{O}_4^{2-}$     $\text{H}^+$   
16            5            2
- C.  $\text{MnO}_4^-$     $\text{C}_2\text{O}_4^{2-}$     $\text{H}^+$   
5            16            2



**Answer: A**

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**32.** Consider the following reactions,



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

A. 1:1

B. 2:3

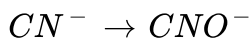
C. 3:2

D. 1:3

**Answer: B**

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



- 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,  $BrO_3^- + 6H^+ + xe^- \rightarrow Br^{3+} + 3H_2O$ , the value of x is

- A. 6
- B. 2

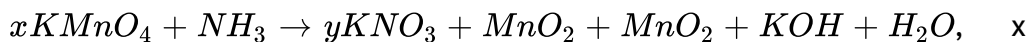
C. 4

D. 3

**Answer: B**

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35. In the redox reaction,



and y are

A.  $x = 4, y = 6$

B.  $x = 3, y = 8$

C.  $x = 8, y = 6$

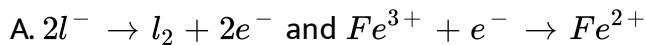
D.  $x = 8, y = 3$

**Answer: D**

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36. Consider the following reaction  $2Fe^{3+} + 2I^{-} \rightarrow 2Fe^{2+} + I_2$

The half-reactions for the given reaction are



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

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.  $+\frac{3}{2}$

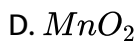
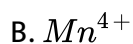
C.  $+\frac{5}{2}$

D. -2

**Answer: C**

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3.  $2MnO_4^- + 5H_2O_2 + 6H^+ \rightarrow 2Z + 5O_2 + 8H_2O$  Identify Z in the above reaction.

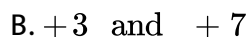
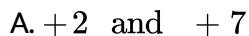


**Answer: A**



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

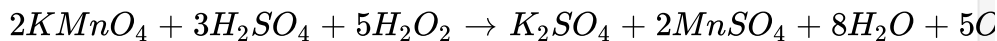


Answer: B

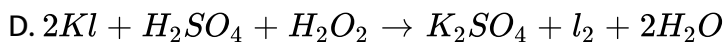
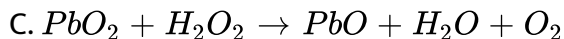
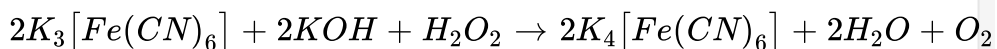
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5. Which one of the following reactions represent the oxidising property of  $H_2O_2$ ?

A.



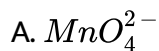
B.



Answer: D

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6. The species that undergoes disproportionation in an alkaline medium is



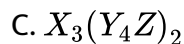
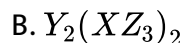
D. All of these

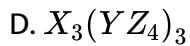
**Answer: C**



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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





**Answer: A**



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8. The oxidation number of oxygen in hydrogen peroxide is

A. +1

B. -1

C. +2

D. -2

**Answer: B**



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