



## CHEMISTRY

### BOOKS - ARIHANT PUBLICATION JHARKHAND

#### DIFFERENT CHEMICAL REACTIONS

##### Example

1. Find oxidation state of sulphur in sulphuric acid ( $H_2SO_4$ ).

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##### Exam Booster For Cracking Exam

1. The reaction between ethylene and hydrogen in the presence of hot nickel powder is called

- A. substitution reaction
- B. dissociation reaction
- C. addition reaction
- D. decomposition reaction

**Answer: C**

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2. When a piece of iron is added to a copper sulphate solution, iron forms ferrous sulphate displacing copper. This reaction is called

- A. substitution reaction
- B. addition reaction
- C. decomposition reaction
- D. dissociation reaction

**Answer: A**

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3. Ammonium chloride on heating gives  $NH_3$  and  $HCl$ , which on cooling again form ammonium chloride. This reaction is called

- A. Ionic dissociation
- B. thermal decomposition
- C. thermal dissociation
- D. double decomposition

**Answer: C**

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4. The reaction in which the ions are exchanged to form new compounds are called

- A. substitution reaction

B. double decomposition

C. decomposition

D. dissociation

**Answer: B**



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5. A reaction is said to be in equilibrium state when

A. formation of products is minimum

B. reactants are completely converted into products

C. reactants and products are present in equal amounts

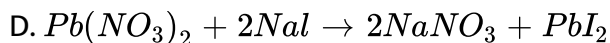
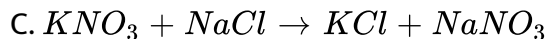
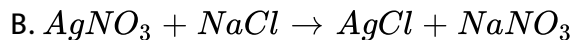
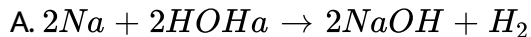
D. the rate of forward reaction becomes equal to the rate of backward reaction

**Answer: D**



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6. An example of a reversible reaction is



Answer: C



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7. The reaction in which one atom of a molecule is replaced by another atom is called

A. substitution

B. reduction

C. addition

D. double decomposition

**Answer: A**



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8. The reaction  $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$  is

A. oxidation

B. reduction

C. decomposition

D. double decomposition

**Answer: D**



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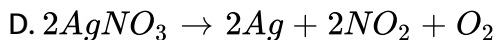
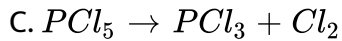
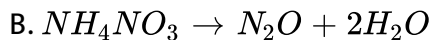
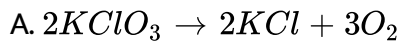
9.  $NH_4Cl \rightleftharpoons NH_3 + HCl$  reaction is called

- A. Ionic dissociation
- B. thermal decomposition
- C. thermal dissociation
- D. double decomposition

**Answer: C**

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**10. Which of the following is thermal dissociation?**



**Answer: C**

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11.  $CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$ , the reaction is

- A. addition
- B. substitution
- C. decomposition
- D. double decomposition

**Answer: B**



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12. The reaction  $CuSO_4 + Zn \rightarrow ZnSO_4 + Cu$  is

- A. substitution
- B. decomposition
- C. dissociation



D. double decomposition

**Answer: A**



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13.  $C_2H_4 + H_2 \rightarrow C_2H_6$ . This reaction is

A. addition

B. substitution

C. dissociation

D. decomposition

**Answer: A**



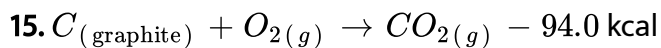
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14.  $N_{2(g)} + O_{2(g)} \rightarrow 2N_{(g)} - 42.0 \text{ kcal}$

- A. exothermic
- B. endothermic
- C. addition
- D. dissociation

**Answer: B**

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- A. endothermic
- B. exothermic
- C. decomposition
- D. dissociation

**Answer: B**

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16. Substitution reaction is a characteristic of

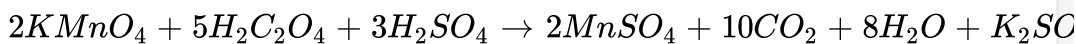
- A. alkene
- B. carbon monoxide
- C. alkyne
- D. paraffin

Answer: D



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17. In the reaction



Mn shows which type of reaction?

- A. Addition
- B. Substitution

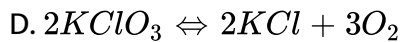
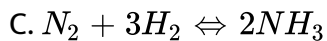
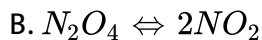
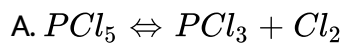
C. Oxidation

D. Reduction

**Answer: D**

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**18. Which of the following is not a reversible reaction?**



**Answer: D**

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**19.** Reduction involves

- A. loss of electrons
- B. addition of electrons
- C. Increasing in oxidation number
- D. None of the above

**Answer: B**



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**20.** Oxidation involves

- A. loss of electrons
- B. gain of electrons
- C. Both (a) and (b)
- D. None of these

**Answer: A**



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**21.** A reducing agent is a substance Which can:

- A. accept electrons
- B. donate electrons
- C. accept protons
- D. donate protons

**Answer: B**



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**22.** The reaction which takes place at the anode is

- A. oxidation

B. reduction

C. dissociation

D. ionisation

**Answer: A**



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**23.** Oxidation state of Ni in  $Ni(CO)_4$  is

A. +2

B. 0

C. +4

D. -8

**Answer: B**



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24. The brown ring complex compound  $[Fe(H_2O)_5NO]SO_4$  the oxidation state of iron is

A. 1

B. 2

C. 3

D. 4

**Answer: A**



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25. Oxidation number of oxygen in ozone

A. 0

B. -2

C. +2

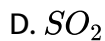
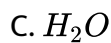
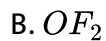
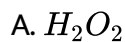
D. -6



**Answer: A**

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**26.** Oxygen has an oxidation state of +2 in



**Answer: B**

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**27.** Oxidation state of oxygen atom in potassium superoxide is

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

B.  $-1$

C.  $-2$

D.  $0$

**Answer: A**



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**28.** In haemoglobin the iron is in oxidation state of

A.  $+2$

B.  $+1$

C.  $+3$

D.  $+4$

**Answer: A**



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29. Oxidation number of sulphur in perdisulphuric acid is

A. +8

B. -6

C. +6

D. +4

**Answer: C**

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30. Which of the following act as an oxidising agent?

A.  $HNO_3$

B.  $K_2Cr_2O_7$

C.  $KMnO_4$

D. All of these

**Answer: D**



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**31.** The oxidation number of iron in  $Fe_3O_4$  is

A. +2

B. +3

C.  $\frac{8}{3}$

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

**Answer: C**



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**32.** The oxidation number of oxygen in hydrogen peroxide is

A. -1

B. +1

C. -2

D. None of these

**Answer: A**



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**33.** In the reaction of potassium permanganate in acidic medium (Molecular weight 158.04) with ferrous ammonium sulphate (Molecular weight 392.14), the change in the oxidation state of manganese in potassium permanganate is

A. + 5 to + 2

B. + 6 to + 2

C. + 7 to + 2

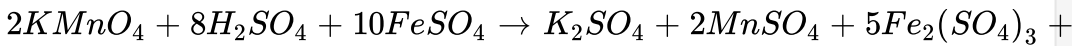
D. + 7 to + 3

Answer: C



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34. In acidic medium  $KMnO_4$  (Molecular weight = 158.04) reacts with ferrous ammonium sulphate  $[FeSO_4(NH_4)_2SO_4 \cdot 6H_2O]$  (Molecular weight = 392.14) as follows



The equivalent weight of  $KMnO_4$  is

- A. 22.58
- B. 31.61
- C. 52.68
- D. 158.04

Answer: B



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35. Which one of the following statement is not true?

- A. Oxidation state of oxygen can also be + 2
- B.  $H_2O_2$  acts as reducing agent towards  $O_3$
- C. Oxidation state of  $S_8$  is zero
- D. The change of  $PbO_2$  to  $Pb(NO_3)_2$  is oxidation

Answer: D



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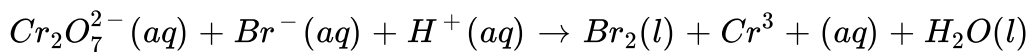
36. The process of  ${}_{28}^{56}Fe^{2+} \rightarrow {}_{28}^{56}Fe^{3+}$  is appropriately classified as

- A. ionisation
- B. oxidation
- C. reduction
- D. nuclear reaction

**Answer: B**

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**37.** Consider the following equation.



In this reaction, which one of the following is a reducing agent?

A.  $\text{Br}_2$

B.  $\text{Br}^-$

C.  $\text{H}^+$

D.  $\text{Cr}_2\text{O}_7^{2-}$

**Answer: B**

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38. When  $KMnO_4$  is reduced with oxalic acid in acidic solution, the oxidation number of  $Mn$  changes from

- A. + 7 to + 4
- B. + 6 to + 4
- C. + 7 to +2
- D. + 4 to + 2

**Answer: C**



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39. In the reaction,  $4Fe + 3O_2 \rightarrow 4Fe^{3+} + 6O_2^-$

Which of the following statements is incorrect?

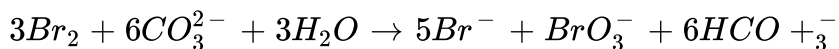
- A. It is redox reaction
- B. Metallic Iron is a reducing agent
- C.  $Fe^{3+}$  is an oxidising agent

D. Metallic Iron is reduced to  $Fe^{3+}$

**Answer: D**

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**40.** In the reaction



A. bromine is oxidised and carbonate is reduced

B. bromine is both reduced and oxidised

C. bromine is neither reduced nor oxidised

D. bromine is reduced and water is oxidised

**Answer: B**

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41. What is correct to say?

- A. Oxidation state of bromine varies from -1 to +6
- B. Among  $IO_4^-$ ,  $ClO_4^-$  and  $BrO_4^-$ , the last one ( $BrO_4^-$ ) is the strongest oxidising agent
- C.  $HNO_3$  is an oxidising agent
- D. All are correct

Answer: D



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42. The oxidation number of iron in  $K_4[Fe(CN)_6]$  is

- A. +6
- B. +4
- C. +3

D. +2

Answer: D



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43. With reference to the chemical reaction



following statements

1.  $K_2Cr_2O_7$  acts as oxidising agent.
2. HCl is the reducing agent.
3.  $K_2Cr_2O_7$  is the reducing agent.
4. HCl is the oxidising agent.

Which of the following statements are correct?

A. 1 and 2

B. 2 and 3

C. 1 and 4

D. 2 and 4

**Answer: A**

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**44.** Oxygen exhibits positive oxidation state in its compounds with

A. chlorine

B. fluorine

C. xenon

D. platinum

**Answer: B**

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**45.** Which of the statements is/are true?

1. The process of oxidation leads to gain of electrons.

2. The process of oxidation leads to loss of electrons.

3. The process of reduction leads to gain of electrons.

4. The process of reduction leads to loss of electrons.

Select the correct answer from the codes given below.

A. 1 and 4

B. 2 and 3

C. Only 1

D. Only 4

**Answer: B**



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