

Practice Paper

Time : 2 Hour

11th standard (JEE BASED)
REDOX REACTION

Total Marks : 200

Chemistry

* SECTION - A

[160]

- $H^+ + Cr_2O_7^{2-} + SO_3^{2-} \rightarrow Cr^{+3} + SO_4^{2-} + H_2O$ In balance reaction coefficient of H^+ and SO_4^{2-} will be respectively
 (A) 3,8 (B) 3,4 (C) 4,1 (D) 8,3
- Assign A, B, C, D from given type of reaction.

$$NH_4Cl + NaNO_2 \xrightarrow{\Delta} N_2 \uparrow + NaCl + H_2O$$

 (A) for disproportionation reaction.
 (B) for comproportionation reaction.
 (C) for either intermolecular redox reaction or displacement reaction.
 (D) for either thermal combination redox reaction or thermal decomposition redox reaction.
- Assign A, B, C, D from given type of reaction.

$$N_2O_3 \xrightarrow{R.T.} NO + NO_2$$

 (A) for disproportionation reaction.
 (B) for comproportionation reaction.
 (C) for either thermal combination redox reaction or thermal decomposition redox reaction.
 (D) Both (A) and (C)
- Assign A, B, C, D from given type of reaction. $Fe(s) + 2HCl \rightarrow FeCl_2 + H_2$
 (A) for disproportionation reaction.
 (B) for comproportionation reaction.
 (C) for either intermolecular redox reaction or displacement reaction.
 (D) for either thermal combination redox reaction or thermal decomposition redox reaction.
- Assign A, B, C, D from given type of reaction. $Zn(s) + 2HCl \rightarrow ZnCl_2 + H_2$

- (A) for disproportionation reaction.
(B) for comproportionation reaction.
(C) for either intermolecular redox reaction or displacement reaction.
(D) for either thermal combination redox reaction or thermal decomposition redox reaction.
6. Assign A, B, C, D from given type of reaction. $Fe(s) + H_2O(l) \xrightarrow{Boil} Fe_3O_4 + H_2 \uparrow$
(A) for disproportionation reaction.
(B) for comproportionation reaction.
(C) for either intermolecular redox reaction or displacement reaction.
(D) for either thermal combination redox reaction or thermal decomposition redox reaction.
7. Which one of the following reactions is not an example of redox reaction
(A) $Cl_2 + 2H_2O + SO_2 \rightarrow 4H^+ + SO_4^{4-} + 2Cl^-$
(B) $Cu^{++} + Zn \rightarrow Zn^{++} + Cu$
(C) $2H_2 + O_2 \rightarrow 2H_2O$
(D) $HCl + H_2O \rightarrow H_3O^+ + Cl^-$
8. $2MnO_4^- + 5H_2O_2 + 6H^+ \rightarrow 2Z + 5O_2 + 8H_2O$. In this reaction Z is
(A) Mn^{+2} (B) Mn^{+4} (C) MnO_2 (D) Mn
9. $P_4 + 3NaOH + 3H_2O \rightarrow 3NaH_2PO_2 + PH_3$ is an example of
(A) Inter molecular Redox reaction
(B) Intra molecular Redox reaction
(C) Disproportionation Redox reaction
(D) None of these
10. In which of the following reactions is there a change in the oxidation number of nitrogen atom ?
(A) $2NO_2 \rightarrow N_2O_4$
(B) $NH_3 + H_2O \rightarrow NH_4^+ + OH^-$
(C) $N_2O_5 + H_2O \rightarrow 2HNO_3$
(D) $N_2 + 3H_2 \rightarrow 2NH_3$
11. Which of the following is not a peroxide
(A) Na_2O_2 (B) CaO_2 (C) PbO_2 (D) H_2O_2
12. Which one is incorrect statement
(A) Fluorine always shows -1 oxidation state in combined state
(B) Hydrogen always shows $+1$ oxidation state in combined state.

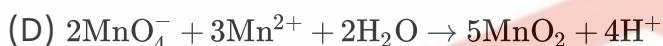
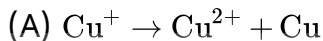
- (C) Sodium always shows +1 oxidation state in combined state.
(D) Calcium always shows +2 oxidation state in combined state.
13. Which of the following shows a metal being oxidised ?
(A) $2Na + 2H_2O \rightarrow 2NaOH + H_2$ (B) $Cu \rightarrow Cu^{2+} + 2e^-$
(C) $Cu^{2+} + 2e^- \rightarrow Cu$ (D) Both (A) and (B)
14. Oxidation numbers of P in PO_4^{3-} , S in SO_4^{2-} and that of Cr in $Cr_2O_7^{2-}$ are respectively
(A) -3, +6 and +6 (B) +5, +6 and +6 (C) +3, +6 and +5 (D) +5, +3 and +6
15. 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 (B) 79 (C) 52.7 (D) 31.6
16. If 1.2 g of metal displace 1.12 litre hydrogen at normal temperature and pressure, equivalent weight of metal would be
(A) 12 (B) 24 (C) $1.2 \div 11.2$ (D) 1.2×11.2
17. Nitrogen show different oxidation states in the range
(A) 0 to +5 (B) -3 to +5 (C) -5 to +3 (D) -3 to +3
18. In which one of the following changes there are transfer of five electrons
(A) $MnO_4^- \rightarrow Mn^{2+}$
(B) $CrO_4^{2-} \rightarrow Cr^{3+}$
(C) $MnO_4^{2-} \rightarrow MnO_2$
(D) $Cr_2O_7^{2-} \rightarrow 2Cr^{3+}$
19. The oxidation number of N in $N_2H_5^+$
(A) -3 (B) -2 (C) -1 (D) +2
20. Oxidation number of oxygen in O_2 molecule is
(A) +1 (B) 0 (C) +2 (D) -2
21. The oxidation number of Ba in barium peroxide is
(A) +6 (B) +2 (C) +1 (D) 4
22. In which of the following reaction H_2O_2 is working as reducing agent ?
(A) $2KI + H_2O_2 \rightarrow 2KOH + I_2$
(B) $2FeSO_4 + H_2SO_4 + H_2O_2 \rightarrow Fe_2(SO_4)_3 + 2H_2O$
(C) $H_2SO_3 + H_2O_2 \rightarrow H_2SO_4 + H_2O$
(D) $Ag_2O + H_2O_2 \rightarrow 2Ag + H_2O + O_2$
23. Strongest reducing agent is

(A) K (B) Mg (C) Al (D) Br

24. 1 mole of PbS is oxidised by " X " moles of O_3 to get " Y " moles of O_2 . $X + Y =$ _____.

(A) 4 (B) 3 (C) 8 (D) 7

25. Which of the following reactions are disproportionation reactions?



Choose the correct answer from the options given below:

(A) (A), (B) (B) (B), (C), (D) (C) (A), (B), (C) (D) (A), (D)

26. See the following chemical reaction:



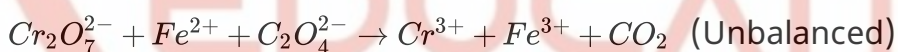
The sum of X , Y and Z is

(A) 22 (B) 21 (C) 20 (D) 23

27. The sum of oxidation state of the metals in $Fe(CO)_5$, VO^{2+} and WO_3 is

(A) 10 (B) 8 (C) 6 (D) 4

28. How many electrons are involved in the following redox reaction?



(A) 3 (B) 4 (C) 6 (D) 5

29. One mole of N_2H_4 loses 10 mol of electrons to form a new compound Y . Assuming that all nitrogen appear in the new compound, what is the oxidation state of N_2 in Y ? (There is no change in the oxidation state of hydrogen)

(A) +3 (B) -3 (C) -1 (D) +5

30. Assign A, B, C, D from given type of reaction. $CuSO_4 + Zn(s) \rightarrow ZnSO_4 + Cu$

(A) for disproportionation reaction.

(B) for comproportionation reaction.

(C) for either intermolecular redox reaction or displacement reaction.

(D) for either thermal combination redox reaction or thermal decomposition redox reaction.

31. In XeO_3 and XeF_6 the oxidation state of Xe is

(A) +4 (B) +6 (C) +1 (D) +3

32. The most common oxidation state of an element is -2. The number of electrons present in its outermost shell is

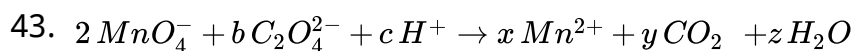
(A) 4 (B) 2 (C) 6 (D) 8

33. Maximum oxidation state of Cr is
 (A) 3 (B) 4 (C) 6 (D) 7
34. The oxidation state of Mn in K_2MnO_4
 (A) +2 (B) +7 (C) -2 (D) +6
35. In the following reaction $Cr_2O_7^{2-} + 14H^+ + 6I^- \rightarrow 2Cr^{3+} + 3H_2O + 3I_2$ Which element is reduced
 (A) Cr (B) H (C) O (D) I
36. 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
37. Assign A, B, C, D from given type of reaction.
 $MnO_2 + 2KOH + \frac{1}{2}O_2 \rightarrow K_2MnO_4 + H_2O$
 (A) for disproportionation reaction.
 (B) for comproportionation reaction.
 (C) for either intermolecular redox reaction or displacement reaction.
 (D) for either thermal combination redox reaction or thermal decomposition redox reaction.
38. Which of the following is not a disproportionation reaction
 (A) $P_4 + OH^- \rightarrow PH_3 + H_2PO_2^-$
 (B) $Cl_2 + OH^- \rightarrow Cl^- + \overset{\ominus}{O}Cl$
 (C) $Br_2 + OH^- \rightarrow Br^- + BrO_3^-$
 (D) $2KClO_3 \rightarrow 2KCl + 3O_2$
39. A compound containing x, y and z atoms oxidation no of x is +3, y is -5 and z is +1 then the possible formula of compound is
 (A) xyz (B) xyz_2 (C) x_2yz (D) $(xy)_2z$
40. Oxidation numbers of P in PO_4^{3-} , of S in SO_4^{2-} and that of Cr in $Cr_2O_7^{2-}$ are respectively
 (A) +3, +6 and +5 (B) +5, +3 and +6 (C) -3, +6 and +6 (D) +5, +6 and +6

*** SECTION - B**

[40]

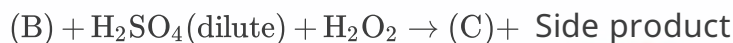
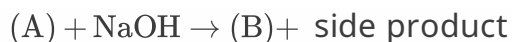
41. The oxidation number of S in $H_2S_2O_8$ is
 42. The oxidation number of Mn in $KMnO_4$ is



If the above equation is balanced with integer coefficients, the value of c is

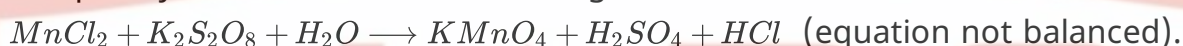
(Round off to the Nearest Integer).

44. Consider the following reactions:



The sum of the total number of atoms in one molecule each of (A), (B) and (C) is

45. To measure the quantity of $MnCl_2$ dissolved in an aqueous solution, it was completely converted to $KMnO_4$ using the reaction,



Few drops of concentrated HCl were added to this solution and gently warmed. Further, oxalic acid (225mg) was added in portions till the colour of the permanganate ion disappeared. The quantity of $MnCl_2$ (in mg) present in the initial solution is. (Atomic weights in $gmol^{-1}$: $Mn = 55, Cl = 35.5$)

46. The oxidation number of sulphur in H_2SO_4 is

47. Oxidation number of C in $C_6H_{12}O_6$ is

48. Oxidation number of P in KH_2PO_2 is

49. In XeO_3 and XeF_6 the oxidation state of Xe is

50. In order to oxidise a mixture of one mole of each of FeC_2O_4 , $Fe_2(C_2O_4)_3$, $FeSO_4$ and $Fe_2(SO_4)_3$ in acidic medium, the number of moles of $KMnO_4$ required is:

----- ***** BEST OF YOUR KNOWLEDGE ***** -----

॥ ज्ञानं एव श्रमस्य पुंजः ॥