

Multiple Choice Questions

Introduction, oxidation, reduction, oxidizing and reducing agents and redox reaction, oxidation number

[MHT-CET 2019]

- The oxidation state of nitrogen in nitric oxide is
a) -2 b) +3 c) +4 d) +2
- Identify the compound in which oxygen exists in the oxidised state.
a) CO_2 b) O_3 c) SO_3 d) OF_2
- The oxidation number of tin in $\text{Sn}(\text{OH})_3^-$ is
a) +3 b) +1 c) +4 d) +2

[MHT-CET 2020]

- What is the oxidation number of carbon in glucose?
a) -6 b) +6 c) +3 d) zero
- The sum of oxidation numbers of all atoms in $\text{S}_2\text{O}_3^{2-}$ ion is
a) +7 b) -2 c) +5 d) +2
- Which among the following pairs of elements shows highest oxidation state in different compounds?
a) Cr, Mn b) Mn, Cl c) S, Cl d) V, Mn
- What is the oxidation state of As in H_3AsO_4 ?
a) -1 b) +3 c) -3 d) +5
- The sum of oxidation states of all atoms in $\text{Cr}_2\text{O}_7^{2-}$ ion is
a) -2 b) +2 c) -1 d) zero
- What is the oxidation state of Cr in $\text{K}_2\text{Cr}_2\text{O}_7$?
a) -6 b) +12 c) +2 d) +6
- What is the oxidation state of As in H_3AsO_3 ?
a) -3 b) +4 c) +2 d) +3
- Identify the reducing agent in following reaction.
 $\text{CH}_{4(g)} + 2\text{O}_{2(g)} \longrightarrow \text{CO}_{2(g)} + 2\text{H}_2\text{O}_{(l)}$
a) $\text{CO}_{2(g)}$ b) $\text{O}_{2(g)}$ c) $\text{H}_2\text{O}_{(l)}$ d) $\text{CH}_{4(g)}$
- Identify the oxidising agent in following reaction.
 $\text{CH}_{4(g)} + 2\text{O}_{2(g)} \longrightarrow \text{CO}_{2(g)} + 2\text{H}_2\text{O}_{(l)}$
a) $\text{O}_{2(g)}$ b) $\text{CH}_{4(g)}$ c) $\text{CO}_{2(g)}$ d) $\text{H}_2\text{O}_{(l)}$
- The oxidation number of 'S' in HSO_4^- ion is
a) +1 b) +6 c) -1 d) -6
- The sum of oxidation numbers of all atoms in SnO_3^{2-} ion is
a) -2 b) -1 c) +2 d) zero

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[MHT-CET 2021]

- $$\text{H}_2\text{O}_{2(\text{ag})} + \text{ClO}_4^- \longrightarrow \text{ClO}_2^- + \text{O}_{2(\text{g})}$$

- a) $\text{H}_2\text{O}_{2(\text{aq})}$ b) $\text{ClO}_{2(\text{aq})}^-$ c) $\text{ClO}_{4(\text{aq})}^-$ d) $\text{O}_{2(\text{g})}$

Identify the reductant in following reaction.



- a) H^+ b) H_2O c) $C_2O_4^{2-}$ d) MnO_4^-
32. Oxidation state of Cr in potassium dichromate is
a) +7 b) +6 c) +1 d) +5
33. Oxidation state of iodine in I_3^- is
a) $-\frac{1}{3}$ b) +4 c) +5 d) -3
34. Identify reductant in following reaction.
 $H_2S + NO_2 \longrightarrow H_2O + NO + S$
a) H_2S b) NO_2 c) NO d) S
35. Identify the reducing agent in following reaction.
 $H_2O_{2(aq)} + ClO_{4(aq)}^- \longrightarrow ClO_{2(aq)}^- + O_{2(g)}$
a) $ClO_{2(aq)}^-$ b) $H_2O_{2(aq)}$ c) $ClO_{4(aq)}^-$ d) $O_{2(g)}$

[MHT-CET 2022]

36. What is the oxidation number of oxygen in OF_2 ?
a) -1 b) -2 c) +1 d) +2
37. What is the oxidation number of Mn in MnO_4^- ?
a) +6 b) +4 c) +7 d) +5
38. What is the oxidation state of oxygen in O_2^{2-} ion?
a) -1 b) +2 c) -2 d) +1
39. What is the oxidation of nitrogen in N_3H ?
a) +3 b) $-\frac{1}{3}$ c) $+\frac{1}{3}$ d) -1
40. What is the oxidation state of Cl in $KClO_3$?
a) +5 b) -5 c) -1 d) +1
41. What is the oxidation number of oxygen in super oxide?
a) $-\frac{1}{2}$ b) $+\frac{1}{2}$ c) +1 d) +2
42. In which of the following compounds Mn shows highest oxidation state?
a) MnO_2 b) K_2MnO_4 c) $KMnO_4$ d) Mn_2O_3
43. What is the sum of oxidation states of all atoms in ClO_4^- ion?
a) -4 b) +2 c) zero d) -1
44. Which among the following compounds has oxidation number of phosphorous?
a) H_3PO_4 b) $H_4P_2O_7$ c) H_3PO_2 d) H_3PO_3

45. In which of the following compounds carbon shows highest oxidation state ?
 a) $C_{12}H_{22}O_{11}$ b) $CHCl_3$ c) $HCHO$ d) CH_2Cl_2
46. Which of the following ionic species exhibits more than one oxidation state for different atoms of same elements ?
 a) dichromate ion b) permanganate ion
 c) tetrathionate ion d) perchlorate ion
47. Which among the following compounds has lowest oxidation state of iron ?
 a) $FeSO_4(NH_4)_2SO_4 \cdot 6H_2O$ b) $Fe(CO)_5$
 c) $K_4[Fe(CN)_6]$ d) Fe_2O

Stock notation and balancing redox reaction

[MHT-CET 2019]

48. In the reaction,



the correct change in oxidation number of the species involved is

- a) Mn^{+7} to Mn^{+3} b) Br^{+5} to Br^{-1} c) Br^{-1} to Br^{+5} d) Mn^{+7} to Mn^{+2}

[MHT-CET 2020]

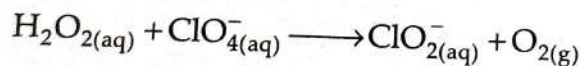
49. What is the change in oxidation number of sulphur in following reaction ?



- a) +4 to +6 b) +6 to +5 c) +8 to +6 d) +6 to +8

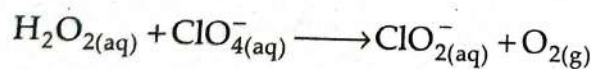
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50. What is the change in oxidation state of chlorine in following reaction ?



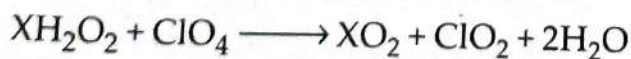
- a) +3 to +7 b) +7 to +3 c) -4 to -2 d) -2 to -1

51. Identify the correct statement for following reaction.



- a) Oxidation state of Cl decreases from +7 to +4
 b) Oxidation state of oxygen on product side is -1 and -2 respectively.
 c) Oxidation state of oxygen on reactant side is -1 and -2 respectively.
 d) Oxidation state of Cl is +3 on reactant side and +1 on product side.

52. What is the value of 'X' in order to balance the following redox reaction by ion electron method ?



- a) 3 b) 4 c) 1 d) 2

53. Which among the following formulae is correctly represented according to stock notation ?

- a) $Fe(II)Cl_3$ b) $Mn(II)O_2$ c) $Au(III)Cl$ d) $Sn(IV)Cl_4$