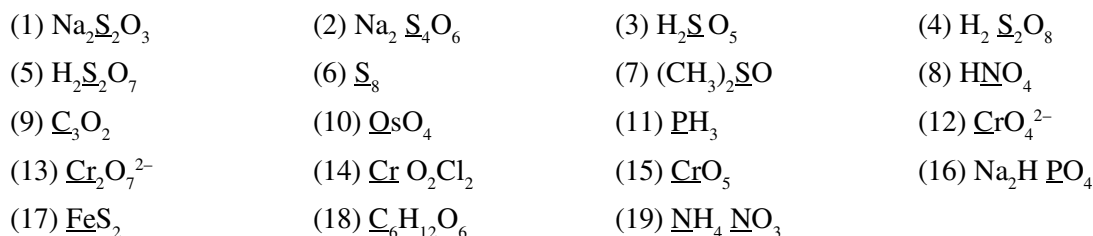
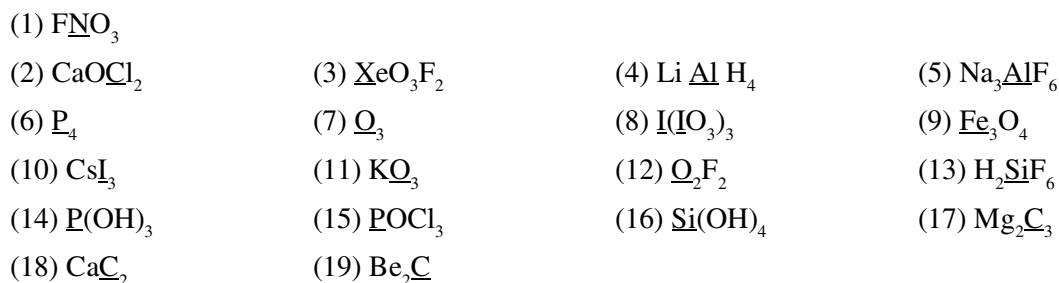


Types of redox reaction and oxidation number

1. Calculate individual and average Oxidation number (if required) of the marked element and also draw the structure of the following compounds or molecules.

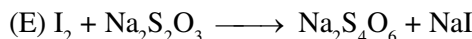
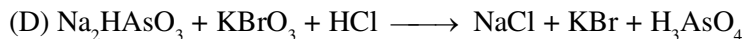
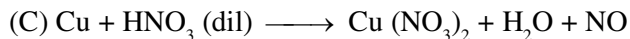


2. Calculate individual and average Oxidation number (if required) of the marked element and also draw the structure of the following compounds or molecules.



3. The reaction $3\text{ClO}^-(\text{aq.}) \rightarrow \text{ClO}_3^-(\text{aq.}) + 2\text{Cl}^-(\text{aq.})$ is an example of
 (A) oxidation (B) reduction (C) disproportionation (D) decomposition reaction
4. White phosphorus reacts with caustic soda, the products are PH_3 and NaH_2PO_2 . This reaction is an example of
 (A) Oxidation (B) Reduction (C) Disproportionation (D) Neutralisation
5. In the reaction $4\text{P} + 3\text{KOH} + 3\text{H}_2\text{O} \rightarrow 3\text{KH}_2\text{PO}_2 + \text{PH}_3$
 (A) P undergoes reduction only (B) P undergoes oxidation only
 (C) P undergoes both oxidation and reduction (D) neither undergoes oxidation nor reduction
6. Which of the following species does not show disproportionation :-
 (A) ClO^- (B) ClO_2^- (C) ClO_3^- (D) ClO_4^-
7. Which of the following reagent can act as reducing agent with SO_2 :-
 (A) Cl_2 (B) KMnO_4 (C) H_2O (D) H_2S
8. Which of the following can only acts as oxidising agent ?
 (A) KMnO_4 (B) K_2MnO_4 (C) H_2O_2 (D) SO_2
9. Which will be the proper alternative in place of A in the following equation
 $2\text{Fe}^{3+}(\text{aq}) + \text{Sn}^{2+}(\text{aq}) \rightarrow 2\text{Fe}^{2+}(\text{aq}) + \text{A}$
 (A) Sn^{4+} (B) Sn^{3+} (C) Sn^{2+} (D) Sn^0
10. Which of the following reactions does not involve either oxidation or reduction ?
 (A) $\text{VO}^{2+} \rightarrow \text{V}_2\text{O}_3$ (B) $\text{Na} \rightarrow \text{Na}^+$ (C) $\text{Zn}^{+2} \rightarrow \text{Zn}$ (D) $\text{CrO}_4^{-2} \rightarrow \text{Cr}_2\text{O}_7^{-2}$

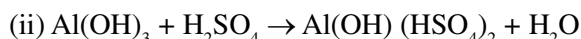
11. Identify the oxidant and the reductant in the following reactions :



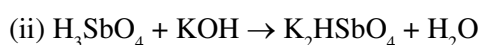
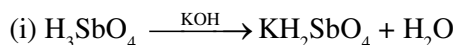
n-factor calculation

12. Find the n factor in following non-redox interaction.

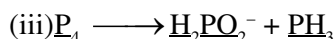
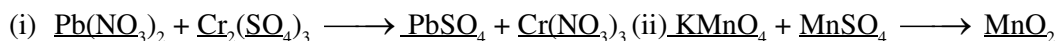
(a) Of base



(b) Of acid



13. Find the n factor of underlined compound in following interaction



14. In the reaction, $2\text{S}_2\text{O}_3^{2-} + \text{I}_2 \rightarrow \text{S}_4\text{O}_6^{2-} + 2\text{I}^-$, the eq. wt. of $\text{S}_4\text{O}_6^{2-}$ is equal to its -

(A) Mol. wt.

(B) Mol. wt./2

(C) $2 \times \text{mol. wt.}$

(D) Mol. wt./6

15. Equivalent weight of NH_3 in the change $\text{N}_2 \rightarrow \text{NH}_3$ is :

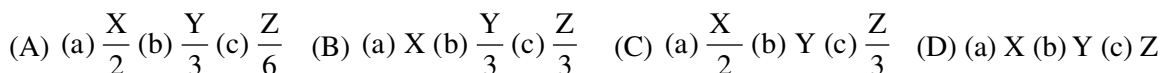
(A) 17/6

(B) 17

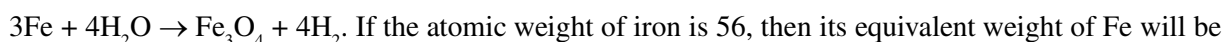
(C) 17/2

(D) 17/3

16. The molecular weight of the compounds (a) Na_2SO_4 , (b) $\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ and (c) $\text{Ca}_3(\text{PO}_4)_2$ respectively are X, Y and Z. the correct set of their equivalent weights will be -



17. In the following change -



(A) 42

(B) 21

(C) 63

(D) 84

18. When one mole NO_3^- is converted into 1 mole NO_2 , 0.5 mole N_2 and 0.5 mole N_2O respectively. It accepts x, y and z mole of electrons - x, y and z are respectively -

(A) 1, 5, 4

(B) 1, 2, 3

(C) 2, 1, 3

(D) 2, 3, 4

19. In the reaction $2\text{CuSO}_4 + 4\text{KI} \longrightarrow \text{Cu}_2\text{I}_2 + \text{I}_2 + 2\text{K}_2\text{SO}_4$ the equivalent weight of Cu in CuSO_4

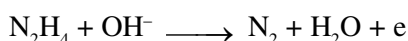
(A) 31.75

(B) 63.5

(C) 127

(D) 15.88

20. In the following reaction hydrazine is oxidized to N_2 .



The equivalent weight of N_2H_4 (hydrazine) is

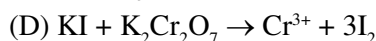
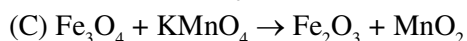
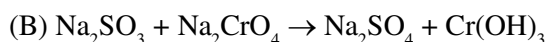
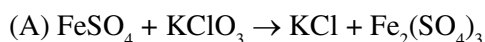
(A) 8

(B) 16

(C) 32

(D) 64

21. Calculate the equivalent mass of each oxidant and reductant in:



Answers

RACE # 20

1. (+4/2, +2) 2. (10/4) 3. (+6) 4. (+6) 5. (+6) 6. (0) 7. (0) 8. (+5)
 9. (+4/3) 10. (+8) 11. (-3) 12. (+6) 13. (+6) 14. (+6) 15. (+6) 16. (+5) 17. (+2)
 18. (0) 19. (-3, +5)
 20. 1. (+5) 2. (-1, 1, 0) 3. (+8) 4. (+3) 5. (+3) 6. (0) 7. (0)
 8. (+3, +5, 4.5) 9. (8/3) 10. (-1/3) 11. (-1/3) 12. (+1) 13. (+4)
 14. (+3) 15. (+5) 16. (+4) 17. (-4/3) 18. (-1) 19. (-4)
 3. (C) 4. (C) 5. (C) 6. (D) 7. (D) 8. (A) 9. (A) 10. (D)

11. (A) (B) (C) (D) (E)

Oxidant - KMnO_4 H_2O_2 HNO_3 KBrO_3 I_2

Reductant- KCl FeCl_2 Cu Na_2HAsO_3 $\text{Na}_2\text{S}_2\text{O}_3$

12. (a) (i) 2 (ii) 2 (b) (i) 1 (ii) 2 13. (i) 2, 6, 2, 3 (ii) $3, 2, \frac{6}{5}$ (iii) 3, 1, 3 14. (B)
 15. (D) 16. (A) 17. (B) 18. (A) 19. (B) 20. (A)

21. (a) $\text{FeSO}_4 = \frac{152}{1} = 152$ $\text{KClO}_3 = \frac{122.5}{6} = 20.4$ (b) $\text{Na}_2\text{SO}_3 = \frac{126}{2} = 63$ $\text{Na}_2\text{CrO}_4 = \frac{162}{4} = 40.5$

(c) $\text{Fe}_3\text{O}_4 = \frac{232}{1} = 232$ $\text{KMnO}_4 = \frac{158}{3} = 52.67$ (d) $\text{KI} = \frac{166}{1}$ $\text{K}_2\text{Cr}_2\text{O}_7 = \frac{294}{6} = 49$