

RACE # 17

PHYSICAL CHEMISTRY

MAX. TIME : 60 Min.

- Calculate 'n' factor of following acids -

(i) HCl	(ii) H_3PO_2	(iii) H_3PO_3	(iv) H_3PO_4
(v) HCOOH	(vi) HNO_2	(vii) $\text{H}_4\text{P}_2\text{O}_7$	(viii) CO_2
(ix) SO_3	(x) N_2O_5		
- Calculate 'n' factor of following bases -

(i) $\text{Mn}(\text{OH})_2$	(ii) $\text{Al}(\text{OH})_3$	(iii) NH_4OH	(iv) $\text{Zn}(\text{OH})_2$
(v) $\text{Sr}(\text{OH})_2$	(vi) NH_3	(vii) Na_2O	(viii) MgO
(ix) K_2O	(x) Al_2O_3		
- Calculating n-factor of the following as oxidising agent -

(i) $\text{Cr}_2\text{O}_7^{2-}$	(ii) CrO_4^{2-}	(iii) H_2O_2	(iv) O_3
(v) CH_4 (In combustion reaction)	(vi) C_3H_8 (In combustion reaction)		
(vii) F_2	(viii) MnO_4^- (basic medium)		
(ix) HNO_3 (converting into N_2O)			
(x) Cl_2O_5 (converting into Cl^-)			
- Calculate n-factor of the following as reducing agent

(i) $\text{H}_2\text{C}_2\text{O}_4$	(ii) $\text{Na}_2\text{C}_2\text{O}_4$
(iii) $\text{H}_2\text{C}_2\text{O}_4 \cdot \text{KHC}_2\text{O}_4$	(iv) FeC_2O_4
(v) $\text{H}_2\text{C}_2\text{O}_4 \cdot 2\text{NaHC}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$	(vi) H_2O_2
(vii) HCl	(viii) KNO_2
(ix) $\text{Na}_2\text{S}_2\text{O}_3$ (in the change : $\text{S}_2\text{O}_3^{2-} \rightarrow \text{S}_4\text{O}_6^{2-}$)	
(x) $\text{Na}_2\text{S}_2\text{O}_3$ (in the change : $\text{S}_2\text{O}_3^{2-} \rightarrow \text{SO}_4^{2-}$)	
- Equivalent weight of NH_3 in the change $\text{N}_2 \rightarrow \text{NH}_3$ is :

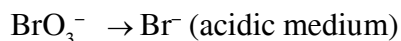
(A) $\frac{17}{6}$	(B) 17	(C) $\frac{17}{2}$	(D) $\frac{17}{3}$
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- In the reaction, $2\text{S}_2\text{O}_3^{2-} + \text{I}_2 \rightarrow \text{S}_4\text{O}_6^{2-} + 2\text{I}^-$, the eq. wt. of $\text{Na}_2\text{S}_2\text{O}_3$ is equal to its :

(A) Mol. wt.	(B) Mol. wt./2	(C) 2 x Mol. wt.	(D) Mol. wt./6
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- In the reaction, $\text{VO} + \text{Fe}_2\text{O}_3 \rightarrow \text{FeO} + \text{V}_2\text{O}_5$, the eq. wt. of V_2O_5 is equal to its :

(A) Mol. wt.	(B) Mol. wt./8	(C) Mol. wt./6	(D) Mol. wt./2
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- The eq. wt. of iodine in, $\text{I}_2 + 2\text{S}_2\text{O}_3^{2-} \rightarrow 2\text{I}^- + \text{S}_4\text{O}_6^{2-}$ is :

(A) Its Mol. wt.	(B) Mol. wt./2	(C) Mol. wt./4	(D) None of these
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9. Molecular weight of KBrO_3 is M . What is its equivalent weight, if the reaction is :

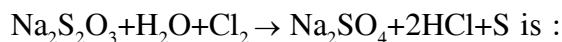


- (A) M (B) $M/4$ (C) $M/6$ (D) $6M$

10. In the reaction : $\text{A}^{-n_2} + x\text{e}^- \rightarrow \text{A}^{-n_1}$, here x will be

- (A) $n_1 + n_2$ (B) $n_2 - n_1$ (C) $n_1 - n_2$ (D) $n_1 \cdot n_2$

11. The equivalent weight of $\text{Na}_2\text{S}_2\text{O}_3$ as reductant in the reaction,



- (A) (Mol. wt.)/1 (B) (Mol. wt.)/2 (C) (Mol. wt.)/6 (D) (Mol. wt.)/8

12. In a reaction 4 mole of electrons are transferred to one mole of HNO_3 when it acts as an oxidant. The possible reduction product is :

- (A) (1/2) mole N_2 (B) (1/2) mole N_2O (C) 1 mole of NO_2 (D) 1 mole NH_3

13. The equivalent weight of MnSO_4 is half of its molecular weight when it is converted to :-

- (A) Mn_2O_3 (B) MnO_2 (C) MnO_4^- (D) MnO_4^{2-}

14. $\text{Cr}_2\text{O}_7^{2-} + \text{I}^- + \text{H}^+ \rightarrow \text{Cr}^{+3} + \text{I}_2 + \text{H}_2\text{O}$

The equivalent weight of the reductant in the above equation is :- (At. wt. of $\text{Cr}=52$, $\text{I}=127$)

- (A) 26 (B) 127 (C) 63.5 (D) 10.4