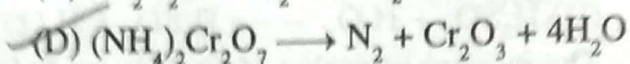


1. Which reaction does not represent autoredox or disproportionation :-



2. Match List-I (Compounds) with List-II (Oxidation states of nitrogen) and select answer using the codes given below the lists :-

List-I	List-II
(a) NaN_3	1. +5
(b) N_2H_4	2. +2
(c) NO	3. -1/3
(d) N_2O_5	4. -1

Code :

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

SBG STUDY

3. In the reaction



(A) $x = 3, y = 2$

(B) $x = 2, y = 3$

(C) $x = 6, y = 2$

(D) $x = 6, y = 1$

4. The mass of oxalic acid crystals ($H_2C_2O_4 \cdot 2H_2O$) required to prepare 50 mL of a 0.2 N solution is :-

(A) 4.5 g

(B) 6.3 g

(C) 0.63 g

(D) 0.45 g

5. 125 mL of 63% (w/v) $H_2C_2O_4 \cdot 2H_2O$ is made to react with 125 mL of a 40% (w/v) NaOH solution.

The resulting solution is :-

(A) neutral

(B) acidic

(C) strongly acidic

(D) alkaline

6. Volume V_1 mL of 0.1 M $K_2Cr_2O_7$ is needed for complete oxidation of 0.678 g N_2H_4 in acidic medium. The volume of 0.3 M $KMnO_4$ needed for same oxidation in acidic medium will be :-

(A) $\frac{2}{5}V_1$

(B) $\frac{5}{2}V_1$

(C) 113 V

(D) can't say

7. If 10 g of V_2O_5 is dissolved in acid and is reduced to V^{2+} by zinc metal, how many mole I_2 could be reduced by the resulting solution if it is further oxidised to VO^{2+} ions ?

[Assume no change in state of Zn^{2+} ions] ($V = 51, O = 16, I = 127$) :

(A) 0.11 mole of I_2

(B) 0.22 mole of I_2

(C) 0.055 mole of I_2

(D) 0.44 mole of I_2

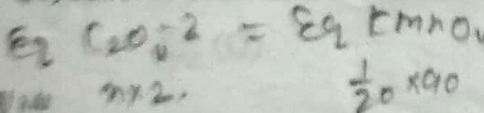
8. 0.3 g of an oxalate salt was dissolved in 100 mL solution. The solution required 90 mL of N/20 $KMnO_4$ for complete oxidation. The % of oxalate ion in salt is :-

(A) 33%

(B) 66%

(C) 70%

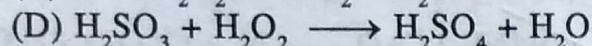
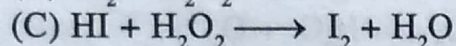
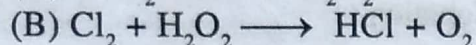
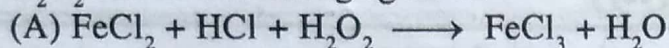
(D) 40%



$\frac{1}{20} \times 90$

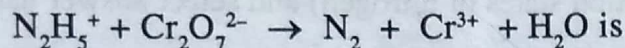
$\frac{1}{20} \times 90$

9. H_2O_2 acts as a reducing agent in:



eg $\text{Cr}_2\text{O}_7^{2-} \xrightarrow{-2} 2\text{Cr}^{3+}$
 $n \times 6 = 0.136$

10. The number of moles of $\text{Cr}_2\text{O}_7^{2-}$ needed to oxidize 0.136 equivalents of N_2H_5^+ by the reaction



- (A) 0.136 (B) 0.068 (C) 0.0227 (D) 0.272

11. A solution of KMnO_4 is reduced to MnO_2 . The normality of solution is 0.6. The molarity is:

- (A) 1.8M (B) 0.6M (C) 0.1M (D) 0.2M

12. Number of moles of electrons taken up when 1 mole of NO_3^- ions is reduced to 1 mole of NH_2OH is

- (A) 2 (B) 4 (C) 5 (D) 6

$\text{NO}_3^- \rightarrow \text{NH}_2\text{OH}$
 $n+3-2=0$
v.f = 6

13. When BrO_3^- ion reacts with Br^- ion in acid solution Br_2 is liberated. The equivalent weight of KBrO_3 in this reaction is

- (A) $M/8$ (B) $M/3$ (C) $M/5$ (D) $M/6$

$\text{BrO}_3^- + \text{Br}^- \rightarrow \text{Br}_2$
v.f = 5
molecular wt = 2
equiv. wt = $M/5$

14. As_2O_3 is oxidised to H_3AsO_4 by KMnO_4 in acidic medium. Volume of 0.02M KMnO_4 required for this purpose by 1mmol of As_2O_3 will be

- (A) 10 mL (B) 20 mL (C) 40 mL (D) 80 mL

$= 0.02 \times V \times 5 = 1 \times 4$

15. When ozone is passed through dry KOH , KO_3 is obtained and O_2 is liberated. In this reaction _____ is oxidised and _____ is reduced.

- (A) hydrogen, oxygen (B) potassium, oxygen
(C) oxygen, oxygen (D) oxygen, hydrogen

$\text{KOH} + \text{O}_3 \rightarrow \text{KO}_3 + \text{O}_2$
KOH Ox, O_3 Red.

16. In a redox reaction, the equivalent weight of HNO_2 is found to be 23.5. The reaction products might contain

- (A) N_2O (B) NO (C) NH_3 (D) HNO_3

equiv. wt = $\frac{\text{m.wt}}{\text{v.f}}$

17. 100 ml of 0.1M $\text{NaAl}(\text{OH})_2\text{CO}_3$ is neutralised by 0.25 N HCl to form NaCl , AlCl_3 and CO_2 . Volume of HCl required is

- (A) 10 mL (B) 40 mL (C) 100mL (D) 160 mL

18. Dichloroacetic acid (CHCl_2COOH) is oxidized to CO_2 , H_2O and Cl_2 by 600 meq of an oxidizing agent. Same amount of acid can neutralize how many moles of ammonia to form ammonium dichloroacetate?

- (A) 0.0167 (B) 0.1 (C) 0.3 (D) 0.6

$\text{CHCl}_2\text{COOH} + \text{NH}_3 \rightarrow \text{NH}_4^+ \text{CHCl}_2\text{COO}^-$
 $\text{CHCl}_2\text{COOH} \xrightarrow{\text{oxidizing agent}} \text{CO}_2 + \text{H}_2\text{O} + \text{Cl}_2$
v.f = 4
v.f = 2
 $\text{Cl}_2 + \text{Na}_2\text{S}_2\text{O}_3 \rightarrow \text{Na}_2\text{SO}_4$
v.f = 2
 $\text{I}_2 = 6 \text{ eq Na}_2\text{S}_2\text{O}_3$

19. x mmol of XeF_4 quantitatively oxidized KI to I_2 and liberated Xe , alongwith formation of KF . This iodine required 20 ml of decinormal hypo solution for exact titration. The value of x is

- (A) 0.5 (B) 1.0 (C) 2.0 (D) 5.0

acid
 $\text{CHCl}_2\text{COOH} + \text{NH}_3$