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

(A) $Cl_2 + OH^- \longrightarrow Cl^- + ClO_3^- + H_2O$ (B) $2H_2O_2 \longrightarrow H_2O + O_2$

(C) $2Cu^+ \longrightarrow Cu^{+2} + Cu$ (D) $(NH_4)_2Cr_2O_7 \longrightarrow N_2 + Cr_2O_3 + 4H_2O$

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)
(A)	3	4	2	1
(B)	4	3	2	1
(C)	3	4	1	2
(D)	4	3	1	2

3. In the reaction

$xHI + yHNO_3 \longrightarrow NO + I_2 + H_2O$

(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 ($H_2C_2O_4 . 2H_2O$) 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) $H_2C_2O_4 . 2H_2O$ 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_1 (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%

9. H_2O_2 acts as a reducing agent in:
(A) $FeCl_2 + HCl + H_2O_2 \longrightarrow FeCl_3 + H_2O$
(B) $Cl_2 + H_2O_2 \longrightarrow HCl + O_2$
(C) $HI + H_2O_2 \longrightarrow I_2 + H_2O$
(D) $H_2SO_3 + H_2O_2 \longrightarrow H_2SO_4 + H_2O$

10. The number of moles of $Cr_2O_7^{2-}$ needed to oxidize 0.136 equivalents of $N_2H_5^+$ by the reaction
$N_2H_5^+ + Cr_2O_7^{2-} \rightarrow N_2 + Cr^{3+} + H_2O$ is
(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

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

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

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

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

17. 100 ml of 0.1M $NaAl(OH)_2CO_3$ 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

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