DPP No: 41

Maximum Time
50 Min

Chemistry
TARGET
JEE-MAINS

SYLLABUS : Redox & Equivalent concept

1. x g of the metal gave y g of its oxide. Hence equivalent weight of the metal

(A) $\frac{y-x}{x} \times 8$ (B) $\frac{x}{(y-x)} \times 8$ (C) $\frac{x}{y} \times 8$ (D) $\frac{x+y}{x} \times 8$

2. What is the n factor for (Cu_2S) if the reaction $Cu_2S \rightarrow Cu^{2+} + SO_2$?

(A) 6 (B) 7 (C) 8 (D) 9

3. Equivalent wt. of H_3PO_4 in each of the reaction will be respectively -

$H_3PO_4 + OH^- \rightarrow H_2PO_4^- + H_2O$

$H_3PO_4 + 2OH^- \rightarrow HPO_4^{2-} + 2H_2O$

$H_3PO_4 + 3OH^- \rightarrow PO_4^{3-} + 3H_2O$

(A) 98 , 49 , 32.67 (B) 49 , 98 , 32 , 67 (C) 98 , 32.67 , 49 (D) 32.67 , 49 , 98

4. What volume of 0.1 M $K_2Cr_2O_7$ solution be required to oxides 60 ml. 0.1 N H_2O_2 solution.

(A) 10 ml (B) 30 ml (C) 60 ml (D) 20 ml

5. 3 g of an oxide of a metal is converted to chloride completely and it yielded 5 g of chloride. Equivalent weidht of the metal is :

(A) 33.25 (B) 3.325 (C) 12 (D) 20

6. An ion is reduced to the element when it absorbs 6×10^{20} electrons. The number of equivalents of the ion is:

(A) 0.1 (B) 0.01 (C) 0.001 (D) 0.0001

7. How many gm of $K_2Cr_2O_7$ is present in 1 lit of its N /10 solution in acid medium ?

(A) 4.9 (B) 49 (C) 0.49 (D) 3. 9

8. When N_2 is converted into NH_3, the equivalent weight of nitrogen will be :

(A) 1.67 (B) 2.67 (C) 3.67 (D) 4.67

9. 1.82 gm of a metal require 32.5 ml of 1 N HCl to dissolve it. What is equivalent weight of metal ?

(A) 46 (B) 65 (C) 56 (D) 42

10. In the ionic equation $2K^+BrO_3^- + 12H^+ + 10e^- \longrightarrow Br_2 + 6H_2O + 2K^+$, the equivalent weight of $KBrO_3$ will be: (where M = molecular weight of $KBrO_3$)

(A) M/5 (B) M/2 (C) M/6 (D) M/4

11. 5.3 gm of M_2CO_3 is dissolved in 150 mL of 1 M HCl. Unused acid required 100 mL of 0.5 N NaOH . Hence equivalent wt. of M

(A) 23 (B) 12 (C) 24 (D) 13

12. No. of oxallic acid molecules in100 ml of 0.02 N oxalic acid are

(A) 6.023×10^{20} (B) 6.023×10^{21}

(C) 6.023×10^{22} (D) 6.023×10^{23}

13. If one mole of H_2SO_4 reacts with one mole of NaOH, equivalent weight of H_2SO_4 will be :

(A) 98 (B) 49 (C) 96 (D) 48

14. How many millilitres of 0.1N H_2SO_4 solution will be required for complete reaction with a solution containing 0.125 g of pure Na_2CO_3 :

(A) 23.6 mL (B) 25.6 mL

(C) 26.3 mL (D) 32.6 mL

15. One litre of a solution contains 18.9 g of HNO_3 and one litre of another solution contains 3.2 g of NaOH. In what volume ratio must these solution be mixed to obtain a neutral solution?

(A) 3 : 8 (B) 8 : 3 (C) 15 : 4 (D) 4 : 15

16. If equal volumes of 0.1 M $KMnO_4$ and 0.1 M $K_2Cr_2O_7$ solutions are allowed to oxidise Fe^{2+} to Fe^{3+} in acidic medium, then Fe^{2+} oxidised will be :

(A) more by $KMnO_4$ (B) more by $K_2Cr_2O_7$

(C) equal in both cases (D) cannot be determined.

17. 0.28 gram of CaO is added into 150 ml of dil. HCl solution .The remaining acid required 50 ml of 0.1 N NaOH for complete neutralisation. What is normality of acid.

(A) 0.05 (B) 0.1 N (C) 0.2 N (D) 0.15N

18. Which of the following solutions will exactly oxidize 25 mL of an acid solution of 0.1 M iron (II) oxalate:

(A) 25 mL of 0.1 M $KMnO_4$ (B) 25 mL of 0.2 M $KMnO_4$

(C) 25 mL of 0.6 M $KMnO_4$ (D) 15 mL of 0.1 M $KMnO_4$

19. The number of moles of oxalate ions oxidized by one mole of MnO_4^- ion in acidic medium is :

(A) 5/2 (B) 2/5 (C) 3/5 (D) 5/3

20. What can be the maximum percentage of available chlorine possible in a given bleaching powder sample (Take formula of bleaching powder as $CaOCl_2$) ?

(A) 52.9% (B) 55.9 % (C) 58% (D) 60%

21. A substance which participates readily in both acid-base and oxidation-reduction reactions is :

(A) Na_2CO_3 (B) KOH

(C) $KMnO_4$ (D) $H_2C_2O_4$

22. 10 mL of H_2O_2 = 10 mL of N/0.56 MnO_4^-/H^+ . Hence the volume strength is

(A) 0.56 (B) 5.6 (C) 0.1 (D) 10

23. A fresh H_2O_2 solution is labeled as 11.2 V. Calculate its concentration in wt/vol percent.

(A) 3.4 (B) 6.8 (C) 1.7 (D) 13.6

24. The amount of lime, $Ca(OH)_2$ required to remove the hardness in 60 L of pond water containing 1.62 mg of calcium bicarbonate per 100 ml of water, will be :

(A) 4.44 g (B) 0.222 g (C) 2.22 g (D) 0.444 g

25. What will the concentration of $[Ca^{+2}]$ in a sample of 1 litre hard water if after treatment with washing soda 10 g insoluable $CaCO_3$ is precipitated.

(A) 0.2 M (B) 0.1 M (C) 0.3 M (D) 0.4 M

ANSWER KEY

1.	(B)	2.	(C)	3.	(A)	4.	(A)	5.	(A)	6.	(C)	7.	(A)
8.	(D)	9.	(C)	10.	(A)	11.	(A)	12.	(A)	13.	(A)	14.	(A)
15.	(D)	16.	(B)	17.	(B)	18.	(D)	19.	(A)	20.	(B)	21.	(D)
22.	(D)	23.	(A)	24.	(D)	25.	(B)						