JEE

Prayas JEE 2026

Chemistry

Redox Reaction

DPP: 3

Q1 A quantity of $0.62\ \text{g}$ of $Na_2CO_3 \cdot H_2O$ is added to 100ml of $0.1\ \text{N} - H_2SO_4$ solution. The resulting solution would be

(A) Acidic (B) Alkaline
(C) Neutral (D) Buffer

Q2 The volume of $0.10\text{M} - AgNO_3$ should be added to 10.0 mL of $0.09\ \text{M}\ K_2\ CrO_4$ to precipitate all the chromate as Ag_2CrO_4 is

(A) 18 mL (B) 9 mL
(C) 27 mL (D) 36 mL

Q3 What volume of $0.18\ \text{N} - KMnO_4$ solution would be needed for complete reaction with 25ml of $0.21\ \text{N} - KNO_2$ in acidic medium?

(A) 57.29ml
(B) 11.67ml
(C) 29.17ml
(D) 22.92ml

Q4 A 0.1 M-KMnO4 solution is used for the following titration. What volume of the solution will be required to react with 0.158 g of $Na_2\ S_2O_3$?

$S_2O_3^{2-} + MnO_4^- + H_2O \rightarrow MnO_2(\ s)$
$+ SO_4^{2-} + OH^-$

(A) 80ml
(B) 26.67ml
(C) 13.33ml
(D) 16ml

Q5 One gram of the acid $C_6H_{10}O_4$ requires $0.768\ \text{g}$ of KOH for complete neutralization. How many neutralizable hydrogen atoms are in this molecule?

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

Q6 $x\ \text{g}$ of KHC_2O_4 requires $100\ \text{ml}$ of $0.02\ \text{M}\ KMnO_4$ in acidic medium. In another experiment, $y\ \text{g}$ of KHC_2O_4 requires $100\ \text{ml}$ of $0.05\ \text{M}\ Ca(OH)_2$. The ratio of x and y is

(A) $1:1$ (B) $1:2$
(C) $2:1$ (D) $5:4$

Q7 In the mixture of $NaHCO_3$ and Na_2CO_3, the volume of a given HCl required is $x\text{ml}$ with phenolphthalein indicator and further $y\text{ml}$ is required with methyl orange indicator. Hence, the volume of HCl for complete reaction of $NaHCO_3$ present in the original mixture is

(A) $2x$ (B) y
(C) $x/2$ (D) $(y-x)$

Q8 One gram of Na_3AsO_4 is boiled with excess of solid KI in the presence of strong HCl. The iodine evolved is absorbed in KI solution and titrated against $0.2\ \text{N}$ hypo solution. Assuming the reaction to be

$$AsO_4^{3-} + 2H^+ + 2I^- \rightarrow AsO_3^{3-} + H_2O + I_2$$

The volume of thiosulphate hypo consumed is $(As = 75)$

(A) 48.1ml
(B) 38.4ml
(C) 24.7ml
(D) 30.3ml

Q9 Equal volumes of 1M each of $KMnO_4$ and $K_2Cr_2O_7$ are used to oxidise $Fe(II)$ solution in acidic medium. The amount of Fe oxidised will be

(A) More with $KMnO_4$
(B) More with $K_2Cr_2O_7$
(C) Equal with both oxidizing agent
(D) Cannotbe determined

Q10

JEE

What is the weight of available oxygen from a solution of $\mathrm{H_2O_2}$, if $20\ \mathrm{ml}$ of this solution needs $25\ \mathrm{ml}$, $\frac{\mathrm{N}}{20}\ \mathrm{KMnO_4}$ for complete oxidation?

(A) $5g$

(B) $0.25\ \mathrm{g}$

(C) $0.01\ \mathrm{g}$

(D) $0.5\ \mathrm{g}$

Answer Key

Q1	(C)	Q6	(B)
Q2	(A)	Q7	(D)
Q3	(C)	Q8	(A)
Q4	(B)	Q9	(B)
Q5	(C)	Q10	(C)

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