

Single Correct Answer Type:

- When 5 g of a metal is strongly heated, 9.44 g of its oxide is obtained. Then the equivalent mass of the metal is?
(A) 12 (B) 9 (C) 32.5 (D) 31.75
- Gaseous mixture of propane & butane of volume 3 litre on complete combustion produces 11 litres of CO_2 (at STP). The ratio of volumes of Butane to propane is
(A) 1 : 2 (B) 2 : 1 (C) 3 : 2 (D) 3 : 1
- 0.1 mole H_3PO_x is completely neutralised by 5.6 g KOH, then the true statement is
(A) $x = 3$, & given acid is dibasic (B) $x = 4$, & given acid has no P – H bond
(C) $x = 2$, & given acid does not form acid salt
(D) $x = 4$, & given acid has P – H linkage
- 1 g of metal nitrate gave 0.86 g metal sulphate. Calculate the equivalent weight of metal
(A) 36 (B) 38 (C) 43 (D) 46
- 1.5276 g CdCl_2 was found to contain 0.9367 g of Cd. Calculate atomic weight of 'Cd'
(A) 112.55 (B) 121.62 (C) 109.81 (D) 116.21
- 1.8 g of an element displaces 2.04 g copper from CuSO_4 solution. If equivalent weight of Cu is 31.7. What is the equivalent weight of that element?
(A) 29.72 (B) 27.97 (C) 26.93 (D) 28.42
- What is the normality of "20 volumes H_2O_2 " ?
(A) 1.79 (B) 0.895 (C) 5.6 (D) 3.58
- What is the 'Volume strength' of 0.75 mole H_2O_2 solution
(A) 5.6 (B) 7.5 (C) 8.4 (D) 10
- 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-}
- If 0.5 moles of BaCl_2 is mixed with 0.2 mole of Na_3PO_4 , the maximum number of moles of $\text{Ba}_3(\text{PO}_4)_2$ that can be formed is
(A) 0.7 (B) 0.5 (C) 0.2 (D) 0.1
- For the redox reaction,
$$\text{MnO}_4^- + \text{C}_2\text{O}_4^{2-} + \text{H}^+ \longrightarrow \text{Mn}^{2+} + \text{CO}_2 + \text{H}_2\text{O}$$

The correct coefficients of the reactants for the balanced reaction are

	MnO_4^-	$\text{C}_2\text{O}_4^{2-}$	H^+
(A)	2	5	16
(B)	16	5	2
(C)	1	5	8
(D)	2	5	8
- Calculate the volume of CO_2 obtained at STP, when 80 g of 80% pure lime stone is thermally decomposed?
(A) 17.92 litres (B) 14.33 litres (C) 18.73 litres (D) 16.79 litres
- 9 mL of a gaseous mixture of CH_4 & C_2H_4 is exploded with 30 mL (excess) of oxygen. After cooling the volume is 21 mL. Further treatment with caustic potash solution reduced the volume to 7 mL. Then what is the volume of CH_4 in the mixture?
(A) 2 mL (B) 3 mL (C) 4 mL (D) 5 mL

14. 0.2 mole of HCl and 0.2 mole of BaCl₂ were dissolved in water to produce a 500 mL solution. The molarity of the Cl⁻ ion is
 (A) 0.06 M (B) 0.09 M (C) 1.2 M (D) 0.8 M
15. The equivalent weight of divalent metal is 'M', the molecular weight of its chloride is
 (A) M+35.5 (B) 2M+71 (C) M+71 (D) 2M+35.5
16. 40 ml, N/10 HCl and 60 ml, N/20 KOH are mixed together. Calculate the Normality of the salt formed in the solution.
 (A) 0.06 (B) 0.09 (C) 1 (D) 0.03
17. 20 g of a sample of Ba(OH)₂ is treated with 10 ml of 0.5 N HCl solution. Then the excess HCl was titrated with 0.2 N NaOH. The volume of NaOH used was 10 ml. Calculate the percentage of Ba(OH)₂ in the sample (Atomic mass of Ba = 137)
 (A) 1.28 % (B) 1.94 % (C) 2.15 % (D) 4.25 %
18. For the redox reaction ; Zn + NO₃⁻ → Zn²⁺ + NH₄⁺ in basic medium, coefficients of Zn, NO₃⁻ and OH⁻ in the balanced equation respectively are
 (A) 4, 1, 7 (B) 7, 4, 1 (C) 4, 1, 10 (D) 1, 4, 10
19. Consider the following series of reactions
 Cl₂ + 2NaOH → NaCl + NaClO + H₂O
 3NaClO → 2NaCl + NaClO₃
 4NaClO₃ → 3NaClO₄ + NaCl
 How much Cl₂ is required to prepare 122.5 g of NaClO₄ by above sequential reactions?
 (A) 284 g (B) 213 g (C) 142 g (D) 71 g
20. An enzyme contains 2% of sulphur (by mass). The molecular mass of enzyme is 6400. How many S-atoms are present in that enzyme molecule.
 (A) 2 (B) 4 (C) 8 (D) 10

Numerical Based:

21. How many moles of H₂O₂ is oxidised by 2 moles of MnO₄⁻ in acidic medium to liberate oxygen, Mn²⁺ & H₂O
22. N₂H₄ has lost 10 e⁻s to form HNO_x. What is the magnitude of oxidation state of Nitrogen in product (NOTE: e⁻s lost by 'N' only)
23. The number of moles of oxalate ions oxidised by 2 moles MnO₄⁻
24. A solution containing 2.66 × 10⁻³ mol of An⁺ ions requires 1.60 × 10⁻³ mol of MnO₄⁻ for the complete oxidation of An⁺ to AO₃⁻ in acidic medium. What is the value of n?
25. The hydrated salt Na₂CO₃·xH₂O undergoes 46% loss in mass on heating & becomes anhydrous. The value of 'x' is

KEY

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