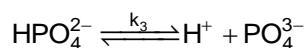
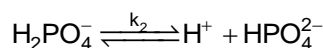


SINGLE CORRECT OPTION TYPE

- pH of 0.002 NCH₃COOH having 2.3% dissociation and pH of 0.002N NH₄OH having 2.3% dissociation respectively.
(A) 4.33 & 9.66 (B) 4.33 & 4.33 (C) 9.66 & 9.66 (D) cannot be determined
- H₂PO₄⁻ is the conjugate acid of _____
(A) H₃PO₄ (B) HPO₄²⁻ (C) H₂PO₄²⁻ (D) PO₄³⁻
- Given that K_w for water is 10⁻¹³ M² at 62° C, what is the sum of pH & POH for a neutral aqueous solution at 62° C.
(A) 7 (B) 13.3 (C) 14 (D) 13
- PH of a solution is 5 what is the [H₃O⁺]?
(A) 3×10⁻⁴ M (B) 2×10⁻⁴ M (C) 2×10⁻⁵ M (D) 10⁻⁵ M
- The solubility of a sparingly soluble salt AxBy in water is 'S' moles per litre. The value of K_{sp}?
(A) S² (B) x^yy^x.S^{x+y} (C) x^xy^y.S^{x+y} (D) S^{x+y}
- The pH of a solution of 0.1 M CH₃COOH increases when which of the following substance is added?
(A) NaHSO₄ (B) HClO₄ (C) KNO₃ (D) K₂CO₃
- The p^{kb} of CN⁻ is 4.7. The p^H of solution prepared by mixing 2.5 mol of KCN of 2.5 mol of HCN in water and making the total volume upto 500 ml is
(A) 10.3 (B) 9.3 (C) 8.3 (D) 4.7
- What concentration of FCH₂COOH (K_a = 2.6×10⁻³) is needed so that [H⁺] = 2×10⁻³ M?
(A) 2×10⁻³ M (B) 2.6×10⁻³ M (C) 5.2×10⁻³ M (D) 3.53×10⁻³ M
- An aqueous solution of metal chloride MCl₂ (0.05M) is saturated with H₂S (0.1M). The minimum p^H at which metal sulphide will be precipitated is
(K_{sp}MS = 5×10⁻²¹; K₁(H₂S) = 10⁻⁷; K₂(H₂S) = 10⁻¹⁴)
(A) 3.25 (B) 2.5 (C) 1.5 (D) 1.25
- The p^H of a solution of weak base at half neutralisation with strong acid is 8 k_b for the base is
(A) 1×10⁻⁴ (B) 10⁻⁶ (C) 10⁻⁸ (D) none
- A solution of 0.1M NaZ has p^H = 8.9. The k_a of HZ is
(A) 6.3×10⁻¹¹ (B) 6.3×10⁻¹⁰ (C) 1.6×10⁻⁵ (D) 1.6×10⁻⁶
- Some chemist at ISRO wished to prepare a saturated solution of a silver compound and they wanted it to have the highest concentration of silver ion possible. Which of the following compounds would they use?
k_{sp}(AgCl) = 1.8×10⁻¹⁰; k_{sp}(AgBr) = 5×10⁻¹³; k_{sp}(Ag₂CrO₄) = 2.4×10⁻¹²
(A) AgCl (B) AgBr (C) Ag₂CrO₄ (D) all of these
- Let the solubilities of AgCl in H₂O and in 0.01 M CaCl₂, 0.01 M NaCl, 0.05 M AgNO₃, be S₁, S₂, S₃, S₄ respectively. What is the correct relationship between these quantities.
(A) S₁ > S₂ > S₃ > S₄ (B) S₁ > S₂ = S₃ > S₄ (C) S₁ > S₃ > S₂ > S₄ (D) S₄ > S₂ > S₃ > S₁
- The pH of the solution obtained by mixing equal volumes of solution of pH = 5 and pH = 3 of the same electrolyte is :
(A) 3.3 (B) 4.0 (C) 5.5 (D) 6.0

15. The K_{sp} of $Mg(OH)_2$ is 1×10^{-12} ; $0.01M Mg(OH)_2$ will precipitate at the limiting pH :
 (A) 3 (B) 9 (C) 5 (D) 8
16. Zn salt is mixed with $(NH_4)_2S$ of molarity $0.021M$. The amount of Zn^{2+} remains unprecipitated in $12 ml$ of this solution ($K_{spZns} = 4.51 \times 10^{-24}$)
 (A) $1.677 \times 10^{-22}g$ (B) $1.767 \times 10^{-22}g$ (C) $2.01 \times 10^{-23}g$ (D) None of these
17. The total number of different kind of buffers obtained during the titration of H_3PO_4 with $NaOH$ are
 (A) 3 (B) 1 (C) 2 (D) Zero
18. Buffering action of a mixture of CH_3COOH and CH_3COONa is maximum when the ratio of salt to acid is equal to
 (A) 1.0 (B) 100.0 (C) 10.0 (D) 0.1
19. If the solubility of $PbBr_2$ is 's' mol per litre, then by considering 80% ionization, its ionic product is :
 (A) $2s^3$ (B) $4s^2$ (C) $4s^3$ (D) $2s^4$
20. Consider the equilibrium reactions,



The equilibrium constant, K for the following dissociation $H_3PO_4 \rightleftharpoons 3H^+ + PO_4^{3-}$ is

- (A) $\frac{k_1}{k_1 k_3}$ (B) $k_1 k_2 k_3$ (C) $\frac{k_2}{k_1 k_3}$ (D) $k_1 + k_2 + k_3$

INTEGER TYPE

21. How many of the following $0.1 M$ solution are acidic?
 (a) NH_4Cl (b) $NaOH$ (c) $HC_2H_3O_2$ (d) $NaCl$
 (e) $NH_3 + NH_4Cl$ (f) NH_3 (g) HCl (h) $HClO_4$
 (i) $(NH_4)_2 SO_4$ (j) K_2SO_4
22. The pH of blood stream is maintained by a proper balance of H_2CO_3 and $NaHCO_3$ concentrations. What volume (ml) of $5 M NaHCO_3$ solution, should be mixed with $10 ml$ sample of blood, which is $2 M$ in H_2CO_3 in order to maintain a p^H of 7.4 k_a for H_2CO_3 in blood is 7.8×10^{-7} ?
23. Find number of mole of AgI which may be dissolved in $1 lit$ of $1M CN^-$ solution.
 Given $k_{sp}(AgI) = 1.2 \times 10^{-17}$ and $k_c [Ag(CN)_2]^- = 7.1 \times 10^{19} M^{-2}$
24. $0.2 M$ solution of $Ba(OH)_2$ is found to be 90% ionised at $25^\circ C$. Find the pH of the solution at that temperature.
25. $20ml$ of $0.2m NaOH$ is added to $50ml$ of $0.2m$ acetic acid. What is the P^H of the resulting solution ?

KEY

1.	A	2.	B	3.	D	4.	D	5.	C
6.	D	7.	B	8.	D	9.	C	10.	B
11.	C	12.	C	13.	C	14.	A	15.	B
16.	A	17.	A	18.	A	19.	A	20.	B
21.	5	22.	78.37	23.	0.49	24.	13.56	25.	4.56

** Wish You^{est} all the Best **