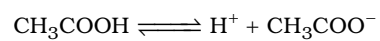


Date Planned : __ / __ / __	Daily Tutorial Sheet-7	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-2	Exact Duration : _____

86. In a mixture of acetic acid and sodium acetate the ratio of concentration of the salt to the acid is increased ten times. Then, the pH of the solution :
- (A) increases by one (B) decreases by one  
(C) decreases ten fold (D) increased ten fold
87. Relation between hydrolysis constant and dissociation constant are given. Which is the correct formula for  $\text{MgCl}_2$  ?
- (A)  $K_h = \frac{K_w}{K_a}$  (B)  $K_h = \frac{K_w^2}{K_b}$  (C)  $K_h = \frac{K_w}{K_a \times K_b}$  (D)  $K_w = \frac{K_h}{K_b}$
88. Out of the following, amphiprotic species are :
- I.  $\text{H}_2\text{PO}_2^-$  II.  $\text{HPO}_3^{2-}$  III.  $\text{HCO}_3^-$   
IV.  $\text{CH}_3\text{CO}_2^-$  V.  $\text{HPO}_4^{2-}$
- (A) I, II, III, IV (B) I, V (C) III and V (D) II, III, V
89. **Statement 1:** The pH of a buffer solution containing equal moles of acetic acid and sodium acetate is 4.8. ( $\text{pK}_a$  of acetic acid is 4.8)
- Statement 2:** The ionic product of water at  $25^\circ\text{C}$  is  $10^{-14} \text{ mol}^2 \text{ L}^{-2}$ .
- (A) Statement-1 is True, Statement-2 is True and Statement-2 is a correct explanation for Statement-1  
(B) Statement-1 is True, Statement-2 is True and Statement-2 is NOT a correct explanation for Statement-1  
(C) Statement-1 is True, Statement-2 is False  
(D) Statement-1 is False, Statement-2 is True
90.  $\text{HX}$  is a weak acid ( $K_a = 10^{-5}$ ). It forms a salt  $\text{NaX}$  0.1 M on reacting with caustic soda. The degree of hydrolysis of  $\text{NaX}$  is :
- (A) 0.01 (B) 0.0001 (C) 0.1 (D) 0.5
91. The degree of hydrolysis in hydrolytic equilibrium  $\text{A}^- + \text{H}_2\text{O} \rightleftharpoons \text{HA} + \text{OH}^-$  at salt concentration of 0.001 M is : ( $K_a = 1 \times 10^{-5}$ )
- (A)  $1 \times 10^{-3}$  (B)  $1 \times 10^{-4}$  (C)  $5 \times 10^{-4}$  (D)  $1 \times 10^{-6}$
92. The  $\text{pK}_b$  value of  $\text{NH}_3$  is 5. Calculate the pH of the buffer solution, 1 L of which contains 0.01 M  $\text{NH}_4\text{Cl}$  and 0.10 M  $\text{NH}_4\text{OH}$  :
- (A) 4 (B) 6 (C) 8 (D) 10
93. Which of the following will suppress the ionisation of acetic acid in aqueous solution?
- (A)  $\text{NaCl}$  (B)  $\text{HCl}$  (C)  $\text{KCl}$  (D) Unpredictable
- \*94. In which of the following, dissociation of  $\text{NH}_4\text{OH}$  will be minimum?
- (A)  $\text{NaOH}$  (B)  $\text{H}_2\text{O}$  (C)  $\text{NH}_4\text{Cl}$  (D)  $\text{NaCl}$

95. The following equilibrium exists in aqueous solution :



If dilute HCl is added :

- (A) The equilibrium constant will increase
- (B) The equilibrium constant will decrease
- (C) Acetate ion concentration will increase
- (D) Acetate ion concentration will decrease

