

Date Planned : / /	Daily Tutorial Sheet-10	Expected Duration : 90 Min
Actual Date of Attempt : / /	Level-2	Exact Duration :

116.	How many litres of water must be added to 1 litre of an aqueous solution of $\mathrm{NH_4Cl}$ and $\mathrm{NH_3}$	having pH
	4.70 to create an aqueous solution having pH 5.70?	

(A) 2.0 L

**(B)** 9.0 L

(C) 10 L

(D) None of these

**117.** pH value of which one of the following is not equal to one?

(A) 0.1 M HNO<sub>3</sub>

**(B)** 0.05 M H<sub>2</sub>SO<sub>4</sub>

**(C)** 0.1 M CH<sub>3</sub>COOH

**(D)**  $50 \text{ cm}^3 \text{ of } 0.4 \text{ M HCl} + 50 \text{ cm}^3 \text{ of } 0.2 \text{ M NaOH}$ 

118.  $30 \text{ cc} \text{ of } \frac{\text{M}}{3} \text{ HCl, } 20 \text{ cc} \text{ of } \frac{\text{M}}{2} \text{HNO}_3 \text{ and } 40 \text{ cc} \text{ of } \frac{\text{M}}{4} \text{NaOH} \text{ solutions are mixed and the volume was made}$ 

upto 1 dm3. The pH of the resulting solution is:

**(A)** 8

**(B)** 2

**(C)** 1

**(D)** 3

**119.** Which of the following solutions will have pH = 9 at 298 K?

(A)  $1 \times 10^{-9}$  M HCl solution

**(B)**  $1 \times 10^{-5}$  M NaOH solution

(C)  $1 \times 10^{-9}$  M KOH solution

**(D)** Both (A) and (B)

**120.** Which statement is false ? (Assume complete dissociation in each case)

(A) If 2.0 L of a solution of H<sub>2</sub>SO<sub>4</sub> contains 0.1 mole, then pH of the solution is 1

**(B)** The concentration of OH<sup>-</sup> ions in 0.005 M HNO<sub>3</sub> is  $2.0 \times 10^{-12}$  mol / L

**(C)** The pH of 0.01 M KOH is 12

(D) In a 0.001 M solution of NaOH the concentration of  $H^+$  ions is  $10^{-3}$  mol/L

**121.** A mixture of sodium oxide and calcium oxide are dissolved in water and saturated with excess carbon dioxide gas. The resulting solution is ....... It contains:

(A) basic; NaOH and Ca(OH)<sub>2</sub>

(B) neutral; Na<sub>2</sub>CO<sub>3</sub> and CaCO<sub>3</sub>

(C) basic; Na<sub>2</sub>CO<sub>3</sub> and CaCO<sub>3</sub>

(D) acidic; NaOH and CaCO<sub>3</sub>

**122.** Which of the following expressions is not true?

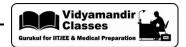
**(** 

(A)  $[H^+] = [OH^-] = \sqrt{K_w}$  for a neutral solution

**(B)**  $[H^+] > \sqrt{K_W}$  and  $[OH^-] < \sqrt{K_W}$  for an acidic solution

(C)  $[H^+] < \sqrt{K_W} \ \ \text{and} \ [OH^-] > \sqrt{K_W} \ \ \text{for an alkaline solution}$ 

**(D)**  $[H^+] = [OH^-] = 10^{-7} M$  for a neutral solution at all temperatures



- 123. 20 mL of 0.1 M weak acid  $HA(K_a = 10^{-5})$  is mixed with solution of 10 mL of 0.3 M HCl and 10 mL of 0.1 M NaOH. Find the value of  $[A^-]/([HA] + [A^-])$  in the resulting solution:
  - (A)  $2 \times 10^{-4}$  (B)  $2 \times 10^{-5}$  (C)  $2 \times 10^{-3}$  (D) 0.05
- 124. A weak monobasic acid is half neutralised by a strong base. If the pH of the solution is 5.4, its  $pK_a$  is:
- **(A)** 6.8 **(B)** 2.7 **(C)** 5.4 **(D)** 10.8
- **125.** The pH values of 0.1 M solution of HCl, CH<sub>3</sub>COOH, NH<sub>4</sub>Cl and CH<sub>3</sub>COONa will have the order :
  - (A) HCl < CH<sub>3</sub>COOH < NH<sub>4</sub>Cl < CH<sub>3</sub>COONa
  - (B) CH<sub>3</sub>COONa < NH<sub>4</sub>Cl < CH<sub>3</sub>COOH < HCl
  - (C) NH<sub>4</sub>Cl < CH<sub>3</sub>COONa < CH<sub>3</sub>COOH < HCl
  - **(D)** All will have same of pH value

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