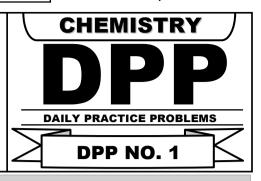
TARGET: NEET (UG) 2024

Course: SARANSH (Youtube Live CRASH COURSE)



CHEMISTRY: Ionic Equilibrium

DPP No.: 1

- 1. Which of the following solution will have pH close to 1.0?
 - (1) 100 ml of M/10 HCl + 100 ml of M/10 NaOH
 - (2) 55 ml of M/10 HCI + 45 ml of M/10 NaOH
 - (3) 10 ml of M/10 HCl + 90 ml of M/10 NaOH
 - (4) 75 ml of M/5 HCl + 25 ml of M/5 NaOH
- 2. We have an agueous solution whose pH is found to be '7' at 273K. What will be the nature of this solution?
 - (1) Basic
- (2) Neutral
- (3) Acidic
- (4) Can't be predicted
- 3. What is the approximate OH⁻ ion concentration of a 0.150 M NH₃ solution?

 $(K_b = 1.75 \times 10^{-5})$

- (1) 2.62×10^{-6}
- (2) 4.6×10^{-6}
- (3) 1.62×10^{-3}
- (4) 3.6×10^{-3}
- **4.** The pH value of decinormal solution of NH₄OH, which is 20% ionized is: (Use $\log 2 = 0.3$)
 - (1) 13 30
- (2) 14.70
- (3) 12.30
- (4) 12.95

- **5.** Which pair will show common ion effect?
 - (1) BaCl₂ + Ba(NO₃)₂

(2) NaCl + HCl

(3) NH₄OH + NH₄CI

- (4) NaOH + NaCl
- **6.** The pK_a values of four acids are given below. Which one will correspond to the weakest acid?
 - (1) -1.3
- (2) 4.72
- (3) 9.2
- (4) 16.0
- 7. A weak acid HA has a pH = 4. Which of the following conditions not satisfy the same?
 - (1) C = 10^{-3} , $\alpha = 10\%$

(2) $C = 10^{-2}$, $K_a = 10^{-6}$

 $(3) [A^{-}] = 10^{-4}$

- (4) $K_a = 10^{-2}$. $\alpha = 10\%$
- **8. Assertion**: The pH of an aqueous solution of acetic acid remains unchanged on the addition of sodium acetate.

Reason: The ionisation of acetic acid is suppressed by the addition of sodium acetate.

- (1) If both assertion and reason are true and reason is the correct explanation of assertion.
- (2) If both assertion and reason are true but reason is not the correct explanation of assertion.
- (3) If Assertion is true but reason is false.
- (4) If both assertion and reason are false.



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9. The equilibrium constant for the given reaction is approximately 10^{-3}

$$HPO_4^{2-}$$
 (aq) + HCO_3^- (aq) $\longrightarrow H_2PO_4^-$ (aq) + CO_3^{2-} (aq)

Which is strongest conjugate base in the given reaction?

(1) HPO_4^{2-} (aq)

(2) HCO_3^- (aq)

(3) $H_2PO_4^-$ (aq)

- (4) CO_3^{2-} (aq)
- 10. Which of the following constitutes a set amphoteric species.
 - (1) H_3O^+ , $H_2PO_4^-$, HCO_3^-
- (2) H_2O_1 , $H_2O_2^{-1}$, $H_2PO_2^{-1}$
- (3) H_2O_3 , H_2PO_3 , HPO_4^{2-}
- (4) $HC_2O_4^-$, $H_2PO_4^-$, SO_4^{2-}
- 11. Which of the following order represent the order for the strength of base?
 - (1) $CH_3CH_2^- > NH_2^- > HC \equiv C^- > OH^-$
 - (2) $H C \equiv C^- > CH_3CH_2^- > NH_2^- > OH^-$
 - (3) $OH^- > NH_2^- > HC \equiv C^- > CH_3CH_2^-$
 - (4) $NH_2^- > HC \equiv C^- > OH^- > CH_3CH_2^-$
- 12. The pH of Ba(OH)₂ solution is 13. The number millimoles of Ba(OH)₂ present in 10 ml of solution would be
 - (1) 1.00
- (2) 0.50
- (3) 10.00
- (4) 15.00

- At 25°C the pH of a 10⁻⁸ (M) HCl solution in water is 13.
 - (1) 8
- (2) 8
- (3) within 7 and 8
- (4) within 6 and 7

Answer Key

(3)

1.

8.

(4)

(4)

- (3)(4)
- 3.
 - 10.
- (3)(3)
- 11.
- (1) 12.

5.

- (3) (2)

6.

13.

(4)