DPP-3 [pH & pOH of Strong Acid and Strong Base]

"Tera sapna tujhe sirf tabhi milega, jab tu sach mein deserve karega"

GROUP–A: Acid Strength / Oxyacids

Q1. **Which is the strongest acid in the following?**

(1) H_2SO_3
(2) H_2SO_4
(3) $HClO_3$
(4) $HClO_4$

Q2. **The correct order of acid strength is –**

(1) $HClO_4 < HClO_3 < HClO_2 < HClO$
(2) $HClO_2 < HClO_3 < HClO_4 < HClO$
(3) $HClO_4 < HClO < HClO_2 < HClO_3$
(4) $HClO < HClO_2 < HClO_3 < HClO_4$

GROUP–B: Strong Bases (NaOH, KOH, $Ca(OH)_2$)

Q3. **The pH of 0.01 M NaOH (aq) solution will be**
[NEET–2019 (Odisha)]

(1) 9
(2) 7.01
(3) 2
(4) 12

Q4. **The pH of $\frac{M}{100}$ $Ca(OH)_2$ is**

(1) 1.699
(2) 12
(3) 12.301
(4) 12.699

Q5. **What will be the H^+ ion concentration, when 4 g NaOH dissolved in 1000 mL of water:**

(1) 10^{-1}
(2) 10^{-13}
(3) 10^{-4}
(4) 10^{-10}

Q6. **Calculate pH of a solution whose 100 mL contains 0.2 g NaOH dissolved in it :-**

(1) 10.699
(2) 11.699
(3) 12.699

(4) 13.699

Q7. **A solution of NaOH contain 0.04 gm of NaOH per litre. Its pH is**

(1) 10
(2) 9
(3) 11
(4) 12

Q8. **What is the quantity of NaOH present in 250 cc of the solution, so that it gives a pH = 13 :-**

(1) 10^{-13} g
(2) 10^{-1} g
(3) 1.0 g
(4) 4.0 g

Q9. **0.001 mol of the strong electrolyte $M(OH)_2$ has been dissolved to make a 20 mL of its saturated solution. Its pH will be :- [$K_w = 1 \times 10^{-14}$]**

(1) 13
(2) 3.3
(3) 11
(4) 9.8

Q10. **At 90°C, the pH of 0.001 M KOH solution will be**

(1) 3
(2) 11
(3) 5
(4) 9

GROUP–C: Dibasic Acids & Normality

Q11. **For $\frac{N}{10}$ H_2SO_4, pH value is :-**

(1) 1
(2) 0.586
(3) 0.856
(4) None

Q12. **H_2X is a dibasic acid which dissociates completely in water. Which one of the following is the molarity of an aqueous solution of this acid which has a pH of 1 :-**

(1) 0.1
(2) 0.05
(3) 0.2
(4) 0.5

Q13. **How many grams of dibasic acid (mol. wt. = 200) should be present in 100 mL aqueous solution to give strength of (N/10) :-**

(1) 1 g
(2) 2 g
(3) 5 g
(4) 10 g

GROUP–D: Ultra–Dilute Acid pH (Effect of Kw)

Q14. **The hydrogen ion concentration of a 10^{-8} M HCl aqueous solution at 298 K ($K_w = 10^{-14}$) is :-**

(1) 1.0×10^{-6} M
(2) 1.0525×10^{-7} M
(3) 9.525×10^{-8} M
(4) 1.0×10^{-8} M

Q15. **An aqueous solution of HCl is 10^{-9} M HCl. The pH of the solution should be :-**

(1) 9
(2) Between 6 and 7
(3) 7
(4) Unpredictable

Q16. **The pH of an aqueous solution of a 1×10^{-7} M solution of HCl will be :-**

(1) 7
(2) slightly less than 7
(3) slightly greater than 7
(4) 1

Q17. **What is the pH of 10^{-6} M HCl at 25°C? [NCERT Pg. 218]**

(1) 6
(2) 7
(3) < 6
(4) > 7

Q18. **The pH value of 10^{-7} M solution HCl is**

(1) Equal to 1
(2) Equal to 2
(3) Less than 7
(4) Equal to 0

Q19. **The pH of 10^{-11} M HCl at 25°C is**

(1) 11
(2) 3
(3) Slightly greater than 7
(4) Slightly less than 7

Q20. **10^{-6} M HCl is diluted to 100 times. Its pH is :**

(A) 6
(A) 8
(A) 6.98
(A) 7.02

Q21. **Which of the following solutions has a pH exactly equal to 8 ?**

(A) 10^{-8} M HCl solution
(A) Solution containing 10^{-8} M H^+
(A) 2×10^{-6} M $Ba(OH)_2$ solution
(A) 10^{-8} M NaOH solution

Q22. **1 c.c of 0.1 N HCl is added to 1 litre solution of sodium chloride. The pH of the resulting solution will be**

(1) 7
(2) 0
(3) 10
(4) 4