SHIKSHA CLASSES

BOARD QUESTION PAPER

Subject : Chemistry **Topic : 3. Ionic Equilibria** **Total Marks : 20**

Class : XII **Time : 1 Hr.**

Section (A)

Q. 1 : Select and write the most appropriate answer from the following dternatives of each sub question. **5**

i) What is Hydronium ion concentration of a 0.25 M acid HA solution ($K = 4 \times 10^{-8}$)

a) 10^{-4} b) 10^{-5} c) 10^{-7} d) 10^{-10}

ii) The pH of 10^{-8} M of HCl is

a) 8 b) 7 c) less than 7 d) greater than 7

iii) Which of the following is Buffer solution?

a) CH_3COONa + HCl in water b) CH_3 - COOH + HCl in water

c) CH_3 - COOH + CH_3COONa in water

d) HCl + NH_4Cl in water.

iv) Which of the following aqueous solution is acidic in nature?

a) NaCl b) KCl c) $(NH_4)_2SO_4$ d) NH_4OH

v) For pH > 7 the hydronium ion concentration would be

a) 10^{-7} M b) $< 10^{-7}$ M c) $> 10^{-7}$ M d) $\geq 10^{-7}$ M

Q. 2 : Very short answer type Question **2**

i) Define - Strong electrolyte.

ii) What is the pH value of pure water?

Section (B)

: Answer the following questions. (Any Three) **6**

Q.3 : Explain degree of dissociation.

Q. 4 : Derive relationship between pH and pOH.

Q. 5 : A weak mono basic acid 0.04% dissociated in 0.025 M solution what is pH of solution?

Q. 6 : Why the aqueous solution of NaCl is neutral in nature? Explain.

Section (C)

: Answer the following question. (Any One) **3**

Q. 7 : The dissociation constant of NH_4OH is 1.8×10^{-5}. Calculate it's degree of dissociation in 0.01 M solution.

Q. 8 : Write a note on Buffer action.

Section (D)

: Answer the following question. (Any One) **4**

Q.9 : i) What is weak electrolyte?

ii) State Ostwald's dilution law and derive the expression for weak acid showing relation between K_a and $\propto$.

Q. 10 : i) a) Calculate the pH of buffer solution containing 0.05 mol NaF per litre and 0.015 mole HF per litre [$K_a = 7.2 \times 10^{-4}$].

ii) Explain Arrhenius theory of Acid and bases.

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