



KEC

# K Education Centre



## A Level Chemistry

C12.1 Acid – Base Equilibria Part -1

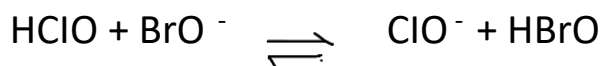
Assignment Questions

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## Acid Base Equilibria and PH calculations

Q1: Describe the term Acid and Base in terms of Bronsted Lowry theory.

Q2: Identify the conjugate acid – base pair in this reaction:



Q3: Define PH.

Q4: Calculate the hydrogen ion concentration of solution that has PH of 2.80.

Q5: Methanoic acid , HCOOH has acid dissociation constant  $K_a = 1.60 \times 10^{-4} \text{ mol dm}^{-3}$  at  $25^\circ\text{C}$  . Calculate the PH of a  $0.275 \text{ mol dm}^{-3}$  solution of Methanoic acid at  $25^\circ\text{C}$ .

Q6 : a) Write an expression for ionic product of water  $K_w$  .

b) If  $K_w = 6.81 \times 10^{-15} \text{ mol}^2 \text{ dm}^{-6}$  at  $20^\circ\text{C}$  . Calculate the pH of pure water at  $20^\circ\text{C}$ .

Q7: Calculate the pH of  $0.0125 \text{ mol dm}^{-3}$  KOH (aq) at  $25^\circ\text{C}$  (  $K_w = 1.00 \times 10^{-15} \text{ mol}^2 \text{ dm}^{-6}$  )

Q 8 : Benzoic acid ,  $\text{C}_6\text{H}_5\text{COOH}$  is a weak acid. A  $250 \text{ cm}^3$  of aqueous solution was prepared by dissolving 0.36 g of benzoic acid in water.

- Calculate the concentration of benzoic acid in this solution.
- The measured pH of solution was 3.06. Calculate the concentration of  $\text{H}^+$  ions in the solution.
- Write an expression for the acid dissociation constant ,  $K_a$  and calculate the value of  $K_a$  .