

CHEMISTRY-11	Chapter#08(Complete) Test-5B		
	Name:	Class:	ID:
Date: / /	Marks Total: 40	Marks Obtained:	
Time Allowed: 75 Min.			

Maximum Marks: 08 **(OBJECTIVE TYPE)** Time Allowed: 10 Min.

NOTE: Tick The Correct Option:

- The unit of K_c for the reaction $N_{2(g)} + O_{2(g)} \rightleftharpoons 2NO_{(g)}$:
 (a) Moles/dm⁻³ (b) Moles⁻¹/dm⁻³ (c) Moles⁻²/dm⁺⁶ (d) No unit
- K_c value for the decomposition of HF at 2000°C is:
 (a) 10⁻¹³ (b) 10⁵⁵ (c) 10⁻²⁰ (d) 10⁻¹⁶
- The optimum temperature for the synthesis of NH₃ by Haber's process is:
 (a) 200°C (b) 300°C (c) 400°C (d) 500°C
- The term pH was introduced by:
 (a) Henderson (b) Sorenson (c) Goldstein (d) Thomson
- The pH of 10⁻⁴ moles dm⁻³ of Ba(OH)₂ is:
 (a) 4.5 (b) 6.4 (c) 7.5 (d) 10.3
- Acidic buffer solution has pH value:
 (a) Less than seven (b) Equal to seven
 (c) Greater than seven (d) Equal to eight
- If the salt and acid are taken in equal concentrations, the pH of the buffer is:
 (a) Equal to unity (b) Equal to K_a (c) Equal to pK_a (d) $pK_a + 1$
- If K_{sp} is smaller than the ionic product of salt, the result is:
 (a) Un-saturation (b) Saturation (c) Precipitation (d) None

Maximum Marks: 32 **(SUBJECTIVE TYPE)** Time Allowed: 65 Min.

SECTION-I

Q.2: Give brief answers to the following questions: (20)

- Why does the rate of forward reactions slow down when a reversible reaction approaches the equilibrium stage?
- Derive units of K_c for the system: $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$.
- Change in volume or pressure, changes the equilibrium position but not the equilibrium constant. Why?
- Why does the solubility of glucose in water increase by increasing temperature?
- Being exothermic, ammonia should be synthesized at low temperature but temperature of 400°C is selected in Haber's process. Justify.
- Define pH and pOH. How are they related with pK_w ?
- Define pK_a and pK_b .
- How does common ion effect help in identifying the III group basic radicals?
- What happens when a small amount of an acid or a base is added to a basic buffer containing NH₄OH and NH₄Cl?
- Write Henderson equation for acids and bases.

SECTION-II

NOTE: Attempt All Questions:

(12)

- Q.3: Calculate the pH of buffer solution which 0.11 molar CH_3COONa and 0.09 molar acetic acid solutions are present. K_c for CH_3COOH is 1.85×10^{-5} .
- Q.4: Benzoic acid, $\text{C}_6\text{H}_5\text{COOH}$, is a weak mono basic acid ($K_a=6.4 \times 10^{-5}$ mole dm^3). What is the pH of a solution containing 7.2 g of sodium benzoate in one dm^3 of 0.02 mole dm^{-3} benzoic acid?
- Q.5: The solubility product of Ag_2CrO_4 is 2.6×10^{-2} at 25°C . Calculate the solubility of the compound.