ST. JOSEPH STUDY CENTRE

11th STD: Unit Test - 7 **CHEMISTRY** **Time: 1 Hr / Total Marks: 35**

I. Choose the correct answer: [5 x 1 = 5]

1. The amount of heat exchanged with the surrounding at constant pressure is given by the quantity

   a) ΔE b) ΔH c) ΔS d) ΔG

2. In an adiabatic process, which of the following is true?

   a) $q = w$ b) $q = 0$ c) $\Delta E = q$ d) $P \Delta V = 0$

3. In an adiabatic expansion of an ideal gas

   a) $w = -\Delta u$ b) $w = \Delta u + \Delta H$ c) $\Delta u = 0$ d) $w = 0$

4. Solubility of carbon dioxide gas in cold water can be increased by

   a) increase in pressure b) decrease in pressure c) increase in volume d) none of these

5. If K_b and K_f for a reversible reaction are 0.8×10^{-5} and 1.6×10^{-4} respectively, the value of the equilibrium constant is,

   a) 20 b) 0.2×10^{-1} c) 0.05 d) none of these

II. Answer any five of the following questions: [5 x 2 = 10]

6. State the first law of thermodynamics.
7. Define Hess's law of constant heat summation.
8. Define isothermal and adiabatic process
9. Define is Gibb's free energy.
10. What are state and path functions? Give two examples.
11. State Le-Chatelier principle.

III. Answer any four of the following questions: [4 x 5 = 20]

12. State the various statements of second law of thermodynamics.
13. List the characteristics of Gibbs free energy.
14. Write down the Born-Haber cycle for the formation of $CaCl_2$.
15. Derive the relation between K_P and K_C. Give one example for which K_P is equal to K_C.
16. List the characteristics of internal energy.

----------ALL THE BEST----------