

<b>CHEMISTRY-11</b>	<b>Chapter#08First Half (8.1-8.2) Test-1B</b>		
	Name:	Class:	ID:
Date: / /	<b>Marks Total: 25</b>	<b>Marks Obtained:</b>	
Time Allowed: 40 Min.			

Maximum Marks: 09

**(OBJECTIVE TYPE)**

Time Allowed: 10 Min.

**NOTE:** Tick The Correct Option:

- The law of mass action was given by:
  - D.C. Down and P. Waage
  - C.M. Gulberg and P. Waage
  - Gay-Lussic and C.M. Gulberg
  - Henderson and Le-Chatelier
- $K_c$  value for the decomposition of HF at 2000°C is:
  - $10^{-13}$
  - $10^{55}$
  - $10^{-20}$
  - $10^{-16}$
- For which reaction,  $K_c$  has no units?
  - $\text{PCl}_3 \rightleftharpoons \text{PCl}_3 + \text{Cl}_2$
  - $\text{N}_2\text{O}_4 \rightleftharpoons 2\text{NO}_2$
  - $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$
  - $\text{N}_2 + \text{O}_2 \rightleftharpoons 2\text{NO}$
- For the gaseous equilibrium,  $\text{N}_{2(g)} + 3\text{H}_{2(g)} \rightleftharpoons 2\text{NH}_{3(g)}$ , which is the correct relation?
  - $K_p > K_c$
  - $K_p = K_c$
  - $K_p < K_c$
  - $K_p = \frac{1}{K_c}$
- Pressure change will affect:
  - Solid equilibria
  - Liquid equilibria
  - Gaseous equilibria
  - Both 'b' & 'c'
- The solubility of which salt will not be affected by temperature?
  - NaCl
  - $\text{Li}_2\text{CO}_3$
  - LiCl
  - KI
- A change in \_\_\_\_\_ changes  $K_c$  as well as the position of equilibrium.
  - Concentration
  - Pressure
  - Temperature
  - Both 'a' & 'b'
- At 200-300 atm pressure and 400°C temperature, the efficiency of Haber's process is:
  - 100%
  - 55%
  - 75%
  - 35%
- Which compound is regarded as the king of chemicals?
  - $\text{NH}_3$
  - $\text{H}_2\text{O}$
  - $\text{H}_2\text{SO}_4$
  - HCl

Maximum Marks: 16

**(SUBJECTIVE TYPE)**

Time Allowed: 30 Min.

**SECTION-I**

Q.2: Give brief answers to the following questions: (12)

- What is meant by chemical equilibrium?
- State law of mass action.
- How does  $K_c$  predict about the direction of the chemical reaction?
- What is the effect of rise in temperature on the solubility of KI?
- What are the optimum or best industrial conditions for the synthesis of  $\text{NH}_3$  in Haber's process?
- What is the effect of change in pressure on:  $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3$ ?

**SECTION-II**

**NOTE:** Attempt All Questions:

(04)

Q.3: The following reaction was allowed to reach the state of equilibrium.



The initial amounts of the reactants present in one  $\text{dm}^3$  of solution were 0.50 mole of A and 0.60 mole of B. At equilibrium, the amounts were 0.20 moles of A and 0.45 mole of B and 0.15 moles of C. Calculate the equilibrium constant  $K_c$ .