

NAME:		ROLL NO:		TIME:	50: MIN
SUB:	Chemistry	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 8 (Chemical Equilibrium)	T. MARKS	30	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x6=6)

- Consider the equilibrium $2\text{H}_{2(g)} + \text{O}_{2(g)} \rightleftharpoons 2\text{H}_2\text{O}_{(g)}$. If the concentration of $\text{H}_2\text{O}_{(g)}$ is increased, the concentrations of $\text{H}_{2(g)}$ and $\text{O}_{2(g)}$ will:
 - Increase
 - Decrease
 - Remain the same
 - Change irregularly
- For which system, does the equilibrium constant, K_c has units of (concentration)¹?
 - $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$
 - $\text{H}_2 + \text{I}_2 \rightleftharpoons 2\text{HI}$
 - $2\text{NO}_2 \rightleftharpoons \text{N}_2\text{O}_4$
 - $2\text{HF} \rightleftharpoons \text{H}_2 + \text{F}_2$
- The expression for K_c of the reaction: $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$ is:
 - $[\text{NH}_3]^2 / [\text{N}_2] + [\text{H}_2]^3$
 - $[\text{N}_2][\text{H}_2]^3 / [\text{NH}_3]^2$
 - $[\text{NH}_3] / [\text{N}_2][\text{H}_2]^3$
 - $[\text{NH}_3]^2 / [\text{N}_2][\text{H}_2]^3$
- If the temperature of a exothermic reaction increases, then K_c :
 - Increases
 - Decreases
 - Remains same
 - Becomes zero
- For a saturated solution of a salt in water, a dynamic equilibrium is between:
 - The dissolved ions and the un-dissolved solid salt
 - The solute and the solvent molecules
 - The solid salt and the water molecules
 - The hydrated ions and the water molecules in the bulk solvent
- Which of the following condition will not change the equilibrium position?
 - Change in pressure
 - Change in concentration
 - Adding catalyst
 - Change in temperature

PART-I

Q. 2 Write Short Answers of the Following Questions (2x8=16)

- The dynamic equilibrium exists between water and its vapor at 100°C. Justify the statement.
- Why ice at 0°C can be melted by applying pressure without supply of heat from outside?
- Differentiate between macroscopic and microscopic changes with examples.
- Mention the characteristics of chemical equilibrium.
- Derive the K_c expression for the reaction: $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3$.
- Apply Le Chatelier's principle when pressure is increased in a gaseous system.
- If the reaction is endothermic, how does increase in temperature affect K_c ?
- Define dynamic equilibrium between two physical states with an example.

PART-II

Write Answers of the Following Questions in Detail.

- Q. 3 (a) By using Le Chatelier's, explain how concentration, pressure, and temperature changes affect equilibrium. 4
- (b) Describe the industrial applications of equilibrium using Haber's process. 4



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1ST YEAR REVISION & TEST SESSION



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Answer Key

1	B	2	C	3	D	4	B
5	A	6	C				