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Total No. of Questions : 10] **Paper ID [PH123]** [Total No. of Pages : 02

(Please fill this Paper ID in OMR Sheet)

B.Pharmacy (Semester - 2nd)

PHARMACEUTICAL CHEMISTRY - II (PHM - 1.2.3)

(Physical Chemistry)

Time : 03 Hours **Maximum Marks : 80**

Instruction to Candidates:

1) Section - A is **compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Three** questions from Section - C.

Section - A

Q1) *(15 x 2 = 30)*

a) What is meant by the term solution, solvent and solute?

b) State Nernst distribution law.

c) Define the system, surrounding and isolated system.

d) Write Arrhenious equation.

e) Only draw the phase diagram of water system.

f) Distinguish Adsorbate from adsorbent.

g) What is meant by catalysis?

h) Write the Freundlich isotherm.

i) Write Schrodinger wave equation.

j) Give two examples of first order reaction.

k) What are ideal and non-ideal solutions?

l) A salt solution fails to quench thirst, why?

m) What is meant by Eutectic?

n) Mention two applications of adsorption.

o) Explain the term Inhibition.

Section - B

(4 x 5 = 20)

Q2) Why addition of a non-volatile solute lowers the freezing point and elevates the boiling point?

Q3) Explain the Langmuir's adsorption isotherm.

Q4) What is chemical kinetics? Why there is wide variation in reaction rates?

Q5) Define second law of thermodynamics and show that $\Delta S = q/T$.

Q6) Explain Lambert-Beer Law.

Section - C

(3 x 10 = 30)

Q7) What is meant by acid-base catalysis? Explain giving examples, the theory of acid-base catalysis.

Q8) Derive the expression for the rate constant of first order reaction and discuss the important characteristics of first order reactions.

Q9) Define and explain heat capacity of a system and derive relation between Cp and Cv in gaseous system.

Q10) What are colligative properties, describe an expression for depression in freezing point in detail.