



P13

Physical Chemistry 2<sup>nd</sup> YUGS EV ST 2023-2026

85/100 Eighty five



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2<sup>nd</sup> SEM-2026 Bologna Process  
Mid Exam Class A Paper C

Q1/ MCQ test (Answer the following)

(Marks 50 %)

Q2: Eutectic mixture means that the ratio between two components is?

- Answer: a) (30-70) wt%      b) (50-50) wt%      c) (40-50) wt%      ~~d) none of these~~

2: Which law or equation is used to calculate the osmotic pressure of a dilute solution?

- Answer: ~~a) Raoult's~~      b) Trouton's      c) Henry's law      d) Van't Hoff's law

3: The three phases of H<sub>2</sub>O in the phase diagram meets?

- Answer: a) at 1 atm      b) over 1 atm      ~~c) below 1atm~~      d) at any pressure

4: Liquid solution of HNO<sub>3</sub> is formed from?

- Answer: a) 1 C      ~~b) 2 C~~      c) 3 C      d) 4 C

5: How many phases are there when the number of variants is zero and the number of components is one?

- Answer: a) zero      b) 1      c) 2      ~~d) 3~~

6: The Clausius-Clapeyron equation can be applied when there is an equilibrium between one of the following?

- Answer: a) L & L      b) S & L      ~~c) G & L~~      d) S & S

7: One of the following formulas represents the right equation of Henry's law?

- Answer: ~~a)  $P_A = \chi_A P^*_A$~~       b)  $P_A > \chi_A P^*_A$       c)  $P_A < \chi_A P^*_A$       ~~d) none of these~~

8: Molality is used to calculate the molar mass of the?

- Answer: a) non-volatile solute      ~~b) pure solute~~      c) pure solvent      d) solution

9: Osmosis pressure exerts when the solvent transfers to the?

- Answer: a) volatile solute      b) non-volatile solute      c) pure solvent      ~~d) solution~~

10: If a non-polar solute is added to a non-polar solvent, the resulting solution is expected to obey which law?

- Answer: a) Van't Hoff's      b) Raoult's      ~~c) -ve form Raoult's~~      d) +ve form Raoult's

Q2/ If you were to make 0.800 m aqueous solution of glucose, what would be its boiling point and freezing point? ( $K_b = 0.51 \text{ }^\circ\text{C/m}$ , and  $K_f = 1.86 \text{ }^\circ\text{C/m}$ ).

(Marks 25%)

Q3/ Draw the phase diagram of a one-component system and label each region and phase boundary with the number of phases (P), the degrees of freedom (F) according to the Gibbs phase rule, and indicate the type of equilibrium process along each line (reversible and irreversible process).

(Marks 25%)

