



Physical_Chemistry_2nd_YUGS_EV_ST



Name of a student _____ Signature _____ No. _____

Mustansiriyah University
Department of Chemistry

2nd SEM-2025 Bologna_Process
Mid_Exam_Class_B_Paper_A

Q1/ MCQ test (Answer the following)

(Marks 50 %)

1: The reduced phase rule is interested in two variants?

Answer: a) p & T b) F & T c) p & conc. ~~d) T & conc.~~

2: Ideal solution follows ----- law.

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

3: The three phases of H₂O 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 HNO₃ 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- One of the most important benefits of measuring ΔV_P , ΔT_b , ΔT_f and ΔH is to calculate ----- of B?

Answer: a) M b) m c) V ~~d) p~~

Q2/ The vapor pressure (VP) of a substance is 30 torr at 250 K. At what temperature will the substance have VP of 150 torr? $\Delta_{vap}H$ is 45 kJ mol⁻¹?

(Marks 25%)

Q3/ Plot the phase diagram of the system (A & B) assumed that (A & B) do not react with each other. A freezes at (-5 °C) and B freezes at (7 °C), and that an eutectic mixture is formed when the ratio is 70 wt % of A and that the eutectic melts at (-10 °C), then label all the parts (p & F) of the diagram? (Marks 25%)

Qa1

$$\frac{V_P}{V_L} = \frac{\Delta H}{V \cdot T}$$

فاحدده الطور المختلطة

Q31

$$[F = C - P + 1]$$

بالس كعلاج

