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_A_Paper_C

Q1/ MCQ test (Answer the following) (Marks 50 %)

1: Depression of freezing point of a solution means increasing in?
Answer: a) T b) H c) μ d) S

2: If you apply the reduced phase rule to condensed systems, then the expected value of pressure is ------?
Answer: a) zero b) 1 c) 2 d) 3

3: The reduced phase rule can be applied when the number of components is -------?
Answer: a) zero b) 1 c) 2 d) 3

4: Which One of the following formulas represents the right equation of negative deviation from Raoult's law?
Answer: a) $P^*_A \neq \chi_A P_A$ b) $P_A = \chi_A P^*_A$ c) $P_A > \chi_A P^*_A$ d) $P_A < \chi_A P^*_A$

5: Addition of a non-volatile solute to the pure solvent causes a change in?
Answer: a) $\Delta_{mix}H$ b) $\Delta_{mix}S$ c) $\Delta_{mix}V$ d) all of these

6: The difference between pure and impure solvent is?
Answer: a) $\mu^* = \mu$ b) $\mu^* > \mu$ c) $\mu^* < \mu$ d) $\mu^* \neq \mu$

7: The relationship between ΔT_f and χ_B is?
Answer: a) direct b) inverse c) disordered d) none of these

8: With the two-component system (A & B), one part of the solid phase consists of?
Answer: a) A + B b) A +solution c) B + solution d) A + eutectic

9: If you add a solute to a solvent, then there is a decrease in the ----- of the solution.
Answer: a) S b) H c) T d) μ

10: Dalton's law is used to calculate the partial pressure of --------- phase?
Answer: a) liquid b) gas c) solid d) plasma

Q2/ The Π of a solution containing 4.0 g of an unknown substance per 0.5 dm^3 of solution is 10^3 torr at 34.0 °C. Find the molar mass of this unknown. (Marks 25%)

Q3/ Using the diagram below and the appropriate phase rule, fill in all the blanks and determine the composition of the all-eutectic mixture, all equilibria, all reversible and irreversible processes, and the name of the regions located to the right and left of points C, E & AB? (Marks 25%)

Name of a student ---------- ايلاف الجبي داود ---------- Signature ---------- No. ----

Q2/ Where is the eq!

π -

$M = 4.0g$

$0.5 dm^3 = 0.5 \times 10^{-19}$

10^3 Torr

$34.0°C + 273 = 61.3K$

$\pi = \frac{4.0g \times 0.5 \times 10^{-19}}{61.3K}$ Wrong eq!

$\pi = \frac{9.5 \times 10^{-19}}{61.3K}$

$\pi = 0.040 \times 10^{-19}$

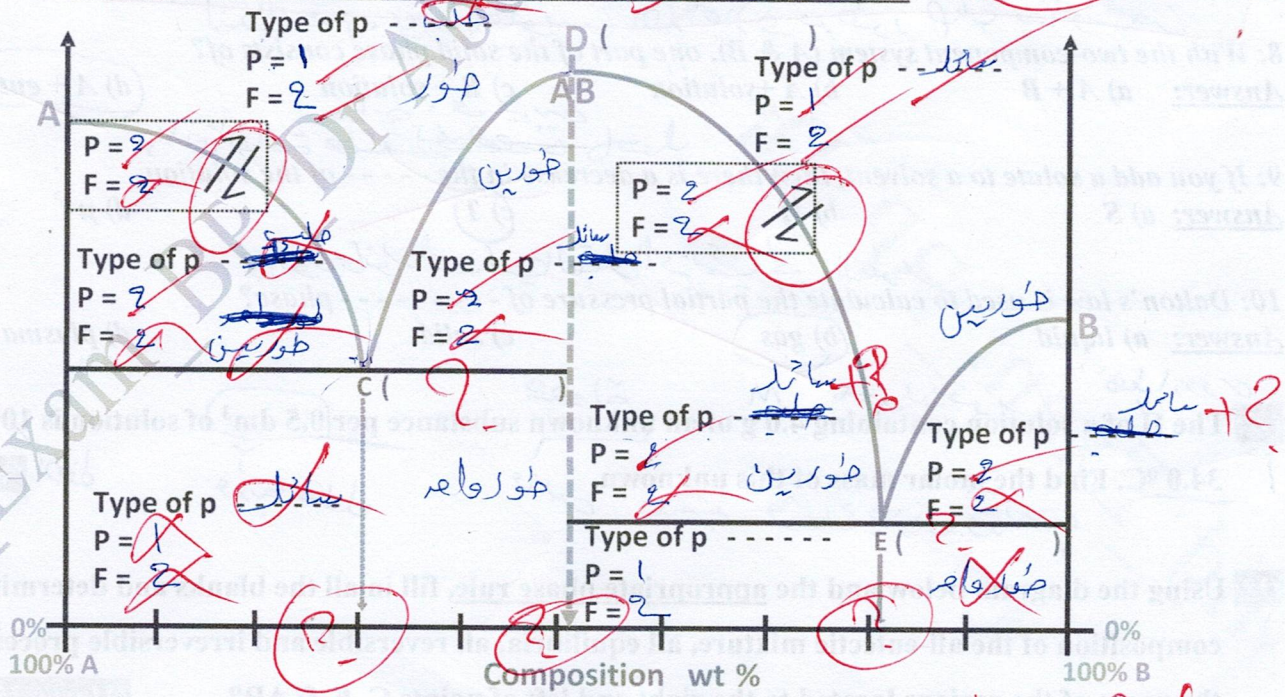
Zero / 25

Q2

Condensed! مكثف

Q3 5/25

Two component system (خورين سائل وصلب)



$F = C - P + 2$
$= 1 - 1 + 2$
$F = 2$

$F = C - P + 2$
$= 2 - 2 + 2$
$= 2$

Wrong phase Rule

Mid_Exam_BD_Dr Abduljabbar I. R. Rushdi_2025