



Name of a student

Signature

No. 12

Mustansiriyah University
Department of Chemistry

2nd SEM-2025 Bologna Process
Mid Exam Class B Paper B

Q1/ MCO test (Answer the following)

(Marks 50 %)

1: If the relation between the amount of solute and the Π is proportional, then the right equation is?

- Answer: a) $\Pi \propto VP$ b) $\Pi \propto BP$ c) $\Pi \propto V$ d) $\Pi \propto [B]$

2: If the deposition is dominated, then one of the following will be true.

- Answer: a) $\Delta_{vap}H = +ve$ b) $\Delta_{vap}H = -ve$ c) $\Delta_{sub}H = +ve$ d) $\Delta_{sub}H = -ve$

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

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

4: Which One of the following formulas represents the right equation of positive 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: How many p and F of CO₂ when it is positioned at the boundary of the phase?

- Answer: a) $p = 2$ & $F = 1$ b) $p = 3$ & $F = 0$ c) $p = 1$ & $F = 2$ d) $p = 2$ & $F = 2$

7: Liquid water and ice are formed from?

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

8: With the two-component system (Pb & Ag), one part of the solid phase consists of?

- Answer: a) $Pb + Ag$ b) $Pb + solution$ c) $Ag + solution$ d) $Pb + eutectic$

9: If you add a non-polar solute to a non-polar solvent, then the expected type of mixture will be ----- law.

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

10: If it is required to calculate the Y_A , then one of the following laws will be applicable?

- Answer: a) Raoult b) Henry c) Dalton d) Van't Hoff

Q2 The VP of pure benzene is 75 mmHg at 20 °C, and VP of pure toluene is 25 mmHg at 20 °C. The mole fraction of each pure component is 0.5. What is the partial VP of each component after mixing?

(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 Tabarak aqel Shukr Signature [Signature] No.

للجزء PA = XA * PA*

$$= 0.5 * 75 \times 10^3$$

$$= 37.5 \times 10^3$$

$$= 37.5 \text{ atm}$$

75 mm Hg

$$T_c = 20^\circ\text{C} + 273 = 293\text{K}$$

$$T_c = 20^\circ\text{C} + 273 = 293\text{K}$$

XA = 0.5

PA = ?

للجزء PA = XA * PA*

$$= 0.5 * 25 \times 10^3$$

$$= 12.5 \text{ atm}$$

$$PA = \frac{PA^*}{XA}$$

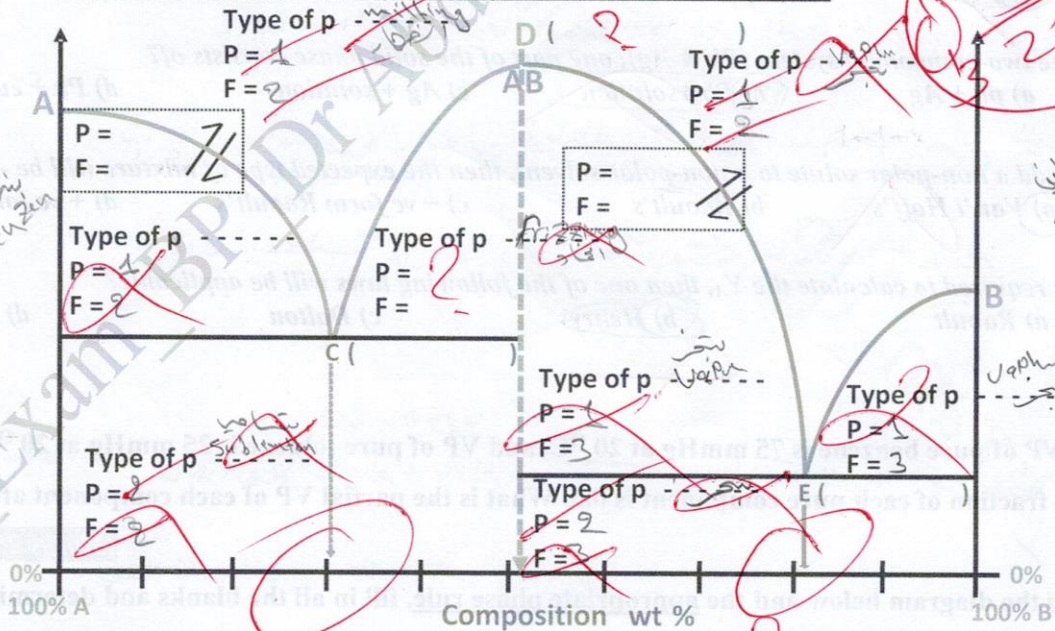
للجزء PA = $\frac{37.5 + 12.5}{0.5}$

للجزء PA = $\frac{50}{0.5}$

للجزء PA = 100 atm

Q2/25

Two component system



Q3/25