

Q2)

$$\ln \frac{P_1}{P_2} = - \frac{\Delta H_{\text{sub}}}{R} \left(\frac{1}{T_1} - \frac{1}{T_2} \right)$$

$$\ln \frac{30 \text{ torr}}{150 \text{ torr}} = - \frac{45 \text{ kJ mol}^{-1}}{8.314 \text{ J} \cdot \text{K}^{-1} \cdot \text{mol}^{-1}} \left(\frac{1}{250 \text{ K}} - \frac{1}{T_2} \right) \quad e$$

$$0.2 = e^{-5.412 \left(0.004 - \frac{1}{T_2} \right)}$$

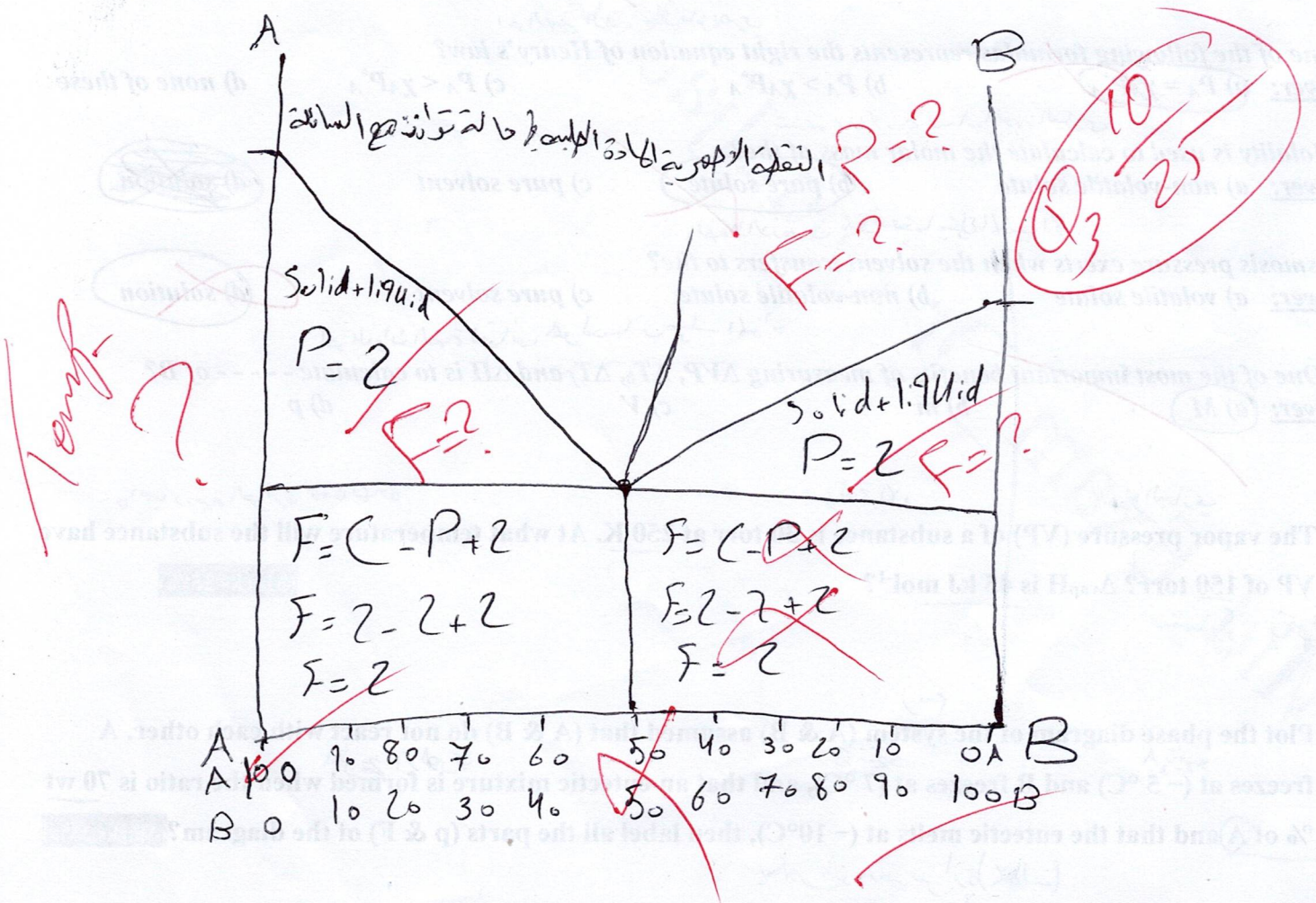
$$0.2 = e^{-5.412 (0.004 T_2)}$$

$$0.2 = 0.0001 T_2$$

$$T_2 = \frac{0.2}{0.0001} = 2000$$

$$T_2 = 2000 + 273 = 2273 \text{ K}$$

$Q_2 = \frac{10}{25}$





Mid Quiz

Physical_Chemistry_2nd_YUGS_EV_ST

30/100 Thirty only



Name of a student

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Signature

[Signature]

No.

411

Mustansiriyah University
Department of Chemistry

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

Q1/ MCQ test (Answer the following)

(Marks 50 %)

قاعدة الأطوار المختزلة تكون هال سو عين من المتغيرات

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

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

الاجول المباني يتبع قانون

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

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

رء طوار الثلثة للهاد

3: The three phases of H₂O in the phase diagram meets?

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

المطلوب السائل الحامض التبريد

4: Liquid solution of HNO₃ is formed from?

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

ما هو عدد الطوار للنظام تكون فيه عدد المتغيرات 4

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

صداية لاسيوس يمكن تطبيقها النظام المتوازن

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

احوال الصبة الثلثة جمال قانون هنري

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

تستعمل الهلارية لاساب الوزنة المولي

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

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

الهيلا الارزري يتولد عندما يتبرك المذيب الكا

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

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

احر الفوائد الهامة لقياس هو لاساب مبرك الهذا

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

الهوا البخاري

مادة الااء

ما صب درجة الحرارة لوزنة الحامض

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%)

عندما يكون وتظهر البخاري

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%)

ينظرون عند درجة حرارة (-10)