



2.25
5

Mid Quiz

Physical Chemistry 2nd YUGS EV ST

15-25-25

45
150

Forty five

Name of a student _____ Signature _____ No. _____

Mustansiriyah University
Department of Chemistry

2nd SEM-2025_Bologna_Process
Mid_Exam_Class_A_Paper_D

Q1/ MCQ test (Answer the following)

(Marks 50 %)

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

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

2: What do you expect if you add NaCl to H₂O, an increase in the?

- Answer: a) LP b) VP ~~c) BP~~ d) BP

3: The three phases of CO₂ in the phase diagram meets?

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

4: The phase of super cooling is -----?

- Answer: a) gas b) liquid ~~c) solid~~ d) plasma

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

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

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

- Answer: a) melt. & freez. b) sub. & depo. c) vap. & cond. ~~d) all of these~~

7: The relationship between VP and m is -----.

- Answer: a) direct ~~b) inverse~~ c) disordered d) none of these

8: If you add a ----- to a solvent, then there is a change in the colligative properties of the solvent.

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

9: Osmotic process is used to push the solvent to the -----?

- Answer: a) solute ~~b) impure solute~~ c) mixture d) pure solvent

10- One of the most important benefits of measuring molar mass of the solute is to study the change in -----.

- Answer: a) m ~~b) Π~~ c) V d) p

Q2/ 0.5 mol of a non-P-solute was added to 12.0 mol of P-solvent, VP* is 12.0 kPa at 295 K. What is the VP at 295 K? Determine the deviation of this solution from Raoult's law where VP_{ideal} = 10 kPa. (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 (-6 °C) and B freezes at (8 °C), and that an eutectic mixture is formed when the ratio is 60 wt % of A and that the eutectic melts at (-9 °C), then label all the parts (p & F) of the diagram? (Marks 25%)

B = 40%

$\mu = 0.5 \text{ mol}$
 $M = 12 \text{ mol}$
 $U_{p^*} = 12 \text{ kPa}$
 $T = 295 \text{ K}$
 $U_p = ?$
 درجة الحرارة
 $T = 295 \text{ K}$

$U_{p^*} = 12 \times 10^5 \text{ Pa}$

$$\frac{U_{p^*} - U_p}{U_{p^*}} = \frac{\mu \Delta W_B}{M_B W_A}$$

$$\frac{12 \times 10^5 - U_p}{12 \text{ kPa}} = \frac{0.5 \text{ mol}}{12 \text{ mol}}$$

$$12 \times 10^5 \times 0.5 = (12 - U_p) \times 12 \text{ mol}$$

$$6 \text{ kPa} = 144 - 12 U_p$$

$$6 - 144 = -12 U_p$$

$$\frac{-138}{-12} = \frac{-12 U_p}{-12}$$

$$11.5 \text{ kPa} = U_p$$

$Q_2 = \frac{20}{25}$

$Q_3 = \frac{5}{25}$

لا يمكن ان يكون
 سبب على الطول

ملاقاتي
 الاثراف نحوها

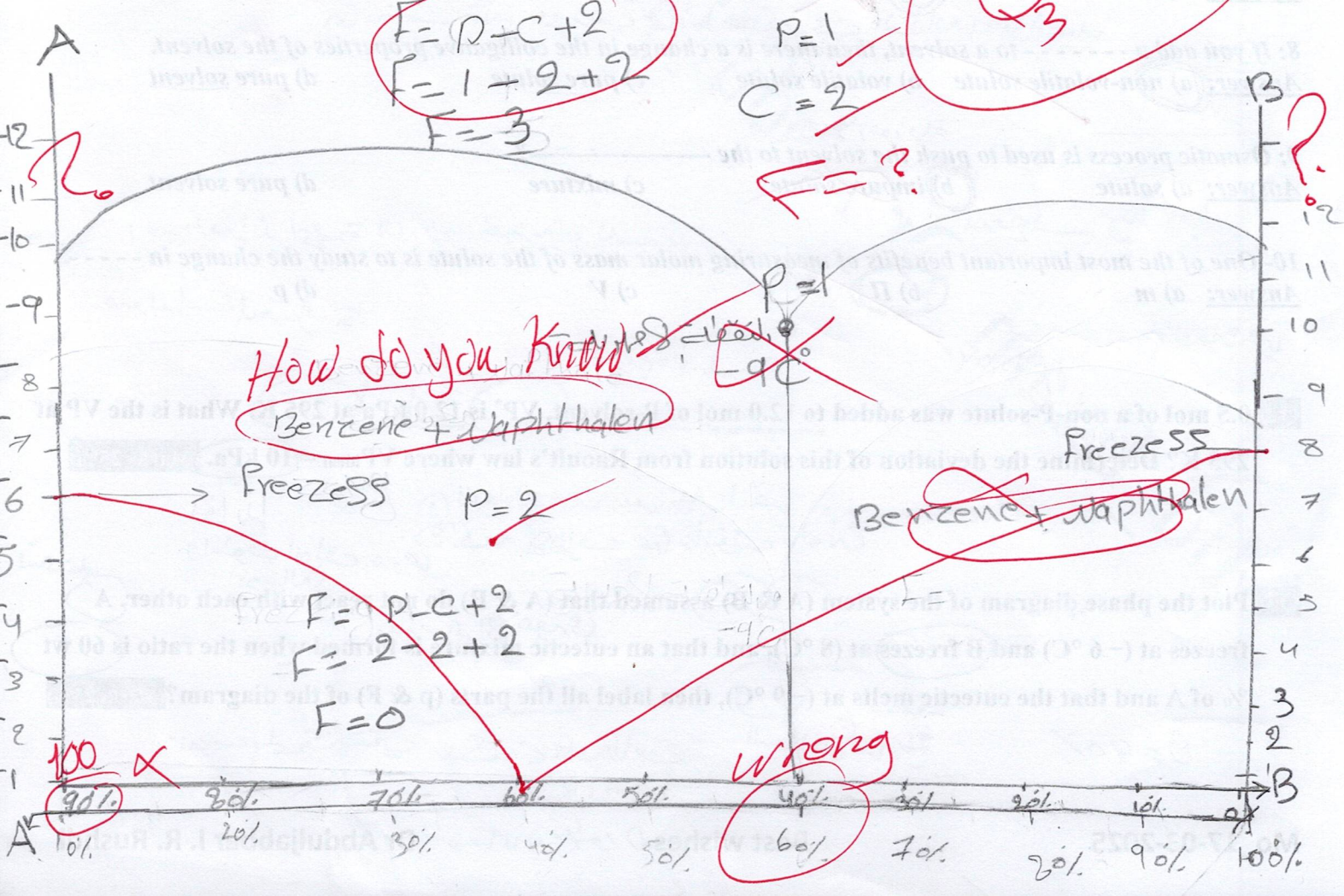
wrong eq. 1

$$F = p - c + 2$$

$$F = 1 - 2 + 2$$

$$F = 1$$

$p = 1$
 $c = 2$
 $F = ?$



$$F = p - c + 2$$

$$F = 2 - 2 + 2$$

$$F = 2$$

wrong

100%
 90%

100%
 90%
 80%
 70%
 60%
 50%
 40%
 30%
 20%
 10%