Name of a student -- Signature ---------------------------------- No. 39

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 dm³ of solution is 10^3 torr at 34.0 °C. Find the molar mass of this unknown.   (Marks 25%)

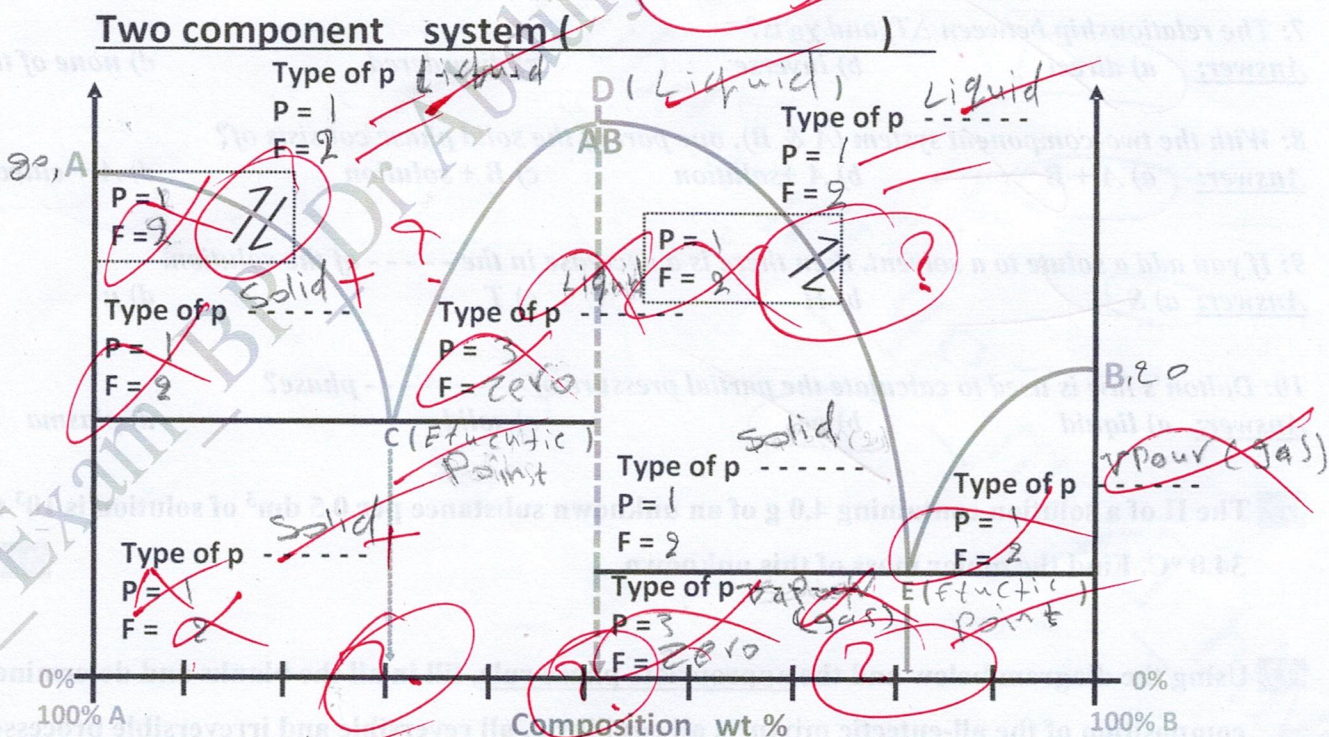**Q3/** Using the diagram below and the **appropriate phase rule**, fill in all the blanks and determine the composition of the all-eutectic mixture, all equilibria, all reversible and irreversible processes, and the name of the regions located to the right and left of points C, E & AB?   (Marks 25%)

Mo_17-03-2025   *With my best wishes*   Dr Abduljabbar I. R. Rushdi

Name of a student ------- محمد عبد الرزاق كاظم ------- Signature ------- ------- No. ------

Q2 zero / 25

9- **Depression of freezing point of a solution is/are increasing by**
a) T b) b c) u d) S

7- **If no graph the reduced phase rule to fountdementum the expected value of pressure is** -----
Answer: d) zero b) 1 c) d) 3

5- **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: d) $P_A + P_B$ b) $P_A = x_A P_A$ c) $P < x_A P_A$ d) $x_A P_A$

5- **Addition of a non-volatile solute to a pure solvent cause a change in?**
Answer: c) ΔmH b) ΔvH c) ΔsH d) all of these

6- **The difference between μ and μ* equal the last?**
Answer: a) μ* = μ b) μ* c) μ* > d) μ ≠ μ

7- **The relationship between λ f and γ e there is?**
Answer: a) b) c) d) none of these

8- **With the two component** ----- **a) H), the point H is a solution of?**
Answer: c) A + B b) B + c) B + solution d) A + solution

9- **If you add a solute to a solvent, the** ----- **in the** -----
Answer: d) S

10- **Option 5.14 is used to calculate the partial pressure of** ----- **phase?**
Answer: liquid   vapour liquid

11- **The H of a solid containing 4.0 g of an unknown substance in 0.2 dm³ of solution 0.0 M, a at**
----- **51.0 g/L**

12- **Q10 / 25**

Two component   system (-----)