Name of a student -------------------------------- Signature ------------------------------- No. 33

Mustansiriyah University
Department of Chemistry

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

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

(Arabic handwritten annotation)

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) $\Pi \propto [B]$

(Arabic handwritten annotation)

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

(Arabic handwritten annotation)

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) $P_A < \chi_A P^*_A$

(Arabic handwritten annotation)

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

(Arabic handwritten annotation)

6: How many p and F of CO_2 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) $p = 2$ & $F = 2$

(Arabic handwritten annotation)

7: Liquid water and ice are formed from?
Answer: a) 1 C b) 2 C c) 3 C d) 4 C

(Arabic handwritten annotation)

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

(Arabic handwritten annotation)

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

(Arabic handwritten annotation)

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

(Arabic handwritten annotation)

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%)
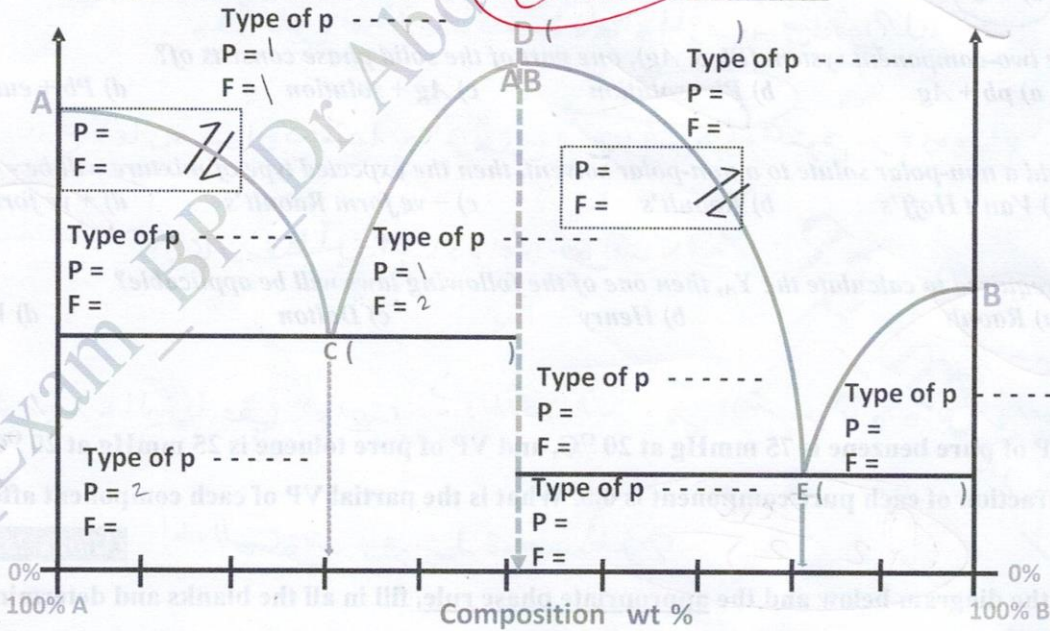
Thus_13-03-2025   *With my best wishes*   Dr Abduljabbar I. R. Rushdi

Name of a student ------- عباس طالب حلو ------- Signature ------- No.-----

Q₂ Zero
25

Q₃ Zero
25

Two component system ( )

Type of p - - - - - -
P = 1
F = 1

D ( )

Type of p - - - - - - -
P =
F =

A

AB

P =
F = 1/2

P =
F = 1/2

Type of p - - - -
P =
F =

Type of p - - - - -
P = 1
F = 2

B

C ( )

Type of p - - - - -
P =
F =

Type of p - - - - -
P =
F =

Type of p - - - - - -
P = 2
F =

Type of p - - - - -
P =
F =

E ( )

0%
100% A

Composition   wt %

0%
100% B