Name of a student ------- [handwritten Arabic] ------- Signature ------- No. ②

Mustansiriyah University
Department of Chemistry

2nd SEM-2025_Bologna_Process
Mid_Exam_Class_B_Paper_A

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

1: The reduced phase rule is interested in two variants?
Answer: a) p & T   b) F & T   c) p & conc.   (d) T & conc.

2: Ideal solution follows - - - - - - - - - - law.
Answer: (a) Raoult's   b) Trouton's   c) Henry's law   d) Van't Hoff's law

3: The three phases of H_2O in the phase diagram meets?
Answer: a) at 1 atm   b) over 1 atm   (c) below 1atm   d) at any pressure

4: Liquid solution of HNO_3 is formed from?
Answer: a) 1 C   b) 2 C   (c) 3 C   d) 4 C

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

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

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

8: Molality is used to calculate the molar mass of the?
Answer: a) non-volatile solute   (b) pure solute   c) pure solvent   d) solution

9: Osmosis pressure exerts when the solvent transfers to the?
Answer: a) volatile solute   b) non-volatile solute   c) pure solvent   (d) solution

10- One of the most important benefits of measuring ΔVP, ΔT_b, ΔT_f and $\Delta\Pi$ is to calculate - - - - - of B?
Answer: (a) M   b) m   c) V   d) p

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%)

Q2 Zero / 25

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%)

Q3 Zero / 25

Thur_13-03-2025   Best wishes   Dr Abduljabbar I. R. Rushdi

Q3/

Liqed

Soled   0.05   Vaper

Q3 Zero/25