Physical_Chemistry_2nd_YUGS_EV_ST

14-03-25

Name of a student ---------------------- زمان محمد سلمان -------- Signature ---------------- No. 215

Mustansiriyah University
Department of Chemistry

2nd_SEM-2025_Bologna_Process
Mid_Exam_Class_B_Paper_A

25/50

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

قابلية القوة المستخدمة ذكرتمو بنوعين من الموءثرات

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

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

قانون المحلول المثالي

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

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

امور الثالثة للماء تلتقي

3: The three phases of H$_2$O in the phase diagram meets?

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

للمحلول السائل لحامض النتريك يتكون

4: Liquid solution of HNO$_3$ is formed from?

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

$F = C - P + 2 \rightarrow F = 0 - 1 + 2 = 1$

ما هو عدد الاطوار للنظام يتكون عند المتغيرات والعناصر

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

معادلة كلاسيوس يمكن تطبيقها للصراع الاتزان

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

احد الصيغة التالية تمثل 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

تستخدم المولارية لحساب الوزن الجزيئي

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

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

الضغط الاوزمزي يسلط الى

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

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

احد الاشياء الزوائد لقياس ΔVP

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

ضغط بخاري

ما هي درجة الحرارة المطلوبة

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%)

ترسم مخطط الطور

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%)

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

$$P_i = 30 \text{ tuur} \qquad T_i = 250\,K \qquad \Delta vapH = 45\ KJ\ mol^{-1}$$
$$P_F = 150 \text{ tuur} \qquad T_f = ?$$

$$Lh\ \frac{P_i}{P_F} = \frac{\Delta vapH}{R}\left(\frac{1}{T_i} - \frac{1}{T_F}\right)$$

Zero

Q_2

$\frac{1}{2}$

Q_3

A 10%

S

-5C

-5C

نقطة الأنية

7C g

C
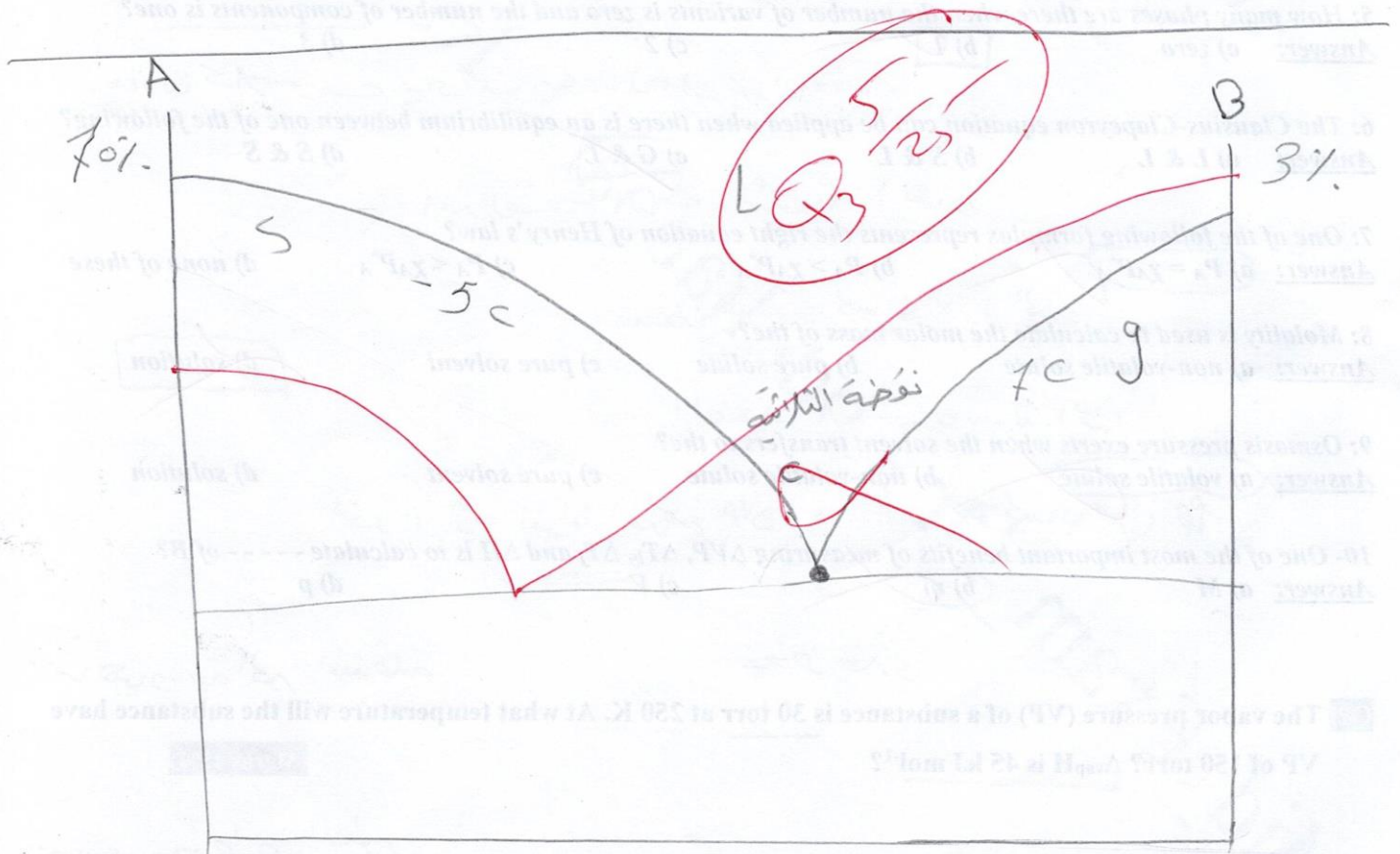
B 3%

$F = C - P + 2$ قاعدة الطور

$F = C - P + 1$ قاعدة الطور

القاعدة المطلقة للطور معرفة رسم ΔvapH

امتحان