

Unit 10 - Week 8

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Assignment 8

The due date for submitting this assignment has passed. **Due on 2019-09-25, 23:59 IST.**
As per our records you have not submitted this assignment.

1) In a binary system at constant temperature and pressure, the equation used to test the thermodynamic consistency of VLE data is

- Gibbs – Duhem equation
- Gibbs – Helmholtz equation
- Lewis – Randall rule
- Henry’s Law

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: a

2) For partially miscible systems exhibiting upper critical solution temperature, three phase equilibrium conditions do not exist

- Below upper critical solution temperature
- Above upper critical solution temperature
- At the upper critical solution temperature
- Three phase equilibrium condition can exist anywhere

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: b

3) Maxcondenbar, maxcondentherm and critical points coincides for

- A pure substance
- A binary mixture
- A ternary mixture
- All of the above

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: a

4) Which of the following is true for retrograde condensation of first kind?

- Constant temperature line crosses dew point curve twice
- Phenomena of liquid formation when pressure is reduced at constant temperature
- Phenomena of liquid formation when temperature is raised at constant pressure
- All of the above

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: d

5) The basis of thermodynamic consistency in integral or area test (Redlich – Kister) at constant temperature and pressure is given by

- $\int_0^1 \ln \frac{y_1}{y_2} dx_1 = 0$
- $\int_0^1 \ln \frac{y_1}{y_2} dx_1 = \int_{T(x_1=0)}^{T(x_1=1)} \frac{h^E}{RT^2} dT$
- $\int_0^1 \ln \frac{y_1}{y_2} dx_1 = - \int_{P(x_1=0)}^{P(x_1=1)} \frac{v^E}{RT} dP$
- $\int_0^1 \ln \frac{y_1}{y_2} dx_1 = \int_{T(x_1=0)}^{T(x_1=1)} \frac{h^E}{RT^2} dT - \int_{P(x_1=0)}^{P(x_1=1)} \frac{v^E}{RT} dP$

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: a

6) Match the following processes to the phases involved

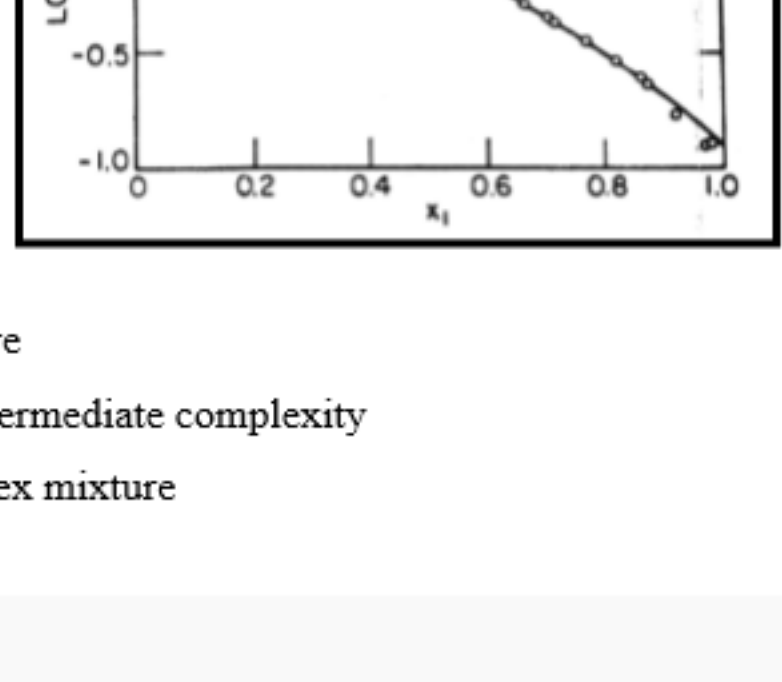
1. Rectification	i. Gas - liquid
2. Absorption	ii. Liquid - liquid
3. Extraction	iii. Solid - liquid
4. Leaching	iv. Vapor - liquid

- 1 – i, 2 – ii, 3 – iii, 4 – iv
- 1 – iv, 2 – i, 3 – ii, 4 – iii
- 1 – iii, 2 – iv, 3 – i, 4 – ii
- 1 – ii, 2 – iii, 3 – iv, 4 – i

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: b

7) Given below is the variation of activity coefficient ratio with composition for hexane – toluene mixture at atmospheric pressure. What kind of a mixture is this?

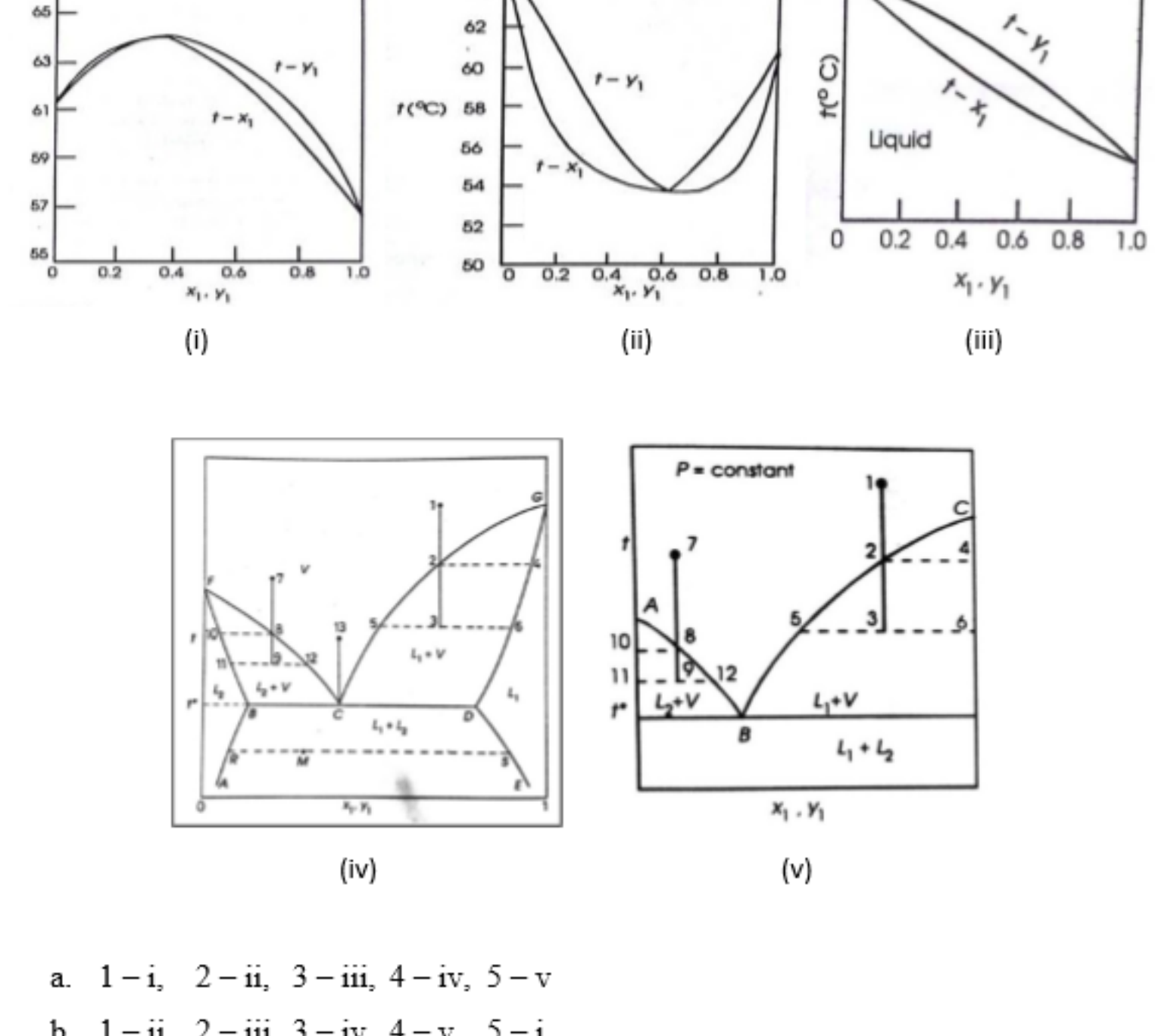


- Simple mixture
- Mixture of intermediate complexity
- Highly complex mixture
- Can't say

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: c

8) Arrange the T-x₁-y₁ diagrams in the given order: 1 – completely miscible solutions, 2 – partially miscible solutions, 3 – completely immiscible solutions, 4 – maximum boiling azeotropes, 5 – minimum boiling azeotropes

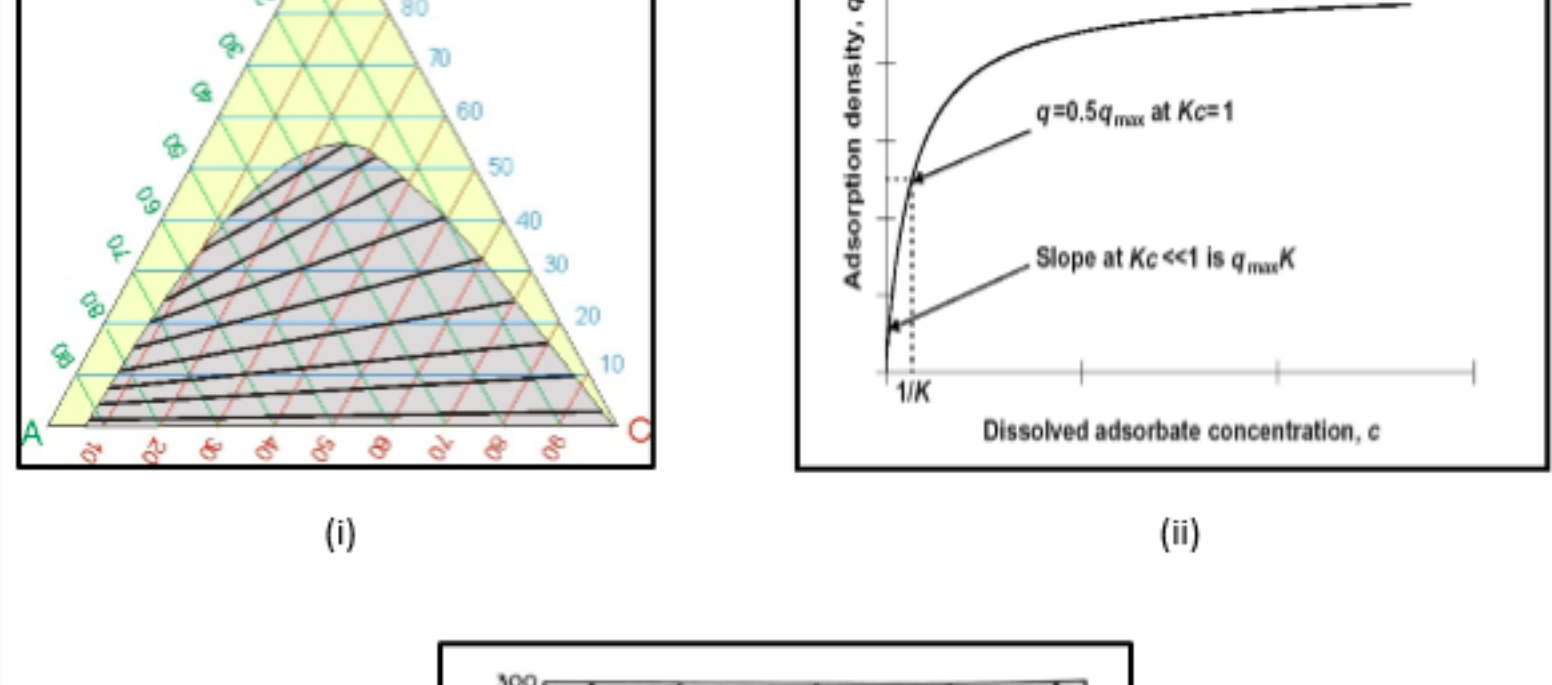


- 1 – i, 2 – ii, 3 – iii, 4 – iv, 5 – v
- 1 – ii, 2 – iii, 3 – iv, 4 – v, 5 – i
- 1 – iii, 2 – iv, 3 – v, 4 – i, 5 – ii
- 1 – iv, 2 – v, 3 – i, 4 – ii, 5 – iii

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: c

9) Given below are (i) a ternary diagram (ii) a q-c plot and (iii) solubility chart of different gases in water. Which multiphase processes are the diagrams respectively associated with?

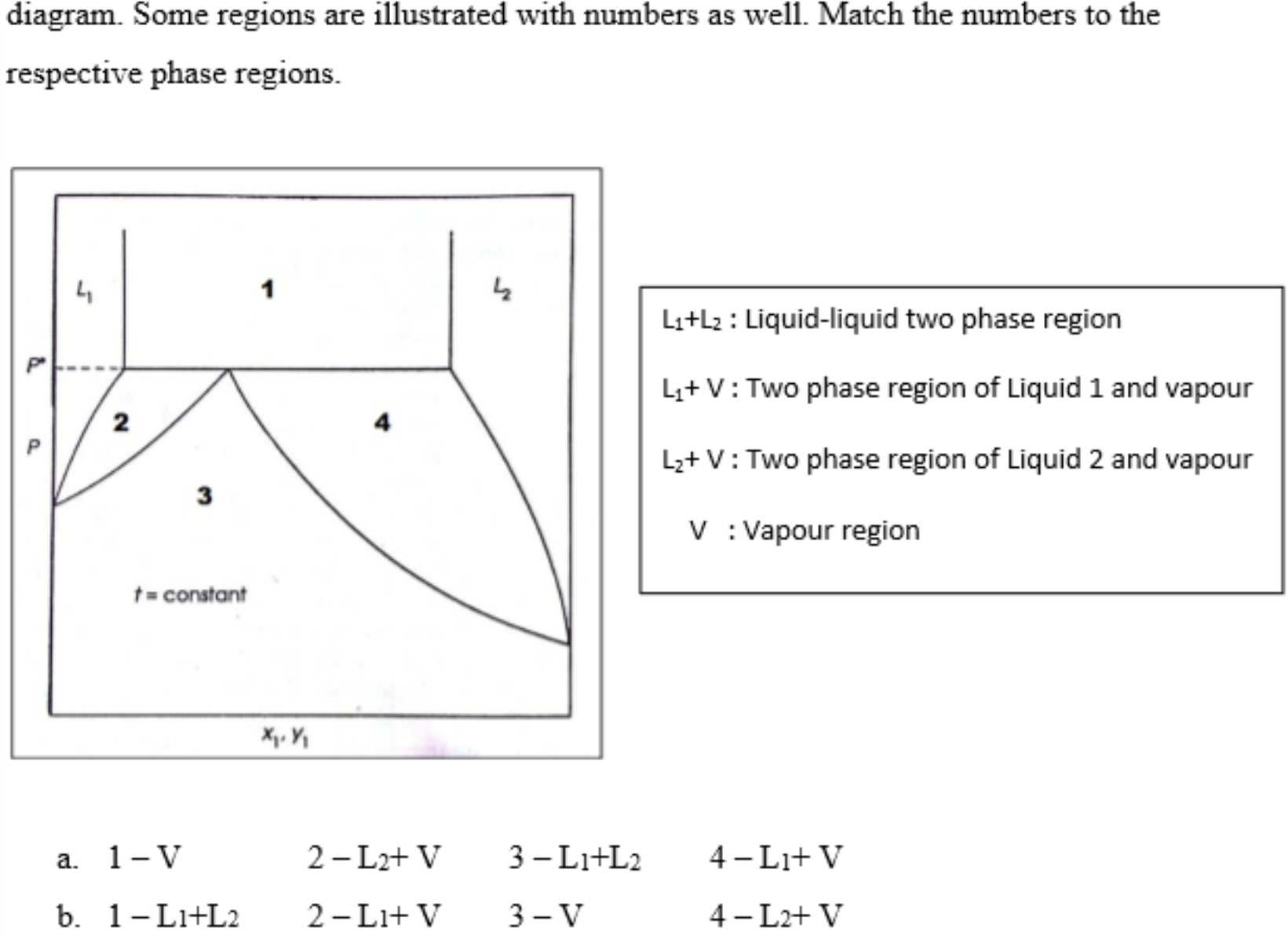


- i – Absorption ii – Leaching iii – Extraction
- i – Leaching ii – Extraction iii – Absorption
- i – Extraction ii – Absorption iii – Leaching
- i – Extraction ii – Leaching iii – Absorption

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: d

10) Given below is a P-x₁-y₁ diagram of a partially miscible liquid-liquid-vapour system at constant temperature. The regions of liquid 1 (L1) and liquid 2 (L2) are illustrated in the diagram. Some regions are illustrated with numbers as well. Match the numbers to the respective phase regions.



- 1 – V 2 – L₂+V 3 – L₁+L₂ 4 – L₁+V
- 1 – L₁+L₂ 2 – L₁+V 3 – V 4 – L₂+V
- 1 – L₂+V 2 – L₁+L₂ 3 – L₁+V 4 – V
- 1 – L₁+V 2 – V 3 – L₂+V 4 – L₁+L₂

a
 b
 c
 d

No, the answer is incorrect.
Score: 0
Accepted Answers: b