

X

NPTEL

reviewer3@nptel.iitm.ac.in ▼

Courses » Upstream LNG Technology

Announcements **Course** Ask a Question Progress Mentor FAQ

## Unit 3 - Week 2

### Course outline

**How to access the portal****Week 1****Week 2**

- Lecture 7 : Dew Point and Bubble Point Calculations

- Lecture 8 : Vapor Liquid Equilibrium

- Lecture 9 : Problems on Vapor Pressure, Gibb's Phase Rule, Dew Point Bubble Point Temperatures

- Lecture 10 : Thermophysical Properties of Natural Gas- I

- Lecture 11 : Thermophysical Properties of Natural Gas- II

- Lecture 12 : Thermodynamic and Chemical Properties

### Week 2 : Assignment 2

**The due date for submitting this assignment has passed.****As per our records you have not submitted this assignment. Due on 2018-08-15, 23:59 IST.**

1) For a mixture, the equilibrium constant ( $K_i$ ) is not a function of which of the following property **1 point**

- a) Temperature,
- b) Pressure
- c) Density
- d) Species concentration

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

2) For non-ideal liquid solutions, the activity coefficient is not a function of **1 point**

- a) Liquid phase composition
- b) Volume
- c) Pressure
- d) Temperature

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

3) For non-ideal gases, fugacity coefficient is used to modify **1 point**

- a) Temperature

© 2014 NPTEL - Privacy &amp; Terms - Honor Code - FAQs -



A project of



NPTEL

National Programme on  
Technology Enhanced Learning

In association with

NASSCOM®

Funded by

Feedback for Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

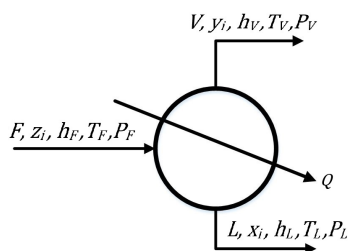
Download Videos

Assignment Solution

Interactive Session with Students

b) Partial pressure

4) Determine the degrees of freedom for a partial condenser used for separation as shown in **1 point** the figure below. The condenser handles a feed (molar flow rate =  $F$ ) with  $C$ -components to produce a liquid (molar flow rate =  $L$ ) and a vapor product (molar flow rate =  $V$ ).  $Q$  is the condenser duty. Each stream is characterized by temperature, pressure, flow rate and composition as shown.



- a.  $2C-7$   
 b.  $C+2$   
 c.  $3C+10$   
 d.  $C+3$

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.  $C+3$

5) Which of the following statements is not correct about Gibbs phase rule **1 point**

- a) It gives the degrees of freedom in terms of only the intensive properties of a system.  
 b) It is applied to a system at equilibrium.  
 c) It gives the degrees of freedom in terms of only the extensive properties of a system.  
 d) It is applied for non-reacting system.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c) It gives the degrees of freedom in terms of only the extensive properties of a system.

6) Methane number for hydrogen is **1 point**

- a) 100  
 b) 0  
 c) 50  
 d) 20

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) 0

7) Two fuels have same Wobbe number. It means that **1 point**

- a) They have same calorific values  
 b) They have same specific gravity  
 c) They have same densities

- d) They can be substituted for each other in a particular burner

No, the answer is incorrect.

Score: 0

Accepted Answers:

d) They can be substituted for each other in a particular burner

- 8) A liquefied natural gas, containing methane, ethane, propane and nitrogen, is getting vaporized into the ullage of a storage tank. The degrees of freedom of the system is **1 point**

- a) 3.2  
 b) 2  
 c) 4  
 d) 7

No, the answer is incorrect.

Score: 0

Accepted Answers:

c) 4

- 9) Use the following form of Antoine's equation to solve questions 9 and 10 **1 point**

$$\log_{10} P_i^{\text{sat}} = A_i - \frac{B_i}{T + C_i}, \text{ where } P \text{ is in mm Hg and } T \text{ is in } ^\circ\text{C}$$

| Species | $A_i$   | $B_i$   | $C_i$   |
|---------|---------|---------|---------|
| Acetone | 7.1327  | 1219.97 | 230.653 |
| Hexane  | 7.01051 | 1246.33 | 232.988 |

At 24 °C, vapor pressure of acetone, in mm Hg, is about

- a. 220 mmHg  
 b. 25 mmHg  
 c. 72 mmHg  
 d. 760 mmHg

No, the answer is incorrect.

Score: 0

Accepted Answers:

a. 220 mmHg

- 10) The saturation temperature of hexane at 1 atm pressure is about **1 point**

- a. 41 °C  
 b. 77 °C

c. 57 °C

d. 69 °C

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*d. 69 °C*

◀ Previous Page

End ▶