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Courses » Upstream LNG Technology

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Unit 10 - Week 9

Course outline

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- Lecture 58 : Tutorial on absorption and stripping
- Lecture 59 : Gas liquid separation in natural gas systems - I
- Lecture 60 : Gas liquid separation in natural gas systems - II

Week 9 : Assignment 9

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2018-10-03, 23:59 IST.**

1) Cavitation damages the impeller and casing walls of a turbomachinery. Cavitation occurs due to **1 point**

- a) Formation of vapor bubbles (cavities) due to reduction of liquid pressure below the vapor pressure of the liquid
- b) Formation of vapor bubbles (cavities) due to increase in liquid pressure above the vapor pressure of the liquid
- c) Presence of contaminants in the fluid
- d) Presence of dissolved salts in the fluid

No, the answer is incorrect.

Score: 0

Accepted Answers:

a) Formation of vapor bubbles (cavities) due to reduction of liquid pressure below the vapor pressure of liquid

2) The requirement for avoiding cavitation is **1 point**

- a) $NPSHA > NPSHR$
- b) $NPSHA = NPSHR$
- c) $NPSHA < NPSHR$
- d) $NPSHA \leq 1.5 NPSHR$

No, the answer is incorrect.

Score: 0

Accepted Answers:

a) $NPSHA > NPSHR$

3) Which among the following is NOT true for positive displacement pumps **1 point**

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multicomponent distillation -I

Lecture 63 : Tutorial on multicomponent distillation -II

lecture 64 : Pumps in natural gas systems - I

Lecture 65 : Pumps in natural gas systems - II

Lecture Materials

Quiz : Week 9 : Assignment 9

Feedback for Week 9

Week 10

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Week 12

Download Videos

Assignment Solution

Interactive Session with Students

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No, the answer is incorrect.

Score: 0

Accepted Answers:

d) Provides higher discharge than centrifugal pumps

4) Which of the following does not belong to the same group of pumps? **1 point**

- a) Radial pump
- b) Gear pump
- c) Axial flow pump
- d) Mixed flow pump

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) Gear pump

5) With increase in the pumping capacity for a radial centrifugal pump, **1 point**

- a) Head first increases and then decreases
- b) Efficiency first increases and then decreases
- c) Brake horse power first decreases and then increases
- d) Head tends to decrease continuously.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) Efficiency first increases and then decreases

d) Head tends to decrease continuously.

6)

Use the following statements for the solution of questions 6, 7 and 8.

100 kmol/hr of a saturated liquid feed containing 30 mole % benzene (1) [B.P. 80°C], 30 mole % toluene (2) [B.P. 110.6°C] and 40 mole % ethylbenzene (3) [B.P. 136°C] is to be fractionated in a distillation column to recover 98 % of the benzene at the top ($f_{1,D}$) and 94 % of the toluene in the bottom product ($f_{2,W}$).

The column pressure is essentially atmospheric, and the reflux returned to the tower is at its bubble point.

The average relative volatilities are:

$$\alpha_{12} = 2.4 \quad \alpha_{32} = 0.48$$

The minimum number of trays (N_{min}) found using the Fenske equation is about

- a) 15.24
- b) 7.588
- c) 2.35
- d) 4.25

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) 7.588

7) The fraction of ethylbenzene removed at the bottoms ($f_{3,W}$) is about **1 point**

- a) 0.99975
- b) 0.54625
- c) 0.21458

d) 1.25468

No, the answer is incorrect.

Score: 0

Accepted Answers:

a) 0.99975

8) The minimum reflux ratio (R_{min}) found using the Underwood equation is about

1 point

a) 10.20

b) 1.56

c) 2.75

d) 0.25

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) 1.56

9) Out of the following natural gas liquid separation methods, which is based on the difference in densities of impurities? 1 point

a) Filtration

b) Centrifugal separation

c) Electrostatic precipitation

d) Supersonic separation

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) Centrifugal separation

10) Separation efficiency of gas-liquid separator depends on

1 point

a) Gas velocity

b) Liquid velocity

c) Foaming characteristics of the liquid

d) All of the above.

No, the answer is incorrect.

Score: 0

Accepted Answers:

d) All of the above.

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