Assignment 1

The data does not support the assignment has passed.

Due on 2019-06-11, 23:59 IST.

1) For a two-phase flow through a channel having surface tension 30.65 mN/m, liquid density = 827 kg/m³, liquid viscosity = 0.0017 kg·m⁻¹·s⁻¹, and a point which of the following channels will be considered a 'mist flow channel'?
   0.9 m
   0.12 m
   0.18 m
   2.5 m
   2 points
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: 0.9 m

2) For a homogeneous flow (air ratio = 1) through a pipe of diameter 2 cm, calculate the mass fraction if the density ratio is 1.5 and the area occupied by gas is 0.9 cm².
   0.587
   0.530
   0.72
   0 points
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: 0.530

3) What of the flow pattern are not observed in vertical flow?
   - Annular
   - Slug
   - Stratified
   - Skag
   1 point
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: Stratified

4) Which of the following flow regimes can only be observed in boiling channels?
   - Emulsified bubble flow
   - Inverted slug flow
   - Annular flow
   - Evaporated droplet flow
   1 point
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: Inverted slug flow

5) Calculate the pressure gradient of liquid water density = 1000 kg/m³ and viscosity = 1 mPa·s flowing through a pipe of diameter 16 mm. Take 0.02 kg/m·s² as the resistance factor, and shear stress = 0.8.
   19 kPa/m
   0.019 kPa/m
   0.09 kPa/m
   0 points
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: 0.09 kPa/m

6) Using the state pattern map of Heywood and Roberts (1995) (image source: researchgate), predict the flow regime for the following gas-liquid properties: 2 points
   - Liquid density 850 kg/m³, gas density 0.3 kg/m³
   - Bubbly
   - Wavy annular
   - Slag
   - Stratified
   2 points
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: Bubbly

7) Referring to the flow pattern map of Heywood and Roberts (1995), which one of the following changes observed when the liquid superficial velocity is increased keeping gas superficial velocity constant?
   - Annular
   - Wavy annular
   - Bubbly
   - Slag
   - Stratified
   1 point
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: Annular