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NPTEL

reviewer4@nptel.iitm.ac.in ▼

Courses » Spray Theory

Announcements

Course

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Unit 6 - Week 5: Atomization theory

Register for
Certification exam

Course outline

How to access
the portal

Week 1:
Introduction to
sprays and
atomization

Week 2: Drop
size and velocity
distributions

Week 3:
Atomizers and
their designs

Week 4:
Atomizers and
their designs

Week 5:
Atomization
theory

● Linear stability
analysis –
Introduction

● Linear stability
analysis-
Kelvin-
Helmholtz
instability -1

● Linear stability
analysis-
Kelvin-

Assignment 5

The due date for submitting this assignment has passed.

As per our records you have not submitted this **Due on 2019-03-06, 23:59 IST.**
assignment.

1) In an equilibrium system small perturbation is applied. How many perturbation wavelengths are possible? **1 point**

- Zero
- One
- Infinite
- None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Infinite

2) The instability occurs in a fluid system based on the effect of curvature is **1 point**

- Rayleigh Taylor instability
- Kelvin Helmholtz instability
- Rayleigh instability
- All the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Rayleigh instability

3) Growth rate of Rayleigh Taylor instability depends on **1 point**

- amplitude of perturbation
- wavelength of perturbation

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- Linear stability analysis procedure
- Quiz : Assignment 5
- Week - 5 Feedback Form

Week 6:
Atomization theory

Week 7: Spray theory

Week 8: Spray theory

Week 9:
Practical aspects of atomizer fabrication and manufacturing

Week 10:
Multiphase flow models of sprays

Week 11:
Multiphase flow models of sprays

Week 12: Spray evaporation and combustion

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4) Adverse density stratification causes

1 point

- Rayleigh Taylor instability
- Kelvin Helmholtz instability
- Rayleigh instability
- All the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Rayleigh Taylor instability

5) The striation in clouds are effect of

1 point

- Rayleigh Taylor instability
- Kelvin Helmholtz instability
- Rayleigh instability
- All the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Kelvin Helmholtz instability

6) Neutral stability bound in the dispersion relation is defined as

1 point

-
-
-
-

No, the answer is incorrect.

Score: 0

Accepted Answers:

7) In an unperturbed interface, small perturbation is added say $y=A \exp(\omega t + ikx)$ the growth rate of the disturbance (i.e. amplitude) depend on

1 point

- Real part of ω
- Imaginary part of ω
- Both a and b
- None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Real part of ω

8) In a stable rain drop, say pressure inside the drop is P_1 and pressure outside the drop is P_2 , which of the following is true

1 point

- $P_1=P_2$
- $P_1>P_2$
- $P_1<P_2$
- None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

$P1 > P2$

- 9) 50
 168
 346
 250

1 point



No, the answer is incorrect.

Score: 0

Accepted Answers:

346

- 10) 0.5
 0.05
 0.2
 0.02

1 point



No, the answer is incorrect.

Score: 0

Accepted Answers:

0.02

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