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NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Introduction to Aerospace Engineering/Flight (course)

Announcements (announcements) **About the Course** (https://swayam.gov.in/nd1_noc19_ae05/preview)

Ask a Question (forum) Progress (student/home) Mentor (student/mentor)

Unit 5 - Week 3

Course outline

How to access the portal?

Preliminaries for the Course

Week 1

Week 2

Week 3

● Lecture 9 :
Essentials of Incompressible Flow : Part I (unit? unit=20&lesson=22)

● Lecture 10 :
Essentials of Incompressible Flow : Part II (unit? unit=20&lesson=23)

● Lecture 11 :
Bernoulli's Equation and Coanda Effect

Assignment 3

The due date for submitting this assignment has passed. **Due on 2019-08-21, 23:59 IST.**
As per our records you have not submitted this assignment.

The following questions **may have more than one correct answers**. Read and analyse the question carefully before selecting the answer (s).

Marks will be awarded only if all the correct answers are selected.

No partial marks will be awarded.

1) Which of the following is/are true for Lagrangian flow? **1 point**

- Properties are expressed as functions of space and time.
- Properties of a particle are tracked irrespective of its motion.
- Properties are observed at a fixed point in space.
- Properties are measured for a particular particle.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Properties of a particle are tracked irrespective of its motion.

Properties are measured for a particular particle.

2) For a three dimensional flow, the following equation(s) hold for incompressible flow. **1 point**

-
- $$\frac{Df}{Dt} = \frac{\delta f}{\delta x} V + \frac{\delta f}{\delta t}$$
-
- $$\frac{Df}{Dt} = \frac{\delta f}{\delta t} + \vec{V} \cdot \nabla f$$
-
- $$\frac{Df}{Dt} = \frac{\delta f}{\delta t} + \vec{V} \times \nabla f$$

(unit?
unit=20&lesson=24)

● Lecture 12 :
Mach Number
(unit?
unit=20&lesson=25)

● Lecture 13 :
Tutorial 2:
Incompressible
Flow and Flow
Visualization
(unit?
unit=20&lesson=26)

○ Quiz :
Assignment 3
(assessment?
name=95)

○ Assignment-3
Solutions (unit?
unit=20&lesson=107)

○ Weekly
Feedback (unit?
unit=20&lesson=116)

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Download Videos

Text Transcripts

None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

$$\frac{Df}{Dt} = \frac{\delta f}{\delta t} + \vec{V} \cdot \nabla f$$

3) Which of the following is/are a Lagrangian description of the flow field ? **1 point**

Streamline

Streakline

Pathline

Timeline

No, the answer is incorrect.
Score: 0

Accepted Answers:

Streakline

Pathline

4) In the picture below, a thin plate has been immersed in a tank containing diluted salt water, and oscillated about a central axis. Thin platinum wires are dipped into the tank (not visible). When current is passed through these wires, electrolytic decomposition of water at the surface of the platinum wires causes the evolution of fine hydrogen bubbles. The picture is a snapshot showing neat lines of hydrogen bubbles move past the oscillating plate. The picture shows which of the following line(s)? **1 point**

Streamlines

Streaklines

Pathlines

Timelines

No, the answer is incorrect.
Score: 0

Accepted Answers:

Streaklines

5) The picture below shows two streamlines s1 and s2. Which of the following statement(s) is/are **1 point** not true ?

The flow is steady and uniform.

The flow is unsteady, but can't comment on its uniformity.

The flow is unsteady and uniform.

The figure is wrong, since streamlines never intersect.

No, the answer is incorrect.
Score: 0

Accepted Answers:

The flow is steady and uniform.

The flow is unsteady, but can't comment on its uniformity.

The flow is unsteady and uniform.

The figure is wrong, since streamlines never intersect.

