

Unit 5 - Week 4 : FLUID DYNAMICS

Course outline

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Live Session

Assignment 4

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2019-09-25, 23:59 IST.

1) In Bernoulli's equation used for pipe flow, each term represents

1 point

- a. Energy per unit weight
 b. Energy per unit mass
 c. Energy per unit volume
 d. Energy per unit flow length

No, the answer is incorrect. Score: 0

Accepted Answers:

a. Energy per unit weight

2) Water flows steadily down in a vertical pipe of constant cross section. Neglecting friction according Bernoulli's equation

1 point

- a. Pressure is constant along the length of the pipe
 b. Velocity decrease with height
 c. Pressure decrease with height
 d. Pressure increase with height

No, the answer is incorrect. Score: 0

Accepted Answers:

c. Pressure decrease with height

3) The equation $gz + v^2/2 + [dp/\rho = \text{constant}$ along a stream line holds true for

1 point

- a. Steady, frictionless, compressible fluid
 b. Steady, uniform, incompressible fluid
 c. Steady, frictionless, incompressible fluid
 d. Unsteady, incompressible fluid

No, the answer is incorrect. Score: 0

Accepted Answers:

a. Steady, frictionless, compressible fluid

4) Bernoulli's equation is an equation of

1 point

- a. Conservation of mass
 b. Conservation of momentum
 c. Conservation of energy
 d. Conservation of angular momentum

No, the answer is incorrect. Score: 0

Accepted Answers:

c. Conservation of energy

5) Pitot tube is used to measure

1 point

- a. Static pressure of flowing fluid
 b. Dynamic pressure of flowing fluid
 c. Total pressure of a flowing fluid
 d. Surface tension of a flowing fluid

No, the answer is incorrect. Score: 0

Accepted Answers:

c. Total pressure of a flowing fluid

6) If the velocity distribution is rectangular, the kinetic energy correction factor is

1 point

- a. Greater than zero but less than unity
 b. Less than zero
 c. Equal to zero
 d. Equal to unity

No, the answer is incorrect. Score: 0

Accepted Answers:

d. Equal to unity

7) Hydraulic gradient line represent the sum of

1 point

- a. Pressure and kinetic head
 b. Kinetic head and datum head
 c. Pressure head, kinetic head and datum head
 d. Pressure head and datum head

No, the answer is incorrect. Score: 0

Accepted Answers:

d. Pressure head and datum head

8) Total energy line represent the sum of

1 point

- a. Pressure and kinetic head
 b. Kinetic head and datum head
 c. Pressure head and datum head
 d. Pressure head, kinetic head and datum head

No, the answer is incorrect. Score: 0

Accepted Answers:

d. Pressure head, kinetic head and datum head

9) Match the list given below according to the list below

1 point

List 1

1. $v^2/2g$
 2. $p/\rho g$
 3. Z

List 2

1. Piezometric head
 2. Velocity head
 3. Datum head
 4. Pressure head

- a. A-1; B-3; C-2
 b. A-2; B-4; C-3
 c. A-2; B-1; C-3
 d. A-1; B-4; C-3

No, the answer is incorrect. Score: 0

Accepted Answers:

b. A-2; B-4; C-3

10) Kinematic viscosity is equal to; where ρ is density

1 point

- a. Dynamic viscosity $\times \rho$
 b. Dynamic viscosity/ ρ
 c. ρ /Dynamic viscosity
 d. None of these

No, the answer is incorrect. Score: 0

Accepted Answers:

b. Dynamic viscosity/ ρ

11) Water flowing through a pipe of 5cm diameter under a pressure of 29.43 N/cm² (gauge) and with mean velocity of 2.0 m/s. Find the piezometric head of the water at a cross-section which is 5 m above the datum line. (in m)

Hint

No, the answer is incorrect. Score: 0

Accepted Answers:

(Type: Range) 34,36

2 points

12) For the problem above, find the total energy per unit weight at the same cross section (in m)

Hint

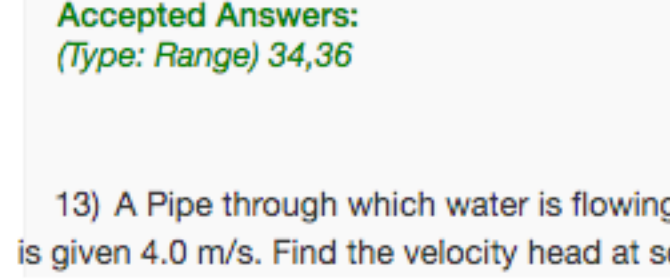
No, the answer is incorrect. Score: 0

Accepted Answers:

(Type: Range) 34,36

2 points

13) A Pipe through which water is flowing having a diameters 20 cm and 10 cm at the cross section 1 and 2 respectively. The velocity of water at cross section 1 is given 4.0 m/s. Find the velocity head at section 1. (in m)



Hint

No, the answer is incorrect. Score: 0

Accepted Answers:

(Type: Range) 0.7,1.0

2 points

14) For the problem above, find velocity head at section 2. (in m)

Hint

No, the answer is incorrect. Score: 0

Accepted Answers:

(Type: Range) 12,14

2 points

15) For problem 14, find discharge (litres/sec)

Hint

No, the answer is incorrect. Score: 0

Accepted Answers:

(Type: Range) 122,127

2 points