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NPTEL

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Unit 2 - assignment zero

Course outline

New Unit

assignment zero

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Assignment
Zero

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Assignment Zero

The due date for submitting this assignment has passed. **Due on 2018-02-01, 13:29 IST.**

Submitted assignment

1) Microfluidics has applications in 1 point

- a) inkjet printing
 b) analytical chemistry
 c) process intensification
 d) all of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

d) all of the above

2) Imaginary lines that are tangent to the direction of flow at every point in the flow field are called: 1 point

- a) Timelines
 b) Pathlines
 c) Streamlines
 d) Streaklines

No, the answer is incorrect.

Score: 0

Accepted Answers:

c) Streamlines

3) The stress at any point in the flow field has _____ components? 1 point

- a) Four
 b) Six
 c) Nine
 d) Three

No, the answer is incorrect.

Score: 0

Accepted Answers:

c) Nine

4) Non-Newtonian fluids in which the apparent viscosity decreases with increasing stress are called: 1 point

- a) Pseudo-plastic
-
- b) Bingham-Plastics
- c) dilatants
- d) thixotropic

No, the answer is incorrect.

Score: 0

Accepted Answers:

a) Pseudo-plastic

5) A laminar flow is the one in which:

1 point

- a) Fluid particles move as laminas
- b) Fluid particles exhibit chaotic motion
- c) Reynolds number more than 2100 when fluid flows through a smooth straight tube
-
- d) None

No, the answer is incorrect.

Score: 0

Accepted Answers:

a) Fluid particles move as laminas

6) Whole milk at 293K having a density 1030 Kg/m³ and viscosity of 2.12 cP is flowing at the rate of 0.605 kg/s in a glass pipe of diameter 63.5mm. Calculate the Reynolds Number for this case.

1 point

- a) 5723
- b) 4050
- c) 4545
- d) 5054

No, the answer is incorrect.

Score: 0

Accepted Answers:

a) 5723

7) Fluid in a capillary rises due to

1 point

-
- a) Viscosity
-
- b) Gravity
- c) Surface tension
-
- d) None

No, the answer is incorrect.

Score: 0

Accepted Answers:

c) Surface tension

8) Flow over a flat plate is an example of

1 point

- a) External flow
-
- b) Internal flow
-
- c) Inviscid flow
- d) Compressible flow

No, the answer is incorrect.

Score: 0

Accepted Answers:*a) External flow*

9) The fundamental relation between the rate of change of any arbitrary extensive property of a system and the variation of this property associated with a control volume is called: **1 point**

- a) Reynolds Transport Theorem
- b) Bernoulli's theorem
- c) Navier Stokes equation
- d) Stokes law

No, the answer is incorrect.**Score: 0****Accepted Answers:***a) Reynolds Transport Theorem*

10) While solving any fluid flow problem for an incompressible fluid, the basic quantity(ies) of interest are: **1 point**

- a) Velocity and pressure field
- b) Velocity field and density field
- c) Velocity field only
- d) Velocity field and stress field

No, the answer is incorrect.**Score: 0****Accepted Answers:***a) Velocity and pressure field*

11) Viscosity of water at room temperature is: **1 point**

- a) 1cP
- b) 0.1 cP
- c) 10 cP
- d) None

No, the answer is incorrect.**Score: 0****Accepted Answers:***a) 1cP*

12) Reynolds number is the ratio of **1 point**

- (a) Gravity forces to viscous forces
- b) Inertial forces to viscous forces
- (C) Inertial forces to gravity forces
- (D) Buoyancy forces to inertia forces

No, the answer is incorrect.**Score: 0****Accepted Answers:***b) Inertial forces to viscous forces*

13) The viscosity of a/an _____ fluid is zero? **1 point**

- (A) Pseudoplastic
- b) inviscid
- c) Newtonian
- d) Dilatant

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) *inviscid*

14) Young-Laplace equation relates

1 point

- (A) The pressure difference at an interface caused by surface tension
- (B) Stress and strain rate
- (C) Stress and strain
- (D) None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

(A) *The pressure difference at an interface caused by surface tension*

15) The dynamic viscosity of a liquid is 1.2×10^{-4} Ns/m², whereas, the density is 600 kg/m³. The kinematic viscosity in m²/s is

1 point

- (A) 72×10^{-3}
- (B) 20×10^{-8}
- (C) 7.2×10^{-3}
- (D) 70×10^6

No, the answer is incorrect.

Score: 0

Accepted Answers:

(B) 20×10^{-8}

16) Falling drops of water become spherical due to which of the following properties?

1 point

- a) Viscosity
- b) Surface tension
- c) Compressibility
- d) Density

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) *Surface tension*

17) In which of the following cases would you expect a parabolic velocity profile?

1 point

- a) Laminar flow of Newtonian fluid in a pipe
- b) Turbulent flow of Newtonian fluid in a pipe
- c) Laminar flow of Bingham plastic in a pipe
- d) Laminar flow of an inviscid fluid in a pipe

No, the answer is incorrect.

Score: 0

Accepted Answers:*a) Laminar flow of Newtonian fluid in a pipe*

18) Which of the following is not a flow measuring instrument?

1 point

- a) Anemometer
- b) Pitot tube
- c) Venturimeter
- d) None

No, the answer is incorrect.**Score: 0****Accepted Answers:***d) None*

19) The principle of mass conservation is also known as

1 point

- a) Continuity equation
- b) Momentum equation
- c) Energy equation
- d) All of the above

No, the answer is incorrect.**Score: 0****Accepted Answers:***a) Continuity equation*

20) Stress strain relationship for a Newtonian fluid is

1 point

- (A) Parabolic
- (B) Hyperbolic
- (C) Linear
- (D) None of the above

No, the answer is incorrect.**Score: 0****Accepted Answers:***(C) Linear***End**



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