

1. Viscosity of water in comparison to mercury is

- (A) Higher
- (B) Lower
- (C) Same
- (D) Higher/lower depending on temperature

Correct Answer

2. The power transmitted through the pipe is maximum when the head lost due to friction is equal to

- (A) One-fourth of the total supply head
- (B) One-third of the total supply head
- © One-half of the total supply head
- (D) Two-third of the total supply head

Correct Answer

3. Falling drops of water become spheres due to the property of

- (A) Adhesion
- (B) Cohesion
- (C) Surface tension
- (D) Viscosity

Correct Answer

4. A hemispherical tank of radius R has an orifice of cross-sectional area a at its bottom and is full of liquid. The time required to empty the tank completely is

- (A) $14\pi R^{1/2}/15Cd \times a \sqrt{2g}$
- (B) $14\pi R^{3/2}/15Cd \times a \sqrt{2g}$
- © $14\pi R^{5/2}/15Cd \times a \sqrt{2g}$
- (D) $14\pi R^{7/2}/15Cd \times a \sqrt{2g}$

Correct Answer

5. The difference of pressure between the inside and outside of a liquid drop is

- (A) $p = T \times r$
- (B) $p = T/r$
- (C) $p = T/2r$

(D) $p = 2T/r$

Correct Answer

6. A venturi-flume is used to measure

(A) Pressure of liquid

(B) Discharge of liquid

© Pressure difference between two points in a channel

(D) Pressure difference between two points in a pipe

Correct Answer

7. Working principle of dead weight pressure gauge tester is based on

(A) Pascal's law

(B) Dalton's law of partial pressure

© Newton's law of viscosity

(D) Avogadro's hypothesis

Correct Answer

8. The metacentric height of a ship is 0.6 m and the radius of gyration is 4 m. The time of rolling of a ship is

(A) 4.1 sec

(B) 5.2 sec

© 10.4 sec

(D) 14.1 sec

Correct Answer

9. The discharge through a channel of rectangular section will be maximum, if

(A) Its depth is twice the breadth

(B) Its breadth is twice the depth

(C) Its depth is thrice the breadth

(D) Its breadth is thrice the depth

Correct Answer

10. The discharge through a channel of circular section will be maximum when the depth of water is _____ the diameter of the circular channel.

- (A) 0.34 times
- (B) 0.67 times
- (C) 0.81 times
- (D) 0.95 times

Correct Answer

11. Uniform flow occurs when

- (A) The flow is steady
- (B) The flow is streamline
- (C) Size and shape of the cross section in a particular length remain constant
- (D) Size and cross section change uniformly along length

Correct Answer

12. Bulk modulus of a fluid is the ratio of

- (A) Shear stress to shear strain
- (B) Increase in volume to the viscosity of fluid
- (C) Increase in pressure to the volumetric strain
- (D) Critical velocity to the viscosity of fluid

Correct Answer

13. The pressure in Pascal's at a depth of 1 m below the free surface of a body of water will be equal to

- (A) 1 Pa
- (B) 91 Pa
- (C) 981 Pa
- (D) 9810 Pa

Correct Answer

14. An average value of coefficient of velocity is

- (A) 0.62
- (B) 0.76
- (C) 0.84

(D) 0.97

Correct Answer

15. A liquid would wet the solid, if adhesion forces as compared to cohesion forces are

(A) Less

(B) More

(C) Equal

(D) Less at low temperature and more at high temperature

Correct Answer

View All Answers

1. Answer: Option A 2. Answer: Option B 3. Answer: Option C 4. Answer: Option C 5. Answer: Option D 6. Answer: Option B 7. Answer: Option A 8. Answer: Option C 9. Answer: Option B 10. Answer: Option D 11. Answer: Option C 12. Answer: Option C 13. Answer: Option D 14. Answer: Option D 15. Answer: Option B

1. The pressure intensity in kN/m^2 (or kPa) at any point in a liquid is (where w = Specific weight of liquid, and h = Depth of liquid from the surface)

(A) w

(B) wh

(C) w/h

(D) h/w

Correct Answer

2. The resultant upward pressure of a fluid on a floating body is equal to the weight of the fluid displaced by the body. This definition is according to

(A) Buoyancy

(B) Equilibrium of a floating body

(C) Archimedes' principle

(D) Bernoulli's theorem

Correct Answer

3. The liquid used in manometers should have

(A) Low density

- (B) High density
- (C) Low surface tension
- (D) High surface tension

Correct Answer

4. Which of the following instrument can be used for measuring speed of an aeroplane?

- (A) Venturimeter
- (B) Orifice plate
- © Pitot tube
- (D) Rotameter

Correct Answer

5. A jet of water discharging from a 40 mm diameter orifice has a diameter of 32 mm at its vena contracta. The coefficient of contraction is

- (A) 0.46
- (B) 0.64
- © 0.78
- (D) 0.87

Correct Answer

6. Buoyant force is

- (A) Resultant force acting on a floating body
- (B) Equal to the volume of liquid displaced
- © Force necessary to keep a body in equilibrium
- (D) The resultant force on a body due to the fluid surrounding it

Correct Answer

7. In case of flow through parallel pipes,

- (A) The head loss for all the pipes is same
- (B) The total discharge is equal to the sum of discharges in the various pipes
- © The total head loss is the sum of head losses in the various pipes
- (D) Both (A) and (B)

Correct Answer

8. Rotameter is a device used to measure

- (A) Absolute pressure
- (B) Velocity of fluid
- © Flow
- (D) Rotation

Correct Answer

9. In a broad-crested weir, the discharge is maximum if the head of water on the downstream side of weir is _____ the head of water on the upstream side of weir.

- (A) Equal to
- (B) One-third
- © Two-third
- (D) Three-fourth

Correct Answer

10. When a body, floating in a liquid, is given a small angular displacement, it starts oscillating about a point known as

- (A) Centre of pressure
- (B) Centre of gravity
- © Centre of buoyancy
- (D) Metacentre

Correct Answer

11. A nozzle is generally made of

- (A) Cylindrical shape
- (B) Convergent shape
- © Divergent shape
- (D) Convergent-divergent shape

Correct Answer

12. Pitot tube is used for measurement of

- (A) Pressure
- (B) Flow
- (C) Velocity
- (D) Discharge

Correct Answer

13. Coefficient of discharge C_d is equal to (where C_c = Coefficient of contraction, C_v = Coefficient of velocity, and C_r = Coefficient of resistance)

- (A) $C_c \times C_v$
- (B) $C_c \times C_r$
- (C) $C_v \times C_r$
- (D) C_c/C_r

Correct Answer

14. The value of mass density in $\text{kg-sec}^{-1}\text{-m}^{-3}$ for water at 0°C is

- (A) 1
- (B) 1000
- (C) 100.9
- (D) 101.9

Correct Answer

15. The shear stress between the two liquid layers is _____ proportional to the distance between two layers.

- (A) Directly
- (B) Inversely
- (C) Both A and B
- (D) None of these

Correct Answer

View All Answers

1. Answer: Option B
2. Answer: Option C
3. Answer: Option D
4. Answer: Option C
5. Answer: Option B
6. Answer: Option D
7. Answer: Option D
8. Answer: Option C
9. Answer: Option C
10. Answer: Option D
11. Answer: Option B
12. Answer: Option C
13. Answer: Option A
14. Answer: Option D
15. Answer: Option B

1. A large Reynold number is indication of

- (A) Smooth and streamline flow
- (B) Laminar flow
- © Steady flow
- (D) Highly turbulent flow

Correct Answer

2. Which of the following statement is wrong?

- (A) A flow whose streamline is represented by a curve is called two dimensional flow.
- (B) The total energy of a liquid particle is the sum of potential energy, kinetic energy and pressure energy.
- © The length of divergent portion in a Venturimeter is equal to the convergent portion.
- (D) A pitot tube is used to measure the velocity of flow at the required point in a pipe.

Correct Answer

3. Density of water is maximum at

- (A) 0° C
- (B) 0° K
- (C) 4° C
- (D) 100° C

Correct Answer

4. A weir is said to be broad crested weir, if the width of the crest of the weir is _____ half the height of water above the weir crest.

- (A) Equal to
- (B) Less than
- (C) More than
- (D) None of these

Correct Answer

5. The bulk modulus of elasticity

- (A) Has the dimensions of 1/pressure

- (B) Increases with pressure
- (C) Is large when fluid is more compressible
- (D) Is independent of pressure and viscosity

Correct Answer

6. A tank of uniform cross-sectional area (A) containing liquid upto height (H₁) has an orifice of cross-sectional area (a) at its bottom. The time required to empty the tank completely will be

- (A) $(2AVH_1)/(Cd \times a\sqrt{2g})$
- (B) $(2AH_1)/(Cd \times a\sqrt{2g})$
- (C) $(2AH_1^{3/2})/(Cd \times a\sqrt{2g})$
- (D) $(2AH_1^2)/(Cd \times a\sqrt{2g})$

Correct Answer

7. Kinematic viscosity is equal to

- (A) Dynamic viscosity/density
- (B) Dynamic viscosity × density
- (C) Density/dynamic viscosity
- (D) 1/dynamic viscosity × density

Correct Answer

8. The atmospheric pressure at sea level is

- (A) 103 kN/m²
- (B) 10.3 m of water
- (C) 760 mm of mercury
- (D) All of these

Correct Answer

9. The conditions for the stable equilibrium of a floating body are

- (A) The metacentre should lie above the center of gravity
- (B) The center of buoyancy and the center of gravity must lie on the same vertical line
- (C) A righting couple should be formed
- (D) All the above are correct

Correct Answer

10. A glass tube of smaller diameter is used while performing an experiment for the capillary rise of water because

- (A) It is easier to see through the glass tube
- (B) Glass tube is cheaper than a metallic tube
- (C) It is not possible to conduct this experiment with any other tube
- (D) All of the above

Correct Answer

11. To avoid an interruption in the flow of a siphon, an air vessel is provided

- (A) At the inlet
- (B) At the outlet
- (C) At the summit
- (D) At any point between inlet and outlet

Correct Answer

12. When the coefficient of discharge (C_d) is 0.623, then the general equation for discharge over a rectangular weir is

- (A) $1.84(L - 0.1nH)H^{3/2}$
- (B) $1.84(L - nH)H^2$
- (C) $1.84(L - 0.1nH)H^{5/2}$
- (D) $1.84(L - nH)H^3$

Correct Answer

13. In an isothermal atmosphere, the pressure

- (A) Decreases linearly with elevation
- (B) Remain constant
- (C) Varies in the same way as the density
- (D) Increases exponentially with elevation

Correct Answer

14. The pressure of a liquid measured with the help of a Piezometer tube is

- (A) Vacuum pressure
- (B) Gauge pressure
- (C) Absolute pressure
- (D) Atmospheric pressure

Correct Answer

15. If the atmospheric pressure on the surface of an oil tank (sp. gr. 0.8) is 0.2 kg/cm^2 , the pressure at a depth of 50 m below the oil surface will be

- (A) 2 meters of water column
- (B) 3 meters of water column
- © 5 meters of water column
- (D) 6 meters of water Column

Correct Answer

View All Answers

1. Answer: Option D 2. Answer: Option C 3. Answer: Option C 4. Answer: Option C 5. Answer: Option B 6. Answer: Option A 7. Answer: Option A 8. Answer: Option D 9. Answer: Option D 10. Answer: Option A 11. Answer: Option C 12. Answer: Option A 13. Answer: Option C 14. Answer: Option B 15. Answer: Option D

1. For a perfect incompressible liquid, flowing in a continuous stream, the total energy of a particle remains the same, while the particle moves from one point to another. This statement is called

- (A) Continuity equation
- (B) Bernoulli's equation
- © Pascal's law
- (D) Archimedes's principle

Correct Answer

2. Uniform flow occurs when

- (A) The direction and magnitude of the velocity at all points are identical
- (B) The velocity of successive fluid particles, at any point, is the same at successive periods of time
- © The magnitude and direction of the velocity do not change from point to point in the fluid
- (D) The fluid particles move in plane or parallel planes and the streamline patterns are identical in each plane

Correct Answer

3. The critical depth for a channel is given by (where q = Unit discharge (discharge per unit width) through the channel)

(A) $(q/g)^{1/2}$

(B) $(q^2/g)^{1/3}$

© $(q^3/g)^{1/4}$

(D) $(q^4/g)^{1/5}$

Correct Answer

4. At the center line of a pipe flowing under pressure where the velocity gradient is zero, the shear stress will be

(A) Minimum

(B) Maximum

© Zero

(D) Could be any value

Correct Answer

5. The discharge through a channel of trapezoidal section is maximum when

(A) Width of channel at the top is equal to twice the width at the bottom

(B) Depth of channel is equal to the width at the bottom

© The sloping side is equal to half the width at the top

(D) The sloping side is equal to the width at the bottom

Correct Answer

6. Piezometer is used to measure

(A) Pressure in pipe, channels etc.

(B) Atmospheric pressure

© Very low pressures

(D) Difference of pressure between two points

Correct Answer

7. The point at which the resultant pressure on an immersed surface acts, is known as

(A) Centre of gravity

- (B) Centre of depth
- (C) Centre of pressure
- (D) Centre of immersed surface

Correct Answer

8. Choose the wrong statement

- (A) Any weight, floating or immersed in a liquid, is acted upon by a buoyant force
- (B) Buoyant force is equal to the weight of the liquid displaced
- (C) The point through which buoyant force acts, is called the center of buoyancy
- (D) Center of buoyancy is located above the center of gravity of the displaced liquid

Correct Answer

9. The centre of pressure for a vertically immersed surface lies at a distance equal to _____ the centre of gravity.

- (A) $IG / A\bar{x}$ below
- (B) $IG / A\bar{x}$ above
- © $A\bar{x} / IG$ below
- (D) $A\bar{x} / IG$ above

Correct Answer

10. The pressure in the air space above an oil (sp. Gr. 0.8) surface in a tank is 0.1 kg/cm^2 . The pressure at 2.5 m below the oil surface will be

- (A) 2 metres of water column
- (B) 3 metres of water column
- © 3.5 metres of water column
- (D) 4 m of water column

Correct Answer

11. The total pressure on the top of a closed cylindrical vessel completely filled up with a liquid is

- (A) Directly proportional to (radius)²
- (B) Inversely proportional to (radius)²

- (C) Directly proportional to (radius)⁴
- (D) Inversely proportional to (radius)⁴

Correct Answer

12. The flow which neglects changes in a transverse direction is known as

- (A) One dimensional flow
- (B) Uniform flow
- © Steady flow
- (D) Turbulent flow

Correct Answer

13. A moving fluid mass may be brought to a static equilibrium position, by applying an imaginary inertia force of the same magnitude as that of the accelerating force but in the opposite direction. This statement is called

- (A) Pascal's law
- (B) Archimedes's principle
- © D'Alembert's principle
- (D) None of these

Correct Answer

14. Normal depth in open channel flow is the depth of flow corresponding to

- (A) Steady flow
- (B) Unsteady flow
- (C) Laminar flow
- (D) Uniform flow

Correct Answer

15. The mass per unit volume of a liquid at a standard temperature and pressure is called

- (A) Specific weight
- (B) Mass density
- (C) Specific gravity
- (D) None of these

Correct Answer

View All Answers

1. Answer: Option B 2. Answer: Option C 3. Answer: Option B 4. Answer: Option D 5. Answer: Option C 6. Answer: Option C 7. Answer: Option C 8. Answer: Option D 9. Answer: Option A 10. Answer: Option B 11. Answer: Option C 12. Answer: Option A 13. Answer: Option C 14. Answer: Option D 15. Answer: Option B

1. For pipes, turbulent flow occurs when Reynolds number is

- (A) Less than 2000
- (B) Between 2000 and 4000
- (C) More than 4000
- (D) Less than 4000

Correct Answer

2. The velocity of the liquid flowing through the divergent portion of a Venturimeter

- (A) Remains constant
- (B) Increases
- (C) Decreases
- (D) Depends upon mass of liquid

Correct Answer

3. The volumetric change of the fluid caused by a resistance is known as

- (A) Volumetric strain
- (B) Volumetric index
- (C) Compressibility
- (D) Adhesion

Correct Answer

4. If the depth of water in an open channel is less than the critical depth, the flow is called

- (A) Critical flow
- (B) Turbulent flow
- (C) Tranquil flow
- (D) Torrential flow

Correct Answer

5. Choose the wrong statement

- (A) Fluids are capable of flowing
- (B) Fluids conform to the shape of the containing vessels
- (C) When in equilibrium, fluids cannot sustain tangential forces
- (D) When in equilibrium, fluids can sustain shear forces

Correct Answer

6. An orifice is said to be large, if

- (A) The size of orifice is large
- (B) The velocity of flow is large
- (C) The available head of liquid is more than 5 times the height of orifice
- (D) The available head of liquid is less than 5 times the height of orifice

Correct Answer

7. A piece of metal of specific gravity 13.6 is placed in mercury of specific gravity 13.6, what fraction of it volume is under mercury?

- (A) The metal piece will simply float over the mercury
- (B) The metal piece will be immersed in mercury by half
- (C) Whole of the metal piece will be immersed with its top surface just at mercury level
- (D) Metal piece will sink to the bottom

Correct Answer

8. The centre of pressure acts _____ the centre of gravity of immersed surface.

- (A) At
- (B) Above
- (C) Below
- (D) None of these

Correct Answer

9. Dynamic viscosity of most of the liquids with rise in temperature

- (A) Increases
- (B) Decreases
- (C) Remain unaffected

(D) Unpredictable

Correct Answer

10. The discharge over a right angled notch is (where H = Height of liquid above the apex of notch)

(A) $(8/15) C_d \cdot 2g \cdot H$

(B) $(8/15) C_d \cdot 2g \cdot H^{3/2}$

(C) $(8/15) C_d \cdot 2g \cdot H^2$

(D) $(8/15) C_d \cdot 2g \cdot H^{5/2}$

Correct Answer

11. A square surface 3 m × 3 m lies in a vertical line in water pipe its upper edge at water surface. The hydrostatic force on square surface is

(A) 9,000 kg

(B) 13,500 kg

(C) 18,000 kg

(D) 27,000 kg

Correct Answer

12. The discharge through a siphon will be

(A) $C_d \times a \times \sqrt{2gH}$

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(C) $C_d \times a \times \sqrt{2g} \times H^2$

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Correct Answer

13. Select the correct statement

(A) Local atmospheric pressure depends upon elevation of locality only

(B) Standard atmospheric pressure is the mean local atmospheric pressure at sea level

(C) Local atmospheric pressure is always below standard atmospheric pressure

(D) A barometer reads the difference between local and standard atmospheric pressure

Correct Answer

14. The shear stress-strain graph for a Newtonian fluid is a

- (A) Straight line
- (B) Parabolic curve
- © Hyperbolic curve
- (D) Elliptical

Correct Answer

15. The flow in which the particles of a fluid attain such velocities that varies from point to point in magnitude and direction as well as from instant to instant, is known as

- (A) One dimensional flow
- (B) Uniform flow
- © Steady flow
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Correct Answer

View All Answers

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3. Answer: Option C
4. Answer: Option D
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6. Answer: Option D
7. Answer: Option C
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9. Answer: Option B
10. Answer: Option D
11. Answer: Option B
12. Answer: Option A
13. Answer: Option B
14. Answer: Option A
15. Answer: Option D

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View All Answers

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2. Answer: Option C
3. Answer: Option C
4. Answer: Option D
5. Answer: Option D
6. Answer: Option D
7. Answer: Option C
8. Answer: Option C
9. Answer: Option B
- 10.

Answer: Option D 11. Answer: Option B 12. Answer: Option A 13. Answer: Option B 14. Answer: Option A 15. Answer: Option D

1. The specific weight of sea water is _____ that of pure water.

- (A) Same as
- (B) Less than
- (C) More than
- (D) None of these

Correct An©r

2. Which of the following instruments is used to measure flow on the application of Bernoulli's theorem?

- (A) Venturimeter
- (B) Orifice plate
- (C) Nozzle
- (D) All of the above

Correct Answer

3. When a cylindrical vessel of radius r containing liquid is revolved about its vertical axis ω rad/s, then depth of parabola which the liquid assumes is

- (A) $\omega \cdot r / 2g$
- (B) $\omega^2 \cdot r^2 / 2g$
- © $\omega \cdot r / 4g$
- (D) $\omega^2 \cdot r^2 / 4g$

Correct Answer

4. The depth of the centre of pressure on a vertical rectangular gate 8 m wide and 6 m high, when the water surface coincides with the top of the gate, is

- (A) 2.4 m
- (B) 3.0 m
- © 4.0 m
- (D) 5.0 m

Correct Answer

5. An internal mouthpiece is said to be running free if the length of the mouthpiece is _____ the diameter of the orifice.

- (A) Less than twice
- (B) More than twice
- © Less than three times
- (D) More than three times

Correct Answer

6. An ideal flow of any fluid must satisfy

- (A) Pascal law
- (B) Newton's law of viscosity
- © Boundary layer theory
- (D) Continuity equation

Correct Answer

7. The height of a water column equivalent to a pressure of 0.15 MPa is

- (A) 15.3 m
- (B) 25.3 m
- (C) 35.3 m
- (D) 45.3 m

Correct Answer

8. The regi©between the separation streamline and the boundary surface of the solid body is known as

- (A) Wake
- (B) Drag
- © Lift
- (D) Boundary layer

Correct Answer

9. The total pressure on the top of a closed cylindrical vessel of radius ® completely filled up with liquid of specific weight (w) and rotating at (ω) rad/s about its vertical axis, is

- (A) $\pi w \omega^2 r^2/4g$
- (B) $\pi w \omega^2 r^3/4g$

(C) $\pi w \omega^2 r^4/4g$

(D) $\pi w \omega^2 r^2/2g$

Correct Answer

10. Froude number is significant in

(A) Supersonics, as with projectile and jet propulsion

(B) Full immersion or completely enclosed flow, as with pipes, aircraft wings, nozzles etc.

(C) Simultaneous motion through two fluids where there is a surface of discontinuity, gravity forces, and wave making effect, as with ship's hulls

(D) All of the above

Correct Answer

11. The ratio of specific weight of a liquid to the specific weight of pure water at a standard temperature is called

(A) Density of liquid

(B) Specific gravity of liquid

(C) Compressibility of liquid

(D) Surface tension of liquid

Correct Answer

12. A hydraulic press has a ram of 15 cm diameter and plunger of 1.5 cm. It is required to lift a weight of 1 tonne. The force required on plunger is equal to

(A) 10 kg

(B) 100 kg

(C) 1000 kg

(D) 1 kg

Correct Answer

13. The total head of a liquid particle in motion is equal to

(A) Pressure head + kinetic head + potential head

(B) Pressure head – (kinetic head + potential head)

(C) Potential head – (pressure head + kinetic head)

(D) Kinetic head – (pressure head + potential head)

Correct Answer

14. The bulk modulus of elasticity with increase in pressure

(A) Increases

(B) Decreases

(C) Remain constant

(D) Increases first up to certain limit and then decreases

Correct Answer

15. The diameter of the nozzle (d) for maximum transmission of power is given by (where D = Diameter of pipe, f = Darcy's coefficient of friction for pipe, and l = Length of pipe)

(A) $d = (D^5/8fl)^{1/2}$

(B) $d = (D^5/8fl)^{1/3}$

(C) $d = (D^5/8fl)^{1/4}$

(D) $d = (D^5/8fl)^{1/5}$

Correct Answer

Vi©All Answers

1. Answer: Option C 2. Answer: Option D 3. Answer: Option B 4. Answer: Option B 5. Answer: Option C 6. Answer: Option D 7. Answer: Option A 8. Answer: Option A 9. Answer: Option C 10. Answer: Option C 11. Answer: Option B 12. Answer: Option A 13. Answer: Option A 14. Answer: Option A 15. Answer: Option C

1. The fluid forces considered in the Navier Stokes equation are

(A) Gravity, pressure and viscous

(B) Gravity, pressure and turbulent

© Pressure, viscous and turbulent

(D) Gravity, viscous and turbulent

Correct Answer

2. When the Venturimeter is inclined, then for a given flow it will show _____ reading.

(A) Same

(B) More

(C) Less

(D) None of these

Correct Answer

3. Cavitation is caused by

(A) High velocity

(B) High pressure

(C) Weak material

(D) Low pressure

Correct Answer

4. A vertical wall is subjected to a pressure due to one kind of liquid, on one of its sides. The total pressure on the wall acts at a distance _____ from the liquid surface.

(A) $H/3$

(B) $H/2$

(C) $2H/3$

(D) $3H/4$

Correct Answer

5. An ideal flow of any fluid must fulfill the following

(A) Newton's law of motion

(B) Newton's law of viscosity

(C) Pascal's law

(D) Continuity equation

Correct Answer

6. The flow in a pipe or channel is said to be uniform when

(A) The liquid particles at all sections have the same velocities

(B) The liquid particles at different sections have different velocities

(C) The quantity of liquid flowing per second is constant

(D) Each liquid particle has a definite path

Correct Answer

7. Surface tension

- (A) Acts in the plane of the interface normal to any line in the surface
- (B) Is also known as capillarity
- © Is a function of the curvature of the interface
- (D) Decreases with fall in temperature

Correct Answer

8. Select the wrong statement

- (A) An equivalent pipe is treated as an ordinary pipe for all calculations
- (B) The length of an equivalent pipe is equal to that of a compound pipe
- © The discharge through an equivalent pipe is equal to that of a compound pipe
- (D) The diameter of an equivalent pipe is equal to that of a compound pipe

Correct Answer

9. Alcohol is used in manometers because

- (A) It has low vapour pressure
- (B) It is clearly visible
- © It has low surface tension
- (D) It can provide longer column due to low density

Correct Answer

10. The discharge through a wholly drowned orifice is given by (where H_1 = Height of water (on the upstream side) above the top of the orifice, H_2 = Height of water (on the downstream side) above the bottom of the orifice, and H = Difference between two water levels on either side of the orifice)

- (A) $Q = C_d \times bH_1 \times \sqrt{2gh}$
- (B) $Q = C_d \times bH_2 \times \sqrt{2gh}$
- © $Q = C_d \times b(H_2 - H_1) \times \sqrt{2gh}$
- (D) $Q = C_d \times bH \times \sqrt{2gh}$

Correct Answer

11. If no resistance is encountered by displacement, such a substance is known as

- (A) Fluid

(B) Water

© Gas

(D) Ideal fluid

Correct Answer

12. The kinematic viscosity is the

(A) Ratio of absolute viscosity to the density of the liquid

(B) Ratio of density of the liquid to the absolute viscosity

© Product of absolute viscosity and density of the liquid

(D) Product of absolute viscosity and mass of the liquid

Correct Answer

13. Choose the correct relationship

(A) Specific gravity = gravity × density

(B) Dynamic viscosity = kinematic viscosity × density

© Gravity = specific gravity × density

(D) Kinematic viscosity = dynamic viscosity × density

Correct Answer

14. The viscosity of water is _____ than that of mercury.

(A) Higher

(B) Lower

(C) Same as

(D) None of these

Correct Answer

15. Surface energy per unit area of a surface is numerically equal to

(A) Atmospheric pressure

(B) Surface tension

(C) Force of adhesion ©) Force of cohesion

Correct Answer

View All Answers

1. Answer: Option A 2. Answer: Option A 3. Answer: Option D 4. Answer: Option C 5. Answer: Option D 6. Answer: Option A 7. Answer: Option A 8. Answer: Option D 9. Answer: Option D 10. Answer: Option C 11. Answer: Option D 12. Answer: Option A 13. Answer: Option B 14. Answer: Option A 15. Answer: Option B

1. Metacentric height is the distance between the metacentre and

- (A) Water surface
- (B) Center of pressure
- (C) Center of gravity
- (C) Center of buoyancy

Correct Answer

2. The velocity through a channel of circular section will be maximum when the depth of water is _____ the diameter of the circular channel.

- (A) 0.34 times
- (B) 0.67 times
- (C) 0.81 times
- (D) 0.95 times

Correct Answer

3. Resultant pressure of the liquid in the case of an immersed body acts through

- (A) Centre of gravity
- (B) Centre of pressure
- (C) Metacentre
- (D) Centre of buoyancy

Correct Answer

4. A fluid is said to be ideal, if it is

- (A) Incompressible
- (B) Viscous and incompressible
- (C) Inviscous and compressible
- (D) Inviscous and incompressible

Correct Answer

5. In a depressed nappe

- (A) The pressure below the nappe is atmospheric
- (B) The pressure below the nappe is negative
- © The pressure above the nappe is atmospheric
- (D) The pressure above the nappe is negative

Correct Answer

6. The value of the coefficient of compressibility for water at ordinary pressure and temperature in kg/cm is equal to

- (A) 2,100
- (B) 2,700
- (C) 10,000
- (D) 21,000

Correct Answer

7. In one dimensional flow, the flow

- (A) Is steady and uniform
- (B) Takes place in straight line
- (C) Takes place in curve
- (D) Takes place in one direction

Correct Answer

8. To avoid vaporisation in the pipe line, the pipe line over the ridge is laid such that it is not more than

- (A) 2.4 m above the hydraulic gradient
- (B) 6.4 m above the hydraulic gradient
- (C) 10.0 m above the hydraulic gradient
- (D) 5.0 above the hydraulic gradient

Correct Answer

9. The loss of head at exit of a pipe is (where v = Velocity of liquid in the pipe)

- (A) $v^2/2g$
- (B) $0.5v^2/2g$
- (C) $0.375v^2/2g$
- (D) $0.75v^2/2g$

Correct Answer

10. Metacentre is the point of intersection of

- (A) Vertical upward force through e.g. of body and center line of body
- (B) Buoyant force and the center line of body
- (C) Midpoint between e.g. and center of buoyancy
- (D) All of the above

Correct Answer

11. The imaginary line drawn in the fluid in such a way that the tangent to any point gives the direction of motion at that point, is known as

- (A) Path line
- (B) Stream line
- (C) Steak line
- (D) Potential line

Correct Answer

12. An open vessel of water is accelerated up an inclined plane. The free water surface will

- (A) Be horizontal
- (B) Make an angle in direction of inclination of inclined plane
- (C) Make an angle in opposite direction to inclination of inclined plane
- (D) Any one of above is possible

Correct Answer

13. The discharge over a rectangular notch is

- (A) Inversely proportional to $H^{3/2}$
- (B) Directly proportional to $H^{3/2}$
- (C) Inversely proportional to $H^{5/2}$
- (D) Directly proportional to $H^{5/2}$

Correct Answer

14. The flow in which each liquid particle has a definite path and their paths do not cross each other is called

- (A) One dimensional flow
- (B) Streamline flow
- (C) Steady flow
- (D) Turbulent flow

Correct Answer

15. The magnitude of water hammer depends upon the

- (A) Elastic properties of the pipe material
- (B) Elastic properties of the liquid flowing through the pipe
- © Speed at which the valve is closed
- (D) All of the above

Correct Answer

View All Answers

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[View All Answers](#)

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1. A compound pipe is required to be replaced by a new pipe. The two pipes are said to be equivalent, if

- (A) Length of both the pipes is same
- (B) Diameter of both the pipes is same
- (C) Loss of head and discharge of both the pipes is same
- (D) Loss of head and velocity of flow in both the pipes is same

Correct Answer

2. The center of gravity of the volume of the liquid displaced by an immersed body is called

- (A) Metacentre
- (B) Center of pressure
- (C) Center of buoyancy
- (D) Center of gravity

Correct Answer

3. A flow is called sub-sonic, if the Mach number is

- (A) Less than unity
- (B) Unity
- (C) Between 1 and 6
- (D) More than 6

Correct Answer

4. Barometer is used to measure

- (A) Pressure in pipes, channels etc.
- (B) Atmospheric pressure
- (C) Very low pressure
- (D) Difference of pressure between two points

Correct Answer

5. The hydraulic gradient line lies over the centre line of the pipe by an amount equal to the

- (A) Pressure head
- (B) Velocity head
- (C) Pressure head + velocity head
- (D) Pressure head - velocity head

Correct Answer

6. The center of pressure of a surface subjected to fluid pressure is the point

- (A) On the surface at which resultant pressure acts
- (B) On the surface at which gravitational force acts
- (C) At which all hydraulic forces meet
- (D) Similar to metacentre

Correct Answer

7. The variation in the volume of a liquid with the variation of pressure is called its

- (A) Surface tension
- (B) Compressibility
- (C) Capillarity
- (D) Viscosity

Correct Answer

8. A model of torpedo is tested in a towing tank at a velocity of 25 m/sec. The prototype is expected to attain a velocity of 5 m/sec. What model scale has been used?

- (A) 1 : 5
- (B) 1 : 2.5
- (C) 1 : 25
- (D) 1 : $\sqrt{5}$

Correct Answer

9. The surface tension of mercury at normal temperature is _____ that of water.

- (A) Same as
- (B) Lower than
- (C) Higher than
- (D) None of these

Correct Answer

10. Flow of water in a pipe about 3 meters in diameter can be measured by

- (A) Orifice plate
- (B) Venturimeter
- (C) Rotameter
- (D) Pitot tube

Correct Answer

11. According to Francis formula, the discharge over a rectangular weir is (where n = Number of end contractions)

- (A) $(2/3) \times C_d (L - nH) \times \sqrt{2gh}$
- (B) $(2/3) \times C_d (L - 0.1nH) \times \sqrt{2g} \times H^{3/2}$
- (C) $(2/3) \times C_d (L - nH) \times \sqrt{2g} \times H^2$
- (D) $(2/3) \times C_d (L - nH) \times \sqrt{2g} \times H^{5/2}$

Correct Answer

12. The equation of continuity holds good when the flow

- (A) Is steady
- (B) Is one dimensional
- (C) Velocity is uniform at all the cross sections
- (D) All of the above

Correct Answer

13. A thick liquid like syrup has a _____ viscosity than a light liquid like water.

- (A) Lesser
- (B) Greater
- (C) Same
- (D) None of these

Correct Answer

14. Cavitation will begin when

- (A) The pressure at any location reaches an absolute pressure equal to the saturated vapour pressure of the liquid
- (B) Pressure becomes more than critical pressure
- (C) Flow is increased
- (D) Pressure is increased

Correct Answer

15. When a liquid is flowing through a pipe, the velocity of the liquid is

- (A) Maximum at the centre and minimum near the walls
- (B) Minimum at the centre and maximum near the walls
- (C) Zero at the centre and maximum near the walls
- (D) Maximum at the centre and zero near the walls

Correct Answer

View All Answers

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1. True one-dimensional flow occurs when

- (A) The direction and magnitude of the velocity at all points are identical
- (B) The velocity of successive fluid particles, at any point, is the same at successive periods of time
- © The magnitude and direction of the velocity do not change from point to point in the fluid
- (D) The fluid particles move in plane or parallel planes and the streamline patterns are identical in each plane

Correct Answer

2. The discharge in an open channel corresponding to critical depth is

- (A) Zero
- (B) Minimum
- (C) Maximum
- (D) None of these

Correct Answer

3. A piece of wood having weight 5 kg floats in water with 60% of its volume under the liquid. The specific gravity of wood is

(A) 0.83

(B) 0.6

© 0.4

(D) 0.3

Correct Answer

4. A pitot tube is used to measure the

(A) Velocity of flow at the required point in a pipe

(B) Pressure difference between two points in a pipe

© Total pressure of liquid flowing in a pipe

(D) Discharge through a pipe

Correct Answer

5. The total energy of each particle at various places in the case of perfect incompressible fluid flowing in continuous stream

(A) Keeps on increasing

(B) Keeps on decreasing

© Remain constant

(D) May increase/decrease

Correct Answer

6. The critical depth meter is used to measure

(A) Velocity of flow in an open channel

(B) Depth of flow in an open channel

© Hydraulic jump

(D) Depth of channel

Correct Answer

7. Two pipe systems can be said to be equivalent, when the following quantities are same

(A) Friction loss and flow

- (B) Length and diameter
- (C) Flow and length
- (D) Friction fac© and diameter

Correct Answer

8. In a footstep bearing, if the radius of the shaft is doubled, then the torque required to overcome the viscous resistance will be

- (A) Double
- (B) Four times
- © Eight times
- (D) Sixteen times

Correct Answer

9. Surface tension has the units of

- (A) Newton-sec/m
- (B) Newton-m/sec
- © Newton/m
- (D) Newton

Correct Answer

10. The value of bulk modulus of a fluid is required to determine

- (A) Reynold's number
- (B) Froude's number
- © Mach number
- (D) Euler's number

Correct Answer

11. Fluid is a substance which offers no resistance to change of

- (A) Pressure
- (B) Flow
- (C) Shape

(D) Volume

Correct Answer

12. The pressure less than atmospheric pressure is known as

(A) Suction pressure

(B) Vacuum pressure

(C) Negative gauge pressure

(D) All of these

Correct Answer

13. The normal stress in a fluid will be constant in all directions at a point only if

(A) It is incompressible

(B) It has uniform viscosity

(C) It has zero viscosity

(D) It is at rest

Correct Answer

14. The power transmitted through a pipe is (where w = Specific weight in N/m^3 , and Q = Discharge in m^3/s)

(A) $w \times Q \times H$

(B) $w \times Q \times hf$

(C) $w \times Q (H - hf)$

(D) $w \times Q (H + hf)$

Correct Answer

15. If ' w ' is the specific weight of liquid and ' k ' the depth of any point from the surface, then pressure intensity at that point will be

(A) h

(B) wh

(C) w/h

(D) h/w

Correct Answer

[View All Answers](#)

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- © $w \times Q (H - hf)$
- (D) $w \times Q (H + hf)$

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15. If ' w ' is the specific weight of liquid and ' k ' the depth of any point from the surface, then pressure intensity at that point will be

- (A) h
- (B) wh
- © w/h
- (D) h/w

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2. The continuity equation is connected with

- (A) Open channel/pipe flow
- (B) Compressibility of fluids

© Conservation of mass

(D) Steady/unsteady flow

Correct Answer

3. The most economical section of a trapezoidal channel is one which has hydraulic mean depth equal to

(A) $\frac{1}{2} \times \text{depth}$

(B) $\frac{1}{2} \times \text{breadth}$

© $\frac{1}{2} \times \text{sloping side}$

(D) $\frac{1}{4} \times (\text{depth} + \text{breadth})$

Correct Answer

4. The speed of sound in a ideal gas varies directly as it's

(A) Absolute temperature

(B) Temperature

(C) Density

(D) Mod@s of elasticity

Correct Answer

5. The absolute pressure is equal to

(A) Gauge pressure + atmospheric pressure

(B) Gauge pressure – atmospheric pressure

© Atmospheric pressure – gauge pressure

(D) Gauge pressure – vacuum pressure

Correct Answer

6. Unit of surface tension is

(A) Energy/unit area

(B) Velocity/unit area

© Both of the above

(D) It has no units

Correct Answer

7. A Piezometer tube is used only for measuring

(A) Low pressure

- (B) High pressure
- © Moderate pressure
- (D) Vacuum pressure

Correct Answer

8. The capillary rise at 20°C in a clean glass tube of 1 mm bore containing water is approximately

- (A) 5 mm
- (B) 10 mm
- (C) 20 mm
- (D) 30 mm

Correct Answer

9. The Cipoletti weir is a _____ weir. ©) Rectangular

- (B) Triangular
- © Trapezoidal
- (D) Circular

Correct Answer

10. Pressure of the order of 10⁶ torr can be measured by

- (A) Bourdon tube
- (B) Pirani Gauge
- © Micro-manometer
- (D) Ionisation gauge

Correct Answer

11. The volume of a fluid _____ as the pressure increases.

- (A) Remains same
- (B) Decreases
- (C) Increases
- (D) None of the © Correct Answer

12. Buoyant force is

- (A) The resultant force acting on a floating body
- (B) The resultant force on a body due to the fluid surrounding it
- © Equal to the volume of liquid displaced
- (D) The force necessary to maintain equilibrium of a submerged body

Correct Answer

13. A flow through a long pipe at decreasing rate is called _____ uniform flow.

- (A) Steady
- (B) Unsteady
- (C) Both A and B
- (D) None of these

Correct Answer

14. Choose the wrong statement

- (A) The center of buoyancy is located at the center of gravity of the displaced liquid
- (B) For stability of a submerged body, the center of gravity of body must lie directly below the center of buoyancy
- © If C.G. and center of buoyancy coincide, the submerged body must lie at neutral equilibrium for all positions
- (D) All floating bodies are stable

Correct Answer

15. The intensity of pressure at any point, in a liquid, is _____ to the depth of liquid from the surface.

- (A) Equal
- (B) Directly proportional
- © Inversely proportional
- (D) None of these

Correct Answer

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8. Answer: Option D
9. Answer: Option C
10. Answer: Option D
11. Answer: Option B
12. Answer: Option B
13. Answer: Option B
14. Answer: Option D
15. Answer: Option B

1. In a footstep bearing, if the speed of the shaft is doubled, then the torque required to overcome the viscous resistance will be

- (A) Double
- (B) Four times
- (C) Eight times
- (D) Sixteen times

Correct Answer

2. The continuity equation is connected with

- (A) Open channel/pipe flow
- (B) Compressibility of fluids
- © Conservation of mass
- (D) Steady/unsteady flow

Correct Answer

3. The most economical section of a trapezoidal channel is one which has hydraulic mean depth equal to

- (A) $\frac{1}{2} \times \text{depth}$
- (B) $\frac{1}{2} \times \text{breadth}$
- © $\frac{1}{2} \times \text{sloping side}$
- (D) $\frac{1}{4} \times (\text{depth} + \text{breadth})$

Correct Answer

4. The speed of sound in a ideal gas varies directly as it's

- (A) Absolute temperature
- (B) Temperature
- (C) Density
- (©) Modulus of elasticity

Correct Answer

5. The absolute pressure is equal to

- (A) Gauge pressure + atmospheric pressure
- (B) Gauge pressure – atmospheric pressure

© Atmospheric pressure – gauge pressure

(D) Gauge pressure – vacuum pressure

Correct Answer

6. Unit of surface tension is

(A) Energy/unit area

(B) Velocity/unit area

© Both of the above

(D) It has no units

Correct Answer

7. A Piezometer tube is used only for measuring

(A) Low pressure

(B) High pressure

© Moderate pressure

(D) Vacuum pressure

Correct Answer

8. The capillary rise at 20°C in a clean glass tube of 1 mm bore containing water is approximately

(A) 5 mm

(B) 10 mm

(C) 20 mm

(D) 30 mm

Correct Answer

9. The Cipoletti weir is a _____ weir.

(A) Rectangular

(B) Triangular

(C) Trapezoidal

(D) Circular

Correct Answer

10. Pressure of the order of 10⁴ torr can be measured by

(A) Bourdon tube

- (B) Pirani Gauge
- © Micro-manometer
- (D) Ionisation gauge

Correct Answer

11. The volume of a fluid _____ as the pressure increases.

- (A) Remains same
- (B) Decreases
- (C) Increases
- (D) None of ©se

Correct Answer

12. Buoyant force is

- (A) The resultant force acting on a floating body
- (B) The resultant force on a body due to the fluid surrounding it
- © Equal to the volume of liquid displaced
- (D) The force necessary to maintain equilibrium of a submerged body

Correct Answer

13. A flow through a long pipe at decreasing rate is called _____ uniform flow.

- (A) Steady
- (B) Unsteady
- (C) Both A and B
- (D) None of these

Correct Answer

14. Choose©e wrong statement

- (A) The center of buoyancy is located at the center of gravity of the displaced liquid
- (B) For stability of a submerged body, the center of gravity of body must lie directly below the center of buoyancy

© If C.G. and center of buoyancy coincide, the submerged body must lie at neutral equilibrium for all positions

(D) All floating bodies are stable

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3. The rise of liquid along the walls of a revolving cylinder about the initial level is _____ the depression of the liquid at the axis of rotation.

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- (B) Less than
- © More than
- (D) None of these

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7. The kinematic viscosity of an oil (in stokes) whose specific gravity is 0.95 and viscosity 0.011 poise, is

- (A) 0.0116 stoke
- (B) 0.116 stoke
- (C) 0.0611 stoke

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- © Twice the depth
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1. Stoke is the unit of

- (A) Kinematic viscosity in C. G. S. units
- (B) Kinematic viscosity in M. K. S. units
- © Dynamic viscosity in M. K. S. units
- (D) Dynamic viscosity in S. I. units

Correct Answer

2. The vapour pressure over the concave surface is

- (A) Less than the vapour pressure over the plane surface
- (B) Equal to the vapour pressure over the plane surface
- © Greater than the vapour pressure over the plane surface
- (D) Zero

Correct Answer

3. The velocity at which the flow changes from laminar flow to turbulent flow is called

- (A) Critical velocity
- (B) Velocity of approach
- (C) Sub-sonic velocity
- (D) Super-sonic velocity

Correct Answer

4. Mercury is often used in barometer because

- (A) It is the best liquid
- (B) The height of barometer will be less
- (C) Its vapour pressure is so low that it may be neglected
- (D) Both (B) and (C)

Correct Answer

5. A vertical wall is subjected to a pressure due to one kind of liquid, on one of its sides. Which of the following statement is correct?

- (A) The pressure on the wall at the liquid level is minimum
- (B) The pressure on the bottom of the wall is maximum
- (C) The pressure on the wall at the liquid level is zero, and on the bottom of the wall is maximum
- (D) The pressure on the bottom of the wall is zero

Correct Answer

6. Center of pressure compared to e.g. is

- (A) Above it
- (B) Below it
- (C) At same point
- (D) Above or below depending on area of body

Correct Answer

7. The center of gravity of the volume of the liquid displaced by an immersed body is called

- (A) Center of gravity
- (B) Center of pressure
- (C) Metacenter
- (D) Center of buoyancy

Correct Answer

8. A tank of uniform cross-sectional area (A) containing liquid upto height (H₁) has an orifice of cross-sectional area (a) at its bottom. The time required to bring the liquid level from H₁ to H₂ will be

- (A) $2A \times \sqrt{H_1} / Cd \times a \times \sqrt{2g}$
- (B) $2A \times \sqrt{H_2} / Cd \times a \times \sqrt{2g}$
- (C) $2A \times (\sqrt{H_1} - \sqrt{H_2}) / Cd \times a \times \sqrt{2g}$
- (D) $2A \times (\sqrt{H_1^3/2} - \sqrt{H_2^3/2}) / Cd \times a \times \sqrt{2g}$

Correct Answer

9. Gradually varied flow is

- (A) Steady uniform
- (B) Non-steady non-uniform
- (C) Non-steady uniform
- (D) Steady non-uniform

Correct Answer

10. The viscosity of water at 20°C is

- (A) One stoke
- (B) One centistoke

- (C) One poise
- (D) One centipoise

Correct Answer

11. The velocity of jet of water traveling out of opening in a tank filled with water is proportional to

- (A) Head of water (h)
- (B) h^2
- (C) V/T
- (D) $h/2$

Correct Answer

12. According to Darcy's formula, the loss of head due to friction in the pipe is (where f = Darcy's coefficient, l = Length of pipe, v = Velocity of liquid in pipe, and d = Diameter of pipe)

- (A) $flv^2/2gd$
- (B) $f'v^2/gd$
- (C) $3flv^2/2gd$
- (D) $4flv^2/2gd$

Correct Answer

13. According to Bernoulli's equation for steady ideal fluid flow

- (A) Principle of conservation of mass holds
- (B) Velocity and pressure are inversely proportional
- (C) Total energy is constant throughout
- (D) The energy is constant along a streamline but may vary across streamlines

Correct Answer

14. The discharge through a convergent mouthpiece is _____ the discharge through an internal mouthpiece of the same diameter and head of water.

- (A) Equal to
- (B) One-half
- (C) Three fourth

(D) Double

Correct Answer

15. Bernoulli equation deals with the law of conservation of

(A) Mass

(B) Momentum

(C) Energy

(D) Work

Correct Answer

View All Answers

1. Answer: Option A 2. Answer: Option A 3. Answer: Option A 4. Answer: Option D 5. Answer: Option C 6. Answer: Option B 7. Answer: Option D 8. Answer: Option C 9. Answer: Option D 10. Answer: Option D 11. Answer: Option C 12. Answer: Option D 13. Answer: Option D 14. Answer: Option D 15. Answer: Option C

1. Differential manometer is used to measure

(A) Pressure in pipes, channels etc.

(B) Atmospheric pressure

(C) Very low pressure

(D) Difference of pressure between two points

Correct Answer

2. When a body is immersed wholly or partially in a liquid, it is lifted up by a force equal to the weight of liquid displaced by the body. This statement is called

(A) Pascal's law

(B) Archimedes's principle

(C) Principle of flotation

(D) Bernoulli's theorem

Correct Answer

3. Non uniform flow occurs when

(A) The direction and magnitude of the velocity at all points are identical

(B) The velocity of successive fluid particles, at any point, is the same at successive periods of time

© Velocity, depth, pressure, etc. change from point to point in the fluid flow

(D) The fluid particles move in plane or parallel planes and the streamline patterns are identical in each plane

Correct Answer

4. When a tube of smaller diameter is dipped in water, the water rises in the tube with an upward _____ surface.

(A) Concave

(B) Convex

(C) Plane

(D) None of these

Correct Answer

5. A piece of metal of specific gravity 7 floats in mercury of specific gravity 13.6. What fraction of its volume is under mercury?

(A) 0.5

(B) 0.4

(C) 0.515

(D) 0.5

Correct Answer

6. A flow through an expanding tube at constant rate is called

(A) Steady uniform flow

(B) Steady non-uniform flow

(C) Unsteady uniform flow

(D) Unsteady non-uniform flow

Correct Answer

7. Reynolds number is significant in

(A) Supersonics, as with projectile and jet propulsion

(B) Full immersion or completely enclosed flow, as with pipes, aircraft wings, nozzles etc.

(C) Simultaneous motion through two fluids where there is a surface of discontinuity, gravity forces, and wave making effect, as with ship" hulls

(D) All of the above

Correct Answer

8. The loss of head due to friction in a pipe of uniform diameter in which a viscous flow is taking place, is (where RN = Reynold number)

(A) $1/RN$

(B) $4/RN$

(C) $16/RN$

(D) $64/RN$

Correct Answer

9. Practical fluids

(A) Are viscous

(B) Possess surface tension

(C) Are compressible

(D) Possess all the above properties

Correct Answer

10. A compound pipe of diameter d_1 , d_2 and d_3 having lengths l_1 , l_2 and l_3 is to be replaced by an equivalent pipe of uniform diameter d and of the same length (l) as that of the compound pipe. The size of the equivalent pipe is given by

(A) $l/d^2 = (l_1/d_1^2) + (l_2/d_2^2) + (l_3/d_3^2)$

(B) $l/d^3 = (l_1/d_1^3) + (l_2/d_2^3) + (l_3/d_3^3)$

(C) $l/d^4 = (l_1/d_1^4) + (l_2/d_2^4) + (l_3/d_3^4)$

(D) $l/d^5 = (l_1/d_1^5) + (l_2/d_2^5) + (l_3/d_3^5)$

Correct Answer

11. The tendency of a liquid surface to contract is due to the following property

(A) Cohesion

(B) Adhesion

(C) Viscosity

(D) Surface tension

Correct Answer

12. The Newton's law of resistance is based on the assumption that the

- (A) Planes of the body are completely smooth
- (B) Space around the body is completely filled with the fluid
- (C) Fluid particles do not exert any influence on one another
- (D) All of the above

Correct Answer

13. For manometer, a better liquid combination is one having

- (A) Higher surface tension
- (B) Lower surface tension
- (C) Surface tension is no criterion
- (D) High density and viscosity

Correct Answer

14. The flow in a pipe is neither laminar nor turbulent when Reynold number is

- (A) Less than 2000
- (B) Between 2000 and 2800
- (C) More than 2800
- (D) None of these

Correct Answer

15. The point in the immersed body through which the resultant pressure of the liquid may be taken to act is known as

- (A) Meta center
- (B) Center of pressure
- (C) Center of buoyancy
- (D) Center of gravity

Correct Answer

Visit All Answers

1. Answer: Option D
2. Answer: Option B
3. Answer: Option C
4. Answer: Option A
5. Answer: Option C
6. Answer: Option B
7. Answer: Option B
8. Answer: Option C
9. Answer: Option D
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12. Answer: Option D
13. Answer: Option A
14. Answer: Option B
15. Answer: Option B

1. When a tank containing liquid moves with an acceleration in the horizontal direction, then the free surface of the liquid

- (A) Remains horizontal
- (B) Becomes curved
- (C) Falls on the front end
- (D) Falls on the back end

Correct Answer

2. A pressure of 25 m of head of water is equal to

- (A) 25 kN/ m²
- (B) 245 kN/ m²
- © 2500 kN/m²
- (D) 2.5 kN/ m²

Correct Answer

3. The hammer blow in pipes occurs when

- (A) There is excessive leakage in the pipe
- (B) The pipe bursts under high pressure of fluid
- © The flow of fluid through the pipe is suddenly brought to rest by closing of the valve
- (D) The flow of fluid through the pipe is gradually brought to rest by closing of the valve

Correct Answer

4. The resultant upward pressure of the fluid on an immersed body is called

- (A) Up-thrust
- (B) Buoyancy
- © Center of pressure
- (D) All the above are correct

Correct Answer

5. When the water level on the downstream side of a weir is above the top surface of a weir, the weir is known as

- (A) Narrow-crested weir

(B) Broad-crested weir

© Ogee weir

(D) Submerged weir

Correct Answer

6. If the surface of liquid is convex, men

(A) Cohesion pressure is negligible

(B) Cohesion pressure is decreased

© Cohesion pressure is increased

(D) There is no cohesion pressure

Correct Answer

7. The increase in pressure at the outer edge of a drum of radius r completely filled up with liquid of density (ρ) and rotating at (ω) rad/s is

(A) $\rho \omega^2 r^2$

(B) $2\rho \omega^2 r^2$

(C) $\rho \omega^2 r^2/2$

(D) $\rho \omega^2 r^2/4$

Correct Answer ©8. The atmospheric pressure with rise in altitude decreases

(A) Linearly

(B) First slowly and then steeply

© First steeply and then gradually

(D) Unpredictable

Correct Answer

9. The torque required to overcome viscous resistance of a footstep bearing is (where μ = Viscosity of the oil, N = Speed of the shaft, R = Radius of the shaft, and t = Thickness of the oil film)

(A) $\mu\pi^2NR/60t$

(B) $\mu\pi^2NR^2/60t$

(C) $\mu\pi^2NR^3/60t$

(D) $\mu\pi^2NR^4/60t$

Correct Answer

10. Dynamic viscosity ©most of the gases with rise in temperature

- (A) Increases
- (B) Decreases
- © Remain unaffected
- (D) Unpredictable

Correct Answer

11. According to Bernoulli's equation

- (A) $Z + p/w + v^2/2g = \text{constant}$
- (B) $Z + p/w - v^2/2g = \text{constant}$
- © $Z - p/w + v^2/2g = \text{constant}$
- (D) $Z - p/w - v^2/2g = \text{constant}$

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12. Center of buoyancy is the

- (A) Centroid of the displaced volume of fluid
- (B) Center of pressure of displaced volume
- © Does not exist
- (D) None of the above

Correct Answer

13. The loss of head due to viscosity for laminar flow in pipes is (where d = Diameter of pipe, l = Length of pipe, v = Velocity of the liquid in the pipe, μ = Viscosity of the liquid, and w = Specific weight of the flowing liquid)

- (A) $4\mu vl/wd^2$
- (B) $8\mu vl/wd^2$
- © $16\mu vl/wd^2$
- (D) $32\mu vl/wd^2$

Correct Answer

14. For a body floating in a liquid the normal pressure exerted by the liquid acts at

- (A) Bottom surface of the body
- (B) C.G. of the body
- (C) Metacenter
- (D) All points on © surface of the body

Correct Answer

15. Newton's law of viscosity is a relationship between

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- (B) Shear stress and rate of shear strain
- © Shear stress and velocity
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Answer: Option A 11. Answer: Option A 12. Answer: Option A 13. Answer: Option D 14. Answer: Option D 15. Answer: Option B

1. A fluid in equilibrium can't sustain

- (A) Tensile stress
- (B) Compressive stress
- © Shear stress
- (D) Bending stress

Correct Answer

2. When a plate is immersed in a liquid parallel to the flow, it will be subjected to a pressure _____ that if the same plate is immersed perpendicular to the flow.

- (A) Less than
- (B) More than
- © Equal to
- (D) None of these

Correct Answer

3. An object having 10 kg mass weighs 9.81 kg on a spring balance. The value of 'g' at this place is

- (A) 10 m/sec^2
- (B) 9.81 m/sec^2
- (C) 9.75 m/sec^2
- (D) 9 m/sec

Correct Answer

4. A flow is called hyper-sonic, if the Mach number is

- (A) Less than unity
- (B) Unity
- © Between 1 and 6
- (D) None of these

Correct Answer

5. Liquids

- (A) Cannot be compressed
- (B) Occupy definite volume
- © Are not affected by change in pressure and temperature
- (D) None of the above

Correct Answer

6. When a cylindrical vessel containing liquid is resolved, the surface of the liquid takes the shape of

- (A) A triangle
- (B) A paraboloid
- (C) An ellipse
- (D) None of these

Correct Answer

7. Fluid is a substance©at

- (A) Cannot be subjected to shear forces
- (B) Always expands until it fills any container
- © Has the same shear stress at a point regardless of its motion
- (D) Cannot remain at rest under action of any shear force

Correct Answer

8. The force exerted by a moving fluid on an immersed body is directly proportional to the rate of change of momentum due to the presence of the body. This statement is called

- (A) Newton's law of motion
- (B) Newton's law of cooling
- © Newton's law of viscosity
- (D) Newton's law of resistance

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9. The property of a fluid which enables it to resist tensile stress is known as

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- (B) Surface tension
- © Cohesion
- (D) Adhesion

Correct Answer

10. The loss of pressure head in case of laminar flow is proportional to

- (A) Velocity
- (B) (Velocity)²
- (C) (Velocity)³
- (D) (Velocity)⁴

Correct Answer

11. The surface tension of mercury at normal temperature compared to that of water is

- (A) More
- (B) Less
- (C) Same
- (D) More or less depending on size of glass tube

Correct Answer

12. An air vessel is provided at the summit in a siphon to

- (A) Avoid interruption in the flow
- (B) Increase discharge
- (C) Increase velocity
- (D) Maintain pressure difference

Correct Answer

13. The unit of viscosity is

- (A) Meters² per sec
- (B) kg-sec/meter
- (C) Newton-sec per meter²
- (D) Newton-sec per meter

Correct Answer

14. Select the correct statement

- (A) Weber's number is the ratio of inertia force to elastic force

- (B) Weber's number is the ratio of gravity force to surface tension force
- © Weber's number is the ratio of viscous force to pressure force
- (D) Weber's number is the ratio of inertia force to surface tension force

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15. Choose the wrong statement. Alcohol is used in manometer, because

- (A) Its vapour pressure is low
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Correct Answer

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1. A fluid which obeys the Newton's law of viscosity is termed as

- (A) Real fluid
- (B) Ideal fluid

(C) Newtonian fluid

(D) Non-Newtonian fluid

Correct Answer

2. In order that flow takes place between two points in a pipeline, the differential pressure between these points must be more than

(A) Frictional force

(B) Viscosity

(C) Surface friction

(D) All of the above

Correct Answer

3. The error in discharge (dQ/Q) to the error in measurement of head (dH/H) over a triangular notch is given by

(A) $dQ/Q = 3/2 \times (dH/H)$

(B) $dQ/Q = 2 \times (dH/H)$

(C) $dQ/Q = 5/2 \times (dH/H)$

(D) $dQ/Q = 3 \times (dH/H)$

Correct Answer

4. For similarity, in addition to models being geometrically similar to prototype, the following in both cases should also be equal

(A) Ratio of inertial force to force due to viscosity

(B) Ratio of inertial force to force due to gravitation

(C) Ratio of inertial force to force due to surface tension

(D) All the four ratios of inertial force to force due to viscosity, gravitation, surface tension, and elasticity

Correct Answer

5. The value of coefficient of velocity for a sharp edged orifice _____ with the head of water.

(A) Decreases

(B) Increases

(C) Remain same

(D) None of these

Correct Answer

6. If cohesion between molecules of a fluid is greater than adhesion between fluid and glass, then the free level of fluid in a dipped glass tube will be

- (A) Higher than the surface of liquid
- (B) The same as the surface of liquid
- © Lower than the surface of liquid
- (D) Unpredictable

Correct Answer

7. The ratio of the inertia force to the _____ is called Euler's number.

- (A) Pressure force
- (B) Elastic force
- (C) Surface tension force
- (D) Viscous force

Correct Answer

8. A one dimensional flow is one which

- (A) Is uniform flow
- (B) Is steady uniform flow
- © Takes place in straight lines
- (D) Involves zero transverse component of flow

Correct Answer

9. According to Manning's formula, the discharge through an open channel is (where M = Manning's constant)

- (A) $A \times M \times m^{1/2} \times i^{2/3}$
- (B) $A \times M \times m^{2/3} \times i^{1/2}$
- © $A^{1/2} \times M^{2/3} \times m \times i$
- (D) $A^{2/3} \times M^{1/3} \times m \times i$

Correct Answer

10. Dimensions of surface tension are

- (A) $ML^{-1}T^{-2}$
- (B) $ML^{-1}T$

(C) $ML r^2$

(D) $ML\textcircled{C}$

Correct Answer

11. An opening in the side of a tank or vessel such that the liquid surface with the tank is below the top edge of the opening, is called

(A) Weir

(B) Notch

\textcircled{C} Orifice

(D) None of these

Correct Answer

12. The property of fluid by virtue of which it offers resistance to shear is called

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(B) Adhesion

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Correct Answer

13. Coefficient of velocity is defined as the ratio of

(A) Actual velocity of jet at vena contracta to the theoretical velocity

(B) Area of jet at vena contracta to the area of orifice

\textcircled{C} Actual discharge through an orifice to the theoretical discharge

(D) None of the above

Correct Answer

14. A liquid compressed in cylinder has a volume of 0.04 m^3 at 50 kg/cm^2 and a volume of 0.039 m^3 at 150 kg/cm^2 . The bulk modulus of elasticity of liquid is

(A) 400 kg/cm^2

(B) 4000 kg/cm^2

(C) $40 \times 10^5 \text{ kg/cm}^2$

(D) $40 \times 10^6 \text{ kg/cm}^2$

Correct Answer

15. The mass of 2.5 m³ of a certain liquid is 2 tonnes. Its mass density is

(A) 200 kg/m³

(B) 400 kg/m³

(C) 600 kg/m³

(D) 800 kg/m³

Correct Answer

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(A) Decreases

(B) Increases

(C) Remain same

(D) None of these

Correct Answer

6. If cohesion between molecules of a fluid is greater than adhesion between fluid and glass, then the free level of fluid in a dipped glass tube will be

(A) Higher than the surface of liquid

(B) The same as the surface of liquid

© Lower than the surface of liquid

(D) Unpredictable

Correct Answer

7. The ratio of the inertia force to the _____ is called Euler's number.

(A) Pressure force

(B) Elastic force

(C) Surface tension force © Viscous force

Correct Answer

8. A one dimensional flow is one which

- (A) Is uniform flow
- (B) Is steady uniform flow
- © Takes place in straight lines
- (D) Involves zero transverse component of flow

Correct Answer

9. According to Manning's formula, the discharge through an open channel is (where M = Manning's constant)

- (A) $A \times M \times m^{1/2} \times i^{2/3}$
- (B) $A \times M \times m^{2/3} \times i^{1/2}$
- © $A^{1/2} \times M^{2/3} \times m \times i$
- (D) $A^{2/3} \times M^{1/3} \times m \times i$

Correct Answer

10. Dimensions of surface tension are

- (A) $ML^{\circ}T^{-2}$
- (B) $ML^{\circ}T$
- (C) $ML r^2$
- (D) ML°

Correct Answer

11. An opening in the side of a tank or vessel such that the liquid surface with the tank is below the top edge of the opening, is called

- (A) Weir
- (B) Notch
- © Orifice
- (D) None of these

Correct Answer

12. The property of fluid by virtue of which it offers resistance to shear is called

- (A) Surface tension
- (B) Adhesion
- (C) Adhesion
- (D) Viscosity

Correct Answer

13. Coefficient of velocity is defined as the ratio of

- (A) Actual velocity of jet at vena contracta to the theoretical velocity
- (B) Area of jet at vena contracta to the area of orifice
- © Actual discharge through an orifice to the theoretical discharge
- (D) None of the above

Correct Answer

14. A liquid compressed in cylinder has a volume of 0.04 m³ at 50 kg/cm² and a volume of 0.039 m³ at 150 kg/cm². The bulk modulus of elasticity of liquid is

- (A) 400 kg/cm²
- (B) 4000 kg/cm²
- © 40×10^5 kg/cm²
- (D) 40×10^6 kg/cm²

Correct Answer

15. The mass of 2.5 m³ of a certain liquid is 2 tonnes. Its mass density is

- (A) 200 kg/m³
- (B) 400 kg/m³
- (C) 600 kg/m³
- (D) 800 kg/m³

Correct Answer

View©I Answers

1. Answer: Option C
2. Answer: Option D
3. Answer: Option C
4. Answer: Option D
5. Answer: Option B
6. Answer: Option C
7. Answer: Option A
8. Answer: Option D
9. Answer: Option B
10. Answer: Option A
11. Answer: Option B
12. Answer: Option D
13. Answer: Option A
14. Answer: Option B
15. Answer: Option D

1. When a body is placed over a liquid, it will sink down if
- (A) Gravitational force is equal to the up-thrust of the liquid
 - (B) Gravitational force is less than the up-thrust of the liquid
 - © Gravitational force is more than the up-thrust of the liquid
 - (D) None of the above

Correct Answer

2. The property by virtue of which a liquid opposes relative motion between its different layers is called
- (A) Surface tension
 - (B) Coefficient of viscosity
 - (C) Viscosity
 - (D) Osmosis

Correct Answer

3. A weir is said to be narrow-crested weir, if the width of the crest of the weir is _____ half the height of water above the weir crest.

- (A) Equal to
- (B) Less than
- © More than
- (D) None of these

Correct Answer

4. Euler's dimensionless number relates the following

- (A) Inertial force and gravity
- (B) Viscous force and inertial force
- © Viscous force and buoyancy force
- (D) Pressure force and inertial force

Correct Answer

5. When a body floating in a liquid, is displaced slightly, it oscillates about

- (A) C.G. of body
- (B) Center of pressure
- (C) Center of buoyancy

(D) Metacentre

Correct Answer

6. The pressure of the liquid flowing through the divergent portion of a Venturimeter

(A) Remains constant

(B) Increases

(C) Decreases

(D) Depends upon mass of liquid

Correct Answer

7. When the Mach number is between _____ the flow is called super-sonic flow.

(A) 1 and 2.5

(B) 2.5 and 4

(C) 4 and 6

(D) 1 and 6

Correct Answer

8. For an immersed body, centre of pressure is

(A) At the centre of gravity

(B) Above the centre of gravity

Correct Answer Below the centre of gravity

(D) Could be above or below e.g. depending on density of body and liquid

Correct Answer

9. A vertically immersed surface is shown in the below figure. The distance of its centre of pressure from the water surface is

(A) $(bd^2/12) + \bar{x}$

(B) $(d^2/12 \bar{x}) + \bar{x}$

Correct Answer $b^2/12 + \bar{x}$

(D) $d^2/12 + \bar{x}$

Correct Answer

10. The torque required to overcome viscous resistance of a collar bearing is (where R1 and R2 = External and internal radius of collar)

- (A) $(\mu\pi^2N/60t) \times (R_1 - R_2)$
- (B) $(\mu\pi^2N/60t) \times (R_1^2 - R_2^2)$
- © $\mu\pi^2N/60t) \times (R_1^3 - R_2^3)$
- (D) $(\mu\pi^2N/60t) \times (R_1^4 - R_2^4)$

Correct Answer

11. Steady flow occurs when

- (A) The direction and magnitude of the velocity at all points are identical
- (B) The velocity of successive fluid particles, at any point, is the same at successive periods of time
- © The magnitude and direction of the velocity do not change from point to point in the fluid
- (D) The fluid particles move in plane or parallel planes and the streamline patterns are identical in each plane

Correct Answer

12. A flow is called super-sonic if the

- (A) Velocity of flow is very high
- (B) Discharge is difficult to measure
- © Mach number is between 1 and 6
- (D) None of these

Correct Answer

13. In a forced vortex, the velocity of flow everywhere within the fluid is

- (A) Maximum
- (B) Minimum
- (C) Zero
- (D) Nonzero finite

Correct Answer

14. The depth of centre of pressure (h) for a vertically immersed surface from the liquid surface is given by (where IG = Moment of inertia of the immersed surface about horizontal axis through its centre of

gravity, A = Area of immersed surface, and x = Depth of centre of gravity of the immersed surface from the liquid surface)

(A) $(IG/A\bar{x}) - \bar{x}$

(B) $(IG/\bar{x}) - A\bar{x}$

© $(A\bar{x}/IG) + \bar{x}$

(D) $(IG/A\bar{x}) + \bar{x}$

Correct Answer

15. Mach number is significant in

(A) Supersonics, as with projectiles and jet propulsion

(B) Full immersion or completely enclosed flow, as with pipes, aircraft wings, nozzles etc.

© Simultaneous motion through two fluids where there is a surface of discontinuity, gravity force, and wave making effects, as with ship's hulls

(D) All of the above

Correct Answer

View All Answers

1. Answer: Option C 2. Answer: Option C 3. Answer: Option B 4. Answer: Option D 5. Answer: Option D 6. Answer: Option C 7. Answer: Option D 8. Answer: Option C 9. Answer: Option B 10. Answer: Option D 11. Answer: Option B 12. Answer: Option C 13. Answer: Option D 14. Answer: Option D 15. Answer: Option A

1. Free surface of a liquid tends to contract to the smallest possible area due to force of

(A) Surface tension

(B) Viscosity

(C) Friction

(D) Cohesion

Correct Answer

2. The Metacentre heights of two floating bodies A and B are 1 m and 1.5 m respectively. Select the correct statement.

(A) The bodies A and B have equal stability

(B) The body A is more stable than body B

© The body B is more stable than body A

(D) The bodies A and B are unstable

Correct Answer

3. The rise or depression of liquid in a tube due to surface tension will increase in size of tube will

(A) Increase

(B) Remain unaffected

(C) May increase or decrease depending on the characteristic of liquid

(D) Decrease

Correct Answer

4. A body floats in stable equilibrium

(A) When its metacentric height is zero

(B) When the metacentre is above e.g.

(C) When its e.g. is below its center of buoyancy

(D) Metacentre has nothing to do with position of e.g. for determining stability

Correct Answer

5. The total pressure on a horizontally immersed surface is (where w = Specific weight of the liquid, A = Area of the immersed surface, and x = Depth of the centre of gravity of the immersed surface from the liquid surface)

(A) wA

(B) wx

(C) wAx

(D) wA/x

Correct Answer

6. The discharge of a depressed nappe is 6 to 7 percent _____ that of a free nappe.

(A) Less than

(B) More than

(C) Equal to

(D) None of these

Correct Answer

7. The line of action of the buoyant force acts through the Centroid of the

- (A) Submerged body
- (B) Volume of the floating body
- © Volume of the fluid vertically above the body
- (D) Displaced volume of the fluid

Correct Answer

8. The intensity of pressure at any point, in a liquid, is

- (A) Directly proportional to the area of the vessel containing liquid
- (B) Directly proportional to the depth of liquid from the surface
- © Directly proportional to the length of the vessel containing liquid
- (D) Inversely proportional to the depth of liquid from the surface

Correct Answer

9. During the opening of a valve in a pipe line, the flow is

- (A) Steady
- (B) Unsteady
- (C) Uniform
- (D) Laminar

Correct Ans©

10. A manometer is used to measure

- (A) Atmospheric pressure
- (B) Pressure in pipes and channels
- © Pressure in Venturimeter
- (D) Difference of pressures between two points in a pipe

Correct Answer

11. For hypersonic flow, the Mach number is

- (A) Unity
- (B) Greater than unity
- (C) Greater than 2

(D) Greater than 4

Correct Answer

12. The theoretical velocity of jet at vena contracta is (where H = Head of water at vena contracta)

(A) $2gH$

(B) $H \times \sqrt{2g}$

(C) $2g \times \sqrt{H}$

(D) $\sqrt{2gh}$

Correct Answer

13. For pipes, laminar flow occurs when Reynolds number is

(A) Less than 2000

(B) Between 2000 and 4000

(C) More than 4000

(D) Less than 4000

Correct Answer

14. When the flow in an open channel is gradually varied, the flow is said to be

(A) Steady uniform flow

(B) Steady non-uniform flow

(C) Unsteady uniform flow

(D) Unsteady non-uniform flow

Correct Answer

15. Property of a fluid by which molecules of different kinds of fluids are attracted to each other is called

(A) Adhesion

(B) Cohesion

(C) Viscosity

(D) Compressibility

Correct Answer

View All Answers

1. Answer: Option A 2. Answer: Option C 3. Answer: Option D 4. Answer: Option B 5. Answer: Option C 6. Answer: Option B 7. Answer: Option D 8. Answer: Option B 9. Answer: Option B 10. Answer: Option B 11.

Answer: Option D 12. Answer: Option D 13. Answer: Option A 14. Answer: Option B 15. Answer: Option A