Question-1

1. Thing which flows on application of shear stress…

A) Fluid. B) Solid C) Rock D) none of the above

2. Branch of Fluid mechanics which deals with behaviour of fluid at rest…

A) Hydrostatics. B) Hydrokinematics C) Hydrodynamics D) none of the above

3. The mass per unit volume of a liquid is called…

(A) specific weight (B) mass density. (C) specific gravity (D) none of these

4. 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

5. The thing in which particles are in closest state…

A) Solid. B) Liquid C) Gas D) none of the above

6. Water turbine is an example of…

A) Hydrostatics B) Hydrokinematics C) Hydrodynamics. D) none of the above

7. A vessel of 4 m^3 contains oil which weighs 30 kN. The specific weight of the oil is …..kN/m^3.

(A) 4.5 (B) 6 (C) 7.5. (D) 10

8. Application of fluid mechanics in civil engineering…

A) Water supply B) Irrigation C) Hydropower D) all of the above.

9. Reciprocal of mass density…

(A) specific weight (B) specific volume. (C) specific gravity (D) none of these

10. The force per unit length is the unit of…

(A) surface tension. (B) compressibility (C) capillarity (D) Viscosity

11. Water is…

A) Compressible Fluid B) Incompressible Fluid. C) Moderately Compressible Fluid D) none of the above

12. The thing which has a definite shape…

A) Solid. B) Liquid C) Gas D) none of the above

13. Mercury does not wet the glass. This is due to property of the liquid known as…

(A) cohesion (B) adhesion (C) viscosity (D) surface tension.

14. Study of velocity of flowing water is an example of…

A) Hydrostatics B) Hydrokinematics. C) Hydrodynamics D) none of the above

15. The specific gravity of mercury is taken as…

(A) 1 (B) 10 (C) 13.6. (D) 15

16. Water pressure at wall of the tank is an example of…

A) Hydrostatics. B) Hydrokinematics C) Hydrodynamics D) none of the above

17. Fluid property which is unitless…

(A) specific weight (B) specific volume (C) specific gravity. (D) none of these

18. The property of a liquid which offers resistance to the movement of one layer of liquid over another adjacent of liquid, is called…

(A) surface tension (B) compressibility (C) capillarity (D) viscosity.

19. The weight per unit volume of a liquid is called…

(A) specific weight. (B) mass density (C) specific gravity (D) none of these

20. Falling drops of water becomes sphere due to the property of

(A) surface tension. (B) compressibility (C) capillarity (D) viscosity

21. Gas is…

A) Compressible Fluid. B) Incompressible Fluid C) Moderately Compressible Fluid D) none of the above

22. The thing which acquires shape of the vessel in which it is stored…

A) Solid B) Liquid. C) Gas D) none of the above

23. Branch of Fluid mechanics which deals with behaviour of fluid in motion, with considering forces responsible for motion…

A) Hydrostatics B) Hydrokinematics C) Hydrodynamics. D) none of the above

24. When a small diameter tube is dipped in water, the water rises in the tube with an upward …….. surface.

(A) flat (B) concave. (C) parabolic (D) convex

25. N/m is the unit of…

(A) surface tension. (B) compressibility (C) capillarity (D) Viscosity

26. Fluid which is incompressible and doesn't have viscosity and surface tension is…

A) Ideal. B) Real C) Newtonian D) none of the above

27. Attraction force between molecules of same fluid…

A) Cohesion. B) Adhesion C) friction D) none of the above

28. The mass of 2.5 m^3 of a certain liquid is 2 tonnes. Its mass density is …… kg/m^3.

(A) 200 (B) 400 (C) 600 (D) 800.

29. The ratio of specific weight of a liquid to the specific weight of pure water is called…

(A) specific weight (B) mass density (C) specific gravity. (D) none of these

30. Unit of kinematic viscosity is…

(A) m^2/sec. (B) Newton sec/m^2 (C) Newton sec/m^3 (D) Kg sec/m^2

31. On application of pressure, volume of fluid changes then the fluid may be…

A) Compressible Fluid. B) Incompressible Fluid C) Moderately Compressible Fluid D) none of the above

32. The thing which can't be stored in any vessel…

A) Solid B) Liquid C) Gas. D) none of the above

33. Attraction force between molecules of two different fluids…

A) Cohesion B) Adhesion. C) friction D) none of the above

34. Fluid which is imaginary…

A) Ideal. B) Real C) Newtonian D) none of the above

35. Density of water in kg/m^3 is taken as…

(A) 1 (B) 10 (C) 100 (D) 1000.

36. Water pressure at door of the dam is an example of…

A) Hydrostatics. B) Hydrokinematics C) Hydrodynamics D) none of the above

37. The reciprocal of compressibility is known as…

(A) Young's modulus (B) Expansion index (C) Bulk modulus. (D) Compression index

38. The specific gravity of oil whose specific weight is 7.85 kN/m^3, is

(A) 0.8. (B) 1 (C) 1.2 (D) 1.6

39. Study of acceleration of flowing water is an example of…

A) Hydrostatics B) Hydrokinematics. C) Hydrodynamics D) none of the above

40. Force per unit area is called…

(A) Pressure. (B) mass density (C) specific gravity (D) none of these

41. On application of pressure, volume of fluid doesn't change then the fluid may be…

A) Compressible Fluid B) Incompressible Fluid. C) Moderately Compressible Fluid D) none of the above

42. Branch of Fluid mechanics which deals with behaviour of fluid in motion, without considering forces responsible for motion…

A) Hydrostatics B) Hydrokinematics. C) Hydrodynamics D) none of the above

43. Unit of pressure…

A) Pascal. (B) Poise (C) Stoke (D) none of these

44. Fluid which is compressible and have viscosity and surface tension is…

A) Ideal B) Real. C) Newtonian D) none of the above

45. Specific weight of water in kN/m^3 is taken as…

(A) 1 (B) 10. (C) 100 (D) 1000

46. Water pressure at bottom of the tank is an example of…

A) Hydrostatics. B) Hydrokinematics C) Hydrodynamics D) none of the above

47. Unit of Dynamic viscosity is…

(A) m^2/sec (B) Newton sec/m^2. (C) Newton sec/m^3 (D) Kg sec/m^2

48. The specific gravity of water is taken as…

(A) 0.001 (B) 0.01 (C) 0.1 (D) 1.

49. The variation in the volume of a liquid with the variation of pressure is called as

(A) surface tension (B) compressibility. (C) capillarity (D) Viscosity

50. The thing in which particles are not in close state…

A) Solid B) Liquid. C) A and B both D) none of the above

Question-3

1. Unit of Dynamic viscosity is…

(A) m^2/sec (B) Newton sec/m^2. (C) Newton sec/m^3 (D) Kg sec/m^2

2. Which of the following is an example of laminar flow?

(A) Underground flow (B) Flow past tiny bodies (C) The flow of oil in measuring instruments (D) all of these.

3. The flow of fluid will be in transition phase when Reynold's number,

(A) < 2000 (B) 2000 to 4000. (C) >4000 (D) none of the above

4. The flow in which conditions do not change with time at any point is known as

(A) 1-D flow (B) steady flow. (C) streamline flow (D) uniform flow

5. Continuity equation deals with the law of conservation of

(A) Mass. (B) Momentum (C) Energy (D) None of above

6. For measuring flow by a venturimeter, it should be installed in…

(A) Vertical line (B) Horizontal line (C) Inclined line with upward flow (D) In any direction and at any location.

7. The losses are least in…

(A) laminar. (B) turbulent (C) transition (D) none of the above

8. Water flows through a circular tube with a velocity of 2 m/s. The diameter of the pipe is 14 cm. Take kinematic viscosity of water 10-6 m^2/s and density of water 1000 kg/m^3. The Reynold number is…

(A) 2.8×10^8 (B) 2.8×10^5. (C) 2800 (D) 28000

9. How is Reynolds number defined as?

(A) The ratio of inertia force to elastic force (B) The ratio of inertia force to gravity force

(C) The ratio of inertia force to pressure force (D) The ratio of inertia force to viscous force.

10. Line along which fluid particle travels is…

(A) stream line (B) streak line (C) path line. (D) flow line

11. Unit of kinematic viscosity is…

(A) m^2/sec. (B) Newton sec/m^2 (C) Newton sec/m^3 (D) Kg sec/m^2

12. When the flow parameters at any given instant remain same at every point, then flow is said to be

(A) steady (B) laminar (C) uniform. (D) incompressible

13. An ideal flow of any fluid must fulfil…

(A) Bernoulli's equation (B) Newton's law of viscosity (C) Pascal' law (D) Continuity equation.

14. Dynamic viscosity is denoted by…

(A) myu. (B) nyu (C) yu (D) none of the above

15. How should be the viscosity of the flowing fluid for laminar flow?

(A) The viscosity of the fluid should be as low as possible, for laminar flow

(B) The viscosity of the fluid should be as high as possible, for laminar flow.

(C) Change in viscosity of the flowing fluid does not affect its flow

(D) Unpredictable

16. Flow in which density doesn’t remain constant…

(A) Compressible flow. (B) Incompressible flow (C) Uniform flow (D) Non Uniform flow

17. Which of the following instruments is used to measure flow on the application of Bernoulli's equation…

(A) venturimeter (B) orificemeter (C) pitot tube (D) all of the above.

18. Flow occurring from river during flood…

(A) Laminar flow (B) Turbulent flow. (C) Uniform flow (D) Non Uniform flow

19. How is Euler number defined as?

(A) The ratio of inertia force to elastic force (B) The ratio of inertia force to gravity force

(C) The ratio of inertia force to pressure force. (D) The ratio of inertia force to viscous force

20. Flow in which velocity of fluid particles doesn't remain constant at different points…

(A) Compressible flow (B) Incompressible flow (C) Uniform flow (D) Non Uniform flow.

21. The flow of fluid will be laminar when Reynold's number,

(A) < 2000. (B) 2000 to 4000 (C) >4000 (D) none of the above

22. During the opening of a valve in a pipeline, the flow is

(A) steady (B) unsteady. (C) uniform (D) laminar

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

(A) 1-D flow (B) steady flow (C) streamline flow. (D) uniform flow

24. How is Mach number defined as?

(A) The ratio of inertia force to elastic force. (B) The ratio of inertia force to gravity force

(C) The ratio of inertia force to pressure force (D) The ratio of inertia force to viscous force

25. The length of the divergent portion of venturimeter in comparison to the convergent portion is…

(A) same (B) more. (C) less (D) more or less depending on capacity

26. What is the effect of change in Reynold's number on friction factor in turbulent flow?

(A) As Reynold's number increases the friction factor increases in turbulent flow

(B) As Reynold's number increases the friction factor decreases in turbulent flow.

(C) Change in Reynold's number does not affect the friction factor in turbulent flow

(D) Unpredictable

27. All the terms of energy in Bernoulli's equation have a dimension of

(A) energy (B) work (C) mass (D) length.

28. The losses are more in…

(A) laminar (B) turbulent. (C) transition (D) none of the above

29. The pitot tube is used for measurement of…

(A) pressure (B) flow (C) velocity. (D) discharge

30. Kinematic viscosity is denoted by…

(A) myu (B) nyu. (C) yu (D) none of the above

31. The flow of fluid will be turbulent when Reynold's number,

(A) < 2000 (B) 2000 to 4000 (C) >4000. (D) none of the above

32. Uniform flow occurs when…

(A) the flow is streamline (B) size and shape of the cross-section in a particular length remain constant. (C) size and cross-section changes uniformly along the length (D) flow occurs at a constant rate

33. The path traced by a single particle of smoke issuing from a cigarette is a

(A) stream line (B) streak line (C) path line. (D) flow line

34. Flow in which density remains constant…

(A) Compressible flow (B) Incompressible flow. (C) Uniform flow (D) Non Uniform flow

35. In a venturimeter, the velocity of the liquid at the throat is

(A) higher than inlet. (B) higher than outlet (C) lesser than inlet (D) minimum

36. How is Weber number defined as?

(A) The ratio of inertia force to elastic force (B) The ratio of inertia force to surface tension force. (C) The ratio of inertia force to pressure force (D) The ratio of inertia force to viscous force

37. Bernoulli's theorem deals with the conservation of…

(A) mass (B) energy. (C) momentum (D) force

38. Water flowing from pipe of same cross section is an example of…

(A) Steady flow. (B) Unsteady flow (C) Uniform flow (D) Non Uniform flow

39. The theoretical velocity of jet at vena contracta is

(A) $2gH$ (B) $H \times \sqrt{(2g)}$ (C) $2g \times \sqrt{H}$ (D) $\sqrt{2gH}$.

40. Flow in which velocity, pressure, density and temperature at any point remains constant…

(A) Steady flow. (B) Unsteady flow (C) Uniform flow (D) Non Uniform flow

41. Which of the following statement is correct?

(A) In a compressible flow, the volume of the flowing liquid changes during the flow

(B) A flow in which the volume of the flowing liquid does not change, is called incompressible flow

(C) When the particles rotate about their own axes while flowing, the flow is said to be rotational flow

(D) all of the above.

42. streamline, streakline and pathline are identical when

(A) the flow is uniform (B) the flow is steady. (C) the flow is neither steady nor uniform

(D) the flow velocities do not change steadily with time

43. Flow in which velocity of fluid particles remain constant at different points…

(A) Compressible flow (B) Incompressible flow (C) Uniform flow. (D) Non Uniform flow

44. The flow of water in a pipe of about 3 meters in diameter can be measured by

(A) pitot tube. (B) orifice meter (C) venturimeter (D) rotameter

45. The study of force which produces fluid motion is called as…

(A) fluid kinematics (B) fluid dynamics. (C) fluid statics (D) none of the above

46. How is Fraude number defined as?

(A) The ratio of inertia force to elastic force (B) The ratio of inertia force to gravity force.

(C) The ratio of inertia force to pressure force (D) The ratio of inertia force to viscous force

47. 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

48. Imaginary line drawn along the direction of flow, tangent drawn to any of its point shows direction of velocity…

(A) stream line. (B) streak line (C) path line (D) flow line

49. A stream line and an equipotential line in a flow field are

(A) parallel to each other (B) perpendicular to each other. (C) intersect at an acute angle

(D) are identical

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

(A) less than 2000 (B) between 2000 and 4000. (C) more than 4000 (D) none of these

Question-5

1. Which one of the following is a major loss?

(A) Frictional loss. (B) Shock loss (C) Entry loss (D) Exit loss

2. Which property of the fluid accounts for the major losses in pipes?

(A) Density (B) Specific gravity (C) Viscosity. (D) Compressibility

3. The frictional resistance for fluids in motion is

(A) proportional to the velocity in laminar flow and to the square of the velocity in turbulent flow.

(B) proportional to the square of the velocity in laminar flow and to the velocity in turbulent flow

(C) proportional to the velocity in both laminar flow and turbulent flow

(D) proportional to the square of the velocity in both laminar flow and turbulent flow

4. Which one of the following is correct?

(A) Darcy-Weisbach's formula is generally used for head loss in flow through both pipes and open channels

(B) Chezy's formula is generally used for head loss in flow through both pipes and open channels

(C) Darcy-Weisbach's formula is generally used for head loss in flow through both pipes and Chezy's formula for open channels.

(D) Chezy's formula is generally used for head loss in flow through both pipes and Darcy-Weisbach's formula for open channels

5. A liquid flows through pipes 1 and 2 with the same flow velocity. If the ratio of their pipe diameters d1: d2 be 3:2, what will be the ratio of the head loss in the two pipes?

(A) 3:2 (B) 9:4 (C) 2:3. (D) 4:9

6. A liquid flows through two similar pipes 1 and 2. If the ratio of their flow velocities v1: v2 be 2:3, what will be the ratio of the head loss in the two pipes?

(A) 3:2 (B) 9:4 (C) 2:3 (D) 4:9.

7. A liquid flows with the same velocity through two pipes 1 and 2 having the same diameter. If the length of the second pipe be twice that of the first pipe, what should be the ratio of the head loss in the two pipes?

(A) 1:2. (B) 2:1 (C) 1:4 (D) 4:1

8. The head loss at the entrance of the pipe is that at its exit,

(A) equal to (B) half. (C) twice (D) four times

9. What is the correct formula for head loss due to entry of a pipe?

(A) $hL=0.5\ v^2/2g$. (B) $hL= v^2/2g$ (C) $hL= 2v^2/g$ (D) $hL= 4v^2/g$

10. Energy gradient line takes into consideration,

(A) potential and kinetic heads only (B) potential and pressure heads only (C) kinetic and pressure heads only (D) potential, kinetic and pressure heads.

11. Hydraulic gradient line takes into consideration,

(A) potential and kinetic heads only (B) potential and pressure heads only. (C) kinetic and pressure heads only (D) potential, kinetic and pressure heads

12. The liquid flowing through a series of pipes can take up_____

(A) pipes of different diameters. (B) pipes of the same diameters only

(C) single pipe only (D) short pipes only

13. What is the total loss developed in a series of pipes?

(A) Sum of losses in each pipe only (B) Sum of local losses only

(C) Sum of local losses plus the losses in each pipe. (D) Zero

14. Which among the following is not a loss that is developed in the pipe?

(A) Entry (B) Exit (C) Friction (D) Liquid velocity.

15. How do we determine the total discharge through parallel pipes?

(A) Add them. (B) Subtract them (C) Multiply them (D) Divide them

16. Coefficient of friction of a laminar flow is_____

(A) Re/16 (B) Re/64 (C) 16/Re. (D) 64/Re

17. Where is a water hammer developed?

(A) Reservoir (B) Penstock. (C) Turbine blades (D) Pipe line

18. Water hammer is developed in which power plant?

(A) Solar (B) Nuclear (C) Hydro. (D) Wind

19. What is the function of a surge tank?

(A) It causes water hammer (B) Produces surge in the pipeline (C) Relieves water hammer. (D) Supplies water at constant pressure

20. What is the correct formula for head loss due to exit of a pipe?

(A) $hL=0.5\ v^2/2g$ (B) $hL= v^2/2g$. (C) $hL= 2v^2/g$ (D) $hL= 4v^2/g$

21. What is the Darcy-Weisbach formula for heat loss due to friction? Where, f = Darcy's coefficient of friction

(A) $hf=flv^2/gd$ (B) $hf=flv^2/2gd$ (C) $hf=4flv^2/2gd$. (D) $hf=16flv^2/2gd$

22. Minor losses do not make any serious effect in…

(A) short pipes (B) long pipes. (C) both the short as well as long pipes (D) cannot say

23. Minor losses occur due to,

(A) sudden enlargement in the pipe (B) sudden contraction in the pipe (C) bends in pipe

(D) all of the above.

24. What is the formula for determining the size of equivalent pipe for two pipes of lengths L1, L2 and diameters d1, d2 respectively? Where, L = L1 + L2

(A) $L/d=L1/d1+L2/d2$ (B) $L/d^2=L1/d1^2+L2/d2^2$ (C) $L/d^3=L1/d1^3+L2/d2^3$

(D) $L/d^5=L1/d1^5+L2/d2^5$.

25. What is the effect of change in Reynold's number on friction factor in turbulent flow?

(A) As Reynold's number increases the friction factor increases in turbulent flow

(B) As Reynold's number increases the friction factor decreases in turbulent flow.

(C) Change in Reynold's number does not affect the friction factor in turbulent flow

(D) Unpredictable

26. The friction factor in fluid flowing through pipe depends upon

(A) Reynold's number (B) Relative roughness of pipe surface (C) both A and B.

(D) none of the above

27. The head loss through fluid flowing pipe due to friction is

(A) the minor loss (B) the major loss. (C) both A and B (D) none of the above

28. The hammer blow in pipes occurs when…

(A) there is excessive leakage in the pipe (B) the pipe bursts under high pressure of the fluid

(C) the flow of fluid through the pipe is suddenly brought to rest by the closing of the valve.

(D) the flow of fluid through the pipe is gradually brought to rest by the closing of the valve

29. For a fully-developed pipe flow, how does the pressure vary with the length of the pipe?

(A) Linearly. (B) Parabolic (C) Exponential (D) Constant

30. When a problem states “The velocity of the water flow in a pipe is 20 m/s”, which of the following velocities is it talking about?

(A) RMS velocity (B) Average velocity. (C) Absolute velocity (D) Relative velocity

31. Which of the factors primarily decides whether the flow in a circular pipe is laminar or turbulent?

(A) The Prandtl Number (B) The Pressure gradient along the length of the pipe

(C) The dynamic viscosity coefficient (D) The Reynolds Number.

32. How is Reynolds number defined as?

(A) The ratio of inertia force to elastic force (B) The ratio of inertia force to gravity force

(C) The ratio of inertia force to pressure force (D) The ratio of inertia force to viscous force.

33. Water flows through a circular tube with a velocity of 2 m/s. The diameter of the pipe is 14 cm. Take kinematic viscosity of water 10^{-6} m^2/s and density of water 1000 kg/m^3. The Reynold number is…

(A) 2.8×10^8 (B) 2.8×10^5. (C) 2800 (D) 28000

34. The flow through a circular pipe is laminar. Now, the fluid through the pipe is replaced with a more viscous fluid and passed through the pipe again with the same velocity. What can we say about the nature of this flow?

(A) The flow will become turbulent (B) The flow will be a transition flow (C) The flow will remain laminar. (D) Depends on Reynolds number

35. Which of the following flows have the highest critical Reynolds number?

(A) Flow in a pipe. (B) Flow between parallel plates (C) Flow in an open channel

(D) Flow around spherical body

36. What is the ratio of maximum velocity to average velocity, when the fluid is passing through two parallel plates and flow is laminar?

(A) 3/2. (B) 2/3 (C) 4/3 (D) 3/4

37. What is the ratio of maximum velocity to average velocity, when the fluid is passing through the pipe and flow is laminar?

(A) 3 (B) 2. (C) 3/2 (D) 2/3

38. How should be the viscosity of the flowing fluid for laminar flow?

(A) The viscosity of the fluid should be as low as possible, for laminar flow

(B) The viscosity of the fluid should be as high as possible, for laminar flow.

(C) Change in viscosity of the flowing fluid does not affect its flow

(D) Unpredictable

39. The flow of fluid will be laminar when Reynold's number,

(A) < 2000. (B) 2000 to 4000 (C) >4000 (D) none of the above

40. The flow of fluid will be turbulent when Reynold's number,

(A) < 2000 (B) 2000 to 4000 (C) >4000. (D) none of the above

41. During which case will the head loss be maximum?

(A) High viscosity oil. (B) Low viscosity oil (C) High viscosity water (D) Low viscosity water

42. The losses are more in…

(A) laminar (B) turbulent. (C) transition (D) none of the above

43. How is Euler number defined as?

(A) The ratio of inertia force to elastic force (B) The ratio of inertia force to gravity force

(C) The ratio of inertia force to pressure force. (D) The ratio of inertia force to viscous force

44. Unit of kinematic viscosity is…

(A) m^2/sec. (B) Newton sec/m^2 (C) Newton sec/m^3 (D) Kg sec/m^2

45. How is Mach number defined as?

(A) The ratio of inertia force to elastic force. (B) The ratio of inertia force to gravity force

(C) The ratio of inertia force to pressure force (D) The ratio of inertia force to viscous force

46. Unit of Dynamic viscosity is…

(A) m^2/sec (B) Newton sec/m^2. (C) Newton sec/m^3 (D) Kg sec/m^2

47. How is Weber number defined as?

(A) The ratio of inertia force to elastic force (B) The ratio of inertia force to surface tension force. (C) The ratio of inertia force to pressure force (D) The ratio of inertia force to viscous force

48. The losses are least in…

(A) laminar. (B) turbulent (C) transition (D) none of the above

49. The flow of fluid will be in transition phase when Reynold's number,

(A) < 2000 (B) 2000 to 4000. (C) >4000 (D) none of the above

50. How is Fraude number defined as?

(A) The ratio of inertia force to elastic force (B) The ratio of inertia force to gravity force.

(C) The ratio of inertia force to pressure force (D) The ratio of inertia force to viscous force