QUESTION BANK

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Q 1. Relative density of mercury is	
a) 1	b) 9.8
c) 13.6	d) 1000
Correct answer: C	

Q 2. A Newtonian fluid is defined as the fluid which	
a) Obeys Hook's law	b) Is compressible
c) Obeys Newton's law of viscosity	d) Is incompressible
Correct answer: C	

Q 3. The dynamic viscosity of a liquid is 1.2×10^{-4} Ns/m^2, whereas, the density is 600 kg/m^3. The kinematic viscosity in m^2/s is	
a) 72×10^{-3}	b) 20×10^{-8}
c) 7.2×10^3	d) 70×10^6
Correct answer: B	

Q 4. The location of the centre of pressure over a surface immersed in a liquid is	
a) always above the centroid	b) will be at the centroid
c) will be below the centroid	d) for higher densities it will be above the centroid and for lower densities it will be below the centroid
Correct answer: C	

Q 5. The continuity equation is the result of application of the following law to the flow field	
a) First law of thermodynamics	b) Conservation of energy
c) Newtons second law of motion	d) Conservation of mass
Correct answer: D	

Q 6. Which fluid does not experience shearing stress during flow?	
a) Pseudoplastic	b) Dilatant
c) Newtonian	d) Inviscid
Correct answer: D	

Q 7. Stress strain relationship for Newtonian fluid is	
a) Parabolic	b) Hyperbolic
c) Linear	d) Inverse type
Correct answer: C	

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Q 8. 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
c) Lower than the surface of liquid	d) Unpredictable
Correct answer: C	
Q 9. Dimensions of surface tension are	
a) $ML°T^{-2}$	b) $ML°T$
c) $ML\,T^2$	d) ML^2T^2
Correct answer: A	
Q 10. A liquid compressed in cylinder has a volume of 0.04 m^3 at 50 kg/cm² and a volume of 0.039 m^3 at 150 kg/cm². The bulk modulus of elasticity of liquid is	
a) 400 kg/cm²	b) 4000 kg/cm²
c) 40×10^5 kg/cm²	d) 40×10^6 kg/cm²
Correct answer: B	
Q 11. 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:C	
Q 12. A pressure of 25 m of head of water is equal to	
a) 25 kN/ m²	b) 245 kN/ m²
c) 2500 kN/m²	d) 2.5 kN/ m²
Correct answer: B	
Q 13. Dynamic viscosity of most of the gases with rise in temperature	
a) Increases	b) Decreases
c) Remain unchanged	d) Unpredictable
Correct answer: A	
Q 14. 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: B	
Q 15. The tendency of a liquid surface to contract is due to the following property	
a) Cohesion	b) Adhesion

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c) Viscosity	d) Surface tension
Correct answer: D:	
Q 16. 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: C	
Q 17. The total pressure force on a plane area is equal to the area multiplied by the intensity of pressure at the Centroid, if	
a)\The area is horizontal	b) The area is vertical
c) The area is inclined	d) All of the above
Correct answer: D	
Q 18. Capillary action is due to the	
a) Surface tension	b) Cohesion of the liquid
c) Adhesion of the liquid molecules and the molecules on the surface of a solid	d) All of the above
Correct answer: D	
Q 19. The intensity of pressure on an immersed surface _____ with the increase in depth.	
a) Does not change	b) Increases
c) Decreases	d) None of these
Correct answer: B	
Q 20. One liter of water occupies a volume of	
a) 100 cm^3	b) 250 cm^3
c) 500 cm^3	d) 1000 cm^3
Correct answer: D	
Q 21. What is the correct formula for loss at the exit of a pipe?	
a) $h_L = 0.5 (V^2 / 2g)$	b) $h_L = (V^2 / 2g)$
c) $h_L = (2 V^2 / g)$	d) $h_L = (4 V^2 / g)$
Correct answer: B	
Q 22. Minor losses do not make any serious effect in	
a) short pipes	b) long pipes

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c) both the short as well as long pipes	d) cannot say
Correct answer: B	
Q 23. Minor losses occur due to	
a) sudden enlargement in pipe	b) sudden contraction in pipe
c) bends in pipe	d) all of the above
Correct answer: D	
Q 24. What is Darcy-Weisbach formula for heat loss due to friction? Where, f = Darcy's coefficient of friction	
a) $h_f = (f\, l\, V^2) / (g\, d)$	b) $h_f = (f\, l\, V^2) / (2\, g\, d)$
c) $h_f = (4\, f\, l\, V^2) / (2\, g\, d)$	d) $h_f = (16\, f\, l\, V^2) / (2\, g\, d)$
Correct answer: C	
Q 25. How is the intensity of shear stresses over the boundary layer?	
a) small	b) large
c) sometimes small and sometimes large	d) cannot say
Correct answer: B	
Q 26. The velocity gradients over the boundary layer are	
a) small	b) large
c) sometimes small and sometimes large	d) cannot say
Correct answer: B	
Q 27. If viscosity of fluid is more, the thickness of boundary layer is	
a) more	b) less
c) not affected by change in viscosity	d) unpredictable
Correct answer: A	
Q 28. The region in the turbulent boundary layer zone, adjacent to the solid surface of the plate is called as	
a) laminar sub layer	b) turbulent sub layer
c) solid sub layer	d) solid layer
Correct answer: A	
Q 29. The component of the total force exerted by fluid on a body in the direction parallel to the direction of motion is called as	

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a) lift	b) drag
c) both a. and b.	d) none of the above
Correct answer: B	
Q 30. The sum of components of shear forces in the direction of flow of fluid is called as	
a) shear drag	b) friction drag
c) skin drag	d) all of the above
Correct answer: D	
Q 31. Which of the following quantities has the dimensions [M0 L0 T 0]	
a) Density	b) Stress
c) Strain	d) Strain Rate
Correct answer: C	
Q 32. Which of the following equations is not dimensionally homogeneous? Consider standard symbols for quantities.	
a)(Force) F = m x a	b)(Head Loss due to friction) $h_f = (f L V^2) / (2 g d)$
c)(Torque) T = F x Distance	d)None of the above
Correct answer:D	
Q 33. Which of the following is a dimensionless equation?	
a) Reynold's equation	b) Euler's equation
c)Weber's equation	d) All of the above
Correct answer:D	
Q 34. Which of the following number is applicable in open hydraulic structure such as spillways, where gravitational force is predominant?	
a)Reynold's Number	b) Euler's Number
c)Weber's Number	d)Froude's Number
Correct answer:D	
Q 35. Square root of the ratio of inertia force to elastic force is called as	
a)Mach's Number	b)Cauchy's Number

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c) Both a. and b.	d)None of the above
Correct answer:C	
Q 36. The highest point of syphon is called as	
a) syphon top	b)summit
c) reservoir	d)none of the above
Correct answer:B	
Q 37. 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
Correct answer: C	
Q 38. 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
Correct answer: B	
Q 39. Friction factor for laminar flow is given by	
a)(Re /64)	b) (64 / Re)
c)(Re / 16)	d)(16 / Re)
Correct answer: B	
Q 40. Magnitude of eddy viscosity for laminar flow is	
a) less than zero	b) zero
c) greater than zero	d)unpredictable
Correct answer: B	
Q 41. The flow of fluid will be laminar when	
a)Reynold's number is less than 2000	b) the density of the fluid is low
c)both a. and b.	d)none of the above
Correct answer: C	
Q 42. The cylindrical portion of short length, which connects converging and diverging section of venturimeter, is called as	

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a) diffuser	b)connector
c) throat	d) manometer tube
Correct answer: C	

Q 43. Venturimeter consists of short converging conical tube which has a total inclination angle of

a)11 ± 1°	b)21 ± 1°
c)30 ± 1°	d)60 ± 1°
Correct answer: B	

Q 44. Which of the following devices does not use Bernoulli's equation as its working principle?

a) Venturimeter	b)Orifice-meter
c)Pitot tube	d)None of the above
Correct answer: D	

Q 45. In a steady, ideal flow of an incompressible fluid, total energy at any point of the fluid is always constant. This theorem is known as

a) Euler's theorem	b)Navier-stockes theorem
c)Reynold's theorem	d)Bernoulli's theorem
Correct answer: D	

Q 46. The study of force which produces motion in a fluid is called as

a)fluid statics	b)fluid dynamics
c)fluid kinematics	d)none of the above
Correct answer: B	

Q 47. Viscous forces are not present in

a) rotational flow	b) irrotational flow
c) laminar flow	d)none of the above
Correct answer: B	

Q 48. Which acceleration has a nonzero value in uniform flow?

a) Local acceleration	b)Convective acceleration
c)Both local as well as convective acceleration	d)unpredictable

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Correct answer: A	
Q 49. If stream function (Ψ) satisfies the Laplace equation, it is a possible case of	
a)a circular flow	b)a rotational flow
c) an irrotational flow	d)none of the above
Correct answer: C	
Q 50. The imaginary line drawn in the fluid in such a way that the tangent to any point gives the direction of motion at the point, is called as	
a)path line	b) streak line
c)filament line	d)stream line
Correct answer: D	
Q 51. The actual path followed by a fluid particle as it moves during a period of time, is called as	
a) path line	b)streak line
c) filament line	d)stream line
Correct answer: A	
Q 52. In which method of describing fluid motion, the observer remains stationary and observes changes in the fluid parameters at a particular point only?	
a)Lagrangian method	b) Eulerian method
c)Stationary method	d)All of the above
Correct answer: B	
Q 53. According to Archimede's principle, if a body is immersed partially or fully in a fluid then the buoyancy force is _____ the weight of fluid displaced by the body.	
a)equal to	b)less than
c)more than	d)unpredictable
Correct answer: A	
Q 54. When the angle between surface tension with the liquid (θ) is greater than 90º, the liquid becomes	
a) flat	b)concave upward
c)convex upward	d)unpredictable
Correct answer:C	
Q 55. Which property of the fluid offers resistance to deformation under the	

action of shear force?	
a)density	b)viscosity
c)permeability	d)specific gravity
Correct answer: B	
Q 56. The specific weight of the fluid depends upon	
a)gravitational acceleration	b) mass density of the fluid
c)both a. and b	d) none of the above
Correct answer: C	
Q 57. Inter molecular cohesive force in the fluids is	
a) less than that of the solids	b) more than that of the solids
c)equal to that of the solids	d)unpredictable
Correct answer: A	
Q 58. Shear stress in static fluid is	
a)always zero	b)always maximum
c)between zero to maximum	d) unpredictable
Correct answer:A	
Q 59. Which branch of fluid mechanics deals with translation, rotation and deformation of the fluid element without considering the force and energy causing such motion is called as	
a)fluid dynamics	b)fluid kinematics
c) fluid kinetics	d)hydraulics
Correct answer: B	
Q 60. One litre of a certain fluid weighs 8N. What is its specific volume?	
a) 2.03×10^{-3} m^3/kg	b)20.3×10^{-3} m^3/kg
c)12.3×10^{-3} m^3/kg	d)1.23×10^{-3} m^3/kg
Correct answer: D	