

Name of the Student: _____

Question No. 1 Encircle the correct option.

(20)

1. Water flows through a non-uniform pipe. The pressure will be low where
(a) Speed is low (b) Speed is high (c) Speed is Zero (d) None of these
2. The maximum drag force on a sphere falling with uniform velocity is 9.8, its weight is
(a) 1 N (b) 9.8 N (c) 19.8 N (d) zero
3. Generally the blood pressure of a person
(a) remains constant (b) increases with age (c) decreases with age (d) none of these
4. Human blood pressure is measured in torr and 1 torr =
(a) 133.6 Nm⁻² (b) 133.5 Nm⁻² (c) 133.4 Nm⁻² (d) 133.3 Nm⁻²
5. Venturi meter is used to measure
(a) speed (b) pressure (c) viscosity (d) P.E
6. Equation of continuity is another form of law of conservation of
(a) mass (b) energy (c) momentum (d) All of these
7. The terminal velocity of fog droplet is very small due to its
(a) Small mass (b) temperature (c) viscosity (d) none of these
8. For an ideal fluid in flow, the streamlines are
(a) parallel (b) perpendicular (c) anti-parallel (d) intersect each other
9. In case of flying aeroplane, the pressure of the air above the wings is ----- bottom of the wing
(a) equal to (b) greater than (c) less than (d) none of these
10. The high value of the human blood pressure is called
(a) Systolic pressure (b) Diastolic pressure (c) Normal pressure (d) None of these
11. Swing in the cricket ball is produced due to
(a) Difference of air pressure (b) Spin of the ball (c) Deflecting force (d) All of these
12. The equation $F = 6 \pi \eta r v$ is called
(a) Newton's Law (b) Stoke's Law (c) Ohm's Law (d) Faraday's Law
13. The smooth or steady flow of a fluid is called
(a) turbulent flow (b) laminar flow (c) simple flow (d) fast flow
14. If speed of body in a fluid increases then drag force on it
(a) increases (b) decreases (c) remains same (d) becomes zero
15. Sphygmomanometer is used to measure
(a) Speed (b) Pressure (c) Viscosity (d) P.E.
16. Law of conservation of energy is used to derive
(a) Bernoulli's equation (b) Venture relation (c) Torricelli's equation (d) Equation of Continuity
17. When temperature increases, the viscosity of the fluid
(a) decreases (b) increases (c) remains constant (d) becomes zero
18. The S.I. units of flow rate are
(a) m² s⁻¹ (b) m³ s⁻² (c) m³ s⁻¹ (d) m² s⁻²
19. The terminal velocity in case of spherical droplet is proportional to
(a) square of radius (b) radius (c) cube of radius (d) square root of radius
20. The dimensions of co-efficient of viscosity are
(a) MLT⁻¹ (b) MLT⁻² (c) ML⁻¹T⁻¹ (d) ML²T⁻¹

Question No. 2 Write short answers.

2x6= 12

- i. Explain what do you understand by the term viscosity?
- ii. What is the drag force? What are the factors upon which it depends?
- iii. Explain how swing is produced in the cricket ball.
- iv. A person is standing near a fast moving train. Is there any danger that he will fall towards it?
- v. Explain difference between laminar and turbulent flow.
- vi. In an orbiting space station would the blood pressure in major arteries in the leg even be greater than blood pressure in major arteries in the neck?

Question No. 3

- (a) State and prove Bernoulli's Theorem. **(5)**
- (b) An airplane wing is designed so that when the speed of the air across the top of the wing is 450m/s the speed of air below the wing is 410 m/s. What is the pressure difference between the top and bottom of the wing? Density of the air is 1.29 kg/m³. **(3)**