

01. Pascal-second is the unit of

- a. Pressure
- b. Kinematic viscosity
- c. Dynamic viscosity
- d. Surface tension

2. An ideal fluid is

- a. One which obeys Newton's law of viscosity
- b. Frictionless and incompressible
- c. Very viscous
- d. Frictionless and compressible

3. The unit of Kinematic viscosity is

- a. gm/cm-sec<sup>2</sup>
- b. Dyne-sec/cm<sup>2</sup>
- c. Gm/cm<sup>2</sup>-sec
- d. Cm<sup>2</sup>-/sec

4. If the dynamic viscosity of a fluid is 0.5 poise and specific gravity is 0.5, then the kinematic viscosity Of that fluid in stokes is

- a. 0.25
- b. 0.50
- c. 1.0
- d. None of the above

5. The viscosity of a gas

- a. Decreases with increase in temperature
- b. Increases with increase in temperature
- c. Is independent of temperature
- d. Is independent of pressure for very high pressure intensities

6. Newton's law of viscosity relates

- a. Intensity of pressure and rate of angular deformation
- b. Shear stress and rate of angular deformation
- c. Shear stress, viscosity and temperature
- d. Viscosity and rate of angular deformation

7. The rise of liquid of specific weight  $\gamma$  in a capillary tube of radius  $r$  is given by

- a.  $\frac{\sigma}{2r\gamma}$
- b.  $\frac{2\sigma}{r}$
- c.  $\frac{2\sigma}{r\gamma}$
- d.  $\frac{\gamma\sigma}{2r}$

8. The intensity of pressure developed by surface tension of 0.075 N/m in a droplet of Water of 0.075 mm diameter is

- a. 0.8 N/cm<sup>2</sup>
- b. 0.6 N/cm<sup>2</sup>
- c. 0.4 N/cm<sup>2</sup>
- d. 400 N/cm<sup>2</sup>

9. Surface tension of water

- a. Increases with decrease in temperature
- b. Decreases with decrease in temperature
- c. Is independent of temperature
- d. None of above

10. One kilo-pascal is equivalent to

- a. 1000 N/m<sup>2</sup>
- b. 1 k/m<sup>2</sup>
- c. 1000 N/mm<sup>2</sup>
- d. 1000 N/cm<sup>2</sup>

12. Examine the following four statements.

- i) Surface tension is due to cohesion only.
- ii) Capillarity is due to both cohesion and adhesion.
- iii) Surface tension is due to both cohesion and adhesion
- iv) Capillarity is due to both cohesion and adhesion.

Which of the above statements are true?

- a. (i) and (ii)
- b. (ii) and (iii)
- c. (i) and (iv)
- d. Only (iv)

13. Pressure of 200 kPa is equivalent to a head of x meters of carbon tetra-chloride of relative density 1.59 where x is Equal to

- a. 11.62
- b. 11.92
- c. 12.82
- d. 13.12

14. For a vertical semi-circular plate submerged in a homogenous liquid with its diameter 'd' at the surface, the depth of centre of pressure from the free surface is

15. The pressure intensity is same in all directions at a point

- a. 1N/mm<sup>2</sup> b. 1000 N/m<sup>2</sup>
- a. Only when fluid is frictionless and in compressible
- b. Only when fluid is frictionless and is at rest
- c. Only when fluid is frictionless
- d. When there is no relative motion of one fluid layer relative to other

16. An open tank contains a m deep water with 50 cm depth of oil of specific gravity 0.8 above it. The intensity of pressure at the bottom of tank will be

- a. 4 KN/m<sup>2</sup>
- b. 10 KN/m<sup>2</sup>
- c. 12 KN/m<sup>2</sup>
- d. 14 KN/m<sup>2</sup>

17. The position of centre of pressure on a plane surface immersed vertically in a static mass Of fluid is

- a. At the centroid of the submerged area
- b. Always above the centroid of the area
- c. Always below the centroid of the area
- d. None of the above

17. A vertical triangular area with vertex downward and altitude 'h' has its base laying on the free surface of a liquid . The centre of pressure below the free surface its at a distance of

- a.  $\frac{h}{4}$
- b.  $\frac{h}{3}$
- c.  $\frac{h}{2}$
- d.  $\frac{2h}{3}$

19. The total pressure on a plan surface inclined at an angle  $\theta$  with the horizontal is equal to

- a.  $pA$
- b.  $pA \sin \theta$
- c.  $pA \cos \theta$
- d.  $pA \tan \theta$

20. A vertical rectangular plane surface is submerged in water such that its top and bottom surfaces are 1.5 m and 6.0 m respectively below the free surface. The position of centre of pressure below the free surface will be at a distance of

- a. 3.75 m
- b. 4.0 m
- c. 4.2 m
- d. 4.5 m

