# CHAPTER-5 Fluid Mechanics & Fluid Machinery

## 1. Fluid & its Properties

**1.** Mass density of liquid (ρ) is given by
(a) ρ = mass/volume
(b) ρ = metric slug/$m^2$
(c) ρ = kg $sec^2/m^4$
(d) All of the above

**[SSC–JE : 2007]**

**2.** The bulk modulus of elasticity
(a) Does not increase with the pressure
(b) Increases with the pressure
(c) Is large when fluid is more compressible
(d) Is independent of pressure and viscosity

**[SSC–JE : 2007]**

**3.** The rise or fall of head 'h' in a capillary tube of diameter d and liquid surface tension σ and specific weight w is equal to
(a) 4σ /wd (b) 4dσ/w
(c) 4wd/σ (d) 4wσ/d

**[SSC–JE : 2007]**

**4.** As per Law of fluid friction for steady streamline flow, the friction resistance:
(a) varies proportionally to pressure
(b) varies in inverse proportion to pressure
(c) does not depend on pressure
(d) first increase then decreases

**[SSC–JE : 2008]**

**5.** An ideal flow of any fluid must satisfy:
(a) Pascal's law
(b) Newton's law of viscosity
(c) Boundary layer theory
(d) Continuity equation

**[SSC–JE : 2009]**

**6.** The flow which neglects changes in a transverse direction is known as:
(a) One – dimensional flow
(b) Uniform flow
(c) Steady flow
(d) Turbulent flow

**[SSC–JE : 2009]**

**7.** The property of a fluid which enables it to resistance tensile stress is known as:
(a) Compressibility
(b) Surface tension
(c) Cohesion
(d) Adhesion

**[SSC–JE : 2010]**

**8.** Kinematic viscosity is equal to :
(a) Dynamic viscosity / density
(b) Dynamic viscosity × density
(c) Density/ dynamic viscosity
(d) 1/dynamic viscosity × density

**[SSC–JE : 2010]**

**9.** Which one of the following is the bulk modulus K of fluid?
(a) $\frac{dp}{\rho d\rho}$ (b) $\frac{\rho d\rho}{dp}$
(c) $\frac{d\rho}{\rho dp}$ (d) $\rho\frac{d\rho}{dp}$

**[SSC–JE : 2012]**

**10.** Pseudo-plastic substances are non-Newtonian fluids for which :
(a) Dynamic viscosity increase as the rate of shear increases
(b) Dynamic viscosity decreases with the time for which shearing forces applied
(c) Dynamic viscosity increases with time for which shearing force applied
(d) Dynamic viscosity decreases as the rate of shear increases

**[SSC–JE : 2012]**

**11.** An ideal fluid
(a) Has no viscosity
(b) Satisfies the relation pv = RT
(c) Obeys Newton's law of viscosity
(d) Is both incompressible and non – viscous

**[SSC–JE : 2013]**

**12.** Pascal second is the unit of
(a) Pressure
(b) Kinematic viscosity
(c) Dynamic viscosity
(d) Surface tension

**[SSC–JE : 2013]**