

Course Name	Branch	Subject Name with Code	Semester	Assignment Unit No.
B. Tech	ME & CE	IME-301_ Fluid Mechanics	III	1

**Objective types Questions – Answers (1 Marks each)**

- Specific volume is defined as  
 (a) Volume of fluid/mass of fluid  
 (b) mass of fluid/ Volume of fluid  
 (c) Weight of fluid/volume of fluid  
 (d) none of the above
- The SI unit of dynamic viscosity ( $\nu$ ) is:  
 (a) kgf-sec/m<sup>2</sup>  
 (b) dyne-sec/cm<sup>2</sup>  
 (c) N-sec/m<sup>2</sup>  
 (d) All of the above
- For a floating body, buoyant force acts at the  
 (a) Centroid of the floating body  
 (b) Centre of gravity of the body  
 (c) Centroid of the fluid vertically below the body  
 (d) Centroid of the displaced fluid
- Stoke is the unit of  
 (a) Mass density  
 (b) Kinematic viscosity  
 (c) Viscosity  
 (d) Velocity gradient
- Manometer is a device used for measuring ..... at a point in a fluid.  
 (a) Temperature  
 (b) velocity  
 (c) Pressure  
 (d) viscosity

**Very Short Questions – Answers (2 Marks each)**

- Specific gravity
- Define Density.
- Specific weight
- Define Newtonian fluids and Non-Newtonian fluids.
- Define meta-centre and meta-centric height.

**Long Questions- Answers (7 Marks each)**

- State and prove the Pascal's law.
- Explain different types of manometer.
- An open tank contains water up to a depth of 2 m and above it and oil of specific gravity 0.9 for a depth of 1 m. find the pressure intensity (i) at the interface of two liquids, and (ii) at the bottom of the tank.
- A rectangular plate surface is 2 m wide long and 3 m deep. It lies in a vertical plane in water. Determine total pressure and position of centre of pressure on the plane surface when its upper edge is horizontal and (a) coincides with water surface (b) 2.5 m below the free water surface.
- Derive an expression for depth of centre of pressure from free surface of liquid of an inclined plane surface sub-merged in the liquid.