

**BIRSA INSTITUTE OF TECHNOLOGY (TRUST)**  
**BITT POLYTECHNIC**

**Modal Question**

**BRANCH: Mechanical Engineering**

**Semester-4<sup>TH</sup>**

**SUB : Fluid Mechanics and Machinery**

**CODE : MEC403**

**Multiple choice questions**

1. Fluid is a substance that
  - (a) Cannot be subjected to shear forces
  - (b) Always expands until it fills any container
  - (c) Has the same shear stress at a point regardless of its motion
  - (d) Cannot remain at rest under action of any shear force
2. Fluid is a substance which offers no resistance to change of
  - (a) pressure
  - (b) flow
  - (c) shape
  - (d) volume
3. Practical fluids
  - (a) are viscous
  - (b) possess surface tension
  - (c) Are compressible
  - (d) Possess all the above properties
4. in a static fluid
  - (a) Resistance to shear stress is small
  - (b) Fluid pressure is zero
  - (c) Only normal stresses can exist
  - (d) Viscosity is zero
5. A fluid is said to be ideal, if it is
  - (a) Incompressible
  - (b) In viscous
  - (c) Viscous and incompressible
  - (d) In viscous and incompressible.
6. An ideal flow of any fluid must fulfill the following
  - (a) Newton's law of motion
  - (b) Continuity equation
  - (c) Pascal' law

(d) Boundary layer theory

7. If no resistance is encountered by displacement, such a substance is known as (a) ideal fluid.

(b) Water

(c) Gas

(d) Perfect solid

8. The volumetric change of the fluid caused by a resistance is known as

(a) Volumetric strain

(b) Volumetric index

(c) Compressibility

(d) Adhesion

9. Liquids

(a) cannot be compressed

(b) occupy definite volume

(c) are not affected by change in pressure and temperature

(d) none of the above.

10. Density of water is maximum at

(a) 0°C

(b) 0°K

(c) 4°C

(d) 100°C

### Short question and answer

- 1) Give definition of Hydrostatic and Hydro Kinematic.
- 2) Define the terms "Ideal Fluid" with example.
- 3) Define the terms "real fluid" with example.
- 4) Which is more "Viscous- water or mercury?
- 5) Define Mass density, give its unit.
- 6) Give weight density of water at 4<sup>0</sup>C
- 7) Capillarity is due to adhesive or cohesive.
- 8) Unit of absolute viscosity is [N/s-s, Ns/m, NS/m<sup>2</sup>]
- 9) What is Newtonian Fluid?
- 10) Give unit of Kinematic Viscosity are
  - a) m/s ,
  - b) m/s<sup>2</sup>
  - c) m<sup>2</sup>/S

### Long Types Question

- 1) Describe the function of Hydraulic Fluid and its properties.

- 2) Write Short notes on (i) Newtonian Fluid (ii) Non Newtonian Fluid.
- 3)
  - i) What is Cohesion?
  - ii) Explain Capillarity and mention its formula.
- 4) What is concept of Absolute pressure? Absolute Vacuum pressure, Gauges pressure atmospheric pressure with simple graph.
- 5)
  - i) Convert the height of water, column equivalent to pressure of  $20\text{N}/\text{Cm}^2$ .
  - ii) Find the Sp. Gravity of liquid if its rise in the piezometer is 50Cm for a pressure of  $4100\text{ N}/\text{m}^2$ .

Answer key of MCQ

1- d, 2 - c, 3 - d, 4 - d, 5 - d, 6 - b, 7- a, 8 - c, 9 - d, 10 - c.