Important Questions

Part A

Unit 1

1. State Newton's Law of Viscosity
2. Differentiate between specific volume and relative density
3. Discuss shortly; Effect of temperature on Viscosity
4. What is the variation of viscosity with temperature for fluids?
5. Distinguish between atmospheric pressure and gauge pressure.
6. Define the term Kinematic Viscosity and give its dimension.
7. What is specific gravity? How is it related to density?
8. Differentiate between solids and liquids.

Unit 2

1. Define Laminar Flow and Turbulent Flow
2. Shortly discuss on vorticity
3. Differentiate between laminar and turbulent flow.
4. Write down four examples of laminar flow.
5. What is the physical significance of Reynold's number?
6. Rotational flow
7. Velocity and acceleration of a fluid particle
8. List the types of fluid flow

Part B

Unit 1

1. Calculate the specific weight density and specific gravity of one litre of liquid which weighs 7N
2. List 5 types of fluids and Discuss on Newtonian and Non-Newtonian fluid with shear stress and velocity gradient
3. Define units and measurements, discuss elaborately, also deliberate on Pressure measuring gauges.
4. A simple U tube manometer containing mercury is connected to a pipe in which fluid of sp. Gravity 0.8 and having vacuum pressure is flowing. The other end of the fluid is open to atmosphere find the vacuum pressure in pipe if the difference of mercury level is in the two limbs is 40cm and the height of the fluid in the left from the Centre of pipe is 15 cm below.
5. Calculate the specific weight, density and specific gravity of two litres of a liquid which weighs 20N.
    - (i) Discuss on capillary rise and surface tension in detail.
    - (ii) Discuss on the U tube manometer and its types.

6. Two right limb of Simple U tube manometer containing mercury is open to the atmosphere while the left limb is connected to a pipe in which a fluid of specific gravity is 0.9 is flowing. The Centre of the pipe is 12 cm below the level of mercury in the right limb. Find the pressure of the fluid in the pipe if the difference of the mercury level in the two limbs is 20 cm.
7. Explain the properties of a hydraulic fluid.

Unit 2

1. Give a case study on Laminar flow and Turbulent flow with necessary sketch and empathy.
2. Analyse and deliberate about application of different fluid flow in the agricultural engineering application with necessary sketches.

3. Discuss on (i) Rotational flow (ii) Irrotational and vorticity flow with necessary sketch

4. Discuss elaborately on flow pattern and its types with necessary sketches

5. Discuss on (a) Uniform and non-uniform flow (b) steady and unsteady flow with necessary sketches

6. List 6 types of fluid flow , and deliberate about compressible and incompressible flow.