

B.E. (Chemical) 3<sup>rd</sup> semester  
Minor Test (18 October 2021)  
Subject: Fluid Flow

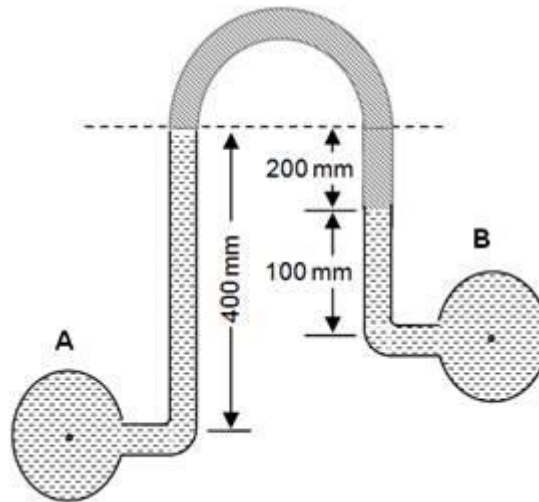
Time Allowed: 60 minutes

Max. Marks: 25

Note: Attempt all questions. State clearly all your assumptions and boundary conditions. Any missing data may be suitably assumed.

Q1. Differentiate between Non-Newtonian inelastic fluids and viscoelastic fluids. How will apparent viscosity be calculated for power law fluids? (5)

Q2. An inverted tube differential manometer having an oil of specific gravity 0.9 is connected to two different pipes carrying water under pressure. Determine the pressure in the pipe B. The pressure in pipe A is 2 m of water. (5)



Q3. A 150mm dia. pipe reduces in dia. abruptly to 100mm dia. If the pipe carries water at 30lts/sec, calculate the pressure loss across the contraction. Take co-efficient of contraction as 0.6 (5)

Q4. Derive the shear stress and velocity profile for the flow of fluid through horizontal circular pipe. Draw the profiles and express the points of maximum velocity and maximum shear stress. (10)