School of Engineering

B.TECH Civil Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem III - G1UA303B - Fluid Mechanics

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Compare Rotational and Irrotational Flow — K2 (2)

2) How does the viscosity of fluid very with temperature. — K1 (3)

3) Enlist the type of fluids with some example — K2 (4)

4) Interpret continuity equation. — K2 (6)

5) Model the Discharge through a Venturimeter or an orifice meter in relation to area of inlet and throat of venturimeter — K3 (6)

6) Examine whether the following velocity components represent a physically possible flow? — K3 (9)

7) Simplify the process of capillary rise and derive an expression for height of capillary rise of water in a tube. — K4 (8)

8) A hydraulic press has a ram of 20 cm dia and plunger of 3 cm dia. It is used for lifting a weight of 30 kn. Find the force reqired at the plunger. — K4 (12)

OR

Analyse a venturi meter having a diameter of 75 mm at the throat and 150 mm diameter at the enlarged end is installed in a horizontal pipeline 150 mm in diameter carrying an oil of specific gravity 0.9. The difference of pressure head between the enlarged end and the throat recorded by a U-tube is 175 mm of mercury. Determine the discharge through the pipe. Assume the coefficient of discharge of the meter as 0.97. — K4 (12)