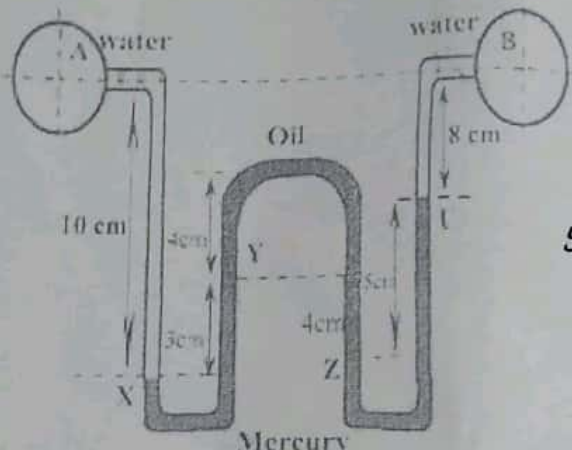


Answer all the questions.

S.No.	Question	Marks
1.	Derive the general expression for Euler's equation of motion over a cylindrical control volume.	10
2.	A hydraulic lift used for lifting automobiles has a 25 cm diameter ram which slides in a 25.018 cm diameter cylinder, the annular space being filled with oil having a kinematic viscosity of $3.7 \text{ cm}^2/\text{s}$ and relative density of 0.85. If the rate of travel of the ram is 15 cm/s, find the frictional resistance when 3.3 m of ram is engaged in the cylinder.	10
3.	 <p>SEARCH YIT QUESTION PAPERS ON TELEGRAM TO JOIN</p> <p>As shown in figure water flows through pipe A and B. The pressure difference of these two points is to be measured by multiple tube manometers. Oil with specific gravity 0.88 is in the upper portion of inverted U-tube and mercury in the bottom of both bends. Determine the pressure difference.</p>	10
4.	A velocity field is defined by $u = 2y^2$, $v = 3x$, $w = 0$. At point (1,2,0), compute the (a) velocity, (b) local acceleration and (c) convective acceleration.	10
5.	In a smooth pipe of uniform diameter 25 cm, a pressure of 50 kPa was observed at section 1 which was at elevation of 10 m. At another section 2 at elevation of 12 m, the pressure was 20 kPa and the velocity was 1.25 m/s. Determine the direction of flow and the head loss between these two sections. The fluid in the pipe is water.	10