



Alexandria Higher Institute of Engineering & Technology (AIET)

Department of: Industrial

Second Year

2nd Year

ME251

Fluid Mechanics

Midterm-of-Semester-1 Exam, Dec., 20, 2011

Examiners:

Dr. Rola Afify and committee

Time: 1 hour

Answer the following questions:

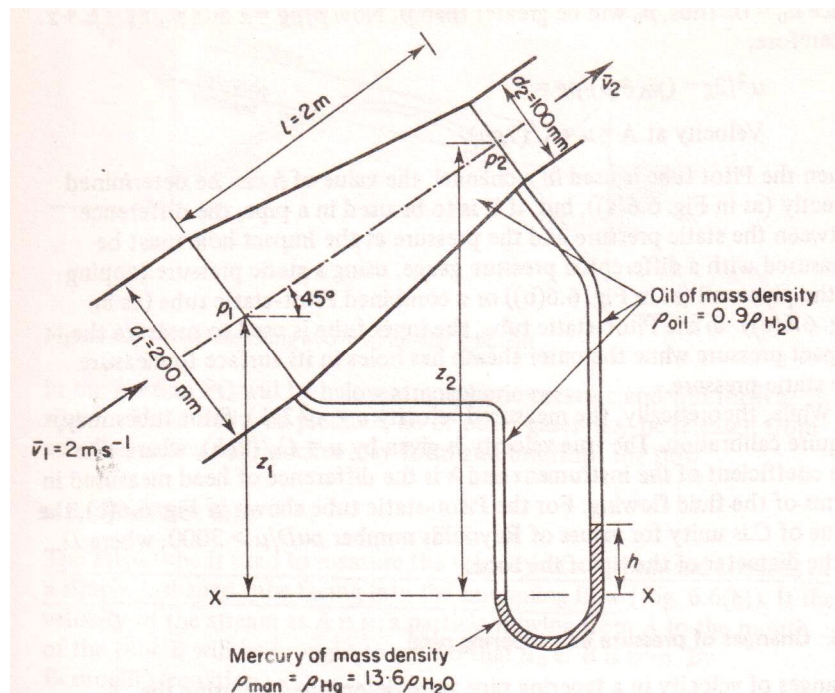
Question one: (6 marks)

A) Define: Stream tube – Fluid Power.

B) Compare, using neat sketches, between:-

- Steady and Unsteady flow. & - Venturi and Orifice meters.

C) A pipe inclined at 45° to horizontal converges over a length l of 2m from diameter d_1 of 200 mm to a diameter d_2 of 100 mm at the upper end. Oil of relative density 0.9 flows through the pipe at a mean velocity v_1 at the lower end of 2 m/s. Find the pressure difference across the 2m length ignoring any loss of energy and the difference in the level that would be shown on mercury manometer connected across this length. The relative density of mercury is 13.6 and the leads to the manometer are filled with oil. Also, Draw T.E.L. and H.G.



Question Two: (4 marks)

A) Draw a complete hydraulic circuit used to move a cylinder forward and backward with a controllable velocity.

B) Write the functions of:-

- Oil tank.
- Actuators.