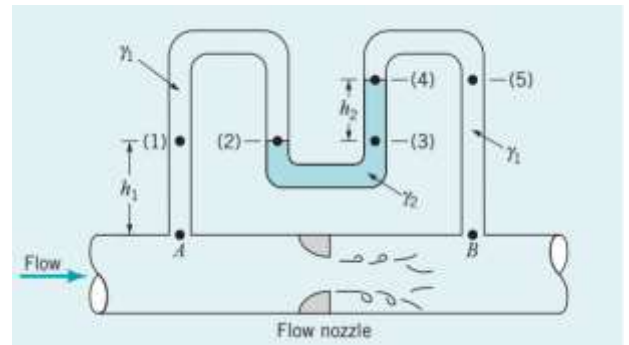


Numerical PROBLEMS N°2

1/ a-Determine an equation for $p_A - p_B$ in terms of the specific weight of the flowing fluid γ_1 , the specific weight of the gage fluid γ_2 , and the various heights indicated.

b-For $\gamma_1 = 9,98 \text{ KN/m}^3$, $\gamma_2 = 11,78 \text{ KN/m}^3$, $h_1 = 2\text{m}$ and $h_2 = 2,5\text{m}$, what is the value of the pressure drop?



2/ A mercury manometer is connected to a large reservoir of water as shown in Figure 2-02. Determine the ratio, h_w/h_M , of the distances h_w and h_M indicated.

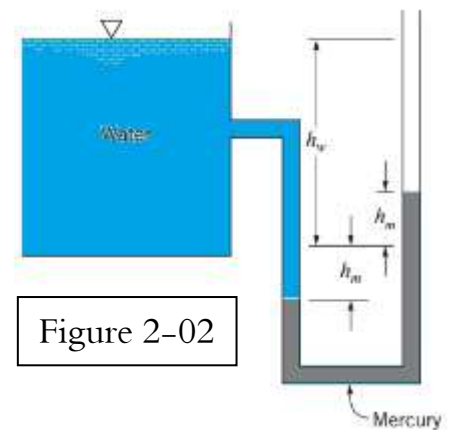


Figure 2-02

3/ A closed cylindrical tank filled with water has a hemispherical dome and is connected to an inverted piping system as shown in Figure 2-03. The liquid in the top part of the piping system has a specific gravity of 0.8, and the remaining parts of the system are filled with water. If the pressure gage reading at A is 60 kPa, determine: the pressure in pipe B, and the pressure head, in millimeters of mercury, at the top of the dome (point C).

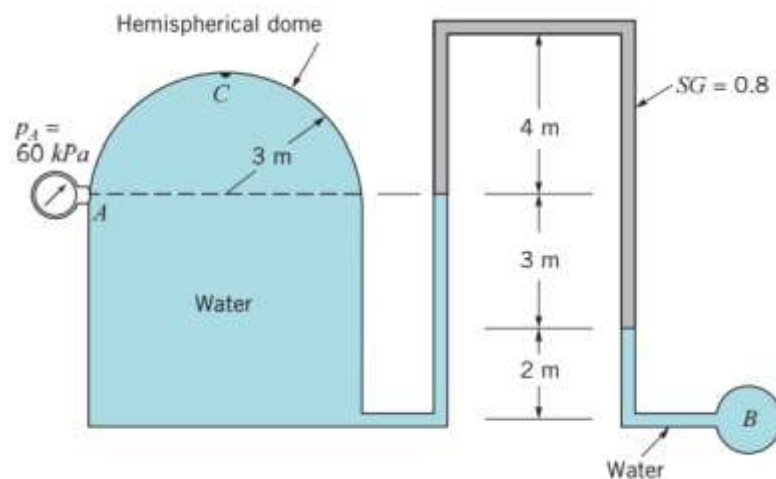


Figure 2-03

4/ A differential manometer is attached to two tanks, as shown in Fig. 2-04. Calculate the pressure difference between chambers A and B.

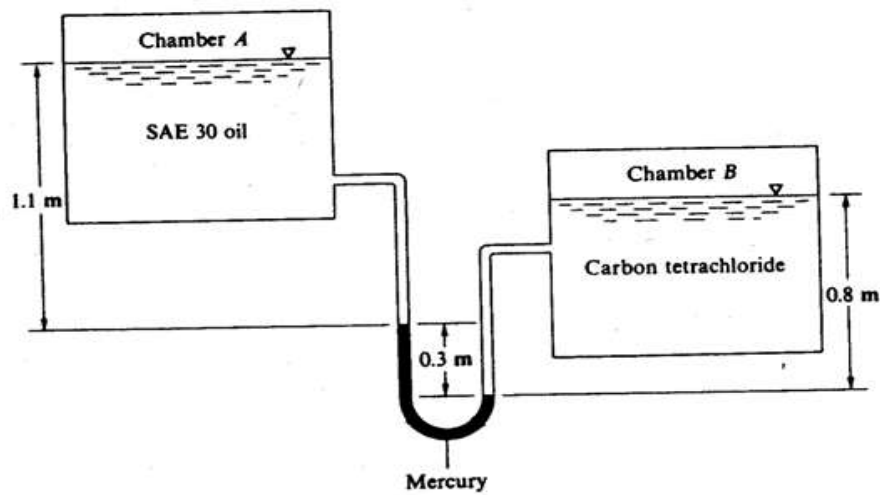


Figure 2-04

MCQ (Multiple Choice Questions)

1/ When a fluid is subjected to resistance, it undergoes a volumetric change due to _____

- a) Cohesion
- b) Strain
- c) Compressibility
- d) Adhesion

2/ Open channel flow takes place _____

- a) In a pump
- b) Within a cylindrical depth
- c) On a free surface
- d) In the pipe

3/ Which of the following is a type of fluid based on viscosity?

- a) Real Fluid
- b) Ideal Fluid
- c) Newtonian Fluid
- d) All of the mentioned