Q1 Losses In pipes. mid thermal lab 11/11/2013

Given that :

T = 15 °C

$M = 1.08 \times 10^{-3}$

length = 914.4 mm

small diameter = 13.6 mm

Large diameter = 26.2 mm

friction factor = .026

m(kg)	t (s)	Expansion (mm)		Bend J (mm)		Globe valve (mm)	
		h_1	h_2	h_3	h_4	h_5	h_6
7.5	32.8	595	635	119	513	702	543

calculate :

A) The minor loss in Expansion, Bend J and Globe valve.

B) loss coefficient in Expansion, Bend J and Globe valve.

given :

$h_m = \Delta h + \left(\frac{V_1^2 - V_2^2}{2g}\right) - h_f$, $h_f = f\frac{L}{D}\frac{v^2}{2g}$, $h_m = k\frac{v^2}{2g}$

Q2 Hydrostatic Pressure Force on a plane Surface.

(True or False)

1- The objective is to determine the position of the centroid of the rectangular face of the toroid.

2- A rider weight balances the weight of the toroid in the dry situation.

3- The depth of water in the tank was determined by hook guage.

4- The location of the center of pressure will change if a different fluid were used in the tank.

5- The pressure forces act on the four surfaces of the rectangular toroid were ignored because they were too small.

Q3 Flow Through A Nozzle

(True or False)

1- The purpose of using the nozzle is to create a high-pressure fluid stream at the expense of it's velocity. F

2- The chest pressure remains constant at given mass flow rate of fluid F

3- The pressure ratio is equal to inlet pressure devided on throat pressure F

4- The pressure at any point in the nozzle can obtain from small pressure gauge. T

5- The pressure at throat point is always higer than critical pressure. F