MET 330

Test 1 Reflection

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1) How and why the test demonstrates your work toward one, or more, of the course learning objectives. Be specific on the course objectives you decide to mention.

   This first problem highlights how to calculate deflection in a manometer and find the height when a different fluid is implemented in the monometer. Using the Gamma h equation.
   Bernoulli's equation is the main highlight of the second problem on the test. Applying it to find various variables such as "hL" and Pump Power. Also solve for pump power using Bernoulli's. Another aspect of this problem is finding the moody chart value by calculating Reynolds number and relative pipe roughness.

2) How your test compares against the available solution. State the mistakes you made and what you will do next time to avoid making same mistakes. Please point out exactly where you made the mistake, say why you made the mistake, and how you should have done it. If you were taking this test again, what advice would you give yourself to ensure that you had a successful test?

   I did not compute the best pipe size in excel, since I dissolved for the hL of pipe size 1in I was not able to input these new variables into excel in order to compute this. I also did not create a graph for the operation cost. Installation cost and total cost.
   I did not compute the hL correctly as I should have incorporated hL for filter, gate value and entrance. All I did was add a 3 for the three elbows in the pip system.
   I would tell myself to look at the correct section of the pipe system and so not over think the question asked.

3) What your grade should be. Base it on the writing rubric provided in the test and the correctness of your solution. What are the strengths and weaknesses of your test?

WRITING RUBRIC

1.	Purpose	0.5/10.0
2.	Drawings	0.75/10.0
3.	Sources	1.0/10.0
4.	Design considerations	1.0/10.0
5.	Data and variables	0.4/10.0
6.	Procedure	1.8/10.0
7.	Calculations	1.8/10.0
8.	Summary	0.5/10.0
9.	Materials	0.5/10.0
10.	Analysis	1.0/10.0

TOTAL **9.25/10.0**

PROBLEM 1)

1. Identify all unknown dimensions in drawing 0.75/7 out of 1/7
2. Cancel the distance with water (x) 1/7 out of 1/7
3. Solve for the gasoline distance (y) 1/7 out of 1/7
4. Correct excel spreadsheet 0.8/7 out of 1/7
5. Using excel, get mercury case 0.9/7 out of 1/7
6. Why results make sense and manometer length 0.75/7 out of 1/7
7. Final results 0.9/7 out of 1/7

TOTAL **6.1/7 out of 7/7**

PROBLEM 2)

1. Select pipe diameter using 3 m/s 1/9 out of 1/9
2. Compute all energy losses 0.85/9 out of 1/9
3. hA and pump power 1/9 out of 1/9
4. Pressure at pump inlet 0.9/9 out of 1/9
5. Correct excel spreadsheet 1/9 out of 1/9
6. Pump power for 4 other pipe sizes 0/9 out of 1/9
7. Installation, operating, and total costs 1/9 out of 1/9
8. What is the best pipe diameter? 0/9 out of 1/9
9. Final results 0.7/9 out of 1/9

TOTAL **6.45/9 out of 9/9**

FINAL GRADE:

9.25 + (80/2)*(6.1/7+6.45/9) = 72.7/90

4) Discuss the following:

a. What issues did you encounter in completing the test? How did you troubleshoot them?
On the second problem, I got confused with if I need to solve for two distances of the pipe for two different machines. There was more pipe feeding into the second machine, so I solved for both head losses and used the higher pump power to both machines.

b. What steps did you take to complete the whole test? Would you change something?
I determined to problem, looked through my notes and lectures for material concerning these topics and applied it to the problem.

I found the layout of the previous test very helpful and was able to use it to layout my own test and keep it organized.

c. What new concepts have you learned?
I learned that manometry is actually a very simple process and changing the material in the monometer isn't something you should overthink. Just use the equations you know and the variables that are given in the book.

d. Where you think engineers use those concepts (provide specific examples)?

These concepts are commonplace in pipeline work when determining the velocity and specific pipe needed for a system. I've seen this work don't on aircraft carriers in the naval industry. These ships must supply a large number of fluids all over the vessel, so pipe systems are very important.

e. Where do you think you will be using everything you learned?

In the industry job the I am hired to complete. Whether it be a pipe system for a building or a ship this information is extremely valuable.

f. Do you think what you learn is important for your professional career?

Yes, I do think this will help me in the field work of Engineering Technology,

g. How, when where and why you might use this information or skill in the future?

I have applied for many positions that involve these concepts. The problem-solving skills displaced in this test will help me a lot in the field.

h. Have you been able to apply concepts you have learned in the course to what you do at work or in other courses?

I have taken the Fluid Mechanics lab in a previous semester and this information was used to complete the labs.

i. What areas did you feel you were most successful, or improved the most?

I felt that I completed the first problem very well and the second problem made sense to me and the process and equations I used felt right. I was very happy with my overall test submission.

j. How do you see this course's content intersecting with your field or career?

Fluid mechanics is all around us and this course content will be used in every aspect of my future career.

k. How much time did you spend on the test? How was the time organized? What would you do differently? Why?

I spend at least 3 days working on this test. I spend many hours in the library working on the procedure and equations to complete the problems.
If I could do something differently, I would probably take a few more hours on the second problem and text the professor more when I was confused. Overall I am happy with my submission and will accept any grade given to me.