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MET 330

Test 2 Reflection

11/4/21

1) The test challenged our knowledge of many different course objectives. A few of those include: identifying and solving for different specific types of industrial problems, fluid dynamics in pipes and fittings, buoyancy and determining object stability.

2) 1) It appears that my first problem was done correctly.

   2. I had the right approach to number 2. I used he correct equation and area. I used a different equation to find velocity, where the solution used V=QA. In the end, my issue was in the CD value. I used the value for a rectangle that a/b was 4. I had chosen this because originally I had used the wrong dimensions. I used the width of the whole channel and the depth of the water, which came out to 2.23/0.61=3.65. I realized that that was incorrect that the area needed to be only that of the child, but I failed to notice its affect on the CD value until now.

   3. I got the beginning right by combining the mass of the person+the tube and converting it to kN. I lost it when it came to using that number. I had the right equation, I just failed to use it properly. I knew that the MB=I/Vd equation needed to be used for determining stability, but I was not sure how to approach it and then I ran out of time. Never again will I not start really early on a test.

   4. I had the right equation in mind for number 4, but it definitely was not executed correctly. I did not determine the velocity of the water, which was used to multiply by gamma and get the water weight. That number was then supposed to be used in the Fh equation. I used Ic to determine location when it should have only been determining 1/3 of the depth.

   5. I had started to use the equations for Fx, Fy, Rx, and Ry, and I determined the slow rate in ft^3/s. After that I lost it. I did not bring bernoullis into play like I should have and I feel like if I had given myself more time to ask questions I could've asked you for help on that.

   6. I'm not 100% sure how my equation was wrong. I notice that mine had (p1-p2)*gamma and yours had deltaP/gamma, so I feel like that is an issue. I brought bernoullis into the mix and it was not necessary. I had Reynolds number at 2*10^5 and

yours was 1.2*10^5. However, I did have the correct equation for finding C and the correct gamma for Ethyl Alcohol.

7. I made a BIG mistake with C. I assumed it to be the C from problem 6, which was 100% incorrect. I should have used the equation instead. I also used the incorrect psi from the right tank. I used the pressure in the left tank. I used the correct equation from the book, with the values I had gotten even though they were not correct.

If I were taking this test again, I would START EARLIER. After doing the pretest I thought I had a pretty good grasp on what I would need to do, but when I actually started plugging in the numbers I found out that wasn't as true as I thought. If I had started earlier, I could've asked more questions and possibly fixed some of the bigger mistakes I had.

3) 0.5 + 0.7 + 0.5 + 1 + 0.5 + 2.0 + 1.5 + 0.5 + 0.5 + 0.8 = 8.5/10

1) 4/28
2) 2/28
3) 2/28
4) 0.5/28
5) 0.5/28
6) 2/28
7) 2/28

8.5 + (80*(13/28)) = 45.6%

I think my strength of the test was knowing which formula to use for the problems. However, just knowing the right equation was not enough and I fell short in knowing how to apply them.

4) A) I encountered many problems in the test. When I ran into problems, I referred to my book to ensure I was using the right equation and to the notes from the pretest for any hints that may have helped.

B) The first step was completing the pretest, which was very valuable in order to receive the tips to help on the test. I then started at problem 1 and worked my way to the end. The only thing I found wrong with that were that when I got stuck on an early problem of the test, it took time away from the other problems that were to come after. If I would change anything, it would be to not assume I have a good understanding just based off of what I gathered from completing the pretest. If I had not assumed I understood it, I would have given myself more time to complete the test.

C) A few new concepts I learned were that there are multiple ways to find the same variable (ex, V in problem 2). I also realized that there are a ton of variables that can be changed based solely on the engineers opinion (ex, the water levels, heights, width, etc.).

D) I feel like knowing different equations for the same variables can come in handy when you only have certain factors to determine those values. One job may have certain requirements, but the next one be totally different and knowing lots of “aisles” of equations help to determine the best fit for the scenario at hand. Engineers varying values can be valuable when you know that there is a budget in mind, or there is a special requirement that a client needs you to meet. Communication and flexibility with a project is crucial.

E) Hopefully in whatever job I have in the future. I could be designing channels or pipelines in a plant, or even something recreational like a lazy river that is designed around the safety of its users.

F)Yes 100%. Even if every concept we learn is not used, being able to approach a problem and use our head before we hit the books or a computer will make life a lot more simple.

G) I am not sure 100% where I will use it, I think that will determine the direction of engineering I go into. However, as I said before the process for approaching and solving these problems is the same process for any engineering problem that we may deal with in the future.

H) Not yet. But I can see that the material we learned in the beginning of the semester in this class is still being used to solve problems now.

I) I think I was able to better determine what equation was needed instead of guessing.

J) It will be determined by the career I end up in. But, fluids are everywhere. In HVAC systems, cars, manufacturing plants, etc.

K) I would say that I spent about 7 hours on the test. This time was not necessarily organized, I just began the test and tried to work through it the best I could. In the future, I will start the test way earlier. As I previously mentioned, I took for granted that I understood more than I did based on the information I found to complete the pretest.