Kayla Davies - Test 2 Reflection - Fluid Mechanics

WRITI	NG RUBF	CIC (Applied to the whole test, not to particular problem	ns)
1.	Purpose	0.5/10.0 out of 0.5/10.0)
2.	Drawings	1.0/10.0 out of 1.0/10.0)
3.	Sources	1.0/10.0 out of 1.0/10.0)
4.	Design co	binsiderations $1.0/10.0$ out of $1.0/10.0$	
5.	Data and	variables 0.5/10.0 out of 0.5/10.0)
6.	Procedure	e 2.0/10.0 out of 2.0/10.0)
7.	Calculation	2.0/10.0 out of 2.0/10.0)
8.	Summary	0.5/10.0 out of 0.5/10.0)
9.	Materials	0.5/10.0 out of 0.5/10.0)
10.	Analysis	1.0/10.0 out of 1.0/10.0)
	TOTAL	10.0/10.0 out of 10.0/10.0	
1	Force on	the flange	
1.	1 0100 011	consider piezometric head (get pressure above fluid)	0/25 out of 1/25
	2 F	orce magnitude	0/25 out of $1/25$
	2. F	orce location	0/25 out of $1/25$
2.	Pipe-elbo	w forces	0,20 000 01 1,20
	1. Free body diagram and correct forces		0/25 out of 1/25
	2. F	orce in $x - $ solve for Rx	0/25 out of 1/25
	3. F	orce in y (weight) – solve for Ry	0/25 out of 1/25
3.	Flow-nozzle flowmeter pressure drop		
	1. R	ight equation and A1/A2	0.5/25 out of 1/25
	2. C	value	1/25 out of 1/25
4.	Water hammer pressure increase and cavitation		
	1. V	Vave velocity (units?)	0/25 out of 1/25
	2. P	ressure increase and Pmax	0/25 out of 1/25
	3. P	ipe thickness	0/25 out of 1/25
	4. L	owest pressure & compare to sat pressure (cavit)	0/25 out of 1/25
5.	Flow in the open channel		
	1. L	azy river dimensions	0.5/25 out of 1/25
	2. C	orrect equation	0.5/25 out of 1/25
	3. A	rea and hydraulic radius	1/25 out of 1/25
6.	Drag force on the child		
	1. C	correct equation to use	1/25 out of 1/25
	2. C	orrect area and velocity	0/25 out of 1/25
	3. How Cd was obtained?		1/25 out of 1/25
7.	Lazy river tube floating – stability		
	1. R	ealize Fb=W and solve for distance into water	1/25 out of 1/25
	2. C	compute metacenter location	1/25 out of 1/25
	3. R	ealize metacenter will always be above cg	1/25 out of 1/25
8.	Correct re	esults?	2/25 out of 4/25

FINAL GRADE:

10+(80)*(10.5/25)=43.6

1) The main course objectives used in this exam were; Describe the nature of fluids and define different fluid properties such as viscosity and pressure, Compute pressure and the forces (magnitude, location, and direction) associate with it in a stagnant fluid, Discuss what buoyancy is and determine object stability while floating or submerged in a fluid, Identify and solve for different very specific industrial problems, such as, open-channel flow, cavitation, water hammer, drag, lift, forces in pipes, and learn about different instruments to measure fluid flow quantities (such as, pressure, fluid velocity, flow velocity, etc.). Part B heavily used buoyancy, open channel flow, and cavitation. Water hammer, forces such as magnitude, location, and direction were found in part A.

2) I made the mistake of using the wrong units several times, for example, when finding the required flow rate, I used cubic feet per second instead of cubic meters per second. Also when calculating the velocity I used feet per second instead of meters per second. While this is not something that makes my answers "Wrong" would help me find the correct answer. Also, For part B, I did not calculate the width and height of the lazy river, I just assumed and picked random numbers which threw the rest of the questions off. Next time I will try to use the notes more to solve the test.

3) I graded myself a 43.6 as shown above. The weakness of my test was that I didn't really answer Part A at all. My strength was the writing rubric portion which gave me a solid amount of points.

4) Discuss the following:

a. I ran into the issue of my brain being tired. It sounds silly, but after finishing part B first, my brain was definitely tired and I could not finish A completely.

b. I completed both writing portions of the test first, and then did the calculations which I think worked better for me this time.

c. Through the lazy river part, I learned how these concepts can be applied in real life.

d. Of course from part B, this is a real life example that can come from when engineers design waterparks. Water hammer from part A is used to detect leaks in pipes.

e. I will use what I've learned in this class for my lab, as well as in a professional aspect.

f. I think what we are learning in this class is very important.

g. I can use this information when looking at future engineering projects as well as future tests.h.

H. I haven't been able to apply these concepts at work, but I have been able to use them in my fluids lab.

i. I improved the most at being able to explain step by step the procedure in each question.

j. I can see it having a bigger impact than most of my other courses.

k. I spent a good amount of time on the test, however I decided to do both parts back to back, which was definitely exhausting on my brain. I did the writing rubric portions first, and then did part B, and then part A. Next time I should spread it out so I can do the different questions on different days.