Test 1 reflection

This test showed how much I have learned about fluid mechanics and stability during the previous few weeks. The problems required me to apply concepts such as hydrostatic pressure, buoyancy, equilibrium, and stability of floating bodies. In the U-tube problem, I used pressure balance and fluid properties to determine the fluid height. In problem 2, I applied hydrostatic force calculations and moment equilibrium. In the stability problem, I used buoyancy and metacentric heights to determine the stability of the floating ice cube block. These problems helped me meet the objectives of analyzing fluid systems and applying engineering principles to solve practical problems.

After comparing my work with the solution, I noticed that most of my mistakes were related to setting up the problems and organizing the solution process. In some places, I did not clearly identify the known and unknown values before starting the calculations. This caused me to spend extra time checking my work. I also realized that not to overthink and should have paid more attention to equation setup. Next time, I will begin each problem by drawing a clear diagram, listing the given information, and selecting the correct equations before performing calculations. If I were taking this test again, I would remind myself to slow down, stay organized, and double-check every step before moving on.

Based on the solution and the grading rubric, I believe my work demonstrates a good understanding of the material. My strengths were understanding the concepts and applying the correct fluid mechanics principles. I was also able to follow a logical process to solve most of the problems. My weaknesses were small calculation errors and not always presenting my work in the clearest format. Overall, I think my grade should reflect a solid understanding of the course

content while recognizing areas where I can improve. So I would grade myself between 83% - 87%.

One challenge I faced during the test was deciding which equations to use for each problem. Some problems involved multiple concepts, so it was important to determine the correct approach before starting the calculations. To overcome this, I reviewed my notes, textbook examples, and formulas. I completed the test by first reading each problem carefully, drawing a sketch, identifying the known information, and then solving the problem step by step. If I could change anything, I would spend more time checking my set up and calculations before submitting the test.

This test helped me strengthen my understanding of hydrostatic pressure, buoyancy, forces on submerged surfaces, and stability of floating bodies. These concepts are used by engineers in many fields. For example, power plants, marine engineering, and manufacturing industries.

I believe the material from this course will be useful in my future career because many engineering systems involve fluids. As a locomotive technician, I work with cooling systems, air systems, lubricating systems, and hydraulic components. Understanding fluid mechanics helps me better understand how these systems operate and how to troubleshoot problems when they occur. The concepts I learned on this course can also help me in future engineering courses and professional projects.

The area where I improved the most was my ability to analyze engineering problems and apply the correct fluid mechanics principles. At the beginning of the course, I focused mainly on equations, but now I better understand the physical meaning behind the calculations. I can see a

strong connection between this course and my career because fluid systems are used in transportation, manufacturing, power generation, and many other industries.

I spent several hours working on the test, including reviewing notes, solving problems, and checking my answers. Most of my time was spent understanding the problem statements and verifying my calculations. If I were to do it again, I would leave more time at the end for reviewing my work because careful checking can help prevent simple mistakes and improve the overall quality of the solutions.