

1. This test goes over a few of the course objectives including applying the first and second laws of thermodynamics to different thermal systems, applying thermodynamics laws to gas turbine engines using ideal cycles, and applying thermodynamic laws to jet propulsion engines using ideal cycles. The first problem was a modified ideal Brayton cycle and the second problem was a jet propulsion engine.
2. The biggest mistake that I made on this test was that I forgot to do the technical writing portion of the test. I did not read the directions thoroughly enough and that is something that I have learned from and will do better in the future. On the first problem, I got confused because there was not a 6th stage written down and I second-guessed myself because I knew there should be a 6th stage but since it wasn't written down I did not solve it. For the actual questions I used the correct equations except for part c. Part C I did not really know how to approach this problem so I did not realize that I would have to go back and redo the affected states. On the second problem, the biggest mistake that I made was that I used C_p & C_v constant equations when C_p & C_v variable was clearly stated in the problem. This was an oversight on my part that led to me using the wrong equations and ultimately getting an answer that did not make any sense. However, on the questions being asked, I was able to use the correct equations but since I had the wrong numbers I got the wrong answer.

3. WRITING RUBRIC (Applied to the whole test, not to particular problems)

1. Purpose	0/10.0 out of 0.5/10.0
2. Drawings	0/10.0 out of 1.0/10.0
3. Sources	0/10.0 out of 1.0/10.0
4. Design considerations	0/10.0 out of 1.0/10.0
5. Data and variables	0/10.0 out of 0.5/10.0
6. Procedure	0/10.0 out of 2.0/10.0
7. Calculations	0/10.0 out of 2.0/10.0
8. Summary	0/10.0 out of 0.5/10.0
9. Materials	0/10.0 out of 0.5/10.0
10. Analysis	0/10.0 out of 1.0/10.0
TOTAL	0/10.0 out of 10.0/10.0

PROBLEM 1)

1. P-v and T-s diagrams	1/9 out of 1/9
2. State calculations (7 of them – including 5a)	2/9 out of 4/9
For 6 -> Balance HX using 5a	
3. Efficiency and mass flow rate calculation	2/9 out of 2/9
w _{out4-5} , w _{in1-2} (use isent eff or 5a), q _{in3-4}	
4. New HX effectiveness	0/9 out of 1/9
5. Final results	0/9 out of 1/9
TOTAL	4/9 out of 9/9

PROBLEM 2)

1. P-v and T-s diagrams	1/9 out of 1/9
2. State calculations (8 of them – including 3a and 5a) Use 500 kJ/kg -> Compressor & Turbine Cp and Cv are variable	2/9 out of 4/9
3. Pressure (P5)	1/9 out of 1/9
4. Velocity (V6) Use h5a	1/9 out of 1/9
5. Thrust	1/9 out of 1/9
6. Final results	0/9 out of 1/9
TOTAL	6/9 out of 9/9

This puts my grade as a 53.9/100.

- During this test, I encountered a few issues. The first was the correct amount of stages on the first question which I should have followed my gut but in the directions, it said nothing was hidden so I assumed that I was wrong. On the second problem, I used the wrong equation. A lot of the places that I got stuck or did not know where to get the equations to use I was able to go back into my old notes and find things to help me. Between the examples on canvas and my notes, I was able to find the equations I wanted to use. A lot of the steps I took on the tests were exactly what we did in class which I like because it is a systematical approach that does not rely on your expertise in a specific equation rather it allows you to look at a system as a whole and understand how to solve problems without having to have expertise on that specific problem. Throughout this test, I have not only learned about the heat cycles discussed in class but also a lot about thermodynamics that I had trouble understanding in the past semester's class. I believe this information is very useful when designing jet engines and when designing and evaluating power plants. I do believe that this information is going to help me in my professional career and it will help me with all things thermo. I felt a lot more comfortable when the Cp & Cv are variable and I feel a lot more confident when we are using the equations and not the tables. I have to work on getting more comfortable using the tables in the future. I believe that this course will help me in my future career. While I do not know exactly what I want to do all things that move produce some sort of heat. I spent around 4-6 hours on the test. I did it almost all at once. In the future, I would have split up the test and given myself more time to complete it.