

- 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.

Five specific learning objectives were tested. They are:

- Develop an intuitive understanding of how to apply the first and the second law of thermodynamics to different thermal systems.
 - This was tested in both problems
- Apply thermodynamics laws to gas turbines Engines using ideal cycles, reheating regeneration, and inter-cooling cycles.
 - This was tested on the first problem
- Apply thermodynamics laws to Jet Propulsion Engines using ideal cycles.
 - This was tested on the second problem
- Develop a clear understanding the basic operation of combined gas turbines vapor cycles, co-generation and binary vapor cycles
 - Tested primarily on the first problem, but concepts used on second as well.
- Define the thermal efficiency, second law efficiency, and energy availability.
 - Tested on both problems

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?

- For the first problem, I calculated the compressor pressure incorrectly for the last part. This led to errors throughout the last variation made it impossible to accurately compare each variation. I was not 100% sure I did this correctly. In the future, I will ask the question.
- For the second problem, I should have used more paper. I jumbled my calculations which led to a transposition error. My final calculations were incorrect also, due to previous errors getting the states, but also careless errors using the calculator.

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 (Applied to the whole test, not to particular problems)

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

10.0/10.0

PROBLEM 1)

1. P-v and T-s diagrams	
a. Single stage compression (and variations)	1/14
b. Two stages compression	1/14
2. State calculations	
a. Single stage compression (and variations)	4/14
b. Two stages compression	1.5/14
3. Why does regeneration hurt in original case?	1/14
4. w_{net} , q_{in} , thermal efficiency (all cases)	1.5/14
5. HW effectiveness (all cases)	1/14
6. Which case is better?	1/14
7. Final results	1/14

13/14

PROBLEM 2)

1. P-v and T-s diagrams	2/8
2. State calculations	3/8

Use $w_c = w_t$

Use efficiencies to get actual states

C_p & C_v variable

P5, V6

3. Thrust	0/8
4. Final results	.5/8

5.5/8

$$10.0 + (80/2) * (13/14 + 5.5/8) = 74.6429/90$$

4) Discuss the following:

a. What issues did you encounter in completing the test? How did you troubleshoot them?

I was unsure of several concepts, so I completed the pretest and asked questions.

b. What steps did you take to complete the whole test? Would you change something?

I completed the pretest, and then worked over a couple days. I turned it in Sunday morning, but I should have reviewed it again to verify my calculations.

c. What new concepts have you learned? How jet and gas turbines work.

d. Where do you think engineers use those concepts (provide specific examples)? Engine design projects trying to improve efficiency of past designs.

e. Where do you think you will be using everything you learned. I could use this if I worked at a shipyard on a gas turbine powered ship.

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

g. How, when, where and why you might use this information or skill in the future? At a job, in an interview.

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

i. What areas did you feel you were most successful, or improved the most? I feel like I better understand how energy can be transformed from one type of component to the next in a thermal cycle.

j. How do you see this course's content intersecting with your field or career? Yes. I actually used these concepts in the Navy.

k. How much time did you spend on the test? How was the time organized? What would you do differently? Why? 15 hours. I spread it out over 4 days. Like I said before, I should have spent a little more time doing a final review before I submitted it.