TEST 1 Reflection

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

-All of the above were included in my test write up.

**TOTAL** **10.0/10.0**

PROBLEM 1)

1. P-v and T-s diagrams 2/11

   -P-V and T-S diagrams were included for all iterations.
2. HX effectiveness for previous problem 1/11

   -HX effectiveness was correctly solved for and used.
3. State calculations (with regeneration) 2/11

   -All states were calculated for.
4. Realize that regeneration hurts 2/11

   -Regeneration was stated as disadvantageous for the system.
5. State calculations (without regeneration) 2/11

   -All states were calculated for.
6. Power 1/11

   -Power was calculated for.

7. Final results 0/11

   -Solving for specific numbers was off. Numerical errors.

**TOTAL** **10/11**

PROBLEM 2)

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

   -P-V and T-S diagrams were included.

2. State calculations 4/8

Use wc_act = wt_act

Use efficiencies to get states

Cp & Cv variable

P5

- All states were calculated for.

3. Propulsion efficiency (before and after) 1/8

   -Propulsion efficiency was calculated both before and after.

4. Final results 0/8

   -Numerical errors resulted in incorrect final results.

**TOTAL** **7/8**

FINAL GRADE: (if everything is correct)

**10.0 + (80/2)*(10/11+7/8) = 81**

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.

- Develop an intuitive understanding of how to apply the first and the second law of thermodynamics to different thermal systems.
- Apply thermodynamics laws to gas turbines Engines using ideal cycles, reheating regeneration, and inter-cooling cycles.
- Apply thermodynamics laws to Jet Propulsion Engines using ideal cycles.

Above are the learning objectives that were demonstrated by the test. The first and second law of thermodynamics were used for both questions on the test. Specifically, to gas turbines with reheating, regeneration, and intercooling cycles. Finally, Jet Propulsion thermodynamic laws were used for the second question.

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?

My test compares well with eh format of the test, understanding what happens to the system and the steps needed to explain it. My mistakes were made with the numerical calculations which resulted in incorrect final solutions. If I were to take the test again, I would review my calculations further.

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?

According to the rubric and the wickets that were looked for, I believe my grade should be an 81 on the test. My strengths were recognizing some of the interactions involved in the first problem. A weakness of the test was becoming lost in all the calculations.

4) Discuss the following:
a. What issues did you encounter in completing the test? How did you troubleshoot them?

An issue I encountered in the test was assuming that states 1-6 were constant in problem 1. This is not true due to interactions with the regenerator.

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

I started with the second question and then moved onto the first question. I would not redo the original questions.

c. What new concepts have you learned?

I learned to look at the system as a whole especially when concerning states that rely on each other.

d. Where you think engineers use those concepts (provide specific examples)?

Engineers use concepts of heat exchanges frequently. An engineer should design ways to bypass certain components of a system depending on plant conditions.

e. Where do you think you will be using everything you learned?

I will use these concepts during work at BWXT or other similar careers.

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

I believe these concepts will be important for me to have a good understanding of many disciplines of engineering.

g. How, when, where and why you might use this information or skill in the future?

I could use this information if I took the thermal systems PE exam.

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

I have been able to apply concepts learned in this class to my PE test studying.

i. What areas did you feel you were most successful, or improved the most?

I felt that I was successful in describing the heat exchanger interaction in the first problem.

j. How do you see this course's content intersecting with your field or career?

If I become more directly involved in nuclear power operation or design, I will use thermodynamics, fluid mechanics, and heat transfer heavily.

k. How much time did you spend on the test? How was the time organized? What would you do differently? Why?

I spent a total of 16 hours on the test. I spent about 12 doing the test itself ad the last 4 was spent rewriting the test to fit the format and clean it up. For this test specifically I would not do anything different.