

1. 1) Test 2 demonstrates my work towards developing an understanding of regenerative Rankine cycles. In problem number 1, I needed to solve the problem by taking into consideration that the steam traps were both going to malfunction.

2. 2) On problem number 1, I set up my p-v and t-s diagrams very similar to the solution. My only differences were my states 3&4 and states 5&6 weren't equal like in the solution. Mine were all separate. My biggest problem was mistaking the steam traps for closed feedwater heaters at the beginning of the test. I noticed when I came back to the test for a second time and had to rethink the problem. When solving for Y, I used the right equation but had the wrong variables. Next time I will make sure that I am getting the correct variable when going through y states. When solving for z, I set up the first half of the equation and added more to it than I needed. Next time I will make sure that I only use what I need in my equations. When solving for the change in temperature, I had the right equation but forgot to use the mass flow rate of the turbine rather than just the mass flow rate of the cooling water. When solving for thermal efficiency, I set up the equation the right way. I just had my variable wrong which led to a similar but different answer.

On problem number 2, my p-v and t-s diagrams were not set up correctly. I didn't take into consideration that the steam traps would affect my diagrams and thought that they would be the same. This led to errors throughout the problem. When solving for Y, I used the wrong equation which led me to get the wrong answer. Next time I will look over my test and reread each problem to make sure that I am not making simple mistakes.

3.

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

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 considerations	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	2.0/10.0 out of 2.0/10.0
7. Calculations	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

PROBLEM 1)

1. P-v and T-s diagrams	1/10 out of 1/10
2. Realize that some states are not needed	0/10 out of 1/10
3. State calculations (at least 11 of them)	2/10 out of 2/10
4. Calculate "y" and get $y=0$	0.5/10 out of 1/10

5. Calculate “z”	1/10 out of 1/10
6. Calculate deltaT water	1/10 out of 1/10
7. Thermal efficiency (Wnet & Qin)	2/10 out of 2/10
8. Final results	0/10 out of 1/10
TOTAL	7.5/10 out of 10/10

PROBLEM 2)

1. P-v and T-s diagrams	0/9 out of 1/9
2. Realize that some states are not needed	0/9 out of 1/9
3. State calculations (at least 8 of them)	1/9 out of 2/9
4. Calculate “y”	1/9 out of 1/9
5. Calculate deltaT water	1/9 out of 1/9
6. Thermal efficiency (Wnet & Qin)	2/9 out of 2/9
7. Final results	0/9 out of 1/9
TOTAL	5/9 out of 9/9

$$10.0 + (80/2)*(7.5/10+5/9) = 62.2\%$$

My strength during this test were finding the variables for each state. My weaknesses were picking and choosing which equations to use and drawing my diagrams.

4.

- A. I had problems at the beginning of the test and got the steam trap confused with the feed water heaters. I took a break from the test after 2 hours and came back to it with a fresh mind.
- B. Something I did in this test that I believed helped me was starting and coming back to it every now and then rather than staying on it all at once. This helps my brain get a refresh if I ever get to a point where I need a break. I sometimes come back with brand-new ideas that may help. I also took some time over spring break to look over previous homework and new problems to get a better understanding of Rankine cycles.
- C. I learned the process of regenerative Rankine cycles and what would happen if one or two steam traps stopped working.
- D. I think that these would be used in places like power & nuclear plants.
- E. If I go into Nuclear or power plants, these will be used all the time.
- F. Yes, I think it is important for my professional career, because if I want to get into an MET field that uses ideal Rankine cycles, I would need to know how and why they work.
- G. I would use these concepts if I go into power or nuclear plants. Or maybe even
- H. I haven't yet been able to apply these concepts to anything I've done at work. But I've had classes that relate to these concepts, like thermodynamics.
- I. I feel like I was most successful in drawing my diagrams and choosing the right equations for the right system.
- J. I see this course helping me in my future when I go to pursue a job in the engineering field

K. I spent at least 11 hours total solving the problems on this test spread out throughout the week. I did this so I could take breaks and wouldn't be stressed while taking the test