1. This test directly relates to a few course objectives outlined in the syllabus. Specifically, the objective is to apply Rankine Cycle with superheating, re-heating, and regeneration to steam power plants and to develop a clear understanding of the basic operation of combined gas turbine vapor cycles, cogeneration, and binary vapor cycles.
2. I believe that overall, I did very well on this test, besides a few mistakes. The main mistake that I made was on the example problem that I was reviewing (10-60) it showed Q out m(h5-h4), and I accidentally wrote that down instead of what it was supposed to be, which is Q=m(h7- h6). The other mistake that I made was that in the first problem, I assumed H3 was a saturated liquid because that is what it said in the problem statement. Then, in problem 2, I assumed that the situation was ongoing, and I kept h3 a saturated liquid, which resulted in me getting y=0 again, which turned out to be wrong. However, I could argue that the question was skewed and written in a way that leads you to believe that the situation is ongoing and that the h3 being a saturated liquid would apply to both problems. Another mistake I made, which I later corrected, was that I did not have h3 on the curve originally, which led me on a very long process to solve an overly complex series of equations. Then, when I reread the question and realized that H3 was on the curve, I made notes of my mistake and redid it.
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	0/10.0 out of 1.0/10.0
TOTAL	**9/10.0 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	1/10 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	1/10 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)	1.5/10 out of 2/10
8. Final results	0.5/10 out of 1/10
TOTAL	**9/10 out of 10/10**

PROBLEM 2)

1. P-v and T-s diagrams	1/9 out of 1/9
2. Realize that some states are not needed	1/9 out of 1/9
3. State calculations (at least 8 of them)	2/9 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)	1.5/9 out of 2/9
7. Final results	0.5/9 out of 1/9
TOTAL	**8/9 out of 9/9**

WRITING PORTION (8.75) + (80/2)*(PROBLEM 1 + PROBLEM 2) = 8.75 + (80/2)*(9/10+8/9) = 80.55

My strengths of the test I would say are my mathematical skills and my ability to problem solve throughout the test. I ran into a lot of situations throughout the test where I was lost and confused and did not know where to go. However, I was able to use my skills and resources to figure out the next steps. My weakness on the test would have to be the conceptual understanding of the process, especially when drawing the PV diagram. It took me longer than I would have liked to draw out the diagram because it did not come easy to me, but I eventually figured it out.

4. During the test, the major issue that I came across was in states 3 and 4. This was because I originally considered h3 to be a compressed liquid. After all, that was what it always was in the notes, but in reality, it was on the saturation curve. This put me through a complex system of equations that was unnecessary. During this test, I decided to spread it out over a couple of days. This allowed me to not only have the time that I needed to properly complete the test but also to think about my work when I was not working on the test, which allowed me to catch a lot of my mistakes. The main thing that I would change is to do more practice problems before the test and to make sure I go over the problems in class after class. The new concepts that I learned are how to handle steam power plants and how to handle situations when there are state changes. Another thing that I learned were mass fractions and energy balance equations. Technically, I “learned” it in thermodynamics, but it was not until this class that I had a good understanding of the material. In engineering, I think they use these concepts in all types of power plants, as they are extremely useful. I also think they use these concepts in refrigeration and HVAC. I do think that the skills I have learned in this class could prove to be useful in my professional career. I would use these skills if I decided to go work at a steam power plant or if I wanted to do anything in HVAC. I have been able to apply a few things in my Heat transfer course that I have learned in this class. I think that I was most successful in my problem-solving skills throughout the test and in being confident in my energy balance equations. I spent around 12-15 hours on this test. I spent a lot of my time trying to figure out my next steps and my mistakes. I spent a lot of time knowing that I was doing something wrong but it took me a while to figure out what it was.