MET 350 Test 1 reflection Ben Smithson

1. Overall, this test went alright but there were differences that I could have done better on my end of the test. The mistakes I made in the test will help me to become a better engineer and student. One of the main flaws in my test was not showing enough for the first problem. I didn't show how the regenerator wasn't needed. I should have shown the steps for figuring out that the regenerator was not needed at all in the problem. Also, my final answer came out correctly so I did the problem correctly but my process was a little different. I'm not sure how important that is if I was able to get to the correct answer with the same pv and ts diagrams. On the second problem in the test, I was able to do the steps correctly but my answer did not line up which was a calculation and placement error on my part. There were a lot of parts to the second part of the test and they needed lots of time to go through them and make sure that every state was correct. I did get the actual values in problem two which was good for the process and I was also able to incorporate variable heats.

2. Based on my grading below I would get around a 65 percent on the test. This should exemplify my work as I did make mistakes but got the right answer in the first problem and was able to do most of the work for the second problem.

Self Grading:

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
	TOTAL	**10.0/10.0**

PROBLEM 1)

1.	P-v and T-s diagrams	2/11
2.	HX effectiveness for previous problem	1/11
3.	State calculations (with regeneration)	0/11
4.	Realize that regeneration hurts	1/11
5.	State calculations (without regeneration)	1/11
6.	Power	1/11
7.	Final results	1/11
	TOTAL	**7/11**

PROBLEM 2)

1.	P-v and T-s diagrams	2/8
2.	State calculations	3/8
	Use wc_act = wt_act	
	Use efficiencies to get states	
	Cp & Cv variable	
	P5	
3.	Propulsion efficiency (before and after)	1/8
4.	Final results	0/8
	TOTAL	**6/8**

FINAL GRADE: (if everything is correct)

10.0 + (80/2)*(7/11+6/8) = 65.455

3. If I was to go back in time and take the test again, I would tell myself to go over the example problems again especially for the variable specific heats. I believe this would have helped me tremendously for getting the problem done in an easier fashion. Even though I was able to get the states for the variable specific heats this would have helped me. Also, I would have explained for part one why the regeneration wasn't needed instead of just showing the process without regeneration for a better explanation of my work.

4. I learned to show all steps including ones that are unnecessary for the system. This will help me and future employers to understand my thinking and the overall best option for the process. Also, I will look over variable heats again for a future project or test. This seems to be a weakness of mine and it was a weakness in thermodynamics as well.

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A. I had an issue with showing the regeneration was unnecessary. Not necessarily an issue but I should have shown it. Also, in the second problem, my calculations didn't line up but the process was similar.
B. First I did all of the calculations this time and looked over practice problems to do so. Also, the advice given in class was taken into account greatly for the first problem and getting rid of the regenerator. After the calculations were done and looked over with, I wrote the analysis and rest of the steps.
C. I have learned all new concepts in the first test, especially variable specific heats in a jet propulsion engine. I also learned how important it is to go through the system logically, not just using the answers to the equations. (not needing regenerations)

D. I believe engineers will use this test for weaning out regeneration in systems as well as to calculate the efficiency of jet engines which is a very important topic especially in the air force engineering field.
E. I believe I will use the states and equations through the entire semester as well as in my career as an engineer if I go into a job with brayton cycles or jet propulsion.
F. As stated above this will help to understand the concepts in the fields with jet propulsion and brayton cycles. This will show how you can save companies money if regeneration is unnecessary in a system.
G. These concepts of variable specific heats and regeneration will be very important in a thermal state of engineering career. If I go work on any types of engines, it is necessary to understand these concepts.
H. I have been able to apply some of the concepts in thermal applications for the simple gas cycle because I have worked on cars for a little while so I understand how the combustion engine works and it is interesting to me.
I. I feel most improved in the brayton cycles because I was able to see the necessary steps for finding the effectiveness and even though I didn't use the same process, I still used a process that makes sense to me and came out with the correct answer.
J. Stated above how these concepts will work in the engineering field.
K. I would say I spent a total time of 10 hours on this test with the amount of time looking at example problems, solving and checking over my calculations, as well as writing out the entire report. I would have looked over examples prior to taking the test in order to save time and understand the concepts in a fuller manner before taking the test.