Test 4 Reflection

By

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MET 440 – Heat Transfer

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This test demonstrates all of the course objectives that need to be covered this semester, these objectives serve to be all the knowledge that prepares someone to apply heat transfer theory to everyday applications. The new objectives covered in this test are to solve force convection problems using different experimental correlations and use LMTD and Effectiveness methods to analyze heat exchangers. The whole test applies all of the objectives besides the use of commercial computer programs to numerically solve heat transfer systems.

My attempt on the test and the solutions mirrors each other in terms of following the same design template. I had all the sections in the correct order and had the procedure for every deliverable correct this time. The equations that I used were all needed to compute the answers needed, but I only computed one LMTD instead of three. The one that I computed and iterated for was the water inside the tube, but I did not take into account the outside air LMTD and inside air LMTD. I used the coefficients that were from the first test instead. Given that if this was done correctly on my part, I would have gotten similar answers in terms of heat collected by water, mass flow rate, and efficiency as the first test. Unfortunately, I had very high percentage errors in my outputs compared to the actual answers.

My attempt based on the rubric would be that the template meets all requirements. Felt that my strengths were organizing the problem in a way that I would have gotten the correct answers, but I did not get the math right at all. I felt that the test's template, like the previous times, gave me an easier time with organizing my procedure and how to attack the problem effectively. My final equations were right, but the math was wrong and my misuse of the LMTD over resistance equation made me lose a lot of points.

WRITING RUBRIC

1.	Purpose	0.5/10.0
2.	Drawings	1.0/10.0
3.	Sources	0.5/10.0
4.	Design considerations	1.0/10.0
5.	Data and variables	0.5/10.0
6.	Procedure	2.5/10.0
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 out of 10.0**

PROBLEM 1)

1.	Thermal circuit	1/15 of 1/15
2.	Evaluate individual resistances	1/15 of 1/15
3.	Conservation of energy equation	1/15 of 1/15
4.	Solving for absorber temperature	1/15 of 1/15
5.	Q to water, mass flow rate, efficiency	1/15 of 1/15
6.	Iteration process (assume hs and so on)	1/15 of 3/15
7.	Pick right equation for outside air	1/15 of 1/15
8.	Outside air properties read at right temp	0/15 of 1/15
9.	Pick right equation for inside air	1/15 of 1/15
10.	Inside air properties read at right temp	0/15 of 1/15
11.	Pick right equation for water	1/15 of 1/15
12.	Water properties read at right temp	1/15 of 1/15
13.	Final result	0/15 of 1/15
TOTAL		**9/15 of 15/15**

GRADE:

10.0 + 80*(9/15) = 58