Name: ……..…….

Quiz 7 (Total: 30 points)

Due back on Wed. 29 March in the Quiz 8 folder on Canvas

- *Follow the problem-solving strategy that you learnt in class. You will be penalized if you do not.*
- *Save your entire assignment as one PDF document and upload it in the appropriate assignment folder on Canvas.*
- *Assignments will only be graded if the honor code statement, below, is completed and signed.*

Honor Code Statement

ME 200, Quiz 7

Being a student of high standards, I pledge to embody
the principles of *academic integrity*.

This ME 200 quiz is my own work. I did not seek (or get) outside help or collaboration with any of the questions and their solutions. I also did not offer my solutions to any other student.

I understand that this quiz is "open book" and "open notes" which means that I was permitted to use my prescribed textbook and lecture notes when addressing any of the questions. I have properly cited any other resources, with full cognizance of the regulations pertaining to plagiarism, copyright infringement, academic cheating, etc., as stipulated in the Student Code.

I acknowledge that academic violations will be dealt with according to the UIUC Student Code, Article 1, Part 4.

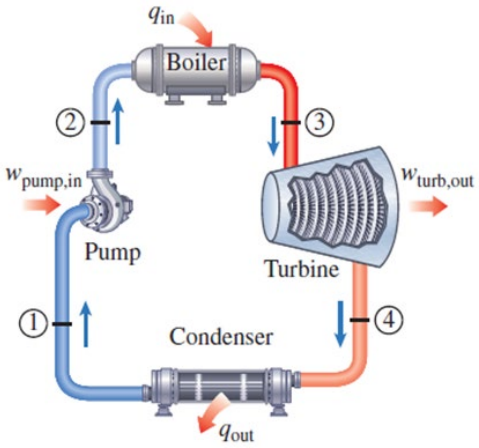
ME 200 Student's signature:_____

Student's Name: _____

Net-ID: _____

Date: _____

1. Calculate the thermal efficiency of an ideal steam power plant operating on the Rankine cycle. Steam enters the turbine at 10 MPa and 400ºC. The pressure in the condenser is maintained at 100 kPa, because the thermal energy is used for heating nearby buildings. Assume that the water state at the inlet of the feedwater pump is saturated.
Write down and solve the energy equation for each of the four processes; show all your calculations. You must also complete the table below after you have done all your calculations. Of course, you must illustrate the cycle on a *p-h* diagram. *(30 points)*



Summarize and check your results here:

	q	***w***	**Δ*h***
1 – 2			$h_2 - h_1 =$
2 – 3			$h_3 - h_2 =$
3 – 4			$h_4 - h_3 =$
4 – 1			$h_1 - h_4 =$
	$q_{net} =$	$w_{net} =$	$\Delta h_{cycle} =$