

**ECH 4323: Process Control**  
**Design Project: March 7, 2001**

- “Open Book, open notes” test
- Please sign the honor code given below

*We have not discussed this problem outside our group.*

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(Signature and Date)

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(Name)

## **Problem Statement**

For the problem given to you, please do the following:

1. Develop a dynamic model using the 5 step modeling procedure and identify the inputs, states, and outputs.
2. Compute the steady states of the system.
3. Linearize the system around the steady state.
4. Suppose the system is originally at the steady state. The inputs are suddenly changed by 10%. What happens to the states and the outputs as a function of time. Does the system reach a new steady state? Plot the dynamic response of the output.
5. Suppose the system is originally at the steady state, but is perturbed by a disturbance given in the problem. Does the system stay at its steady state values? Plot the dynamic response of the output.