Name:_____

FINAL EXAM WINTER 2002
ELEVATOR CONTROLLER

A company intends to build a 5-floor office building and equip it with 2 elevators. The company wants you to develop software for the elevator control system.

There shall be 2 **floor buttons** on each floor, one for the up and one for the down direction.

If a person at a particular **floor** presses the floor button, the **elevator** closest to that particular floor, will proceed to the requesting floor providing that the particular floor is along its direction path. An elevator should proceed in the same direction of travel until it reaches the last floor requested in that direction. Only then will it become available to go in the opposite direction.

If the current direction of the elevator is *up*, then the elevator will only respond to *up* floor buttons, and vice versa.

Both the elevators can be active at the same time. An elevator moves only when necessary (when called upon). The **control system** makes the determination as to which elevator to send.

Both the elevators should normally remain idle staying at a particular floor with its **door** closed waiting for a floor button to be pressed anywhere.

When an elevator arrives at a floor it resets the **elevator button** (inside the elevator) and sounds the **elevator bell** (which is inside the elevator).

The floor in turn resets the floor button and turns on the **elevator arrival light**. Then the elevator door opens.

The doors to the elevator will remain open for a minimum of 10 seconds and will wait for at least 3 seconds after the last **photocell** detection of someone passing through the door.

For the exam, create a Use Case for the system, an Object Model Diagram, and an appropriate state chart for each object requiring one.

You will have 3 hours to complete your design and testing. You should attempt to demonstrate your final product to me running under VxWorks. You must create a report of your exam and place it in the "StudentDropBox" directory on the server. Please copy your ENTIRE project folder to your Student account.

You should name your exam/project and report with your FirstInitial-LastName (e.g. nquinn).

"That's it, there ain't no more!"