Danny Pan

5. Prelab:

Q 5. 1: Note that in the top level design, we use a `hex-to-ssd` conversion unit to convert the 4-bit binary numbers to their corresponding seven segment code, which is then sent to one of the **SSDs**. In this **GCD** design, **A**, **B** and **GCD** are 8-bit numbers, instead of 4-bit numbers. To show a 8-bit numbers on a pair of **SSDs** do you think we display the numbers in hex digits or decimal (**BCD**)? (2 pts)

We display hex b/c 8 bits have a range of 0 to 255 while 2 decimal numbers have a range of 0 to 99.

To display on 4 **SSDs**, are you using four `hex-to-ssd` conversion units, or ...(2 pts)

We would use one and Mux in the hex inputs so they're tied w/ the cathode.

Q 5. 2: Follow the Euclid's algorithm and compute the GCD of the following pairs of numbers. Report your step by step computation.(6 pts = 3 + 3)

(a) GCD(36,24)

State: Initial A = 36 B = 24 i = 0

State: Sub A = 18 B = 12 i = 1

State: Sub A = 9 B = 6 i = 2

State: Sub A = 9 B = 3 i = 2

State: Sub A = 6 B = 3 i = 2

State: Sub A = 3 B = 3 i = 2

State: Sub A = 0 B = 3 i = 2

State: Mult GCD = 3 i = 2

State: Mult GCD = 6 i = 1

State: Mult GCD = 12 i = 0

(b) GCD(5, 15):

State: Initial	A = 5	B = 15	i = 0
State: Inital	A = 15	B = 5	i = 0
State:	A = 10	B = 5	i = 0
State:	A = 5	B = 5	i = 0
State:	A = 0	B = 5	i = 0
State:	GCD = 5	i = 0	

Q 5. 3: If GCD was not discussed in class, please watch the webcast, "Small System Design Example -- GCD" at http://denecs.usc.edu/hosted/puvvada/EE201L.htm. Understand the state machine of the GCD computation thoroughly and complete the following state diagram.(5 pts)