CSC 2010 – Fall 2015
Homework #2
Due 9/18/2015

Submission Requirements
You must turn work at the SPECIFIED TIME so you can receive credit for Homework! Homework ***must be submitted on desire2learn*** *by the due date and time. Late homework will be subject to a penalty, as stated in the course grading policy. No email or hard copies of homework will be accepted.*

You may discuss the assignments with other students in the class, but (as stated in the academic honesty policy) your written answers ***must be your own****, and you must list the names of other students you discussed the assignment with.*

How to Submit
Log into D2L (desire2learn.gsu.edu), select the class to view its drop box folders, select the correct folder for the given assignment and upload the file there.

You will get a confirmation email. Please save the conformation email in the event something goes wrong, for example work was submitted to the wrong folder etc…,

Gates [20 pts - 5 points each]

1. Draw an AND gate and list all the possible input values that will cause it to produce a value of 1.

2. Draw an OR gate and list all the possible input values that will cause it to produce a value of 1.

3. Draw an XOR gate and list all the possible input values that will cause it to produce a value of 1.

4. Draw a NOT gate and list all the possible input values that will cause it to produce a value of 1

Binary [15 pts - 5 points each]

5. Show the binary representation of each of the following decimal numbers.
83

66

200

Hexadecimal [15 pts - 5 points each]]

6. Show the hexadecimal representation of the following decimal numbers.

21

19

101

Two's Compliment [25 pts – 5 points each]]

7. Show the two's compliment notation using 8-bits for the following decimal numbers.

-6

-12

23

66

-101

Data Compression [25 pts – 5 points each]]

8. What is the difference between lossy and lossless compression?

9. Write a few sentences **in your own words** about each topic. Do not copy directly from the textbook.

a. Run length encoding
b. Frequency dependent encoding (Huffman codes)
c. Relative encoding
d. MP3