

Name: \_\_\_\_\_

### Final Exam Review (up to 7 points extra credit)

Due to Gradescope by **1:00PM on Wednesday, December 8<sup>th</sup>**

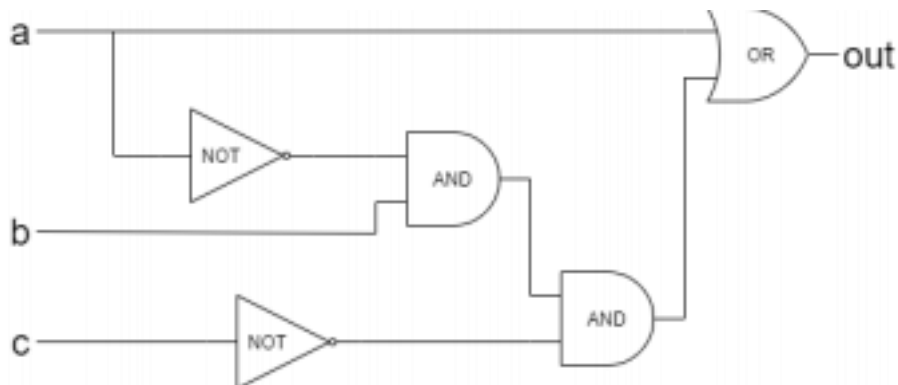
You need to submit a pdf to Gradescope; failure to assign questions to pages will result in a 10% deduction on your grade

**This extra credit opportunity can NOT be accepted late.**

Homework Goal: Review the material we've covered over this semester and Bring questions and confusions to class on Wednesday, December 8<sup>th</sup>

1. Write pseudocode for a function that has the user enter the price for an item and the quantity purchased. The algorithm then displays the total cost of the purchase, including a x% sales tax (where x is a parameter of the function).

2. Create a truth table for the circuit shown below.







10. First, explain the difference between a substitution cipher and a block cipher. Then, define which type of cipher each of the following are:
- Caesar Cipher
  - DES
  - AES
11. Suppose you want to investigate whether a person living near a garbage dump is more likely to get cancer. Briefly describe the four steps in this data science investigation and provide one task you would do in each step. Make your task as specific as possible.
12. What is Big Data? Be specific.
13. Briefly describe the difference between unsupervised and supervised machine learning. Use the terms *feature* and *label* in your description.
14. What is the difference between machine learning and deep learning? Use *neural networks* in your answer.