

# CSCI 1311: Quiz 1

27 Jan 2020

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

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## Question Weighting

Question:	1	2	3	Total
Points:	3	4	3	10
Score:				

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1. Let the universe  $U$  consist of all GW students, the set  $A$  is computer science majors, and the set  $B$  is students who live in Thurston Hall. In plain English, describe the following operations.

(a) [1 point]  $A \cup B$

(b) [1 point]  $B^c$

(c) [1 point]  $(A \cap B) \times (A \cap B^c)$

2. True or False.

(a) [1 point] \_\_\_  $p \rightarrow q \equiv \neg p \vee q$

(b) [1 point] \_\_\_  $p \rightarrow q \equiv \neg q \rightarrow \neg p$

(c) [1 point] \_\_\_  $p \rightarrow q \equiv (q \wedge p) \vee \neg p$

(d) [1 point] \_\_\_  $p \rightarrow q \equiv \neg(p \wedge \neg q)$

3. Convert the following English sentences to propositional logic.

- (a) [1 point] For any two integers that are not equal, there is an integer that is less than one and greater than the other.

- (b) [1 point] There does not exist a smallest number.

- (c) [1 point] For a proposition,  $P(x)$  there exists at least two inputs for which it is true.