

ICS 252–Discrete Structures

Quiz: 2

Section: 2

Time: 15 minutes

Name:

ID#:

Question 1: [2 marks]

Let A and B be any subsets of a universal set U . Simplify the following as much as you can.

$$[(A \cup B^c) \cup (A \cup B)]^c =$$

Question 2: [4 marks]

Let p and q be any propositions, F be a contradiction, and T be a tautology. For each of the following statements determine if it is a tautology, a contradiction or neither. *Truth tables are not needed here.*

1. $q \wedge F$
2. $T \rightarrow p$
3. $\neg(F \rightarrow p)$
4. $(p \vee q) \vee \neg p$

Question 3: [4 marks]

1. “Some of the questions in this quiz are not difficult.” Write the negation of the previous statement.

2. Let $P(x, y)$ be the statement “question x is solved by student y ,” where x is a question number and y is a student in your class. Use quantifiers to express the statement “not all of the students have solved correctly all of the questions.”