# **CSE 230: Discrete Mathematics (Sec-7) Quiz #1 Total Marks: 20 Time: 40 minutes**

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| **NAME:** | **ID:** |

**Please read the instructions carefully before attempting to answer the questions. No extra sheet(s) will be provided.**

1. Determine the inverse and contrapositive of the following statements.

Marks: 02 + 02 = 04

1. Manchester United wins whenever Juan Mata scores.

Inverse: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Contrapositive: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. If it is rainy today, we will bunk CSE 230 class.

Inverse: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Contrapositive: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Show that  and are logically equivalent by developing a series of logical equivalences.

Marks: 05

1. Determine whether the statement is a tautology, a contradiction or a contingency.

Marks: 05

1. Let, and be the statements " is a book", " is expensive", "and " is good, " respectively. Express each of the following statements using quantifiers; logical connectives; and , and ,where the universe of discourse is the set of all objects.
2. No books are expensive.
3. All expensive books are good.
4. No books are good.

Marks: 02 + 02 + 02 = 06