

# CSC165, Summer 2005, Assignment 2,

## Marking Scheme

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1. 3 marks for each statement, 27 marks in total. For each symbolic sentence, 1 mark for the natural language expression in English, 1 mark for correct T/F, and the last 1 mark goes for the correct explanation or the counterexample.

**Remarks:** Quit a few students made mistakes in (f) and (h). The statement in (f) is false, a counter example is  $0/3 = 0$ . Most of the student know that the statement in (h) is wrong, but they failed to give the correct explanation. Here is a counter example from some student:  $y = 1, x = 2, x + y = 3 \neq 0$ . This counter example is not convincing at all. Please go over the lecture notes to find out the right way to show this.

2. 2 marks for a correct expression in English, and 3 marks for a correct proof. In the proof, if the students failed to give  $w = 3y^2$ , 2 marks will

be deducted; if they derived  $w = 3y^2$ , but didn't mention why  $w \in \mathbb{N}$ , 1 mark will be deducted.

3. 1 mark for (a), 4 marks for (b), and 2 marks for (c). In (b), a student gets 4 marks only when the final simplified expression is  $p \Leftrightarrow q$ , otherwise, some marks are deducted. For (c), if a student gives "correct" answers based on his/her solution in (b), I will give his/her full marks no matter whether the answers are really the right solution or not for (c).
4. 4 marks for each sentence, in particular, 3 marks for a correct negation of the sentence in symbolic notation, 1 mark for a correct Venn diagram. If the negation is correctly derived from a wrong symbolic expression, 1 mark will be given.
5. 2 marks for the first question, 1 mark for a counter example.