McGill University COMP360 Winter 2011   **Instructor: Phuong Nguyen**

Sample questions for Test 1

1. Define the SAT problem.

2. Give definition of NP-completeness for a problem.

3. Give the set of linear inequality that results from the reduction from 3CNF-SAT to the problem A2Q2 when transforming the following formula:

$$(x_1 \vee x_2 \vee \neg x_3) \wedge (\neg x_1 \vee x_2 \vee \neg x_3) \wedge (x_1 \vee \neg x_2 \vee x_4)$$

4. Describe Prim's algorithm in plain English

5. Give the polytime reduction from CLIQUE to MIS (as in A4Q1) and prove its correctness.

6. Give a greedy algorithm for the following problem XXX and prove its correctness (or approximation ration). See for example A5Q2 or A6Q2.