January 25, 2018 **Name: _____**

ID #: _____

PHIL 379 Lec 01
Logic II
Winter 2018

Assignment 1
DUE IN CLASS AT 11:00 AM ON JANUARY 30, 2018

1. Prove that *being equinumerous with* is an equivalence relation. *(3 marks)*

2. Prove that if A is an enumerable set all of whose members are also enumerable sets, then $\cup$A is also enumerable. *(2 marks)*

3. Define a *word* as a finite string of letters of some denumerable alphabet $_{a1}$, $_{a2}$, …. Show that
(i) The set of all two-letter words is enumerable,
(ii) For any positive integer n, the set of all n-letter words is enumerable,
(iii) The set of all words is enumerable. *(3 marks)*

4. Prove that the set of all finite strings of the numerals '0' and '1' is enumerable, but the set of all infinite strings of '0' and '1' is not enumerable. *(2 marks)*