CS3133
HW #8

DUE: Thursday, October 19

1. (6 points) For the following pair of languages (L_1, L_2) over {*a*,*b*}, give a plynomial time Turing Machine reduction of L_1 to L_2, and give the time complexity (using *O*-notation) of your reduction.

$$L_1 = \left\{a^i b^{2i} \mid i \in \mathbb{N}\right\}, \quad L_2 = \left\{a^i b^i \mid i \in \mathbb{N}\right\}$$

2. (4 points) Construct an instance of SATISFIABILITY consisting of four clauses over $\{u_1, u_2, u_3\}$ such that the conjunction of any three of the clauses is satisfiable but the conjunction of all four clauses is not satisfiable.