CS 301: Languages and Automata **Prof. Bhaskar DasGupta**

Sample Turing Machine Related Questions for Final Examination

Problem Let $A = \{< M > \mid M$ is a DFA which does not accept the strings 11 and $00\}$. Show that A is decidable.

Solution

- The Turning machine runs the DFA M for the input 11.
- The Turning machine runs the DFA M for the input 00.
- If the DFA M rejected both 11 and 00, then Turning machine halts and accepts else Turing machine halts and rejects.

Problem

True or False : A Turing machine with 2 heads has *more* computational power as a Turing machine with just 1 head.

False

True or False : If L is decidable then $\bar{L}$ (the complement of L) is also decidable.

True