IITM-CS2200 : Languages, Machines and Computation Date : Apr 12, 2012

Tutorial #8

1. Check if the following problems are decidable.

- (a) $\{M|M \text{ has even number of transitions}\}$
- (b) $\{M|M \text{ accepts the string } 101\}$
- (c) $\{M|M \text{ has } 42 \text{ states}\}$
- (d) $\{M|M \text{ has a useless state}\}\$ (Note: A state q of M is said to be useless if there is no input x on which M visits q.)
- 2. Argue that if L and \bar{L} are semi-decidable then L is decidable.