CS21004 - Formal Languages & Automata Theory
Tutorial - 9

1. *TM computing integer functions:-*
   Construct a turing machine M that starts with 0^m10^n and halts with $0^{\max\{m-n,0\}}$ on tape.
2. Construct a turing machine M for the language
   $L = \{0^n 1^m \mid n, m \in \mathbb{N} \text{ and } m \text{ is a multiple of } n\}$
3. Write unrestricted grammar for the following:
   (a) $L = \{a^m b^n c^m d^n \mid m, n \geq 1\}$
   (b) $L = \{a^i b^j c^k \mid 1 \leq i \leq j \leq k\}$
4. *Prove or Disprove:-*
   If L is recursively enumerable and L' is recursively enumerable,
   then L is recursive.
5. *Turing Machine equivalence between variants:-*
   Show that a Multi-head Turing Machine M can be simulated by a Single-head Turing Machine M'.