

Department of Computer Engineering, SVNIT, Surat.

Course: CS208 Automata and Formal Languages

## Tutorial – 10

(TM – Turing Machine)

1. What do you understand by Turing-Recognizability and Turing-Decidability?
2. Design a Turing machine that accepts the set of strings over  $\{0, 1\}$  with an equal number of 0's and 1's.
3. Design a deterministic Turing Machine (TM) that decides the language  $\{0^n 1^n 2^n \mid n \geq 1\}$
4. Design TM that accept language  $\{ww^R : w \in \{0, 1\}^*\}$
5. Design a TM for addition of binary string separated by a 'c', considering TM follow unary format (either 0 or 1).

For example: (4+2) will be given as 1111c11 then

Input: 1111c11                      %4+2

Output: 11111 %6