



SRI KRISHNA INSTITUTE OF TECHNOLOGY

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No. 57, Chimney Hills, Hesaraghatta Main Road, Chikkabanavara Post, Bengaluru- 560090

Department of Computer Science & Engineering

Subject Name : Theory Of Computation

Subject Code : BCS503

Sem: 5th

Faculty: Prof. Shweta S B

MODULE 5 - Question Bank

SL. NO	Questions	CO	RBT	Marks
1.	Identify and explain the problems that computers cannot solve	CO5	L2	5
2.	Define the Turing machine. Explain the working of a Turing machine.	CO5	L1	8
3.	Design a Turing machine to accept $L = \{a^n b^n C^n n \geq 1\}$. Draw the transition diagram. Show the moves made by this Turing machine for the string aabbcc.	CO5	L3	12
4.	Write a note on the representation of the Turing machine.	CO5	L3	6
5.	Design a Turing machine and also construct a transition table for A) $01^* + 10^*$ B) Palindrome (even length and odd length) C) equal number of a's and b's D) $a^n b^n n \geq 1$ Or $0^n 1^n$ E) Substring matching F) Addition, subtraction and multiplication G) $L = \{w w \text{ is even and } \Sigma = \{a, b\}\}$	CO5	L3	7*7=49
6.	Explain the different techniques used for the construction of a TM.	CO5	L3	8
7.	Explain the variants of the Turing machine	CO5	L3	8
8.	Explain A Language that is not recursively enumerable.	CO5	L3	6
9	Design Turing Machine to accept the Language $L = \{WCW^R \text{ over } \Sigma = \{0,1\}\}$. Draw the transition diagram and ID for $W = 101C101$	CO4	L4	15
10	Write a short note on i) Decidability ii) Halting problems in TM iii) Undecidable languages	CO4	L2	10

11	Design Turing Machine to accept the Language $L = \{0^n 1^n 2^n n \geq 0\}$. Draw the transition diagram. Write sequence of moves made by TM for string 001122	CO4	L4	15
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