Question Paper Code: R22A22CS01

R22

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech II Semester Regular Examinations, June/July – 2024

AUTOMATA THEORY AND COMPILER DESIGN

(ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

Time: 3 Hours **Max.Marks:60**

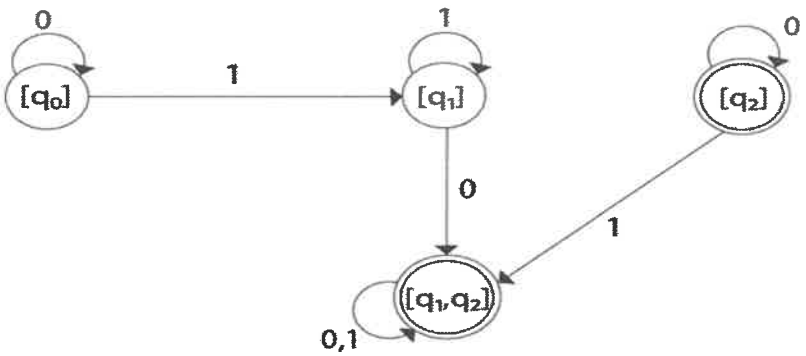
Section – A (Short Answer type questions) (10 Marks)

Answer All Questions	Course Outcome	B.T Level	Marks
1. Define text search.	CO1	L1	1M
2. Compare NFA and DFA.	CO1	L2	1M
3. Define Leftmost and Rightmost Derivations	CO2	L1	1M
4. What is parse tree?	CO2	L1	1M
5. How a Language that is Not Recursively Enumerable.	CO3	L1	1M
6. Define the term Undecidability.	CO3	L1	1M
7. Differentiate Top-Down Parsing and Bottom-Up Parsing.	CO4	L2	1M
8. Define the terms lexeme and token.	CO4	L1	1M
9. Definition of Syntax directed translation.	CO5	L2	1M
10. List the types of syntax trees.	CO5	L1	1M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 x 10M = 50M)**

11. A)	Build a finite automation that reads strings made up of letters in the word CHARIOT and recognize those strings that contain the word 'CAT' as a substring.	CO1	L3	10M
	OR			
B)	Construct the DFA for the equivalent NFA.	CO1	L3	10M



12. A)	i) Illustrate the derivation Tree? Explain about LMD and RMD. ii) Construct the derivation tree for a string abcd from the grammar. **S->aAB, A->bC, B->d, C->cd**	CO2	L2	5M 5M
	OR			
B)	i) Identify the ambiguity of the grammar and explain with example. ii) Difference between ambiguous grammar and Unambiguous Grammar.	CO2	L2	10M
13. A)	Explain the Basic model of the Turing machine? Construct a Turing machine which accepts the language of aba over $\sum = \{a, b\}$.	CO3	L2	10M
	OR			

B)	i) Build a PDA for Palindrome strips. ii) Explain the concept of undecidability.	CO3	L3	6M 4M
14.A)	Explain the Structure of Compiler?	CO4	L3	10M
	OR			
B)	Construct the SLR parsing table for the grammar. **S->L=R/R, L->*R/id, R->L.**	CO4	L3	10M
15. A)	Illustrate the concept of DAG representation of basic blocks. Write algorithm for construction of DAG	CO5	L2	10M
	OR			
B)	Explain the concept of SDT schemes with an example.	CO5	L2	10M