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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year I Semester Regular Examinations March-2023

AUTOMATA THEORY AND COMPILER DESIGN

(Common to CSM & CIC)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Consider the below finite automata and check whether the strings are accepted or not CO1 L1 6M

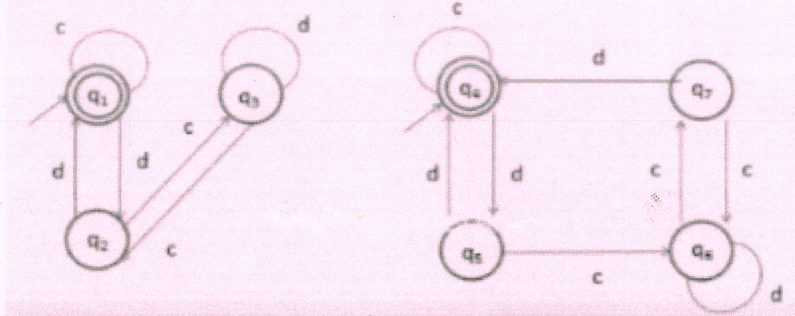
States (Q)	Input Alphabtes	
	0	1
→q0	q1	q3
q1	q0	q2
(q2)	q3	q1
q3	q2	q0

(i) 0001 (ii) 1010 (iii) 1001 (iv) 0101

- b Define alphabets, strings, Languages? CO1 L3 6M

OR

- 2 a Write the process of equivalence two FA's. CO3 L4 6M
b Compare the equivalence two FA's or not. CO3 L4 6M



UNIT-II

- 3 a Analyze and explain with example Chomsky Hierarchy of Languages CO1 L4 6M
b Define the following terms: CO4 L1 6M
i) Useless symbol ii) Null production iii) Unit productions

OR

- 4 a Describe what is meant by Simplifying the Grammar. CO4 L2 6M
b Evaluate simplification of the following context free grammar. CO4 L5 6M
S → Aa / B
B → a/bc
C → a / ε

UNIT-III

- 5 a Explain LEX Tool with the structure of Lex Program. CO3 L2 6M
b Illustrate Application of compiler technology. CO1 L1 6M

OR

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|---|---|--|-----|----|----|
| 6 | a | State what is meant by derivation and parse tree with examples. | CO4 | L1 | 6M |
| | b | Construct Leftmost and Rightmost derivation and derivation tree for the string
0100110
S->0S/1AA
A->0/1A/0B
B->1/0BB | CO4 | L6 | 6M |

UNIT-IV

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|---|---|--|-----|----|----|
| 7 | a | Describe bottom up parsing. | CO2 | L1 | 6M |
| | b | Differences between SLR,CLR, LALR parsers. | CO2 | L4 | 6M |

OR

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|---|---|---|-----|----|----|
| 8 | a | Define YACC parser in Syntax Analysis. | CO3 | L1 | 6M |
| | b | Explain in detail about YACC Parser generator tool. | CO3 | L2 | 6M |

UNIT-V

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|---|---|--|-----|----|----|
| 9 | a | Discuss function preserving transformations. | CO6 | L2 | 6M |
| | b | Describe about loop optimization technique. | CO5 | L2 | 6M |

OR

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|----|---|--|-----|----|----|
| 10 | a | Define and Show Dead-code elimination with example. | CO4 | L1 | 6M |
| | b | List and explain the Issues in the design of a code generator. | CO6 | L2 | 6M |

*** END ***