BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - III Computer Science & Business Systems : WINTER : 2024
SUBJECT: FORMAL LANGUAGE & AUTOMATA THEORY

Day : Tuesday
Date : 03/12/2024

W-24142-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

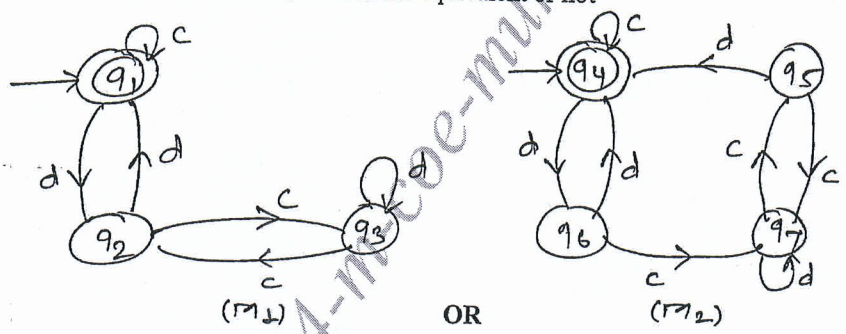
1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data **WHEREVER** necessary.

Q.1 Write note on following **(10)**
i) Bipertite Graph
ii) Complement of Graph

OR

Q.1 Write the definition of **(10)**
a) Weighted Graph
b) Complete Graph
c) Spanning Tree
d) Binary Tree

Q.2 Show whether the M_1 and M_2 are equivalent or not **(10)**



OR

Q.2 What are the types of finite Automata? Explain with example. **(10)**

Q.3 Write the note on **(10)**
a) Removal of useless symbol
b) Removal of unit production
c) Elimination of 'ε' production

OR

Q.3 What is regular grammar? Explain in detail left linear and right linear grammar. **(10)**

Q.4 Design turing machine for 1's & 2's complement by given binary no. '10101' **(10)**

OR

Q.4 List and explain techniques for TM construction. **(10)**

Q.5 Write detailed note on Church Turing Thesis. **(10)**

OR

Q.5 Differentiate between deterministic and non deterministic Turing Machine. **(10)**

Q.6 When the problem is said to be undecidable? Briefly explain halting problem of TM. **(10)**

OR

Q.6 Write note on NP complete problem with example. **(10)**

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