

Code No: 5405AQ

R17

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M. Tech II Semester Examinations, July/August - 2021

THEORY OF COMPUTATION

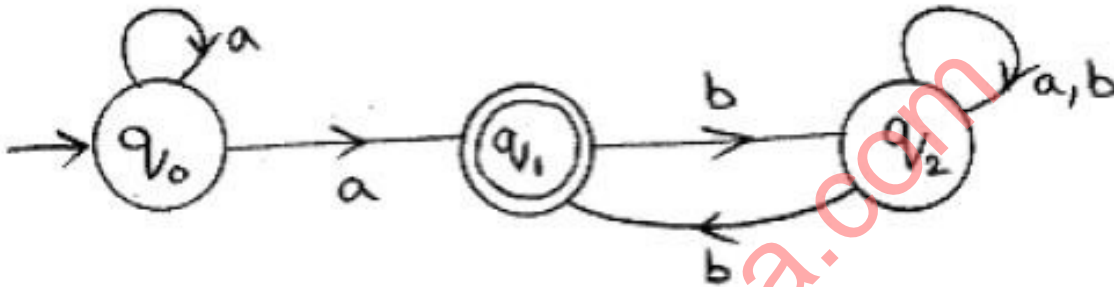
(Computer Science)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

1. Construct DFA equivalent to the following Finite state machine. [15]



2. Define regular expression. Give example. Mention the equivalence with finite automata. [15]
3. Design a PDA to accept the following CFG. [15]
 $S \rightarrow AA/a$
 $A \rightarrow SA/b$.
- 4.a) Explain ambiguity in CFG.
b) What is push down automata? Give examples. [8+7]
5. Design Turing Machines to accept the following languages. [8+7]
a) $L = \{0^n 1^{2n} / n \geq 1\}$.
b) $L = \{ww / w \in (a+b)^*\}$.
6. Design a Turing Machine to recognize the language. [15]
 $L = \{a^n b^n c^n / n \geq 1\}$.
- 7.a) Discuss the halting problem.
b) "The halting method is undecidable", Justify. [7+8]
8. Discuss Hamilton path problem. [15]

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