SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

Winter Semester 2019-20

Continuous Assessment Test – I

CSE2002- Theory of computation and compiler design

Class Number: VL2019205006340
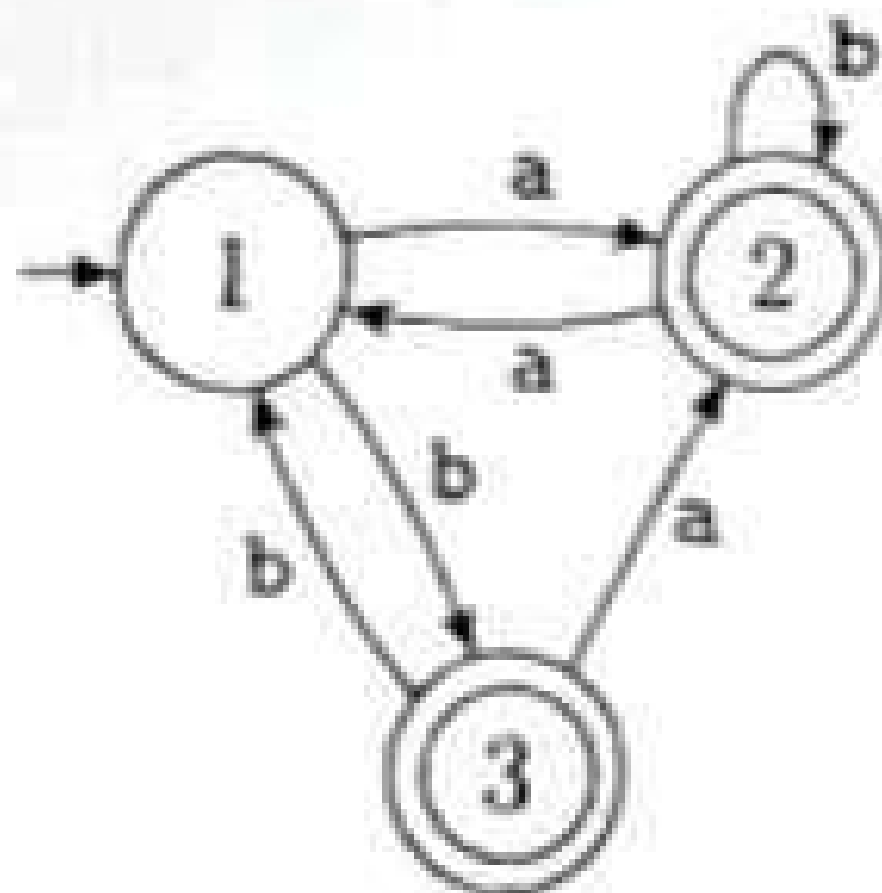
Slot: A1+TA1+TAA1

Faculty Name: Prof. Ramya.G

Exam Duration: 90 Minutes

Maximum Marks: 50

Answer All Questions (5x10=50)

1.   a. Convert the following finite automata to an equivalent regular expression.   [5+5]

b. Give a regular expression that represents the set of strings over $\Sigma = \{a, b\}$ that contain the substring ab and ba.
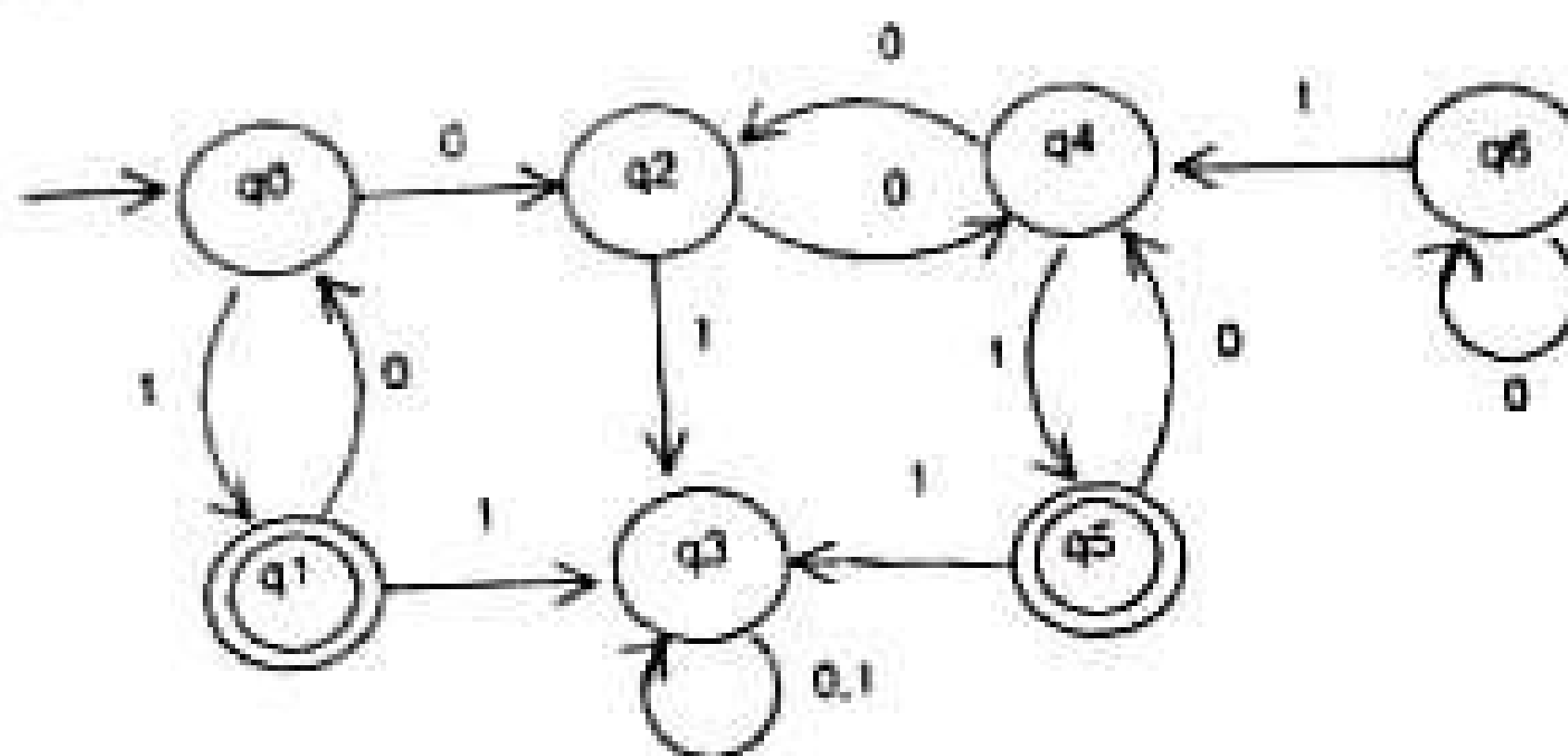
2.   a) Construct a deterministic finite automata recognizing the following language over the   [5+5]
alphabet $\{a, b\}$: The set of all strings that begin with a but do not contain aab as a substring.

b. Construct a NFA with epsilon for the regular expression, $d^*(a(d^*)b + a(d^*)c)^*$.

3.   How to use the Pumping Lemma to prove that a language is not regular? Explain with an   [10]
example.

4. Construct a DFA for the following NFA with epsilon transition machine. [10]
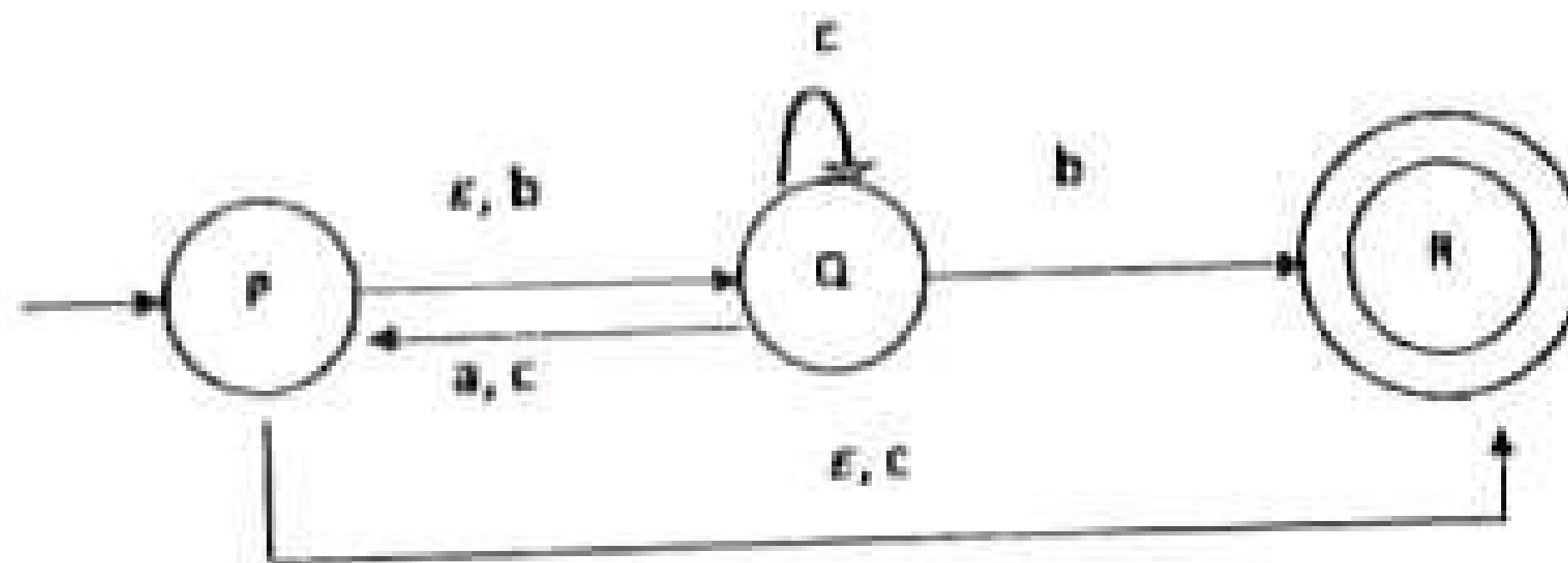
5. a. Illustrate the different phases of compiler and list down the tasks performed by various phases of compiler [5]

b. Generate minimal DFA for the following DFA. [5]

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