SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

SCHOOL OF COMPUTING

SCSA1302– THEORY OF COMPUTATION

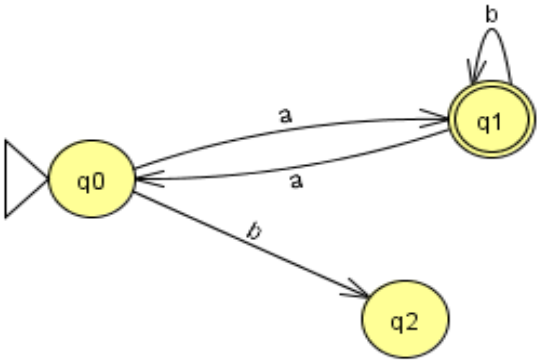
ASSIGNMENT-I

PART A

1. Identify the RE for the set of all strings over ∑ ={a,b} in which a single '**a**' is followed by any number of **b**'s a single '**b**' followed by any number of **a**'s.
2. State True or Flase

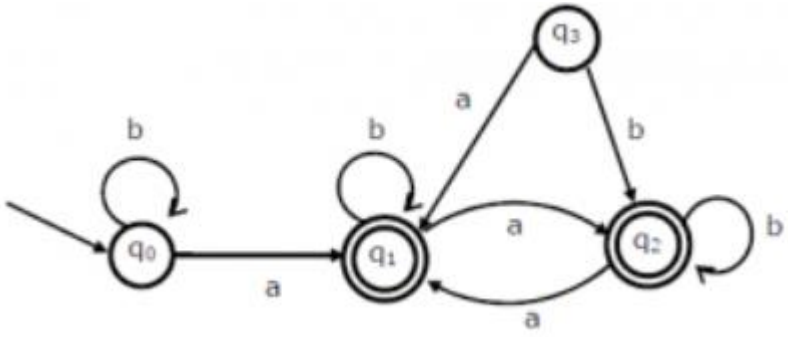
   $A^+ = A^* A^+$
3. The definition of δ in DFA is ----------
4. The complement of ∑* is ----------
5. Which of the following strings will not be accepted by the given DFA,

   a). abbba b) abbbbaaa c) aaaabbbaa d) abaaaabb



PART B

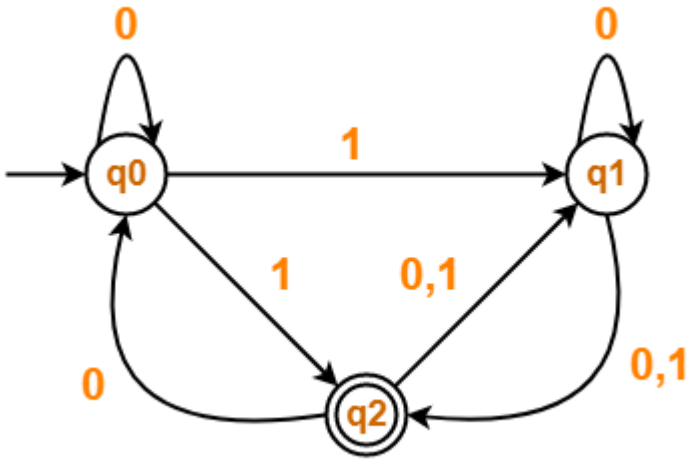
1. Find the Regular expression of strings of 0 and 1 of odd length
2. Find Regular expression ends with 1 and does not contain the substring 00
3. Define DFA. Identify the 5 tuples in the following DFA.



4. Identify whether the two Regular expressions are equal or not ?
   a) (1+01*0)* b) 1*(01*0)* 1*
5. Design a DFA for the given Regular expression.
   R.E= (a+b)*

PART C

1. Construct DFA to accept L={w|w mod 5≠0} on ∑={a,b}.
2. Convert the following Non-Deterministic Finite Automata (NFA) to Deterministic Finite Automata (DFA)-


0
0
1
q0
q1
1
0,1
0
0,1
q2