23CSB301_AUTOMATA THEORY AND COMPILER DESIGN

UNIT 1_FINITE AUTOMATA AND REGULAR LANGUAGES

1. **Central Concepts Of Automata Theory**
2. If ∑= {0,1} find $\sum^3$————
3. Given ∑={a,b} obtain ∑*----------
4. I'm collection of symbols----------
5. I will repeat infinite number of times

2. Finite Automata

1. The minimum number of states required to recognize an octal number divisible by 3 are/is----------

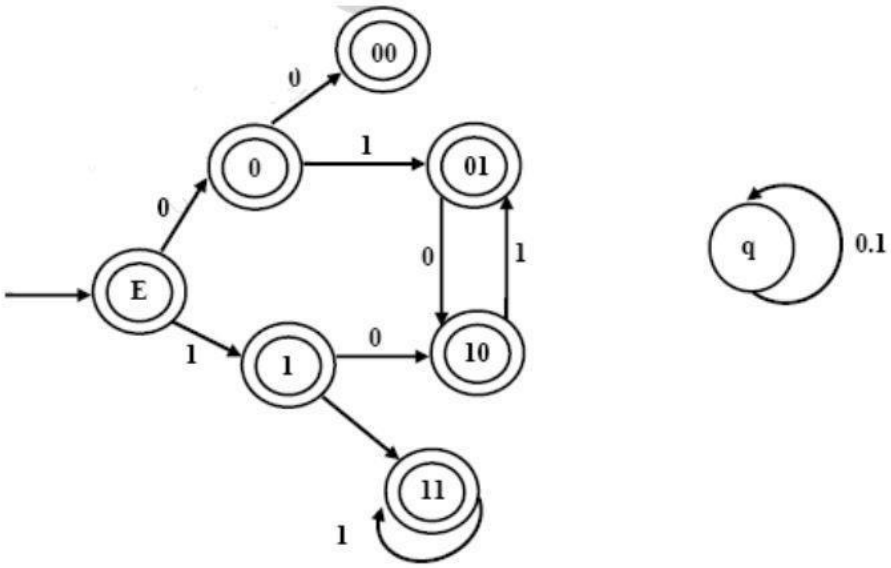
2. Match the following

a. Q	-	Final State
b. ∑	-	Transition Function
c. δ	-	Initial State
d. q0	-	Set of states
e. F	-	Set of Input Symbols

3. Given the language L = {ab, aa, baa}, which of the following strings are in L*?

a. abaabaaabaa
b. aaaabaaaa
c. baaaaabaaaab
d. baaaaabaa

4. Consider the set of strings on {0,1} in which, every substring of 3 symbols has at most two zeros. For example, 001110 and 011001 are in the language, but 100010 is not. All strings of length less than 3 are also in the language. A partially completed DFA that accepts this language is shown below.



The missing arcs in the DFA are

	00	01	10	11	q
00	1	0			
01				1	
10	0				
11			0		

	00	01	10	11	q
00		0			1
01		1			
10				0	
11		0			

	00	01	10	11	q
00		1			0
01		1			
10			0		
11		0			

	00	01	10	11	q
00		1			0
01				1	
10	0				
11			0		

5. Which one of the following languages over the alphabet {0,1} is described by the regular expression: (0+1)*0(0+1)*0(0+1)* ?

a) The set of all strings containing the substring 00.
b) The set of all strings containing at most two 0's.
c) The set of all strings containing at least two 0's.
d) The set of all strings that begin and end with either 0 or 1.

6. Which of the following is a not a part of 5-tuple finite automata

a. Input alphabet b. Transition function c. Initial State d. Output Alphabet

7. Without me Automata will not work

8. Deterministic Finite Automata

1. I am given to a machine_____
2. The password to the admins account="administrator". The total number of states required to make a password-pass system using DFA would be _____
3. Let ∑= {a, b, …. z} and A = {Hello, World}, B= {Input, Output}, then (A*⋂B) U (B*⋂A) can be represented as:

4. For a machine to surpass all the letters of alphabet excluding vowels, how many numbers of states in DFA would be required?

9. Non-Deterministic Finite Automata

1. Narrate NFA relating to the below picture_____

10. _____Used as applications of automata

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