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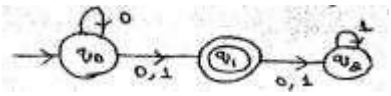
(Approved by AICTE, New Delhi and Affiliated to VTU, Belagavi)

SEM:5TH CSD **COURSE NAME : THEORY OF COMPUTATION**

ASSIGNMENT - 1

SL.NO	QUESTIONS
1.	Define DFA. Design a DFA to accept the binary numbers which are divisible by 5.
2.	Obtain a DFA to accept strings of a's and b's except those containing the Substring aab.
3.	Draw a DFA to accept the Language :**L=(w:w has odd number of 1's and followed by even Number of 0's}.**
4.	Obtain a DFA to accept strings of a's and b's having even number of a's and b's.
5.	Draw a DFSM to accept the language **L={w ϵ {a,b}*: x , y ϵ{a,b}*((w=xabbaay) (w=xbabay))}**
6.	Draw a DFA to accept language **L={w:|w| mod 3 =0}** on ∑= **{a,b}.**
7.	Draw a DFA to accept the language **L={w:n_a(w)≥1 , n_b(w)=2}**
8.	Obtain a DFA to accept strings of a's and b's such that each block of 5 consecutive symbols have atleast two a's.
9.	Obtain a DFA to accept the language **L={w:|w| mod 5≠ 0} on ∑= {a,b}**.
10.	Design NFA to accept the strings ending with either ab or ba. Assume Σ={a,b}.Convert the same to DFA.
11.	Construct NFSM to accept the strings aba, abd, aabc.
12.	Define DFSM, Construct a DFSM for the language over ∑= {a,b} i. **L= {awa: w ϵ ∑*}** ii. which accepts strings with at least one 'a' and exactly two b's. iii. with odd number of a's and even number of b's.
13.	Define the following with proper examples. i) Alphabet ii) powers of an alphabet iv) String v) Language
14.	Construct a DFSM for the following to i) accept strings ending with 'abba' over input alphabets where ∑= {a,b}. ii) accept strings of 0's, 1's and 2's beginning with a 0 followed by 1's and ending with a 2.

	Where ∑= {0, 1, 2}. iii.) Accepts strings which do not end with string abb where ∑= {a,b}.
15.	Convert the following Non-Deterministic Finite Automata (NFA) to Deterministic Finite Automata (DFA) 
16.	Design a DFA to read strings made up of the letters "**AUTOMATA**" and recognize those strings that contains the word "**MAT**" as a substring.
17.	Differentiate between **DFA,NFA & ε-NFA**
18.	Draw a NDFA model for the following : **i) L={w ε {a,b}* : w=aba or |w| is even}** ii) Strings of a's and b's ending with ab or ba
19.	Convert the following NFSM to its equivalent DFSM. 
20.	Convert the following e-NFA to DFA