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SRI KRISHNA COLLEGE OF TECHNOLOGY

An Autonomous College, Accredited by NAAC with "A" grade

Coimbatore, Tamil Nadu

Academic Year 2021-2022 (ODD SEM)

B.E COMPUTER SCIENCE ENGINEERING

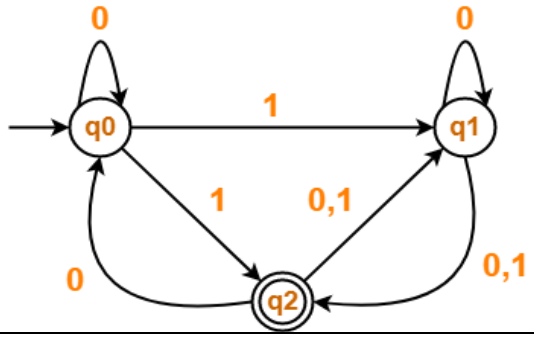
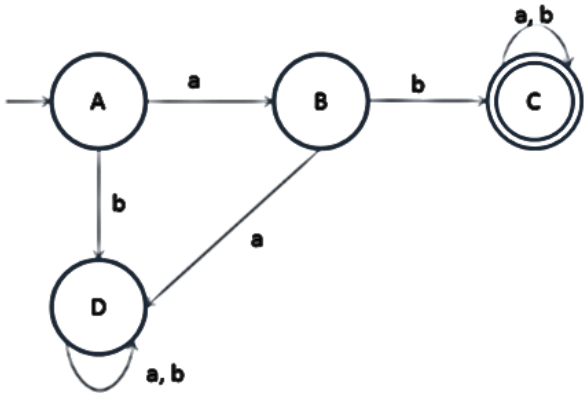
B.Tech INFORMATION TECHNOLOGY

CONTINUOUS INTERNAL ASSESSMENT -I

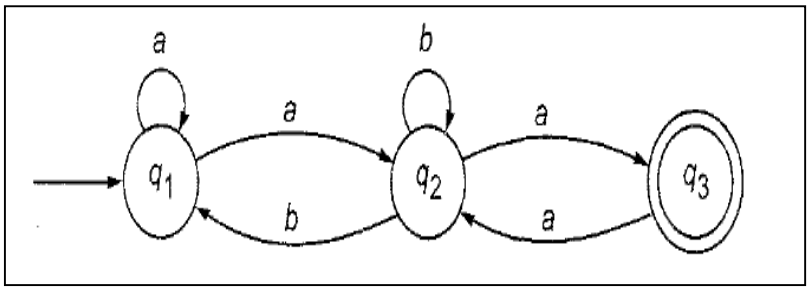
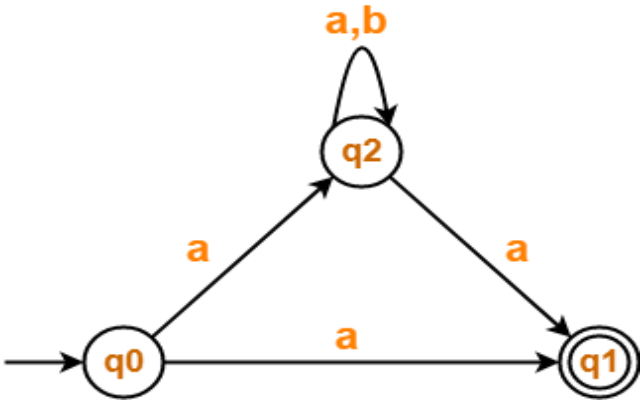
Class	Course Code	Course Title	Date
III YEAR	*19CS501/19IT501*	***FORMAL LANGUAGES AND AUTOMATATHEORY***	**09.8.21**

Duration: 90 min **Max: 50 Marks**

Course Outcomes:		
CO1	Write a formal notation for strings, languages and machines, and design finite automata to accept a set of strings of a language.	[AP]
CO2	For a given language determine whether the given language is regular or not.	[AP]

	Part – A (09 x 02 = 18 Marks) **Answer All Questions**	**RBT**	**CO**	**Marks**
1	Construct a DFA to accept strings over Σ={0,1} with three consecutive 1's	AP	CO1	2
2	Design a state transition table for the given NFA 	AP	CO1	2
3	Indicate the language class hierarchy in automata theory.	U	CO1	2
4	Check whether the string babbaaa will get accepted by the given DFA. 	AP	CO1	2
5	Mention the closure properties of finite automata.	U	CO1	2
6	Design a NFA to recognize the string "**dab**" over Σ={a,b,c,d}	AP	CO1	2
7	Construct a DFA to accept strings over Σ ={p,q} with three consecutive p's	AP	CO1	2
8	State Arden's theorem and mention its significance.	AP	CO2	2
9	Differentite NFA and DFA	U	CO1	2

RBT- Revised Bloom's Taxonomy R-Remember U-Understand AP- Apply AN-Analyze E-Evaluate C- Create

Part – B (02 x 16 = 32 Marks) Answer All Questions			RBT	CO	Marks
10	i)		AP	CO2	10
10	ii)	Construct NFA for the regular expression (a+b)*aba.	AP	CO2	6
11	i)	Convert the following Non-Deterministic Finite Automata (NFA) to Deterministic Finite Automata (DFA) 	AP	CO1	6
11	ii)	Prove that the language $\{a^n b^n c^n \mid n>=1\}$ is not regular using pumping lemma.	AP	CO2	4
11	iii)	Give NFA to accept the following languages over **{p,q}***: 1. The set of all strings such that containing either **pqp** or **qqp** as substring. 2. The set of all strings such that every **q** is followed immediately by **pp**.	AP	CO1	6