Sanjay Ghodawat University, Kolhapur

2020-21

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EXM/P/09/00

Year and Program: SY CSE	School of Technology	Department: CSE
Course Code: CST202	Course Title: Theory of Computation	Semester : IV
Day and Date:	End Semester Examination	Time: Max Marks : 50

Instructions: 1) All Questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Answer/Solve the following (any Two)**			
a)	Explain difference between NFA and DFA with one example and definition from each.	8	L2	CO2
b)	Define Keene's Theorem Part I and Part II and write proof of it.	8	L1	CO1
c)	Build an FA that read a string made up of letters in the word 'CHARIOT' and recognize those strings that contain word 'CAT' as a substring.	8	L3	CO2
Q.2	**Answer/Solve the following (any two)**			
a)	Find the CFG without ε -productions equivalent to the following grammar. Assume S is the start symbol. S -> A B a C A -> B C B -> b | ε C ->D | ε D -> C	8	L1	CO2
b)	Define Push down automata and construct PDF which accept Even Palindrome ={WWR | W =(a+b)+} where W first half of string and WR Reverse of second half .	8	L3	CO3
c)	Convert the following grammar into CNF: S->ASA| aB A-> B|S B->b| ε	8	L4	CO3

Q.3 Answer/Solve the following (any two)

a)	Construct a Turing machine accepting {0^n 1^n / n ≥ 1}	9	L2	CO4
b)	Show that L = {$a^n b^n c^n$;n≥0} is not a CFL	9	L3	CO3
c)	Design a Turing Machine to copy strings with transition function & Diagram. Also show the example for the copy operation.	9	L2	CO4