Program: BE Information Technology	
Curriculum Scheme: Revised 2016	
Examination: Second Year Semester IV	
Course Code: ITC405 and Course Name: Automata Theory	
Time: 1 hour	Max. Marks: 50

Note :- All the Questions are compulsory and carry equal marks.

Question No.	Question Statement	Options			
		A:	B:	C:	D:
1	A language is regular if and only if	Accepted by DFA	Accepted by PDA	Accepted by TM	None of the above
2	Regular expressions are closed under	Union	Intersection	Kleene Star	All of the above
3	How many tuples in the Finite state machine?	5	4	6	7
4	Number of states require to accept string ends with 10 over alphabet {0,1}	5	4	3	2
5	Regular expression for all strings start with 'a' and end with 'b'	a(a+b)*b	ab	aabbbab	a*b*
6	In Chomsky Hierarchy, Type 2 corresponds to	Regular Language	Context Free Language	Context Sensitive Langauge	Recursively Enumerable Langauge
7	How many states will be in PDA that checks Well Formedness of Parenthesis(Accept by Final State)?	1	2	3	Can't be determined
8	How many tuples exist in TM definition and symbol B stands for?	7, Blank Tape Symbol	6, Stack Top Symbol	7, Final State	7, Final State
9	CNF stands for	Chomsky Normal Form	Chomsky Hierarchy	Simplified Contact Free Grammar	All of the above
10	Give CFG for even length palindrome over {a,b}	S --> aSa | bSb | a | b	S --> aSa | bSb	S --> aSa | bSb | ε	All of the above
11	PDA is used to accept words of ---. Select most appropriate option.	Regular Language	Context Free Language	Recursive Language	Recursively Enumerable Langauge
12	Write a regular expression for set of all strings containing atmost two a's over ∑={a,b}.	(a+b)*	b*ab*ab*	b(a+aa)b	b*(ε+a)b*(ε+a)b*
13	TM stands for	Turing Test	Test Machine	Turing Machine	None of the above
14	Types of Finite Automata Are	DFA	NFA	NFA with Epsilon	All of the above
15	If we have more than 1 parse trees for given word of the CFG then it is said to be	Unambiguous	Ambiguous	None of the above	All of the above

16	What is the sequence of steps for simplifying the given CFG? A) Eliminate ε productions, B) Eliminate Unit productions, C) Eliminate Useless and Nongenerating symbol	ABC	BCA	CBA	Can't be determined
17	Reversal of any Regular Langauge is Regular Langauge: This is said to be	Closure Property of Regular Langauge	Property of Regular Language	Incorrect Statement	None of the above
18	John is asked to make an automaton which accepts a given string for all the occurrence of '1001' in it. How many numbers of transitions would John use such that, the string processing application works?	9	11	12	15
19	Which among the following can be an example of application of finite state machine(FSM)?	Communication Link	Adder	Stack	None of the mentioned
20	Which among the following is not an application of FSM?	Lexical Analyser	BOT	State charts	None of the mentioned
21	Predict the number of transitions required to automate the following language using only 3 states: L= {w | w ends with 00}	3	2	4	Cannot be said
22	The regular expressions denote zero or more instances of an x or y is	(x+y)	(x+y)*	(x* + y)	(xy)
23	What is the minimum number of states in deterministic finite automata (DFA) for string starting with ba2 and ending with 'a' over alphabet {a, b}?	Ten	Nine	Eight	Six
24	Which one of the following regular expression describes the language over {a, b} which consists of no pair of consecutive b's?	(a*baa*)(b + epsilon)	(a + ba)*(b + epsilon)	(a*baa*)*(b + epsilon) + a*	(a*ba*)*(b + epsilon) + a*(b + epsilon)
25	Which of the following is/are example of TM?	Addition of unary numbers	Palindromes Consisting of 0's 1's	language L = {0n1n2n} where n≥1	All of the above