

# SYCS-SEM-3-Theory of Computation

Sr No.	Question	A	B	C	D	ANS
1	Finite automata needs minimum _____ number of stacks.	0	1	2	3	0
2	The input alphabet can be represented by _____ symbols.	$\delta$	$\Delta$	$\Sigma$		$\Sigma$
3	A Finite State Machine has _____.	length, without rewinding capacity and unidirectional tape movement	length, with rewinding capacity and unidirectional tape movement	length, with rewinding capacity and bidirectional tape movement	length, without rewinding capacity and bidirectional tape movement	length, without rewinding capacity and unidirectional tape movement
4	Pumping lemma is generally used for proving that	given grammar is regular	given grammar is not regular	whether two given regular expressions are equivalent or not	None of these	given grammar is not regular
5	There are _____ tuples in finite state machine.	4	5	6	Unlimited	5
6	Transition function maps	$\Sigma^* Q \rightarrow \Sigma$	$Q^* Q \rightarrow \Sigma$	$\Sigma^* \Sigma \rightarrow Q$	$Q^* \Sigma \rightarrow Q$	$Q^* \Sigma \rightarrow Q$
7	$\delta^*(q, ya)$ is equivalent to	$\delta((q, y), a)$	$\delta(\delta^*(q, y), a)$	$\delta(q, ya)$	independent from $\delta$ notation	$\delta(\delta^*(q, y), a)$
8	Language of finite automata is _____.	Type 0	Type 1	Type 2	Type 3	Type 3
9	When Context free grammar is called as ambiguous grammar?	only single derivation tree for	more than one derivation tree for	more than one leftmost derivation	more than one rightmost derivation	more than one derivation tree for
10	If G is the grammar $S \rightarrow SbS   aSbS   a$ , then G is _____.	Ambiguous	might be Ambiguous	non Ambiguous	None of these	Ambiguous

11	If productions of a grammar are $S \rightarrow AB$ , $S \rightarrow c$ then it is called as _____.	Context sensitive grammar	Context free grammar	Chomsky normal form	Greibach normal form	Chomsky normal form
12	If production of grammar $G(V, T, P, S)$ are $S \rightarrow aA a$ , $A \rightarrow b$ then which is string of G.	aa	ab	aaa	aba	ab
13	Which of the technique can be used to prove that a language is non regular?	Ardens theorem	Pumping Lemma	Ogden's Lemma	operation on languages	Pumping Lemma
14	$L(R1+R2)=?$	$L(R1) \cup L(R2)$	$L(R1) \cap L(R2)$	$L(R1) + L(R2)$	$L(R1) \cdot L(R2)$	$L(R1) \cup L(R2)$
15	What will be regular expression for $\{01, 10\}^*$ ?	10.01	01+10	01*10	1.1	01+10
16	What will be regular expression for $\{a, ab, abb, b\}^*$ ?	a+b	(ab)*	(a+ab+ab+b)*	ab+ba	(a+ab+ab+b)*
17	Halting problem is _____.	Undecidable	Decidable	non recursive	acceptable	Undecidable
18	In inverted halting machine if H is yes then _____.	halts	rejects	accepts	infinite loop	infinite loop
19	How many heads are there in multi part turing machine?	one for each tape	one for all tape	two for each tape	none of the above	one for each tape
20	How many tuples are used to define multipart turing machine?	4	5	6	7	6
21	When only one head is used for read and writes all tracks then that machine is called as?	multipart turing machine	turing machine	multi track turing machine	non deterministic turing machine	multi track turing machine
22	In which type of turing machine there is separate actions are define for every state and symbol?	multipart turing machine	deterministic turing machine	multi track turing machine	non deterministic turing machine	non deterministic turing machine
23	Which among the following are undecidable theories?	The first order theory of boolean algebra	The first order theory of Euclidean geometry	The first order theory of hyperbolic geometry	The first order theory of the natural number	The first order theory of the natural number

24	Turing machine is called as Decider _____.	for some input all branches are rejected and inputs are also rejected	for some input all branches are rejected and inputs are also accepted	for some input all branches are accepted and inputs are also rejected	for some input all branches are accepted and inputs are also accepted	for some input all branches are rejected and inputs are also rejected
25	Linear Bound automata is used to accept _____.	Context sensitive language	Context request language	Context for language	Context free language	Context sensitive language

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