University of Mumbai

Examination 2020 under cluster 4 (PCE)

Program: BE Computer Engineering
Curriculum Scheme: Rev2016
Examination: Third Year Semester V
Course Code: CSC504 and Course Name:Theory of Computer Science

Time: 1 hour Max. Marks: 50

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

Q1.	CSG is a
Option A:	Case sensitive grammar
Option B:	Complex sensitive grammar
Option C:	Canonical set grammar
Option D:	Context sensitive grammar
Q2.	FA can be converted to equivalent
Option A:	TM
Option B:	PDA
Option C:	CFG
Option D:	RG
Q3.	In order to store information on tapes of Universal Turing Machine, which process is used ?
Option A:	Encoding
Option B:	Filtering
Option C:	Validation
Option D:	ETL
Q4.	In Moore machine, output is produced over the change of:
Option A:	transitions
Option B:	states
Option C:	Transition and state
Option D:	Input
Q5.	PDA is more powerful than
Option A:	Turing machine
Option B:	Finite automata
Option C:	Multi tape Turing machine
Option D:	Grammer
Q6.	Which among the given is true : Power of
Option A:	dfa and ndfa are different
Option B:	dfa and ndfa are same
Option C:	dpda and npda are same
Option D:	Single-tape Turing machine and multi-tape Turing machine are same
Q7.	_____ is a writing machine and it can modify its own input symbols
Option A:	PDA
Option B:	FSM

Option C:	Turing Machine
Option D:	Moore machine
Q8.	The regular expression have all strings of 0′s and 1′s with no two consecutive 0′s is :
Option A:	(0+1)
Option B:	(0+1)*
Option C:	(0+∈) (1+10)*
Option D:	(0+1)* 011
Q9.	Name the formal language for Turing Machine
Option A:	Recursively Enumerable
Option B:	Context Sensitive
Option C:	Context Free
Option D:	Regular
Q10.	A problem is called _____ if it has an efficient algorithm for itself.
Option A:	tractable
Option B:	intractable
Option C:	computational
Option D:	none
Q11.	The regular expression of a language starting and ending with different symbol over alphabet a,b
Option A:	a(a+b)*b
Option B:	b(a+b)*a
Option C:	a(a+b)*b+b(a+b)*a
Option D:	(a+b)*
Q12.	The appropriate precedence order of operations over a Regular Language is
Option A:	Kleene, Union, Concatenate
Option B:	Kleene, Star, Union
Option C:	Kleene, Dot, Union
Option D:	Star, Union, Dot
Q13.	Turing machine (TM) is more powerful than FMS (Finite State Machine) because
Option A:	tape movement is confined to one direction
Option B:	it has no finite state
Option C:	it has the capability to remember arbitrarily long sequences of input symbols
Option D:	It uses Stack
Q14.	Which grammar is recognized by FSM
Option A:	any grammar
Option B:	only CFG
Option C:	any unambiguous grammar
Option D:	only regular grammar
Q15.	The symbol/s that cannot appear on the RHS side of RG production rule.

Option A:	Two terminal
Option B:	Two non terminal
Option C:	One nonterminal
Option D:	One terminal
Q16.	Number of states and number of transitions in a moore machine to produce residue of 3 .
Option A:	3 and 6
Option B:	3 and 5
Option C:	2 and 4
Option D:	2 and 5
Q17.	CNF stands for
Option A:	Context normal form
Option B:	Chomsky normal form
Option C:	Closure normal form
Option D:	Canonical normal form
Q18.	Let P, Q be the two regular expressions over the set input alphabet and the equation is R = Q + RP has a unique solution given by
Option A:	R = QP*
Option B:	R = P*Q
Option C:	R = RP
Option D:	R = Q*R
Q19.	Multi tape Turing Machine can perform
Option A:	only read operation
Option B:	only write operation
Option C:	neither read nor write operation
Option D:	read/write operation
Q20.	If the PDA does not stop on an accepting state and the stack is not empty, the string is:
Option A:	goes into loop forever
Option B:	rejected
Option C:	halted
Option D:	accepted
Q21.	Which is a restricted form of Turing Machine ?
Option A:	PDA
Option B:	LBA
Option C:	Moore machine
Option D:	Mealy machine
Q22.	In the formal definition of moore and mealy machine the output alphabet can be represented as:
Option A:	δ
Option B:	Δ

Option C:	∑
Option D:	Q
Q23.	TM can accept languages generated by _____ grammars.
Option A:	Type 0 & Type 1
Option B:	Type 1 & Type 2
Option C:	Type 2 & Type 3
Option D:	Type 3 & Type 0
Q24.	Which of the operations are eligible in PDA?
Option A:	PUSH
Option B:	INSERT
Option C:	Delete
Option D:	ADD
Q25.	DFSA and an NDFSA mainly differs as
Option A:	in DFSA, ε transition may be present
Option B:	in NDFSA, ε transitions does not exists
Option C:	in DFSA, from any given state, there can't be any alphabet leading to two different states
Option D:	in NDFSA, from any given state, there can't be any alphabet leading to two different states

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	D
Q2.	D
Q3.	A
Q4	B
Q5	B
Q6	B
Q7	C
Q8.	C
Q9.	A
Q10.	A
Q11.	C
Q12.	C
Q13.	C
Q14.	D
Q15.	B
Q16.	A
Q17.	B
Q18.	A
Q19.	D
Q20.	B
Q21.	B
Q22.	B
Q23.	A
Q24.	A
Q25.	C