

# CS402 Theroy Of Automata Update MCQS For Final Term Solve By Vu Topper RM

85% To 100% Marks



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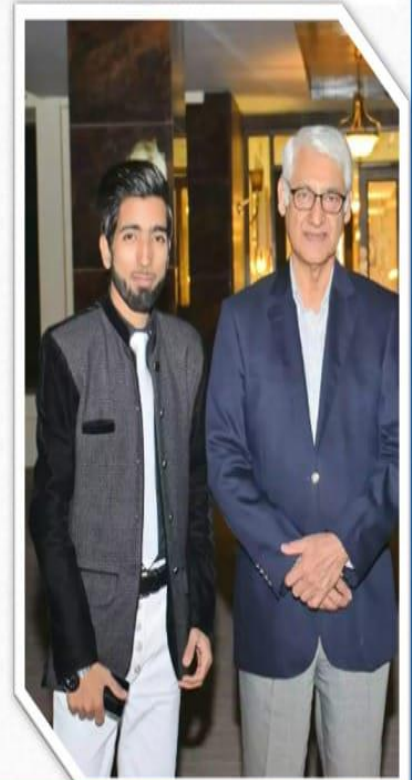
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**Question No:1**

**(Marks:1)**

**Vu-Topper RM**

Consider the following CFG:

$S \rightarrow a|Xb|aYa$

$X \rightarrow Y|^{\wedge}$  (NOTE:  $\wedge$  means NULL)

$Y \rightarrow b|X$

Which Non-terminals are nullable?

- A. X**
- B. Y
- C. Z
- D. S, X and Y

**Question No:2**

**(Marks:1)**

**Vu-Topper RM**

The CFG  $S \rightarrow aSa | bSb | a | b | \wedge$  represents \_\_\_\_\_ language.

- A. EQUAL**
- B. ODD-ODD
- C. EVEN-EVEN
- D. PALINDROME

**Question No:3**

**(Marks:1)**

**Vu-Topper RM**

The structure given below is called \_\_\_\_\_

$S \rightarrow aaBm$

$A \rightarrow Asia$

$B \rightarrow sub$

- A. RE
- B. TG
- C. CFG**
- D. PDA

**Question No:4**

**(Marks:1)**

**Vu-Topper RM**

One language can have \_\_\_\_\_ CFG(s).

- A. Only one
- B. At most one
- C. At least one

**D. More than one** بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

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**Question No:5**

**(Marks:1)**

**Vu-Topper RM**

Consider the Following CFG: (NOTE: ^ means NULL)

$S \rightarrow Xa$

$X \rightarrow aX | bX | \wedge$

Above give a CFG can be represented by RE

**A.  $a^*b^*a$**

B.  $a^*b^*$

C.  $(a+b)^*a$

D.  $a(a+b)^*a$

**Question No:6**

**(Marks:1)**

**Vu-Topper RM**

The tree which produces all the strings of a language is called

\_\_\_\_\_.

A. Derivation tree

B. Ambiguous tree

**C. Total language tree**

D. Non ambiguous tree

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**Question No:7**

**(Marks:1)**

**Vu-Topper RM**

The language of all strings partition  $\Sigma^*$  into \_\_\_\_\_ class(es).

**A. Two**

B. Five

C. Four

D. Three

**Question No:8**

**(Marks:1)**

**Vu-Topper RM**

There is at least one production in CFG that has one \_\_\_\_\_ on its left side.

A. Terminal

**B. Non terminal**

C. Unit production

D. Null production

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**Question No:9**

**(Marks:1)**

**Vu-Topper RM**

The CFG that generates the regular language is called \_\_\_\_\_.

- A. finite automata
- B. regular expression
- C. regular grammar**
- D. non-regular grammar

**Google**

**Question No:10**

**(Marks:1)**

**Vu-Topper RM**

Prime is a \_\_\_\_\_ language.

- A. Finite
- B. Regular**
- C. Non-regular
- D. Both context free and regular

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**Question No:11**

**(Marks:1)**

**Vu-Topper RM**

Which of the following cannot be represented by a regular expression?

- A. Language of odd-odd
- B. Language of even-even
- C. String of 0's with an odd length
- D. String of 0's with a prime length**

**Question No:12**

**(Marks:1)**

**Vu-Topper RM**

"CFG" stands for \_\_\_\_\_.

- A. Context Free Graph
- B. Context Finite Graph
- C. Context Free Grammar**
- D. Context Finite Grammar

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**Question No:13**

**(Marks:1)**

**Vu-Topper RM**

In  $\text{pref}(Q \text{ in } R)$ , Q is \_\_\_\_\_ to/than R.

- A. Equal
- B. Smaller
- C. Greater

**D. Not equal** **Page 70** **بري صحبت سے تنہائی بہتر ہے اور تنہائی سے نيك صحبت بہتر ہے**

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**Question No:14**

**(Marks:1)**

**Vu-Topper RM**

The operators like (\* , +) in the parse tree are considered as \_\_\_\_\_.

**A. Terminals Page 93**

- B. Productions
- C. Intermediates
- D. non-terminals

**Question No:15**

**(Marks:1)**

**Vu-Topper RM**

A problem is said to be \_\_\_\_\_ if there exists an algorithm that provides the solution in \_\_\_\_\_ number of steps.

**A. effectively solvable, finite Page 80**

- B. effectively solvable, infinite
- C. effectively unsolvable, finite
- D. effectively unsolvable, infinite

**Question No:16**

**(Marks:1)**

**Vu-Topper RM**

Which of the following refers to the set of strings of letters that when concatenated to the front of some word in Q produces some word in R?

**A. Pref(Q in R) Page 78**

- B. Postf(R in Q)
- C. Postf(Q in R)
- D. Pref(R in Q)

**Question No:17**

**(Marks:1)**

**Vu-Topper RM**

If a CFG has a null production, then it is \_\_\_\_\_.

- A. Called NULL CFG
- B. Called Chmosky Normal Form (CNF)
- C. Possible to construct another CFG without null production accepting the same language with the exception of the word  $\Lambda$**
- D. Not possible to construct another CFG without null production accepting the same language with the exception of the word  $\Lambda$

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**Question No:18**

**(Marks:1)**

**Vu-Topper RM**

For a machine with N number of states, the total number of strings to be tested, defined over an alphabet of m letters, is \_\_\_\_\_.

- A. Nm
- B. Mn
- C.  $Nm + Nm+1 + Nm+2 + \dots + N2m-1$
- D.  $mN + mN+1 + mN+2 + \dots + m2N-1$**

**Question No:19**

**(Marks:1)**

**Vu-Topper RM**

In large FA with thousands of states and millions of directed edges, without an effective procedure it is \_\_\_\_\_ to find a path from initial to final state.

- A. Impossible**
- B. Always easy
- C. Always impossible
- D. May be good

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**Question No:20**

**(Marks:1)**

**Vu-Topper RM**

The basic approach of Myhill Nerode theorem is similar to the concept of:

- A. Union of FAs
- B. Closure of FAs
- C. Concatenation of FAs**
- D. Distinguishable and indistinguishable strings

**Question No:21**

**(Marks:1)**

**Vu-Topper RM**

The product of two regular languages is \_\_\_\_\_.

- A. Infinite
- B. Regular**
- C. non-regular
- D. closure of a regular language

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**Question No:22**

**(Marks:1)**

**Vu-Topper RM**

If there is no final state of two FAs then their \_\_\_\_\_ also have no \_\_\_\_\_ state

**A. union,final**

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B. final, union

C. initial, union

D. union, initial

**Question No:23**

**(Marks:1)**

**Vu-Topper RM**

The production of the form: nonterminal --> one nonterminal is called the \_\_\_\_\_

**A. Unit production**

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B. NULL production

C. Terminal production

D. Non-Terminal production

**Question No:24**

**(Marks:1)**

**Vu-Topper RM**

To examine whether a certain FA accepts any words, it is required to seek the paths \_\_\_\_\_ state.

A. From Final to initial

**B. From Initial to final**

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C. From Final to final back

D. From Initial to initial back

**Question No:25**

**(Marks:1)**

**Vu-Topper RM**

The production  $S \rightarrow SS \mid a \mid b \mid \wedge$  can be expressed by Regular expression \_\_\_\_\_.

A.  $(ab)^*$

B.  $(a+b)$

**C.  $(a+b)^*$**

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D.  $(a+b)^+$

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**Question No:26**

**(Marks:1)**

**Vu-Topper RM**

If  $Q = \{xx, xyxxxxy\}$ , and  $R = \{xyxyxyxxx, xyxyyyxx\}$  then  $\text{Pref}(Q \text{ in } R) = \underline{\hspace{2cm}}$

- A. Xx
- B. Yy
- C. Xyxyyy**
- D. Xyxyxy

**Question No:27**

**(Marks:1)**

**Vu-Topper RM**

In polish notation, (o-o-o) is the abbreviation of           .

- A. Operand -Operand – Operand
- B. Operand - Operand- Operator
- C. Operand - Operator – Operand
- D. Operator -Operand – Operand**

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**Question No:28**

**(Marks:1)**

**Vu-Topper RM**

In a CFG, the non-terminals are denoted by           .

- A. Numbers
- B. Small letters
- C. Capital letters**
- D. Small letters and numbers

**Question No:29**

**(Marks:1)**

**Vu-Topper RM**

Even-Even language partitions  $\Sigma^*$  into            distinct classes.

- A. Two
- B. Five
- C. Four**
- D. Three

**Question No:30**

**(Marks:1)**

**Vu-Topper RM**

The CFG  $S \rightarrow aSb|ab|\Lambda$  is used to express the language           .

- A. Even
- B. Equal

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## D. Palindrome

Question No:31

(Marks:1)

Vu-Topper RM

In the null production  $N \rightarrow \Lambda$ , N is a \_\_\_\_\_.

- A. word
- B. terminal
- C. Semi word

**D. Non terminal**

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Question No:32

(Marks:1)

Vu-Topper RM

In CFG, symbols that cannot be replaced by anything are called \_\_\_\_\_.

**A. Terminals**

Google

- B. Productions
- C. non-terminals
- D. null productions

Question No:33

(Marks:1)

Vu-Topper RM

The production of the form: Non-terminal  $\rightarrow \Lambda$  is said to be \_\_\_\_\_ production.

- A. CNF
- B. UNIT

**C. NULL**

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D. Chomsky form production

Question No:34

(Marks:1)

Vu-Topper RM

The production of the form: non-terminal  $\rightarrow$  one non-terminal is called the \_\_\_\_\_.

A. NULL production

**B. Unit production**

C. Terminal production

D. Non Terminal production

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**Question No:35**

**(Marks:1)**

**Vu-Topper RM**

If R is regular language and Q is any language (regular/ non-regular), then Pref( \_\_\_\_\_ in \_\_\_\_\_) is regular.

- A. Q,Q
- B. R,R
- C. R,Q
- D. Q,R**

**Question No:36**

**(Marks:1)**

**Vu-Topper RM**

If an FA accepts a word then there must exist a path from \_\_\_\_\_.

- A. Initial to each state
- B. Initial to final state**
- C. Initial to each state but not to final state
- D. Initial to final state by traversing each state

**Question No:37**

**(Marks:1)**

**Vu-Topper RM**

Consider the CFG given below:

$S \rightarrow A|bbA \rightarrow$

$B|bB \rightarrow$

$S|a$

Which of the following is a unit production

- A.  $A \rightarrow B$**
- B.  $A \rightarrow b$
- C.  $S \rightarrow bb$
- D.  $B \rightarrow a$

**Question No:38**

**(Marks:1)**

**Vu-Topper RM**

By removing null and unit productions, \_\_\_\_\_.

- A. CNF can be converted into FA
- B. CNF can be converted into CFG
- C. CFG can be converted into CNF**
- D. CNF can be converted into Turing machine

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**Question No:39**

**(Marks:1)**

**Vu-Topper RM**

Which of the following is not a true theorem?

- A. Pseudo theorem**
- B. Decidability theorem
- C. Equivalency theorem
- D. Myhill Nerode theorem

**Question No:40**

**(Marks:1)**

**Vu-Topper RM**

In a CFG the non-terminal that occurs first from the left in the working string, is said to be \_\_\_\_\_.

- A. Left most derivate
- B. Left most nonterminal**
- C. Most Significant nonterminal
- D. Least Significant nonterminal

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**Question No:41**

**(Marks:1)**

**Vu-Topper RM**

The CFG is said to be ambiguous if there exist at least one word of its language that can be generated by \_\_\_\_\_ production tree(s).

- A. Zero
- B. One
- C. At most one
- D. More than one**

**Question No:42**

**(Marks:1)**

**Vu-Topper RM**

Using Myhill Nerode theorem we partition sigma star into distinct

- \_\_\_\_\_.
- A. Objects
- B. Classes**
- C. Instances
- D. Templates

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**Question No:43**

**(Marks:1)**

**Vu-Topper RM**

Incase of Myhill Nerode theorem, if a language L partitions sigma star into distinct classes and L is also regular then L generates \_\_\_\_\_ number of classes.

- A. Add
- B. Finite**
- C. Infinite
- D. Specified

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**Question No:44**

**(Marks:1)**

**Vu-Topper RM**

To write the expression from the tree, it is required to traverse from \_\_\_\_\_.

- A. Left side of the tree**
- B. Right side of the tree
- C. Top to bottom of the tree
- D. Bottom to top of the tree

**Question No:45**

**(Marks:1)**

**Vu-Topper RM**

If L1 and L2 are two regular languages, then they \_\_\_\_\_ expressed by FAs.

- A. Can be**
- B. May be
- C. Cannot be
- D. may or may not be

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**Question No:46**

**(Marks:1)**

**Vu-Topper RM**

Null production is a \_\_\_\_\_.

- A. Word
- B. String
- C. Terminal
- D. All of the given**

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**Question No:47**

**(Marks:1)**

**Vu-Topper RM**

Which of the following is a non-regular language?

**A. Prime**

B. Odd-Odd

C. Even-Even

D. Language of strings ending in abba

**Question No:48**

**(Marks:1)**

**Vu-Topper RM**

Set of all palindromes over {a,b} is:

A. Regular

B. Regular and finite

C. Regular and infinite

**D. Non-regular**

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**Question No:1**

**(Marks:1)**

**Vu-Topper RM**

In which of the following machine, the length of output string is the same to that of input string?

**A. Mealy machine**

B. Moore machine

C. Finite automaton with output

D. Non-deterministic finite automaton

**Question No:49**

**(Marks:1)**

**Vu-Topper RM**

Which of the following machine has only one initial state and no final state?

A. Moore machine

**B. Finite state machine** **Google**

C. Deterministic finite state machine

D. Non deterministic finite state machine

**Question No:50**

**(Marks:1)**

**Vu-Topper RM**

Which one of the following machine is represented as a pictorial representation with states and directed edges labeled by an input letter along with an output character

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- A. Moore machine
- B. Mealy machine** Google
- C. Finite state machine
- D. Deterministic finite state machine

**Question No:51** (Marks:1) **Vu-Topper RM**  
In Moore machine, output is produced over the change of:

- A. States
- B. Transitions** Google
- C. Transitions and states
- D. None of the mentioned

**Question No:52** (Marks:1) **Vu-Topper RM**  
Moore Machine is an application of:

- A. None of the mentioned
- B. Finite automata with output
- C. Finite automata without input** Google
- D. Non- Finite automata with output

**Question No:53** (Marks:1) **Vu-Topper RM**  
For a given Moore Machine, the input string is '101010', thus the output string would be of length:

- A. Length of input string – 1
- B. Length of input string – 2
- C. Length of input string + 2
- D. Length of input string + 1** Google

**Question No:54** (Marks:1) **Vu-Topper RM**  
Which of the following should not be NULL in the context of Pumping Lemma?

- A. N**
- B. X
- C. Y

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**Question No:55**

**(Marks:1)**

**Vu-Topper RM**

In Moore machine, if the length of input string is 9, then the length of output string will be:

- A. 7
- B. 8
- C. 9
- D. 10**

**Question No:56**

**(Marks:1)**

**Vu-Topper RM**

Let L be the language of all strings, defined over  $\Sigma = \{0,1\}$ , ending in 10. Which of the following strings are indistinguishable with respect to L with z being 0?

- A. 010,101**
- B. 110,101
- C. 100,101
- D. 111,101

**Question No:57**

**(Marks:1)**

**Vu-Topper RM**

Keeping in view the discussion by Martin, how many states are required to recognize the language of all strings of length 2 or more defined over  $\Sigma = \{a,b\}$ , with 'b' being the second letter from right?

- A. 6
- B. 7**
- C. 8
- D. 9

**Question No:58**

**(Marks:1)**

**Vu-Topper RM**

Melay machine can have ----- final states.

- A. One
- B. Zero**
- C. More than one but infinite
- D. More than one but finite

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Question No:59

(Marks:1)

Vu-Topper RM

Subtraction of binary numbers is possible through:

**A. Both complementing and incrementing machine**

B. Complementing machine

C. Incrementing machine

D. Converting machine

Question No:60

(Marks:1)

Vu-Topper RM

In Moore machine the output depends on

A. Nothing

B. Type of input

**C. Only present state**

D. Present state and present input

Question No:61

(Marks:1)

Vu-Topper RM

1's complement for 01101 will be:

A. 10111

**B. 10010** Google

C. 00100

D. 00000

Question No:62

(Marks:1)

Vu-Topper RM

Let L be the language of all strings, defined over  $\Sigma = \{0,1\}$ , ending in 111. Which of the following strings are indistinguishable with respect to L with z being 11?

A. 110,101

**B. 111,101**

C. 010,101

D. 100,101

Question No:63

(Marks:1)

Vu-Topper RM

----- state is not important in Melay machine.

**A. Initial**

B. Final  
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- C. Empty
- D. Combination of

**Question No:64** (Marks:1) **Vu-Topper RM**

Keeping in view the discussion by Martin, how many states are required to recognize the language of all strings of length 3 or more defined over  $\Sigma = \{a,b\}$ , with 'a' being the third letter from right?

- A. 10
- B. 12
- C. 14
- D. 16**

**Question No:65** (Marks:1) **Vu-Topper RM**

Strings x,y,z belongs to  $\Sigma^*$  such that both xz or yz  $\in L$  where  $L \subseteq \Sigma^*$  are:

- A. Undetermined
- B. Distinguishable**
- C. Indistinguishable
- D. Both distinguishable and indistinguishable

**Question No:66** (Marks:1) **Vu-Topper RM**

If we subtract a binary number 1010 from the binary number 1101(ignore the overflow), then the result will be:

- A. 1100**
- B. 0011
- C. 1010
- D. 0010

**Question No:67** (Marks:1) **Vu-Topper RM**

A loop at a state is supposed to be ----- transition while converting Moore machine into an equivalent Melay machine.

- A. Complex
- B. Incoming**
- C. Outgoing

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D. Both incoming and outgoing

**Question No:68**

**(Marks:1)**

**Vu-Topper RM**

Two machines are said to be equivalent if they print the \_\_\_\_\_ output string when the \_\_\_\_\_ input string is run on them.

**A. Same, Same**

B. Same, different

C. Different, same

D. Unique, different

**Question No:69**

**(Marks:1)**

**Vu-Topper RM**

In which of the following machine, the length of output string is 1 more than that of input string?

A. Mealy machine

**B. Moore machine**

C. Finite automaton with output

D. Non-deterministic finite automaton

**Question No:70**

**(Marks:1)**

**Vu-Topper RM**

Which of the following is used to delay the transmission of signal along the wire by one step (clock pulse)?

A. Slow box

**B. Delay box**

C. Holdup box

D. Reduce box

**Question No:71**

**(Marks:1)**

**Vu-Topper RM**

Which of the following is pumped to generate further strings in the definition of Pumping Lemma?

A. X

**B. Y**

C. N

D. Z

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**Question No:72**

**(Marks:1)**

**Vu-Topper RM**

The strings or words which do not belong to a language are called \_\_\_\_\_ of that language.

- A. Union
- B. Quotient
- C. Intersection
- D. Complement**

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**Question No:73**

**(Marks:1)**

**Vu-Topper RM**

If  $L_1$  and  $L_2$  are regular languages then which statement is NOT true?

- A.  $L_1^*$  is always regular
- B.  $L_1 L_2$  is always regular
- C.  $L_1/L_2$  is always regular
- D.  $L_1 + L_2$  is always regular**

**Question No:74**

**(Marks:1)**

**Vu-Topper RM**

For a non-regular language, there exists \_\_\_\_\_ FA.

- A. No
- B. One**
- C. At least one
- D. At most one

**Question No:75**

**(Marks:1)**

**Vu-Topper RM**

Melay machine to increase the output string in magnitude by 1 is called:

- A. Complementing machine**
- B. Incrementing machine
- C. Decrementing machine
- D. Converting machine

**Question No:76**

**(Marks:1)**

**Vu-Topper RM**

If the intersection of two regular languages is regular then the complement of the intersection of these two languages is \_\_\_\_\_.

- A. Irregular but finite

**B. Regular** بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

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- C. Irregular
- D. Irregular but infinite

**Question No:77**

**(Marks:1)**

**Vu-Topper RM**

The language “PRIME” is an example of \_\_\_\_\_ language.

- A. Regular but infinite
- B. Non regular but infinite
- C. Regular

**D. Non regular**

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**Question No:78**

**(Marks:1)**

**Vu-Topper RM**

In pumping lemma theorem ( $x y^n z$ ) the range of  $n$  is

- A.  $n=1, 2, 3, 4, \dots$**
- B.  $n=0, 1, 2, 3, 4, \dots$
- C.  $n= \dots -3, -2, -1, 1, 2, 3, 4, \dots$
- D.  $n= \dots -3, -2, -1, 0, 1, 2, 3, 4, \dots$

**Question No:79**

**(Marks:1)**

**Vu-Topper RM**

Which of the following represent the absence and presence of current in sequential circuit respectively??

- A. 0,1**
- B. 0,0
- C. 1,0
- D. 1,1

**Question No:80**

**(Marks:1)**

**Vu-Topper RM**

The values of input (say  $a$  &  $b$ ) do not remain same in one cycle due to

- A. Clock plus
- B. OR gate
- C. NAND gate
- D. NOT gate**

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**Question No:81**

**(Marks:1)**

**Vu-Topper RM**

If new  $A = 1 \text{ NAND } (1 \text{ AND } 1)$ , then what will be the value of new A?

- A. 0
- B. 10
- C. 1**
- D. 01

**Question No:82**

**(Marks:1)**

**Vu-Topper RM**

If L1 and L2 are two regular languages, then L1 Intersection L2 is:

- A. Finite
- B. Infinite
- C. Iregular
- D. Regular**

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**Question No:83**

**(Marks:1)**

**Vu-Topper RM**

If an effectively solvable problem has answer in YES or NO, then the solution is called \_\_\_\_\_.

- A. Infinite problem
- B. Decision procedure**
- C. Finite solution
- D. Optimal procedure

**Page 80**

**Question No:84**

**(Marks:1)**

**Vu-Topper RM**

What will be the 9's complement of the number 872?

- A. 127**
- B. 170
- C. 172
- D. 271

**Question No:85**

**(Marks:1)**

**Vu-Topper RM**

A non regular language can be represented by

- A. TG
- B. RA
- C. EA

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**Question No:86**

**(Marks:1)**

**Vu-Topper RM**

If a language is regular it must generate \_\_\_\_\_ number of distinct classes.

- A. Two
- B. Finite**
- C. Three
- D. Infinite

**Question No:87**

**(Marks:1)**

**Vu-Topper RM**

The language of all strings not beginning with 'b' partitions  $\Sigma^*$  into \_\_\_\_\_ distinct classes.

- A. Two**
- B. Five
- C. Four
- D. Three

**Question No:88**

**(Marks:1)**

**Vu-Topper RM**

Which one of the following languages is a non regular language?

- A. Even-even
- B. Palindrome**
- C. Containing double a
- D. Start and end with same letter

**Question No:89**

**(Marks:1)**

**Vu-Topper RM**

The language of all string not beginning with 'b' partition  $\Sigma^*$  into \_\_\_\_\_ distinct classes.

- A. Five
- B. Four
- C. Two**
- D. three

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**Question No:90**

**(Marks:1)**

**Vu-Topper RM**

The language  $L$  defined over  $\Sigma$ , not belonging to  $l$ , is called \_\_\_\_ of the language  $L$ .

- A. closure
- B. complement**
- C. intersection
- D. union

**Question No:91**

**(Marks:1)**

**Vu-Topper RM**

A problem that has decision procedure is called \_\_\_\_\_ problem.

- A. Decidable**
- B. Regular language
- C. Un-decidable
- D. Infinite

**Question No:92**

**(Marks:1)**

**Vu-Topper RM**

A language that can be expressed by RE, is said to be a \_\_\_\_\_ language.

- A. Finite
- B. Infinite
- C. Irregular
- D. Regular**

**Question No:93**

**(Marks:1)**

**Vu-Topper RM**

A non- regular language can be represented by

- A. TG
- B. RE
- C. FA**
- D. None of the given option

**Question No:94**

**(Marks:1)**

**Vu-Topper RM**

If  $Q = \{xx, xyxxx\}$ , and  $R = \{xyxyxyxy, xyxyxyxy\}$  then  $\text{pref}(Q \text{ in } R) =$ ---

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- B.  $Xxy$
- C.  $Xx$
- D.  $Xyxyyy$**

**Question No:95** (Marks:1)

**Vu-Topper RM**

$a^nb^n$  generates the \_\_\_\_\_ language

- A. non regular
- B. EQUAL and non regular**
- C. Regular
- D. EQUAL and regular

**Question No:96** (Marks:1)

**Vu-Topper RM**

Set of all palindromes over  $\{a,b\}$  is :

- A. Regular and infinite
- B. Regular and infinite**
- C. Non-regular
- D. Regular

**Question No:97** (Marks:1)

**Vu-Topper RM**

The language of all string partition  $\Sigma^*$  into \_\_\_\_\_ class(es).

- A. Two**
- B. Four
- C. One
- D. three

**Question No:98** (Marks:1)

**Vu-Topper RM**

If the FA has  $N$  states, then test the words of length less than  $N$ . If no word is accepted by this FA, then it will \_\_\_\_\_ word/words.

- A. reject no
- B. accept all
- C. accept no**
- D. accept some

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**Question No:99**

**(Marks:1)**

**Vu-Topper RM**

The complement of a regular language is also \_\_\_\_\_.

**A. Regular**

B. Irregular

C. irregular but finite

D. irregular but infinite

**Question No:100**

**(Marks:1)**

**Vu-Topper RM**

A language ending with 'b' partitions  $\Sigma^*$  into \_\_\_\_\_ distinct classes.

A. Two

B. Four

C. One

**D. Three**

**Question No:101**

**(Marks:1)**

**Vu-Topper RM**

The language L defined over  $\Sigma$ , not belonging to L, is called \_\_\_\_\_ of the language L.

A. Union

B. Quotient

C. Intersection

**D. Complement**

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**Question No:102**

**(Marks:1)**

**Vu-Topper RM**

The reverse of the string sbfsbb over { sb, f, b }

A. Bsfbsb

B. Sbbfsb

C. Bbsfbs

**D. Bsbfsb**

**Question No:103**

**(Marks:1)**

**Vu-Topper RM**

If an FA has N states then it must accept the word of length

**A. N**

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- C. n-1
- D. n+1

**Question No:104**

**(Marks:1)**

**Vu-Topper RM**

$a^n b^n$  generates the ..... language

- A. regular
- B. non regular
- C. EQUAL and regular

**D. EQUAL and non regular**

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**Question No:105**

**(Marks:1)**

**Vu-Topper RM**

Finite Automaton (FA) must have \_\_\_\_\_ number of states while a language has \_\_\_\_\_ words.

- A. finite, finite
- B. infinite, finite
- C. finite, infinite**
- D. infinite, infinite

**Question No:106**

**(Marks:1)**

**Vu-Topper RM**

To describe the complement of a language, it is very important to describe the ----- of that language over which the language is defined.

- A. Word
- B. String
- C. Alphabet**
- D. Regular Expression

**Question No:107**

**(Marks:1)**

**Vu-Topper RM**

----- is obviously infinite language.

- A. EVEN-EVEN
- B. FACTORIAL
- C. PALINDROME**
- D. EQUAL-EQUAL

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**Question No:108**

**(Marks:1)**

**Vu-Topper RM**

The language Q is said to be quotient of two regular languages P and R, denoted by--- if  $PQ=R$ .

- A.  $R=Q/P$
- B.  $Q=R/P$**
- C.  $Q=P/R$
- D.  $P=R/Q$

**Question No:109**

**(Marks:1)**

**Vu-Topper RM**

If R is regular language and Q is any language (regular/ non regular), then Pref (Q in R) is -----.

- A. Equal
- B. Infinite
- C. Regular**
- D. Non-regular

**Question No:110**

**(Marks:1)**

**Vu-Topper RM**

The part of an FA, where the input string is placed before it is run, is called \_\_\_\_\_

- A. State
- B. Transition
- C. Input Tape**
- D. Output Tape

**Question No:111**

**(Marks:1)**

**Vu-Topper RM**

In new format of an FA (discussed in lecture 37), This state is like dead-end non final state

- A. Read
- B. Start
- C. Reject**
- D. Accept

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**Question No:112**

**(Marks:1)**

**Vu-Topper RM**

For language L defined over {a, b}, then L partitions {a, b} into ..... classes

- A. Finite
- B. Infinite
- C. Distinct**
- D. Non- Distinct

**Question No:113**

**(Marks:1)**

**Vu-Topper RM**

The major problem in the earliest computers was

- A. To display mathematical formula**
- B. To store the contents in the registers
- C. To calculate the mathematical formula
- D. To load the contents from the registers

**Question No:114**

**(Marks:1)**

**Vu-Topper RM**

Grammatical rules which do not involve the meaning of words are called

- A. Syntactic**
- B. Semantics
- C. Both a and b
- D. None of given

**Question No:115**

**(Marks:1)**

**Vu-Topper RM**

The symbols that can't be replaced by anything are called ---

- A. Terminals**
- B. Productions
- C. Non-terminals
- D. All of the above

**Question No:116**

**(Marks:1)**

**Vu-Topper RM**

The symbols that must be replaced by other things are called

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- B. Productions
- C. Non-terminals**
- D. None of the given

**Question No:117** (Marks:1) **Vu-Topper RM**

The grammatical rules are often called \_\_\_\_\_

- A. Terminals
- B. Productions**
- C. Non-terminals
- D. None of the given

**Question No:118** (Marks:1) **Vu-Topper RM**

The language generated by \_\_\_\_\_ is called Context Free Language (CFL).

- A. FA
- B. TG
- C. CFG**
- D. NFA

**Question No:119** (Marks:1) **Vu-Topper RM**

If a CFG has only productions of the form nonterminal  $\rightarrow$  string of two nonterminal or nonterminal  $\rightarrow$  one terminal then the CFG is said to be in PDA form

- A. NULL able form
- B. None of the these
- C. Unit production form
- D. Chomsky Normal Form (CNF)**

**Question No:120** (Marks:1) **Vu-Topper RM**

Which of the following states is not part of PDA?

- A. Start
- B. Write**
- C. Reject

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**Question No:121**

**(Marks:1)**

**Vu-Topper RM**

The PDA is called non-deterministic PDA when there are more than one out going edges from..... state

- A. PUSH or POP
- B. READ or POP**
- C. POP or REJECT
- D. START or READ

**Question No:122**

**(Marks:1)**

**Vu-Topper RM**

In nondeterministic PDA a string is supposed to be accepted, if there exists at least one path traced by the string, leading to state.

- A. Start
- B. Write
- C. Reject
- D. Accept**

**Question No:123**

**(Marks:1)**

**Vu-Topper RM**

The CFG which generates the regular language is called

- A. Finite Automata
- B. Regular grammar**
- C. Regular expression
- D. None of the given options

**Question No:124**

**(Marks:1)**

**Vu-Topper RM**

PDA stands for \_\_\_\_\_

- A. None of given options
- B. Push Down Automaton**
- C. Pop and Drop Automaton
- D. Push and Drop Automaton

**Question No:125**

**(Marks:1)**

**Vu-Topper RM**

Halt states are

- A. Start and accept

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- C. Start and Reject  
**D. Accept and Reject**

**Question No:126**

**(Marks:1)**

**Vu-Topper RM**

In an FA, when there is no path starting from initial state and ending in final state then that FA

- A. Accept null string  
B. Accept all strings  
**C. Does not accept any string**  
D. Accept all non-empty strings

**Question No:127**

**(Marks:1)**

**Vu-Topper RM**

While finding RE corresponding to TG, we connect the new start state to the old start state by the transition labelled by

- A. A  
B. B  
**C. Null string**  
D. None of the given options

**Question No:128**

**(Marks:1)**

**Vu-Topper RM**

According to theory of automata there are \_\_\_\_\_ types of languages

- A. One  
**B. Two**  
C. Four  
D. Three

**Question No:129**

**(Marks:1)**

**Vu-Topper RM**

While finding RE corresponding to TG, If TG has more than one final state then

- A. Eliminate the old final state  
**B. Introduce the new final state**  
C. Replace the old final state with start state  
D. Replace the old final state with new start state

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**Question No:130**

**(Marks:1)**

**Vu-Topper RM**

The states in which there is no way to leave after entry are called

- A. Dead States
- B. Waste Baskets
- C. Davey John Lockers
- D. All of the given options**

**Question No:131**

**(Marks:1)**

**Vu-Topper RM**

What is false about the term alphabet?

- A. It can be an empty set**
- B. It is a finite set of symbols
- C. Strings are made up of its element
- D. It is usually denoted by Greek letter sigma

**Question No:132**

**(Marks:1)**

**Vu-Topper RM**

A PDA consists of the following:

- A. All of the given options**
- B. An input TAPE with infinite
- C. Many locations in one direction
- D. An alphabet (Sigma) of input letters.

**Question No:133**

**(Marks:1)**

**Vu-Topper RM**

A \_\_\_\_\_ is the one for which every input string has a unique path through the machine

- A. Input Tape**
- B. Push Down store
- C. Deterministic PDA
- D. Non deterministic PDA

**Question No:134**

**(Marks:1)**

**Vu-Topper RM**

The input string is placed, before it runs, in

- A. Ram
- B. Tape**
- C. Stack

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D. Memory

**Question No:135**

**(Marks:1)**

**Vu-Topper RM**

In a CFG the nonterminal that occurs first from the left in the working string, is said to be \_\_\_\_\_

A. Left most derivate

**B. Left most nonterminal**

C. Least Significant nonterminal

D. Most Significant nonterminal

**Question No:136**

**(Marks:1)**

**Vu-Topper RM**

The unit production is

A. Terminal --> Terminal

B. Non terminal --> Terminal

**C. Terminal --> non-Terminal**

D. Non terminal --> non-Terminal

**Question No:137**

**(Marks:1)**

**Vu-Topper RM**

A \_\_\_\_\_ operator adds a new letter at the top of STACK

**Push**

**Question No:138**

**(Marks:1)**

**Vu-Topper RM**

The locations into which we put the input letters on "Input Tap" are called \_\_\_\_\_

**Cells**

**Question No:139**

**(Marks:1)**

**Vu-Topper RM**

We cannot write regular expressions for all \_\_\_\_\_.

**CFG's**

**Question No:140**

**(Marks:1)**

**Vu-Topper RM**

The grammatical rules which involve meaning of words are called

**Semantics**

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**Question No:141** (Marks:1) **Vu-Topper RM**

Which of the following is a non-regular language?

**Language of strings ending in abba**

**Question No:142** (Marks:1) **Vu-Topper RM**

Tape and Stack alphabets

**Must be different**

**Question No:143** (Marks:1) **Vu-Topper RM**

Choice of path can be determined by left most derivation of the string belonging to CFL at..... state

**Accept**

**Question No:144** (Marks:1) **Vu-Topper RM**

Identify the TRUE statement about following CFG:  $S \rightarrow SB|AB$   $A \rightarrow$

$CC$   $B \rightarrow b$   $C \rightarrow a$

**The given CFG is in CNF**

The given CFG has 8 Terminals

**Question No:145** (Marks:1) **Vu-Topper RM**

For the given input, AND box provides the Boolean AND output.

**True**

False

**Question No:146** (Marks:1) **Vu-Topper RM**

The current in the wire is indicated by 1 and 0 indicates the absence of the current.

**True**

False

**Question No:147** (Marks:1) **Vu-Topper RM**

Any language that cannot be expressed by a RE is said to be regular language.

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**False**

**Question No:148**

**(Marks:1)**

**Vu-Topper RM**

For a certain language L, the complement of Lc is the given language L

i.e.  $(Lc)^c = Lc$

True

**False**

**Question No:149**

**(Marks:1)**

**Vu-Topper RM**

The high-level language is converted into assembly language codes by a program called compiler.

**True**

False

**Question No:150**

**(Marks:1)**

**Vu-Topper RM**

If a CFG has a null production, then it is possible to construct another CFG accepting the same language without null production

**True**

False

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