



# CS402 Theroy Of Automata Update MCQS For Quiz-1 File Solve By Vu Topper RM



**80 To 100% Marks**



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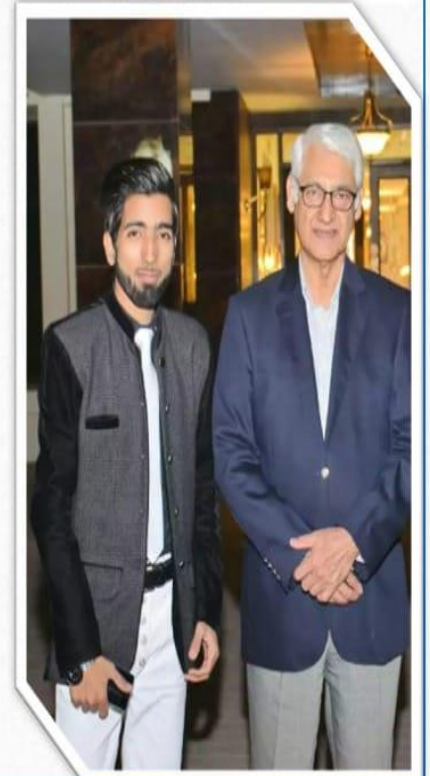
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Finite Automaton (FA) has:

- A. Zero or more final states**
- B. Exactly one final state
- C. Not more than two final states
- D. Exactly two final states

The formal language is also known as \_\_\_\_\_.

- A. Semantic language
- B. Informal language
- C. Syntactic language**
- D. Normal language

The language of all strings defined over alphabet set = {x, y} having triple x's or triple y's will have the minimum strings with length of:

- A. 1
- B. 3**
- C. 4
- D. 2

If an alphabet has "2" number of letters, then total number of strings of length "3" will be \_\_\_\_\_.

- A. 5
- B. 9
- C. 8**
- D. 6

GTG for the expression  $(a+b)^*bb$  may have minimum number of states:

- A. 3
- B. 4**
- C. 2
- D. 1

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Consider the Regular Expression (RE)  $a(a + b)b^*$ . Which one of the following is NOT accepted by the provided RE?

- A. aa
- B. aab
- C. aba**
- D. abb

Which of the following is NOT true about the term alphabet?

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

Which of the following is free of non-determinism?

- A. FA**
- B. TG
- C. NFA
- D. NFA-<sup>^</sup>

The language of all strings defined over alphabet set  $= \{a, b\}$  containing 'bbb' will have the minimum string with length of:

- A. 1
- B. 2
- C. 3**
- D. 4

The  $aa(a+b)^*bb$  is the RE of the language defined over  $\Sigma = \{a, b\}$ . The language must \_\_\_\_\_.

- A. have at least two ab
- B. have at least one aa and one bb**
- C. have at least one abbb
- D. have at least one ba

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Reverse of string "YxwzYz" defined over  $\Sigma = \{w,x,Y,z\}$  is \_\_\_\_\_.

- A. zYzwxY
- B. zYzwxY
- C. zYwzxY
- D. zYzwYx

If "r1" and "r2" are regular expressions, then which of the following is not a regular expression?

- A. r1 + r2
- B. r1\*
- C. r1 r2
- D. r1 - r2

Which of the following string belongs to the language of the regular expression (aa\*b)\*?

- A. baabab
- B. aabaab
- C. aaaaaa
- D. abbaa

FA of EVEN-EVEN language shows that it accepts the null string by declaring the \_\_\_\_\_ as a \_\_\_\_\_ as well.

- A. Initial state, final state
- B. Initial state, null state
- C. Final state, initial state
- D. Final state, null state

Let  $S = \{a, bb, bab, baabb\}$  be a set of strings, which one of the following will not be included in  $S^*$ ?

- A. baba
- B. bbbaabaabb
- C. baabbabb
- D. bbaaabb

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The language of all strings defined over alphabet set = {x, y} that ends with different letters will have the maximum length of:

- A. 1
- B. 2**
- C. infinite
- D. 3

In an FA, when there is no path from the initial state to final state, then that FA\_\_\_\_\_.

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

If  $\Sigma = \{a, b, c, d\}$ . How many transitions will be there on each state of a finite automaton for any language defined over  $\Sigma$ ?

- A. 2
- B. 4**
- C. 1
- D. 3

Which of the following is the minimal number of states for a finite automaton accepting the language of all strings defined over any alphabet set?

- A. 3
- B. 4
- C. 2
- D. 1**

How many states of a finite automaton will be final for accepting  $L = \{\epsilon, b, bb, bbb\}$ ?

- A. 3
- B. 1

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**C.4**

D.2

There is no compulsion that each state must have an outgoing edge for every input variable in:

- A. Transition Graph
- B. Transition Table
- C. Both Finite Automata and Transition Graph
- D. Finite Automata**

In TG, there can be more than one \_\_\_\_\_.

- A. start state only
- B. null state only
- C. start state and final state
- D. final state only**

Substrings as input letters can be specified on edges in:

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

If we have the regular expression  $(a + b)^*$ , then we can draw FA for the provided RE with minimum \_\_\_\_\_ number of state(s).

- A. 2**
- B. 0
- C. 1
- D. 3

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**Question No:1**

**(Marks:1)**

**Vu-Topper RM**

$\Sigma = \{a, Aa, Abb\}$ , then string  $aAaAbbAa$  has \_\_\_ length.

- A. One
- B. Two
- C. Three

**D. Four**

**Page 4**

**Question No:2**

**(Marks:1)**

**Vu-Topper RM**

Languages generated by kleene star are always \_\_\_.

- A. Finite
- B. Infinite**
- C. Sometimes finite & sometimes infinite
- D. None of the these

**Page 7**

**Question No:3**

**(Marks:1)**

**Vu-Topper RM**

Let  $S = \{aa, bb\}$ , then  $S^*$  will have the \_\_\_\_\_ string.

- A.  $\Lambda$**
- B. abba
- C. aabbbaa
- D. bbaab

**Page 7**

**Question No:4**

**(Marks:1)**

**Vu-Topper RM**

If  $r1 = (aa + bb)$  and  $r2 = (a + b)$  then the language  $(aa + bb)^*$  will be generated by

- A.  $(r1)(r2)$
- B.  $(r1 + r2)$
- C.  $(r2)^*$

**D.  $(r1)^*$**

**Page 10**

**Question No:5**

**(Marks:1)**

**Vu-Topper RM**

If a language can be expressed through FA, then it can also be expressed through TG.

**A. True**

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B. False

**Question No:6**

**(Marks:1)**

**Vu-Topper RM**

If an alphabet has  $n$  number of letter, then number of strings of length  $m$  will be

- A.  $n+m$
- B.  $(n)(m)$
- C.  $m^n$

**D.  $n^m$  Page 6**

**Question No:7**

**(Marks:1)**

**Vu-Topper RM**

In GTG, if a state has more than one incoming transitions from a state. Then all those incoming transitions can be reduced to one transition using sign

- A. -
- B. +
- C. \*
- D. ( )

**Page 27**

**Question No:8**

**(Marks:1)**

**Vu-Topper RM**

Above given FA accepts \_\_\_\_\_ strings defined over  $\Sigma = \{a, b\}$

- A. All
- B. Some
- C. All but not null
- D. None of these

**Page 15**

**Question No:9**

**(Marks:1)**

**Vu-Topper RM**

One FA has 3 states and 2 letters in the alphabet. Then FA will have \_\_\_\_\_ number of transitions in the diagram

- A. 4
- B. 5
- C. 7

**D. 6 Page 14**

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**Question No:10** (Marks:1)

**Vu-Topper RM**

Every FA should be\_\_\_\_\_.

**A. Deterministic** Page 25

B. Non- Deterministic

C. Deterministic & Non- Deterministic

D. None of these

**Question No:11** (Marks:1)

**Vu-Topper RM**

Auto Meta mean

A. Manual work

**B. Automatic work** Page 3

C. Both

D. None of these

**Question No:12** (Marks:1)

**Vu-Topper RM**

NFA to FA will

**A. Equal** Page 43

B. Not equal

C. Not valid

D. None of given

**Question No:13** (Marks:1)

**Vu-Topper RM**

The length of output string in case of\_\_is one more than the length of corresponding input string.

**A. Finite Automaton** Page 55

B. TG

C. GTG

D. NFA

**Question No:14** (Marks:1)

**Vu-Topper RM**

The\_\_machine helps in building a machine that can perform the addition of binary numbers.

**A. Incrementing** Page 60

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- B. Complementing
- C. Decrementing
- D. None of the given

**Question No:15** (Marks:1) **Vu-Topper RM**

In proving Kleene Theorem II, if a state has two incoming transition edges labelled by RE from the same state, then replace all the edges with a single transition edge labelled by ----- of corresponding RE.

**A. Sum** **Page 27**

- B. Edge
- C. FA
- D. RE

**Question No:16** (Marks:1) **Vu-Topper RM**

Kleene Theorem III states that if the language can be expressed by RE then there exist ----- accepting the language.

**A. FA** **Page 32**

- B. DFA
- C. NFA
- D. None

**Question No:17** (Marks:1) **Vu-Topper RM**

If  $L_1$  and  $L_2'$  are regular languages,  $L_1 \cap (L_2' \cup L_1)'$  will be

**A. Regular** **Page 10**

- B. Ir-regular
- C. Can't be decided
- D. Another Language which is not listed here

**Question No:18** (Marks:1) **Vu-Topper RM**

A regular language can be:

- A. irregular
- B. infinite
- C. non-deterministic

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**D. None of the given options**

**Question No:19**

**(Marks:1)**

**Vu-Topper RM**

There \_\_\_\_\_ a language for which only FA can be built but not the RE.

A. is cannot be

B. is

**C. may be**

D. may not be

**Question No:20**

**(Marks:1)**

**Vu-Topper RM**

For every three regular expressions R, S, and T, the languages denoted by  $R(S \cup T)$  and  $(RS) \cup (RT)$  are the \_\_\_\_\_ .

**A. Same**

B. Different

C.  $R(S \cup T)$  is Greater

D. None of the given options

**Question No:21**

**(Marks:1)**

**Vu-Topper RM**

In \_\_\_\_\_ there must be transition for all the letters of a string.

A. NFA

B. GTG

C. TG

**D. FA**

**Question No:22**

**(Marks:1)**

**Vu-Topper RM**

We cannot construct an NFA for the language of \_\_\_\_\_ defined over alphabet set  $\{a,b\}$ .

A. Even

B. odd

**C. Palindromes**

D. Integers

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**Question No:23**

**(Marks:1)**

**Vu-Topper RM**

Decomposing a string into its valid units is referred as:

- A. Decomposing
- B. Splitting
- C. Tokenizing**
- D. Dividing

**Question No:24**

**(Marks:1)**

**Vu-Topper RM**

Choose the correct word produced by RE  $(a + b)^*$  (aa+bb).

- A. Abab
- B. Babab
- C. aaaa**
- D. Ab

**Question No:25**

**(Marks:1)**

**Vu-Topper RM**

Considering FA1 and FA2 having 2 states each. Now FA1+FA2 can have maximum \_\_\_\_\_ number of states.

- A. 2
- B. 3
- C. more than 3**
- D. None of these

**Question No:26**

**(Marks:1)**

**Vu-Topper RM**

If R is a regular language and L is some language, and  $L \cup R$  is a \_\_\_\_\_, then L must be a \_\_\_\_\_.

- A. Regular language**
- B. Finite Auto

**Question No:27**

**(Marks:1)**

**Vu-Topper RM**

The minimum length of the strings(except null string) of a language that starts and ends in different letters will be:

- A. 1**
- B. 2

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- C. 3
- D. 4

**Question No:28**

**(Marks:1)**

**Vu-Topper RM**

Consider we have languages  $L_7$  and  $L_6$ . Which of the following represents their concatenation?

- A.  $L_7+L_6$**
- B.  $L_7/L_6$
- C.  $L_6L_7$
- D.  $L_7L_6$

**Question No:29**

**(Marks:1)**

**Vu-Topper RM**

Let FA1 has  $x$  number of states and FA2 has  $y$  number of states. Now  $FA_1+FA_2$  can have maximum \_\_\_\_\_ number of states.

- A.  $x+y$
- B.  $x-y$
- C.  $x/y$
- D. None**

**Question No:30**

**(Marks:1)**

**Vu-Topper RM**

The language  $\{a ab aba bab\}$  is \_\_\_\_\_.

- A. Irregular
- B. Regular**
- C. Recursive
- D. None of the given options

**Question No:31**

**(Marks:1)**

**Vu-Topper RM**

If we have a finite language and the number of states in the FA is  $n$  then the maximum number of letters in the each word of the language that will be accepted by the given FA will be:

- A.  $N$
- B.  $n-1$**
- C.  $n+1$

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D. 1

**Question No:32**

**(Marks:1)**

**Vu-Topper RM**

Moore machine can have ----- final states.

**A. 2**

B. 4

C. 6

D. 8

**Question No:33**

**(Marks:1)**

**Vu-Topper RM**

There \_\_\_\_\_ be dead states in NFA.

A. may not

B. must

C. should not

**D. will**

**Question No:34**

**(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 distinguishable with respect to L with z being 0?

**A. 010, 101**

B. 111, 101

C. 001, 101

D. 111, 111

**Question No:35**

**(Marks:1)**

**Vu-Topper RM**

There \_\_\_\_\_ be a unique path for each valid string (called a word) in NFA.

**A. May not**

B. Must

C. Should not

D. Will

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**Question No:36**

**(Marks:1)**

**Vu-Topper RM**

If we have only one state, having no transition for input letters, then it is an example of:

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

**Question No:37**

**(Marks:1)**

**Vu-Topper RM**

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

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

**Question No:38**

**(Marks:1)**

**Vu-Topper RM**

A \_\_\_\_\_ with "n" states must accept at least one string of length greater than "n".

- A. DFA**
- B. RE
- C. Irregular language
- D. Irrelevant language

**Question No:39**

**(Marks:1)**

**Vu-Topper RM**

In Moore machine, output is produced over the change of:

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

**Question No:40**

**(Marks:1)**

**Vu-Topper RM**

Keeping in view the discussion by Martin, how many states are required

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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:41**

**(Marks:1)**

**Vu-Topper RM**

Every \_\_\_\_\_ can be considered to be \_\_\_\_\_ as well, but the converse may not be true.

- A. TG, FA
- B. GTG
- C. PDA
- D. FA, TG**

**Page 19**

**Question No:42**

**(Marks:1)**

**Vu-Topper RM**

In the context of make NFA for the concatenation of FA1 and FA2 (FA1 accepting null string), which of the following option is correct?

- A. Final states in both FAs**
- B. Initial states in both FAs
- C. FA2 having initial state only
- D. FA2 having final state only

**Question No:43**

**(Marks:1)**

**Vu-Topper RM**

In order to make NFA for the union of FA1 and FA2, the new initial state should be linked to:

- A. Initial states of both FAs**
- B. Initial and final states of FA1 and FA2 respectively
- C. Initial state of FA1 only
- D. Final and initial states of FA1 and FA2 respectively

**Question No:44**

**(Marks:1)**

**Vu-Topper RM**

Keeping in view the discussion by Martin, how many states are required

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

**Question No:45**

**(Marks:1)**

**Vu-Topper RM**

If we have an NFA having 3 states, and we convert that NFA to an FA. The resultant FA will contains \_\_\_\_\_ states.

- A. 1
- B. 2**
- C. 3
- D. 4

**Question No:46**

**(Marks:1)**

**Vu-Topper RM**

Let FA3 be an FA corresponding to FA1FA2, then initial state of FA3 must correspond to the initial state of

- A. FA1 only
- B. FA2 only
- C. FA1 and FA2
- D. FA1 or FA2**

**Question No:47**

**(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:48**

**(Marks:1)**

**Vu-Topper RM**

Moore Machine is an application of:

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

Google

**Question No:49**

**(Marks:1)**

**Vu-Topper RM**

In NFA having multiple transitions at certain state, FA can be built by introducing:

- A. Empty state**
- B. Combination of states
- C. Initial state
- D. Final state

**Question No:50**

**(Marks:1)**

**Vu-Topper RM**

In Mealy machine the output depends on \_\_\_\_\_

- A. Present state and Present input**
- B. Only present state
- C. Nothing
- D. Type of input

**Question No:51**

**(Marks:1)**

**Vu-Topper RM**

If L is a regular language, then  $(L')' \cup L$  will be:

- A. L**
- B. C
- C. P
- D. F

**Question No:52**

**(Marks:1)**

**Vu-Topper RM**

A string will be accepted by an NFA if there exists \_\_\_\_\_ one successful path.

- A. Atleast**
- B. Atmost
- C. Maximum

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D. None of the given options

**Question No:53**

**(Marks:1)**

**Vu-Topper RM**

If A and B are regular languages,  $!(A' \cup B')$  is:

- A. Non regular
- B. May be regular
- C. None of the mentioned

**D. Regular**

**Question No:54**

**(Marks:1)**

**Vu-Topper RM**

There is no question of accepting any language in:

- A. Moore machine**
- B. FA
- C. TG
- D. GTG

**Question No:55**

**(Marks:1)**

**Vu-Topper RM**

In \_\_\_\_\_ there must be transitions for all the alphabets over which a language is defined.

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

**Question No:56**

**(Marks:1)**

**Vu-Topper RM**

Let FA3 be an FA corresponding to FA1FA2, then final state of FA3 must correspond to the final state of

- A. FA2 only**
- B. FA1 only
- C. FA1 or FA2
- D. FA1 and FA2

**Question No:57**

**(Marks:1)**

**Vu-Topper RM**

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How many new states are introduced while developing NFA for the closure of an FA?

- A. 2
- B. 4
- C. 6
- D. 8

**Question No:58**

**(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:59**

**(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 - 1
- C. Length of input string + 2
- D. Length of input string - 2

**Question No:60**

**(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?

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

**Question No:61**

**(Marks:1)**

**Vu-Topper RM**

If FA1 corresponds to  $(a+b)^*$  then FA1 must accept \_\_\_\_\_

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string/strings.

- A. No
- B. Odd length
- C. Even length
- D. Every**

**Question No:62**

**(Marks:1)**

**Vu-Topper RM**

Closure of an FA is the same as \_\_\_\_\_ of an FA with itself except that the initial state of the required FA is a final state as well.

- A. Sum
- B. Union
- C. Intersection
- D. Concatenation**

**Question No:63**

**(Marks:1)**

**Vu-Topper RM**

Given the language  $L = \{ab, aa, baa\}$ , which of the following strings are in  $L^*$ ?

- 1. abaabaaabaa
- 2. aaaabaaaa
- 3. baaaaabaaaab
- 4. baaaaabaa

- A. 1, 2 and 3
- B. 2, 3 and 4
- C. 1, 2 and 4**
- D. 1, 3 and 4

**Question No:64**

**(Marks:1)**

**Vu-Topper RM**

FA and \_\_\_\_\_ are same except that \_\_\_\_\_ has unique symbol for each transition.

- A. FA, TG
- B. NFA, TG
- C. NFA, FA**
- D. GTG, NFA

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**Question No:65**

**(Marks:1)**

**Vu-Topper RM**

How many states of a finite automaton will be final for accepting the only string 'abb', if  $\Sigma = \{a, b\}$ ?

**A. 1**

B. 2

C. 3

D. 4

**Question No:66**

**(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:67**

**(Marks:1)**

**Vu-Topper RM**

Every NFA can be considered to be a ----- as well, but the converse may not be true.

**A. TG**

B. FA

C. GTG

D. PDA

**Question No:68**

**(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. Non-deterministic finite automaton

C. Finite automaton with output

**D. Moore machine**

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**Question No:69**

**(Marks:1)**

**Vu-Topper RM**

If  $S = \{aa, bb\}$  then  $S^*$  will not contain \_\_\_\_\_.

- A. abbbab
- B. bbba**
- C. bbbbab
- D. ababbb

**Question No:70**

**(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
- C. Deterministic finite state machine

**Question No:71**

**(Marks:1)**

**Vu-Topper RM**

Which of the following diagram is very rigid in order to express any language?

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

**Question No:72**

**(Marks:1)**

**Vu-Topper RM**

If  $S = \{a\}$ , then  $S^+$  will be \_\_\_\_\_.

- A.  $\{a, aaa, aaaa, aaaaa, \dots\}$
- B.  $\{a, aa, aaa, aaaa, \dots\}$**
- C.  $\{a, aaa, aaaaa, aaaaaaa, \dots\}$
- D.  $\{aa, aaaa, aaaaa, aaaaaaa, \dots\}$

**Question No:73**

**(Marks:1)**

**Vu-Topper RM**

Let L be the language of all strings. defined over  $\Sigma = \{0,1\}$ . ending in 111.

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Melay machine can have \_\_\_\_\_ final states.

**A. Zero**

B. One

C. More than one but finite

D. More than one but infinite

**Question No:74**

**(Marks:1)**

**Vu-Topper RM**

Let's we have two regular expressions  $R1=(xx+yy)$  and  $R2=(x+y)$ . Which one of the following is the correct regular expression for the Union of  $R1$  and  $R2$ ?

A.  $(xx+yy)(x+y)$

B.  $(xx+yy)+(x+y)^*$

**C.  $(xx+yy)+(x+y)$**

D.  $((xx+yy)+(x+y))^*$

**Question No:75**

**(Marks:1)**

**Vu-Topper RM**

The state where there is no way to leave after entry, is called \_\_\_\_\_.

**A. Davey John locker**

B. initial state

C. final state

D. non-final state

**Question No:76**

**(Marks:1)**

**Vu-Topper RM**

Which one of the following word is not accepted by the given regular expression?

A. aaabab

B. aaaababb

**C. abbaab**

D. aabbabb

**Question No:77**

**(Marks:1)**

**Vu-Topper RM**

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

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

**Question No:78** (Marks:1) **Vu-Topper RM**  
Regular languages are closed under the following operations.

- A. Union only
- B. Concatenation, Closure only
- C. Union, Concatenation and Closure**

**Question No:79** (Marks:1) **Vu-Topper RM**  
Regular languages are closed under the following operations.

- A. Union only
- B. Concatenation, Closure only
- C. Union, Concatenation and Closure**
- D. Regular languages are not closed under any operation

**Question No:80** (Marks:1) **Vu-Topper RM**  
There can be more than \_\_\_\_\_ FA for a certain language but for \_\_\_\_\_ FA there is only one language associated with it.

- A. one, one**
- B. one, two
- C. two, three
- D. two, one

**Question No:81** (Marks:1) **Vu-Topper RM**  
There is one compulsion that each state must have an on outgoing edge forevery input variable in:

- A. Finite Automata
- B. Transition Graph**
- C. Both Finite Automata and Transition Graph
- D. Transition Table

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**Question No:82**

**(Marks:1)**

**Vu-Topper RM**

FA is also called

- A. TG
- B. GTG
- C. NFA
- D. DFA**

**Question No:83**

**(Marks:1)**

**Vu-Topper RM**

If  $r_1$  and  $r_2$  are regular expressions then  $(r_1 * r_2)$  is \_\_\_\_\_.

- A. FA
- B. TG
- C. GTG
- D. RE**

**Question No:84**

**(Marks:1)**

**Vu-Topper RM**

Keep in view the language of all strings ending with 'a' defined over  $\Sigma = \{a, b, c, d\}$ . For which input letter, we will take a loop on the final state of its transition diagram?

- A. a**
- B. b
- C. c
- D. d

**Question No:85**

**(Marks:1)**

**Vu-Topper RM**

Which of the following statements is true about NFA with Null String?

- A. Infinite states
- B. Infinite set of letters
- C. Infinite set of transitions
- D. Transition of null string is allowed at any stage**

**Question No:86**

**(Marks:1)**

**Vu-Topper RM**

Introducing new start state in case of multiple start states is the step no.

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of proving Kleene's theorem part ||.

- A. 1**
- B. 2
- C. 3
- D. 4

**Question No:87**

**(Marks:1)**

**Vu-Topper RM**

Which of the following diagrams expresses languages more simply?

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

**Question No:88**

**(Marks:1)**

**Vu-Topper RM**

The language of all strings defined over alphabet set = {a, b} that does not end with 'a' actually ends with:

- A. b
- B. b and ^**
- C. ^
- D. ^ and a

**Question No:89**

**(Marks:1)**

**Vu-Topper RM**

In NFA having no transition at certain state, FA can be built by introducing:

- A. Empty state**
- B. Combination of states
- C. Initial state
- D. Final state

**Question No:90**

**(Marks:1)**

**Vu-Topper RM**

Formal is also known as

- A. Syntactic language**
- B. Semantic language

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- C. Informal language
- D. None of these

**Question No:91**

**(Marks:1)**

**Vu-Topper RM**

There may be more than one transition for a certain letter on a state in:

- A. Finite automata
- B. Non-Deterministic Finite Automata**
- C. Transition Table
- D. Moore Machine

**Question No:92**

**(Marks:1)**

**Vu-Topper RM**

FA of EVEN language shows null string when

- A. Initial state is final as well**
- B. EVEN does not accept null
- C. One state is declared null
- D. None of the these

**Question No:93**

**(Marks:1)**

**Vu-Topper RM**

Which of the following statement is true about GTG?

- A. Transitions are based on input letters
- B. Transitions are based on specified substrings**
- C. Transitions are based on regular expressions
- D. Transitions are based on alphabet set

**Question No:94**

**(Marks:1)**

**Vu-Topper RM**

In GTG, there can be more than one:

- A. Start state
- B. Final state
- C. Start state and final state**
- D. Null state

**Question No:95**

**(Marks:1)**

**Vu-Topper RM**

GTG for the expression  $(aa+aba)^*$  may have minimum number of states:

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- A. 1
- B. 2
- C. 3
- D. 4

**Question No:96**

**(Marks:1)**

**Vu-Topper RM**

In regular expressions, the operator '\*' stands for

- A. Concatenation**
- B. Iteration
- C. Selection
- D. Add

**Question No:97**

**(Marks:1)**

**Vu-Topper RM**

If  $r_1$  is a regular expression then  $(r_1)^*$  is\_\_\_\_\_.

- A. A generalized transition graph
- B. A non-deterministic finite automaton
- C. A finite automaton
- D. Also, a regular expression**

**Question No:98**

**(Marks:1)**

**Vu-Topper RM**

Which of the following is the bypass and state elimination step in the context of Kleene's theorem part II proof?

- A. 1
- B. 2
- C. 3
- D. 4**

**Question No:99**

**(Marks:1)**

**Vu-Topper RM**

**Question No:100**

**(Marks:1)**

**Vu-Topper RM**

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

- A. Complementing machine**

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- B. Incrementing machine
- C. Decrementing machine
- D. Converting machine

**Question No:101**

**(Marks:1)**

**Vu-Topper RM**

Kleene's Theorem Part I expresses the relationship between\_\_\_\_\_.

- A. FA and TG**
- B. TG and RE
- C. RE and FA
- D. FA and RE

**Question No:102**

**(Marks:1)**

**Vu-Topper RM**

Suppose we have FA3 (which is equal to FA1 + FA2), then the final state of FA3 will be declared final if:

- A. It corresponds to final states of both FA1 and FA2
- B. It corresponds to final states of FA1 only
- C. It corresponds to final states of FA2 only
- D. It corresponds to any of the final states in FA1 or FA2**

**Question No:103**

**(Marks:1)**

**Vu-Topper RM**

Null strings can be specified on edges in:

- A. Finite Automata
- B. Non-Deterministic Finite Automata
- C. Transition Graph**
- D. Melay Machine

**Question No:104**

**(Marks:1)**

**Vu-Topper RM**

What is false about the PALINDROME LANGUAGE?

- A. Every word is reverse of itself.
- B. It is an infinite language.
- C. FA can be build for it.
- D. None of the given option**

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**Question No:105**

**(Marks:1)**

**Vu-Topper RM**

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

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

**Question No:106**

**(Marks:1)**

**Vu-Topper RM**

All possible combinations of strings of a language including null string is referred as:

- A. Concatenation of a language with itself
- B. Kleene star closure of a language**
- C. Multiplication of language with itself
- D. Addition of a language with itself

**Question No:107**

**(Marks:1)**

**Vu-Topper RM**

$n!$  will be equal to:

- A.  $n*n$
- B.  $n*(-n)!$
- C.  $n*(n-1)$
- D.  $n*(n-1)!$**

**Question No:108**

**(Marks:1)**

**Vu-Topper RM**

While finding RE corresponding to a TG, we connect the new start state with the old start state by \_\_transition.

- A. a
- B. b
- C. Null**
- D. RE

**Question No:109**

**(Marks:1)**

**Vu-Topper RM**

In proving Kleene Theorem II, if three states are connected then middle state is removed by connecting first and third state and writing

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corresponding RE in:

- A. Sum
- B. Concatenation**
- C. Difference
- D. Asterisk

**Question No:110**

**(Marks:1)**

**Vu-Topper RM**

In \_\_\_ there must be transition for all the letters of a string.

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

**Question No:111**

**(Marks:1)**

**Vu-Topper RM**

There is no question accepting any language in:

- A. FA
- B. TG
- C. GTG
- D. Moore machine**

**Question No:112**

**(Marks:1)**

**Vu-Topper RM**

The FA can be drawn for the regular expression  $(a+b)^*$  with minimum state(s).

- A. 1**
- B. 2
- C. 3
- D. 4

**Question No:113**

**(Marks:1)**

**Vu-Topper RM**

Which of the following does not contribute while finding out the length of strings?

- A. ^**
- B. a

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- C. b
- D. a+b

**Question No:114**

**(Marks:1)**

**Vu-Topper RM**

The language of all strings defined over alphabet set = {x, y} that ends with same letters will have the maximum length of:

- A. 1
- B. 2
- C. 3
- D. Infinite**

**Question No:115**

**(Marks:1)**

**Vu-Topper RM**

Considering FA1 and FA2 states each. Now FA1+FA2 can have maximum\_number of states.

- A. 2
- B. 3
- C. More than 3
- D. None of the given option**

**Question No:116**

**(Marks:1)**

**Vu-Topper RM**

Which one of the following is the RE for the language defined over  $\Sigma = \{a, b\}$  having all the words starting with a?

- A.  $(a + b)^*$
- B.  $aa(a + b)^+$
- C.  $a(a + b)^*$**
- D.  $a^*(a + b)$

**Question No:117**

**(Marks:1)**

**Vu-Topper RM**

An \_\_\_\_\_ can be considered to be an intermediate structure between Finite automaton and Transition Graph.

- A. RE
- B. GTG
- C. NFA**

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D. None of the given options

**Question No:118**

**(Marks:1)**

**Vu-Topper RM**

Suppose a language  $L_1$  has 2 states and  $L_2$  has 2 states. If we have a machine  $M$  that accepts  $L_1 \cap L_2$ . Then, the total number of states in  $M$  is equal to \_\_\_\_\_.

- A. 2
- B. 4**
- C. 6
- D. 8

**Question No:119**

**(Marks:1)**

**Vu-Topper RM**

FA corresponding to an NFA can be built by introducing a state corresponding to the combination of states, for a letter having

- A. No transition at certain state**
- B. One transition at certain state
- C. Two transitions at certain state
- D. More than two transitions at certain state

**Question No:120**

**(Marks:1)**

**Vu-Topper RM**

Automata is the plural of \_\_\_\_\_.

- A. Automate
- B. Automaton**
- C. Automation
- D. Automatic

**Question No:121**

**(Marks:1)**

**Vu-Topper RM**

In NFA having no transition at certain. FA can be built by introducing:

- A. Empty state**
- B. Combination of states
- C. Initial state
- D. Final state

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**Question No:122**

**(Marks:1)**

**Vu-Topper RM**

If  $S = \{ x \}$ , then  $S^*$  will be \_\_\_\_\_.

- A.  $\{ ^,x,xxx,xxxx,xxxxx,\dots \}$
- B.  $\{ ^,x,xx,xxx,xxxx,\dots \}$**
- C.  $\{ ^,x,xxx,xxxxx,xxxxxxxx,\dots \}$
- D.  $\{ ^,xx,xxxx,xxxxxx,xxxxxxxx,\dots \}$

**Question No:123**

**(Marks:1)**

**Vu-Topper RM**

In TG, the string is supposed to be \_\_\_\_\_ if there is no path for a string from initial to final state.

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

**Question No:124**

**(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:125**

**(Marks:1)**

**Vu-Topper RM**

When ODD language is expressed by an FA, then it will have minimum \_\_\_\_\_ states.

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

**Question No:126**

**(Marks:1)**

**Vu-Topper RM**

$[(a + b)(a + b)]^*$ , given RE cannot generate the string \_\_\_\_\_.

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- A. abbaabab
- B. abbbaa
- C. bbbbbb**
- D. abbbaaaa

**Question No:127**

**(Marks:1)**

**Vu-Topper RM**

The recursive method for defining a language has \_\_\_\_\_ steps.

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

**Question No:128**

**(Marks:1)**

**Vu-Topper RM**

Consider the following RE:

$a(a + b)b^*$

All of the following words are accepted except \_\_\_\_\_.

- A. aab
- B. abb
- C. aa
- D. aba**

**Question No:129**

**(Marks:1)**

**Vu-Topper RM**

For every three regular expressions R, S, T, the languages denoted by  $R(S \cup T)$  and  $(RS) \cup (RT)$  are the \_\_\_\_\_.

- A. Same**
- B. Different
- C.  $R(S \cup T)$  is greater
- D. None of the given options

**Question No:130**

**(Marks:1)**

**Vu-Topper RM**

Alphabet  $S = \{a, bc, cc\}$  has \_\_\_\_\_ number of letters.

- A. One
- B. Two

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**C. Three**

D. Four

**Question No:131**

**(Marks:1)**

**Vu-Topper RM**

Two FAs are said to be equivalent, if they \_\_\_\_\_.

A. Accept null string

**B. Accept same language**

C. Accept different language

D. None of the given options

**Question No:132**

**(Marks:1)**

**Vu-Topper RM**

----- can also help in proving Kleene Theorem III.

**A. NFA**

B. PDA

C. Moore machine

D. Melay machine

**Question No:133**

**(Marks:1)**

**Vu-Topper RM**

Kleene's Theorem Part II expresses the relationship between \_\_\_\_\_.

A. FA and TG

**B. TG and RE**

C. RE and FA

D. FA and RE

**Question No:134**

**(Marks:1)**

**Vu-Topper RM**

If two RE's generate same language then these RE's are called

\_\_\_\_\_.

A. Same RE

B. Equal RE

C. Similar RE

**D. Equivalent RE**

**Question No:135**

**(Marks:1)**

**Vu-Topper RM**

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Every FA should be\_\_.

- A. Deterministic**
- B. Non-deterministic
- C. Deterministic and non-deterministic
- D. Not depends on language

**Question No:136**

**(Marks:1)**

**Vu-Topper RM**

What statement is true?

- A. A letter is always a combination of symbols**
- B. A letter may consist of one symbol
- C. There is no difference between symbol and letter
- D. Letters and symbols are the same thing

**Question No:137**

**(Marks:1)**

**Vu-Topper RM**

If  $\Sigma = \{ab, bb\}$ , then  $\Sigma^*$  will not contain

- A. abbbab
- B. bbba**
- C. bbbbab
- D. ababbb

**Question No:138**

**(Marks:1)**

**Vu-Topper RM**

Choose the correct word produced by RE  $(a + b)^*ab$ .

- A. abb
- B. abab**
- C. bbbb
- D. aaaa

**Question No:139**

**(Marks:1)**

**Vu-Topper RM**

According to 1st part of the Kleene's theorem, If a language can be accepted by an FA then it can be accepted by a\_\_as well

- A. FA
- B. CFG
- C. GTG

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## D. TG

Question No:140

(Marks:1)

Vu-Topper RM

“One language can be expressed by \_\_\_GTG”.

- A. Only one
- B. Only two
- C. **More than one**

Question No:141

(Marks:1)

Vu-Topper RM

If a TG has more than one start states, then we can make a single startstate by introducing a new state and connecting it with all the previously existing start states by using.

- A. Any infinite string
- B. Single letter string
- C. **Null string**
- D. Any finite string

Question No:142

(Marks:1)

Vu-Topper RM

If in a NFA,  $\wedge$  is allowed to be a label of an edge then that NFA is called \_\_\_\_\_.

- A. TG
- B. RE
- C. **NFA with null string**
- D. RE

Question No:143

(Marks:1)

Vu-Topper RM

If we want to make a Moore machine equivalent to mealy machine then

- A. **We should ignore the extra character printed by the Moore machine.**
- B. We should ignore the extra character printed by the Mealy machine.
- C. We will make the initial state as a no carry state.
- D. We should not ignore the extra character printed by the Moore machine.

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**Question No:144**

**(Marks:1)**

**Vu-Topper RM**

Two machines are said to be equivalent if they print the output string when same input string is run no them.

- A. Same**
- B. Different
- C. Inverse
- D. Null

**Question No:145**

**(Marks:1)**

**Vu-Topper RM**

The length of output in case of \_\_\_ is one more than the length of corresponding input string

- A. Moore machine
- B. Mealy machine**
- C. Incremental machine
- D. Adding machine

**Question No:146**

**(Marks:1)**

**Vu-Topper RM**

A is not a valid transition in

- A. TG
- B. GTG
- C. NFA**
- D. RE

**Question No:147**

**(Marks:1)**

**Vu-Topper RM**

Dead states are also called

- A. John Davey Lockers
- B. Davey John Lockers**
- C. Mutex Lockers
- D. Semaphores

**Question No:148**

**(Marks:1)**

**Vu-Topper RM**

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Language of all strings whose length is odd and number of y's even defined over alphabet set  $\Sigma = \{x, y\}$  .\_\_will be accepted by the given language.

- A. xxyxyxyyyx
- B. xxyxyxyyyxy**
- C. xxyxyxyyyxx
- D. xxyxyxyyy

**Question No:149**

**(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

**Question No:150**

**(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. Regular**
- B. Irregular
- C. Irregular but finite
- D. Irregular but infinite

**Question No:151**

**(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. Q, R**
- C. R, Q
- D. R, R

**Question No:152**

**(Marks:1)**

**Vu-Topper RM**

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

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

**Question No:153**

**(Marks:1)**

**Vu-Topper RM**

Prime is a \_ language.

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

**Question No:154**

**(Marks:1)**

**Vu-Topper RM**

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

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

**Question No:155**

**(Marks:1)**

**Vu-Topper RM**

The language "PRIME" is an example of \_\_\_\_\_ language.

- A. Regular but finite
- B. Regular
- C. Non regular but finite
- D. Non regular**

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**Question No:156**

**(Marks:1)**

**Vu-Topper RM**

If L1 and L2 are regular languages then which statement is NOT true?

- A. L1 + L2 is always regular
- B. L1 L2 is always regular

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**C. L1/L2 is always regular**

D. L1\* is always regular

**Question No:157**

**(Marks:1)**

**Vu-Topper RM**

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

**A. Finite**

B. Infinite

C. Two

D. three

**Question No:158**

**(Marks:1)**

**Vu-Topper RM**

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

**A. Terminals**

B. Non-terminals

C. Productions

D. Intermediates

**Question No:159**

**(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**

**Question No:160**

**(Marks:1)**

**Vu-Topper RM**

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

A. Even-even

B. Containing double a

C. Start and end with same letter

**D. Palindrome**

**Question No:161**

**(Marks:1)**

**Vu-Topper RM**

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

**A. One**

B. Two

C. Three

D. Four

**Question No:162**

**(Marks:1)**

**Vu-Topper RM**

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

A. Two

**B. Three**

C. Four

D. Five

**Question No:163**

**(Marks:1)**

**Vu-Topper RM**

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

A. NAND gate

**B. Clock pulse**

C. OR gate

D. NOT gate

**Question No:164**

**(Marks:1)**

**Vu-Topper RM**

In a CFG, the non-terminals are denoted by

A. Small letters

B. Numbers

**C. Capital letters**

D. Small letters and numbers

**Question No:165**

**(Marks:1)**

**Vu-Topper RM**

$a^* + b^* = (a + b)^*$  this expression is

A. True

**B. False**

**Question No:166**

**(Marks:1)**

**Vu-Topper RM**

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Length of EVEN-EVEN language is always\_\_\_\_\_.

- A. Even**
- B. Odd
- C. Sometimes even & sometimes odd
- D. Such language doesn't exist

**Question No:167**

**(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 labeled by

- A. a
- B. b
- C. null

**D. none of the given options**

**Question No:168**

**(Marks:1)**

**Vu-Topper RM**

Given S, Kleene star closure is denoted by

- A. S\***
- B. S+
- C. S-
- D. None of these

**Question No:169**

**(Marks:1)**

**Vu-Topper RM**

Which of the following steps replaces multiple incoming transition edges with a single one in proving Kleene's theorem part II?

- A. 1
- B. 2
- C. 3

**D. 4**

**Question No:170**

**(Marks:1)**

**Vu-Topper RM**

If  $r_1 = (aa + bb)$  and  $r_2 = (a + b)$  then the language  $(aa + bb)(a + b)$  will be generated by \_\_\_\_\_.

**A. (r1)(r2)**

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- B.  $(r1 + r2)$
- C.  $(r2)(r1)$
- D.  $(r1)^*$

**Question No:171**

**(Marks:1)**

**Vu-Topper RM**

The language having even number of a's and even number of b's defined over  $S = \{a, b\}$  is called \_\_\_\_\_.

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

**Question No:172**

**(Marks:1)**

**Vu-Topper RM**

If  $L1'$  and  $L2'$  are regular languages. Then  $L1, L2$  will be

- A. Regular**
- B. Non regular
- C. May be regular
- D. None of the mentioned

**Question No:173**

**(Marks:1)**

**Vu-Topper RM**

f FA1 corresponding to  $(a+b)^*$  then FA1 must accept string/strings

- A. No
- B. Odd length
- C. Even length
- D. Every**

**Question No:174**

**(Marks:1)**

**Vu-Topper RM**

In FA, initial state can be represented by:

- A. Drawing an arrow head before that state**
- B. Drawing a circle in that state
- C. leave the state empty
- D. Drawing '+' sign in that state

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**Question No:175**

**(Marks:1)**

**Vu-Topper RM**

An FA is a collection of:

**A. Finite states, finite transition and finite input letters**

B. Infinite states, infinite transition and infinite input letters

C. Only finite states and finite transitions

D. Only infinite states and infinite transitions

**Question No:176**

**(Marks:1)**

**Vu-Topper RM**

NFA with null string has ----- initial state(s).

**A. One**

B. Two

C. Four

D. Three

**Question No:177**

**(Marks:1)**

**Vu-Topper RM**

The difference between number of states with regular expression (a +b) and (a + b)\* is:

**A. 0**

B. 1

C. 2

D. 3

**Question No:178**

**(Marks:1)**

**Vu-Topper RM**

A transition graph is converted into a(n)\_\_\_\_\_in order to obtain regular expression.

A. FA

B. GTG

C. NFA

**D. NFA**

**Question No:179**

**(Marks:1)**

**Vu-Topper RM**

Consider the languages  $L_1 =$  and  $L_2 = \{a\}$ . Which one of the following

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represents  $L1 L2^* \cup L1^*$

A.  $\wedge$

**B.  $a^*$**

C. All of the mentioned

D. None of the mentioned

**Question No:180**

**(Marks:1)**

**Vu-Topper RM**

If  $S = \{a, b\}$  then which of the following RE will generate all possible strings?

A.  $a^* + b^*$

B.  $(ab)^*$

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

D.  $(ab + ba)^*$

**Question No:181**

**(Marks:1)**

**Vu-Topper RM**

In drawing FA3 (which is equal to  $FA1 + FA2$ ), a state will be declared final if

A. It corresponds to final states of both FA1 and FA2

B. It corresponds to final states of FA1

C. It corresponds to final states of FA2

**D. It corresponds to any of the final states in FA1 or FA2**

**Question No:182**

**(Marks:1)**

**Vu-Topper RM**

Let  $S = \{a, bb, bab, baabb\}$  be a set of strings, which one of the following will not be included in  $S^*$ ?

A. baba

B. baabbabb

**C. bbbaabb**

D. bbbaabaabb

**Question No:183**

**(Marks:1)**

**Vu-Topper RM**

The length of string "AbBAbcd" defined over  $\Sigma = \{Ab, B, c, d\}$  is

\_\_\_\_\_.

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

**Question No:184** (Marks:1) **Vu-Topper RM**

In case of finite automaton there \_\_\_\_\_ be a transition on each \_\_\_\_\_ for every letter of the alphabet set.

- A. Must, state**
- B. May be, state
- C. Often, edge
- D. Must, edge

**Question No:185** (Marks:1) **Vu-Topper RM**

Which one of the following word is not accepted by the given regular expression?  $(a+b)^*(aaa+bbb)(a+b)^*$

- A. Ababaaaab
- B. Bababbbba
- C. Baabaabba**
- D. Abbaaabba

**Question No:186** (Marks:1) **Vu-Topper RM**

1 Let FA1 accepts many strings and FA2 accepts none then  $FA1+FA2$  will be equal to:

- A. FA1
- B. FA2
- C. FA2-FA1**
- D. (FA2)

**Question No:187** (Marks:1) **Vu-Topper RM**

Edges are expressed with a regular expression in:

- A. GTG**
- B. FA

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- C. NFA
- D. TG

**Question No:188** (Marks:1) **Vu-Topper RM**

NFA corresponding to union of FAs is built by introducing a new start state and connect it to the states originally connected to the old start state with the ----- transitions as the old start state:

- A. Same**
- B. Union of
- C. Different
- D. Concatenated

**Question No:189** (Marks:1) **Vu-Topper RM**

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

**Final**  
Start

**Question No:190** (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:

**1100**  
0011

**Question No:191** (Marks:1) **Vu-Topper RM**

In concatenation, we include the initial state of FA2 automatically after the final state of FA1 because of:

- A. We need just two initial states
- B. We need just one initial state**
- C. Some part of the string may be accepted by FA2
- D. The strings of FA2 are accepted first before the strings of FA1

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**Question No:192**

**(Marks:1)**

**Vu-Topper RM**

$a(a+b)^*b + b(a+b)^*a$  is the regular expression of language defined over  $\Sigma = \{a,b\}$  that is \_\_\_\_\_.

**starting with a and ending in a**

**Question No:193**

**(Marks:1)**

**Vu-Topper RM**

GTG for the expression  $(a+b)^*bb$  may have minimum number of states:

**Aaabcbbcbacc**

**Question No:194**

**(Marks:1)**

**Vu-Topper RM**

Which of the following state is introduced while developing NFA for the closure of an FA?

A. Final state

B. Simply an initial state

C. An initial state with loop for all letters

**D. An initial state which should be final as well**

**Question No:195**

**(Marks:1)**

**Vu-Topper RM**

In NFA, if null word ( $\lambda$ ) is allowed to be a label of an edge, then that NFA is called \_\_\_\_\_.

A. NFA with one string

B. NFA with two strings

**C. NFA with null string**

D. NFA without null string

**Question No:196**

**(Marks:1)**

**Vu-Topper RM**

Which one of the following is a correct word produced by the RE

$(a^*b^*)ab$ ?

**abab**

**Question No:197**

**(Marks:1)**

**Vu-Topper RM**

While developing NFA for the union of FA1 and FA2, if there is a loop

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of 'a' at the initial state of FA1 then the new initial state will have a transition for 'a' that goes straight to:

- A. the final state of FA1
- B. The initial state of FA1**
- C. the initial state of FA2
- D. the initial state of FA1\*FA1

**Question No:198**

**(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 distinguishable with respect to L with z being 11?

**111, 101**

**Question No:199**

**(Marks:1)**

**Vu-Topper RM**

Which one of the following word is not accepted by the given regular expression?

**abbbbaa**

**Question No:200**

**(Marks:1)**

**Vu-Topper RM**

Which of the following is not a step-in elimination of states procedure?

**Unify single transitions to multi transitions that contains union of input**

**Question No:201**

**(Marks:1)**

**Vu-Topper RM**

In Moore machine the output depends on

**The state**

**Question No:202**

**(Marks:1)**

**Vu-Topper RM**

While developing NFA for the union of FA1 and FA2, there will be

**The initial state of FA1**

**Question No:203**

**(Marks:1)**

**Vu-Topper RM**

Let FA3 be an FA corresponding to FA1FA2, then the final state of FA3

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must correspond to the final state of

- A. FA2 only**
- B. FA1 only
- C. FA1 or FA2
- D. FA1 and FA2

**Question No:204**

**(Marks:1)**

**Vu-Topper RM**

Let FA3 be an FA corresponding to FA1FA2, then the initial state of FA3 must correspond to the initial state of

- A. FA1 only
- B. FA2 only
- C. FA1 or FA2**
- D. FA1 and FA2

**Question No:205**

**(Marks:1)**

**Vu-Topper RM**

Mealy machine is equivalent to Moore machine, if we:

**Applications of complementing and incrementing machines**

**Question No:206**

**(Marks:1)**

**Vu-Topper RM**

In the context of make NFA for the concatenation of FA1 and FA2 (FA2 accepting null string), which of the following option is correct?

- A. Final states in both FAs**
- B. Initial states in both FAs
- C. FA2 having final state only
- D. FA2 having initial state only

**Question No:207**

**(Marks:1)**

**Vu-Topper RM**

In the context of make NFA for the concatenation of FA1 and FA2 (none accepting null string), which of the following option is correct?

- A. No final state in FA2 only
- B. No initial state in FA1 only**
- C. No final and initial states in FA1 and FA2 respectively

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D. No initial and final states in FA1 and FA2 respectively

**Question No:208**

**(Marks:1)**

**Vu-Topper RM**

Let FA1 accepts many strings and FA2 accepts no string, then FA1+FA2 will be equal to:

- A. FA1
- B. FA2
- C. (FA2)\*
- D. FA2-FA1**

**Question No:209**

**(Marks:1)**

**Vu-Topper RM**

The minimum length of the strings(except null string) of a language that starts and ends in the same letters will be:

- A. 1
- B. 2**
- C. 3
- D. 4

**Question No:210**

**(Marks:1)**

**Vu-Topper RM**

While developing NFA for the union of FA1 and FA2, there will be \_\_\_\_\_ transition/transitions for both 'a' and 'b' on the new initial state.

- A. Single
- B. Multiple**
- C. Only one
- D. Only three

**Question No:211**

**(Marks:1)**

**Vu-Topper RM**

Which of the following form correctly expressed the regular expression RR\*?

- A. R+**
- B. R-
- C. R\*
- D. R+R-

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**Question No:212**

**(Marks:1)**

**Vu-Topper RM**

Which of the following is not a step in elimination of states procedure?

- A. Unifying all the final states into one using e-transitions
- B. Get the resulting regular expression by direct calculation
- C. Remove states until there is only starting and accepting states
- D. Unify single transitions to multi transitions that contains union of input**

**Question No:213**

**(Marks:1)**

**Vu-Topper RM**

In the context of make NFA for the concatenation of FA1 and FA2 (Both FAs accepting null string), which of the following option is correct?

- A. Initial states in both FAs
- B. Final states in both FAs**
- C. FA2 having initial state only
- D. FA2 having final state only

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