CS402 Theroy Of Automata
Update MCQS For MidTerm
Solve By Vu Topper RM

80 To 100% Marks

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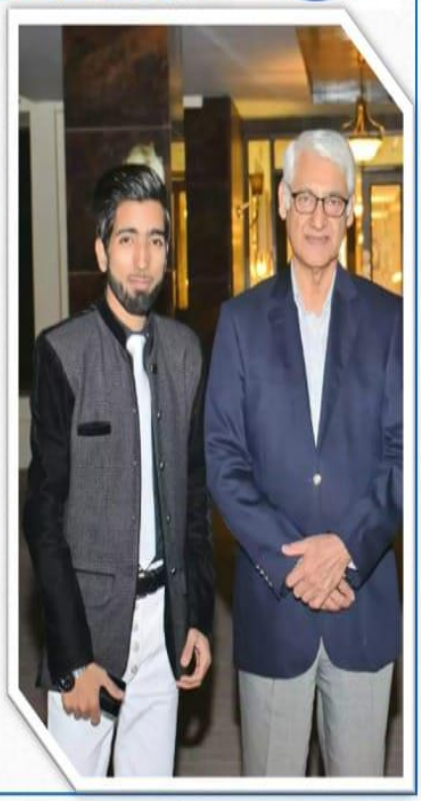

بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

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

Σ={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 **Page 7**
C. Sometimes finite & sometimes infinite
D. None of the these

Question No:3 **(Marks:1)** **Vu-Topper RM**

Let S = {aa, bb}, then S* will have the _____ string.

A. Λ **Page 7**
B. abba
C. aabbbaa
D. bbaab

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 **Page 25**

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. + Page 27
C. *
D. ( )

Question No:8 **(Marks:1)** **Vu-Topper RM**

Above given FA accepts___strings defined over Σ={a , b}

A. All Page 15
B. Some
C. All but not null
D. None of these

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

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**

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 L1 and L2′ are regular languages, L1 ∩ (L2′ U L1′)’ 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

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. may be
C. 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 U T) and (RS) U (RT) are the _____ .

A. **Same**
B. Different
C. None of these

Question No:21 **(Marks:1)** **Vu-Topper RM**

In _____ there must be transition for all the lettersof 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

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 U 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
C. 3
D. 4

Question No:28 **(Marks:1)** **Vu-Topper RM**

Consider we have languages L7 and L6. Which of the following represents their concatenation?

A. L7+L6
B. L7/L6
C. L6L7
D. L7L6

Question No:29 **(Marks:1)** **Vu-Topper RM**

Let FA1 has x number of states and FA2 has y number of states. Now FA1+FA2 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
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 ∑ = {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

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 Σ * such that xz ∈ L but yz ∉ L where L ⊆ Σ* 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 to recognize the language of all strings of length 3 or more defined over ∑= {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 Page 19
B. GTG
C. PDA
D. FA, TG

Question No:42 **(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. 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 to recognize the language of all strings of length 2 or more defined over ∑= {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:
A. Finite automata with output
B. Finite automata with input
C. None

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')' U 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
D. None of the given options

Question No:53 **(Marks:1)** **Vu-Topper RM**

If A and B are regular languages, !(A' U 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
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 _____ 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 inL*?

abaabaaabaa
aaaabaaaa
baaaaabaaaab
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

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 Σ= {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

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,…}
B. {a, aa, aaa, aaaa,…}
C. {a, aaa, aaaaa, aaaaaaa,…}
D. {aa, aaaa, aaaaaa, aaaaaaaa,…}

Question No:73 **(Marks:1)** **Vu-Topper RM**

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

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

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 r1 and r2 are regular expressions then (r1 * r2) 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 Σ = {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. 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
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:
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 r1 is a regular expression then (r1)* 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 || proof?

A. 1

B. 2

C. 3

D. 4

Question No:99 **(Marks:1)** **Vu-Topper RM**

Which of the following is free of non-determinism?

A. TG

B. FA

C. NFA

D. NFA-^

Question No:100 **(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: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

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 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
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 ∑= {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

D. None of the given options

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

Suppose a language L1 has 2 states and L2 has2 states. If we have a machine M that accepts L1 ∩ L2. 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 an empty state fora 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

Question No:122 **(Marks:1)** **Vu-Topper RM**

If S = { x }, then S* will be _____.

A. {^,x,xxx,xxxx,xxxxx,…}

B. {^,x,xx,xxx,xxxx,…}

C. {^,x,xxx,xxxxx,xxxxxxx,…}

D. {^,xx,xxxx,xxxxxx,xxxxxxxx,…}

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 __.

A. abbaabab
B. abbbaa
C. bbbbbb
D. abbbaaaaa

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 ∪ T) and (RS) ∪ (RT) are the____.

A. Same
B. Different
C. R(S ∪ 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.

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A. One
B. Two
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**

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 ∑= {ab, bb}, then ∑* 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
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, ^ is allowed to be a label of an edge then that NFA iscalled _____.
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 machinethen
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.

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**

Language of all strings whose length is odd and number of y's even defined over alphabet set ∑ = {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 thecomplement 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**

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 alanguage 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

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
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 distinctclasses.
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**

The language of all strings partition ∑* 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 ∑* 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 dueto

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**

Length of EVEN-EVEN language is

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 stateto 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 transitionedges with a single one in proving Kleene's theorem part ||?

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

Question No:170 **(Marks:1)** **Vu-Topper RM**

If r1 = (aa + bb) and r2 = (a + b) then the language (aa + bb)(a + b)will be

generated by

A. (r1)(r2)
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. Drawing '+' sign in that state

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 L1 = and L2 = {a}. Which one of thefollowing represents L1 L2* ∪ L1*

A. ^

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 bedeclared 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. bbaaabb

D. bbbaabaabb

Question No:183 **(Marks:1)** **Vu-Topper RM**

The length of string "AbBAbcd" defined over Σ ={Ab,B,c,d} is ___.

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 **Page 23**

B. FA

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:

Same

Different

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:

We need just one initial state

Question No:192 **(Marks:1)** **Vu-Topper RM**

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

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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?
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 _____.
NFA with 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 of 'a' at the initial state of FA1 then the new initial state will have a transition for 'a' that goes straight to:
The initial state of FA1

Question No:198 (Marks:1) Vu-Topper RM
Let L be the language of all strings, defined over Σ = {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 must correspond to the final state of
FA2 only

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
FA1 or 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?

Final states in both FAs

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?

No initial state in FA1 only