

Question No : 1 of 26

Marks: 1 (Budgeted Time 1 Min)

Which statement is true?

Answer (Please select your correct option)

☐ A letter is always a combination of symbols

☐ A letter may consist of one symbol

☐ There is no difference between symbol and letter

☐ Letters and symbols are the same thing

Made By: Waqar Siddhu

Question No : 2 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ abbbab

☐ bbba

☐ bbbbab

☐ ababbb

Made By: Waqar Siddhu

Question No : 3 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ abb

☐ abab

☐ bbbb

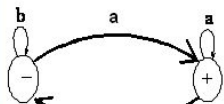
☐ aaaa

Made By: Waqar Siddhu

Question No : 4 of 26

Marks: 1 (Budgeted Time 1 Min)

Below given FA can be expressed by



Answer (Please select your correct option)

☐ $(a + b)^*a$

☐ $(a + b)^*b$

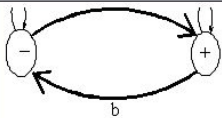
☐ $a(a + b)^*$

☐ $b(a + b)^*$

Made By: Waqar Siddhu

Question No : 4 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ $(a + b)^*a$

☐ $(a + b)^*b$

☐ $a(a + b)^*$

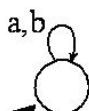
☐ $b(a + b)^*$

Made By: Waqar Siddhu

Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)

Below given FA accepts _____ language.



Answer (Please select your correct option)

☐ Finite

☐ Infinite

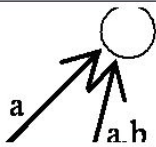
☐ No

☐ All

Made By: Waqar Siddhu

Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ Finite

☐ Infinite

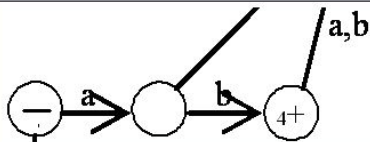
☐ No

☐ All

Made By: Waqar Siddhu

Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ Finite

☐ Infinite

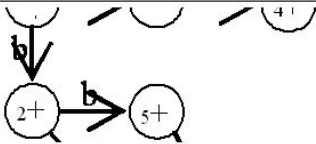
☐ No

☐ All

Made By: Waqar Siddhu

Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ Finite

☐ Infinite

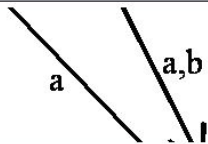
☐ No

☐ All

Made By: Waqar Siddhu

Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ Finite

☐ Infinite

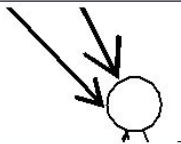
☐ No

☐ All

Made By: Waqar Siddhu

Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ Finite

☐ Infinite

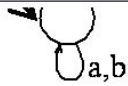
☐ No

☐ All

Made By: Waqar Siddhu

Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ Finite

☐ Infinite

☐ No

☐ All

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Question No : 6 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ FA

☐ CFG

☐ GTG

☐ TG

Made By: Waqar Siddhu

Question No : 7 of 26

Marks: 1 (Budgeted Time 1 Min)

"One language can be expressed by _____ GTG".

Answer (Please select your correct option)

☐ only one

☐ only two

☐ only three

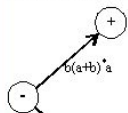
☐ more than one

Made By: Waqar Siddhu

Question No : 8 of 26

Marks: 1 (Budgeted Time 1 Min)

Below given GTG accepts the language in which strings



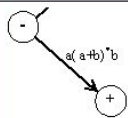
Answer (Please select your correct option)

- ☐ Begins and ends with different letters
- ☐ Begins and ends with same letters
- ☐ Have length greater than 1
- ☐ Begins with same letters

Made By: Waqar Siddhu

Question No : 8 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

- ☐ Begins and ends with different letters
- ☐ Begins and ends with same letters
- ☐ Have length greater than 1
- ☐ Begins with same letters

Made By: Waqar Siddhu

Question No : 9 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

- ☐ -
- ☐ +
- ☐ *
- ☐ ()

Made By: Waqar Siddhu

Question No : 10 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ Any Infinite string

☐ Single letter string

☐ Null String

☐ Any finite string

Made By: Waqar Siddhu

Question No : 11 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ TG

☐ RE

☐ NFA with null string

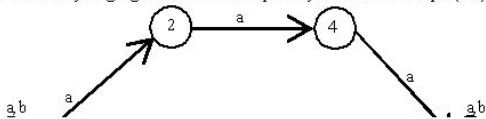
☐ RE

Made By: Waqar Siddhu

Question No : 12 of 26

Marks: 1 (Budgeted Time 1 Min)

Show that any language that can be accepted by a Transition Graph (TG) can also be accepted by another TG with an even number of states.



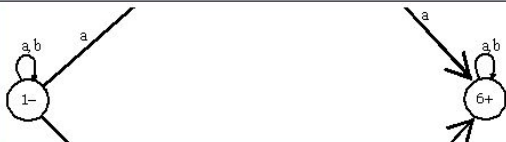
Answer (Please select your correct option)

- ☐ bababa
- ☐ ababab
- ☐ aaaab
- ☐ bbaabb

Made By: Waqar Siddhu

Question No : 12 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ bababa

☐ ababab

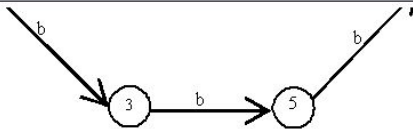
☐ aaaab

☐ bbaabb

Made By: Waqar Siddhu

Question No : 12 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ bababa

☐ ababab

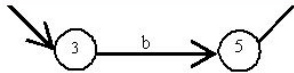
☐ aaaab

☐ bbaabb

Made By: Waqar Siddhu

Question No : 12 of 26

Marks: 1 (Budgeted Time 1 Min)



Above given TG accepts the _____ string.

Answer (Please select your correct option)

☐ bababa

☐ ababab

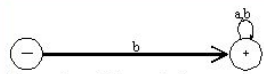
☐ aaaab

☐ bbaabb

Made By: Waqar Siddhu

Question No : 13 of 26

Marks: 1 (Budgeted Time 1 Min)



Above given TG accepts the _____ string.

Answer (Please select your correct option)

☐ abab

☐ aaaa

☐ bbbb

☐ aa

Made By: Waqar Siddhu

Question No : 14 of 26

Marks: 1 (Budgeted Time 1 Min)

If we want to make a Moore machine equivalent to Mealy machine then _____

Answer (Please select your correct option)

☐ We should ignore the extra character printed by the Moore machine.

☐ We should ignore the extra character printed by the Mealy machine.

☐ We will make the initial state as a no carry state.

☐ We should not ignore the extra character printed by the Moore machine.

Made By: Waqar Siddhu

Question No : 15 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ same

☐ different

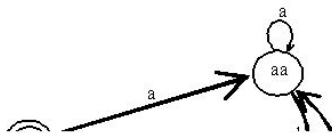
☐ inverse

☐ null

Made By: Waqar Siddhu

Question No : 16 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐

$a + b + (a+b)^*(ab+ba+bb)$

☐

$\Lambda + a + b + (a+b)^*(ab+ba+bb)^*$

☐

$(a+b)^*(ab+ba+bb)^*$

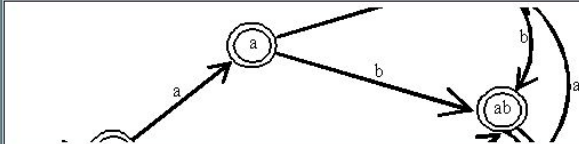
☐

$\Lambda + a + b + (a+b)^*(ab+ba+bb)$

Made By: Waqar Siddhu

Question No : 16 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐

$a + b + (a+b)^*(ab+ba+bb)$

☐

$\Lambda + a + b + (a+b)^*(ab+ba+bb)^*$

☐

$(a+b)^*(ab+ba+bb)^*$

☐

$\Lambda + a + b + (a+b)^*(ab+ba+bb)$

Made By: Waqar Siddhu

Question No : 16 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ $a + b + (a+b)^*(ab+ba+bb)$

☐ $\Lambda + a + b + (a+b)^*(ab+ba+bb)^*$

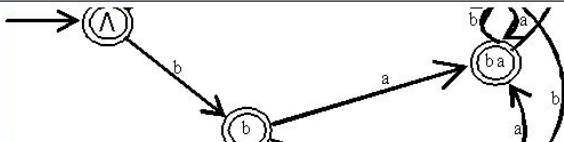
☐ $(a+b)^*(ab+ba+bb)^*$

☐ $\Lambda + a + b + (a+b)^*(ab+ba+bb)$

Made By: Waqar Siddhu

Question No : 16 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐ $a + b + (a+b)^*(ab+ba+bb)$

☐ $\Lambda + a + b + (a+b)^*(ab+ba+bb)^*$

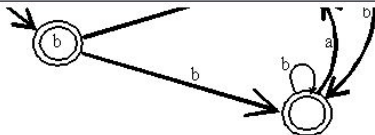
☐ $(a+b)^*(ab+ba+bb)^*$

☐ $\Lambda + a + b + (a+b)^*(ab+ba+bb)$

Made By: Waqar Siddhu

Question No : 16 of 26

Marks: 1 (Budgeted Time 1 Min)



Answer (Please select your correct option)

☐

$a + b + (a+b)^*(ab+ba+bb)$

☐

$\Lambda + a + b + (a+b)^*(ab+ba+bb)^*$

☐

$(a+b)^*(ab+ba+bb)^*$

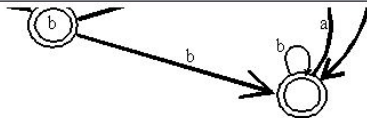
☐

$\Lambda + a + b + (a+b)^*(ab+ba+bb)$

Made By: Waqar Siddhu

Question No : 16 of 26

Marks: 1 (Budgeted Time 1 Min)



Above given FA has _____ RE.

Answer (Please select your correct option)

☐

$a + b + (a+b)^*(ab+ba+bb)$

☐

$\Lambda + a + b + (a+b)^*(ab+ba+bb)^*$

☐

$(a+b)^*(ab+ba+bb)^*$

☐

$\Lambda + a + b + (a+b)^*(ab+ba+bb)$

Made By: Waqar Siddhu

Question No : 17 of 26

Marks: 1 (Budgeted Time 1 Min)

The length of output string in case of _____ is one more than the length of corresponding input string.

Answer (Please select your correct option)

☐ Moore machine

☐ Mealy machine

☐ Incremental machine

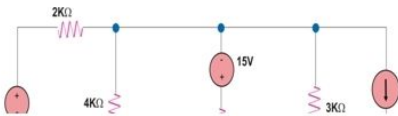
☐ Adding Machine

Made By: Waqar Siddhu

Question No : 22 of 26

Marks: 2 (Budgeted Time 4 Min)

How many voltage sources and current sources are there in the given circuit?



Answer (Please [click here](#) to Add Answer)



Made By: Waqar Siddhu

Question No : 18 of 26

Marks: 1 (Budgeted Time 1 Min)

Λ is not a valid transition in _____

Answer (Please select your correct option)

☐ TG

☐ GTG

☐ NFA

☐ RE

Made By: Waqar Siddhu

Question No : 19 of 26

Marks: 1 (Budgeted Time 1 Min)

Dead states are also called _____.

Answer (Please select your correct option)

☐ John Davey Lockers

☐ Davey John Lockers

☐ Mutex Lockers

☐ Semaphores

Made By: Waqar Siddhu

Question No : 20 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ xxxxyxyxx

☐ xxxxyxyxy

☐ xxxxyxyxx

☐ xxxxyxyy

Made By: Waqar Siddhu

Question No : 21 of 26

Marks: 2 (Budgeted Time 4 Min)

If $r_1 = (aa + bb)$ and $r_2 = (a + b)$ then

what language will be accepted by $r_1 r_2$

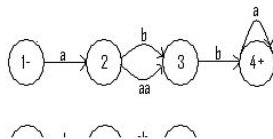
Answer ([Please click here to Add Answer](#))



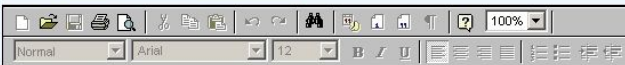
Made By: Waqar Siddhu

Question No : 22 of 26

Marks: 2 (Budgeted Time 4 Min)



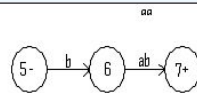
Answer ([Please click here to Add Answer](#))



Made By: Waqar Siddhu

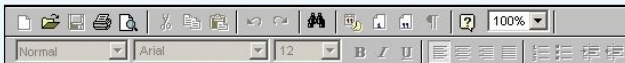
Question No : 22 of 26

Marks: 2 (Budgeted Time 4 Min)



Using Kleene's theorem, modify the above transition graph to have one initial and final state each.

Answer ([Please click here to Add Answer](#))



Made By: Waqar Siddhu

Marks: 3 (Budgeted Time 6 Min)

$$RE = (aab)^*(bb)^*$$

Made By: Waqar Siddhu

Question No : 24 of 26

Marks: 3 (Budgeted Time 6 Min)

Differentiate between Moore and Mealy machines by mentioning two differences and one similarity.

Answer ([Please click here to Add Answer](#))

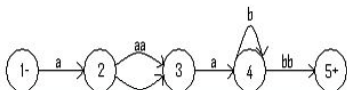
Normal Arial 12 B I U

Made By: Waqar Siddhu

Question No : 25 of 26

Marks: 5 (Budgeted Time 10 Min)

According to Kleene's theorem, convert (step by step) the given transition graph into regular expression.



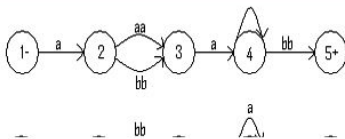
Answer ([Please click here to Add Answer](#))



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Question No : 25 of 26

Marks: 5 (Budgeted Time 10 Min)



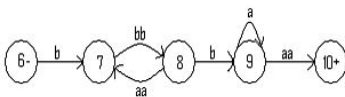
Answer ([Please click here to Add Answer](#))



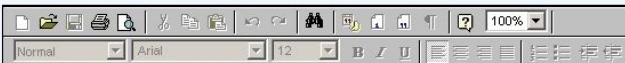
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Question No : 25 of 26

Marks: 5 (Budgeted Time 10 Min)



Answer ([Please click here to Add Answer](#))

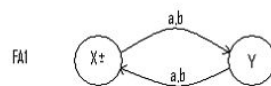


Made By: Waqar Siddhu

Question No : 26 of 26

Marks: 5 (Budgeted Time 10 Min)

Concatenate the following two FAs:



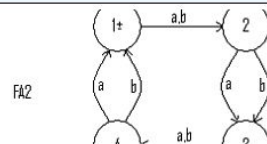
Answer ([Please click here to Add Answer](#))



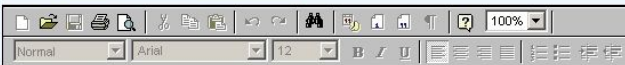
Made By: Waqar Siddhu

Question No : 26 of 26

Marks: 5 (Budgeted Time 10 Min)



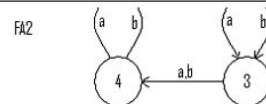
Answer ([Please click here to Add Answer](#))



Made By: Waqar Siddhu

Question No : 26 of 26

Marks: 5 (Budgeted Time 10 Min)



Answer ([Please click here to Add Answer](#))



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Q.No=answer	page
1=a	3
2=b	moazz
3=b	idea
4=a	14
5=a	17
6=d	25
7=d	25
8=a	24
9=b	27
10=c	26
11=c	42
12=c	21
13=c	idea moa:
14=a	61
15=a	60
16=d	18
17=b	58
18=c	40
19=b	17
20=b	