



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

Select the correct option

- ☐ Moore machine
- ☐ Finite automaton with output
- ☐ Mealy machine
- ☐ Non-deterministic finite automaton

It may be noted that in Mealy machine, the length of output string is equal to that of input string.

Click to Save Answer & Move to Next Question



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

Select the correct option

- ☐ is
- ☐ cannot be
- ☐ may be
- ☒ may not be

Click to Save Answer & Move to Next Question





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MC170400710: MUHAMMAD ADNAN

Time Left: 85 sec(s)

CS402:Midterm Grand Quiz

Quiz Start Time: 09:02 AM, 12 July 2020

Question # 3 of 30 (Start time: 09:05:42 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- ☐ zYzxwY
- ☐ zYwzxY
- ☐ zYzwyx
- ☐ zYzwxy

Click to Save Answer & Move to Next Question





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?

Select the correct option

- ☐ Moore machine
- ☒ Mealy machine
- ☐ Finite state machine
- ☐ Deterministic finite state machine

A pictorial representation with states and directed edges labeled by an input letter along with an output character.

Click to Save Answer & Move to Next Question



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MC170400710: MUHAMMAD ADNAN

Time Left: 89 sec(s)

CS402:Midterm Grand Quiz

Quiz Start Time: 09:02 AM, 12 July 2020

Question # 6 of 30 (Start time: 09:08:45 AM, 12 July 2020)

Total Marks: 1

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

If a TG has more than one start states, then introduce a new start state connecting the new state to the old start states by the transitions labeled by Λ and make the old start states the non-start states.

Select the correct option

- ☒ Introduce the new start state
- ☐ Eliminate the old start state
- ☐ Replace the old start state with final state
- ☐ Replace the old final state with new start state

Click to Save Answer & Move to Next Question



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

_____ .

Select the correct option

- ☒ Same
- ☐ Different
- ☐ $R(S \cup T)$ is Greater
- ☐ None of the given options

Click to Save Answer & Move to Next Question



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MC170400710: MUHAMMAD ADNAN

Time Left: 87 sec(s)

CS402:Midterm Grand Quiz

Quiz Start Time: 09:02 AM, 12 July 2020

Question # 7 of 30 (Start time: 09:10:10 AM, 12 July 2020)

Total Marks: 1

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?

Select the correct option

- ☒ 1
- ☐ 2
- ☐ 3
- ☐ 4

Click to Save Answer & Move to Next Question





Every FA should be_____.

Select the correct option

- ☒ deterministic
- ☐ non-deterministic
- ☐ deterministic & non-deterministic
- ☐ depends on language

Hence an FA is also called a Deterministic Finite Automaton (DFA).



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

Select the correct option

<input checked="" type="radio"/>	0
<input type="radio"/>	1
<input type="radio"/>	2
<input type="radio"/>	3

Click to Save Answer & Move to Next Question





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

Select the correct option

- ☐ $\{^{\wedge}, x, xxx, xxxx, xxxxx, \dots\}$
- ☒ $\{^{\wedge}, x, xx, xxx, xxxx, \dots\}$
- ☐ $\{^{\wedge}, x, xxx, xxxxx, xxxxxxxx, \dots\}$
- ☐ $\{^{\wedge}, xx, xxxx, xxxxxx, xxxxxxxx, \dots\}$

Click to Save Answer & Move to Next Question



The recursive method for defining a language has _____ steps.

Select the correct option

- ☐ one
- ☐ two
- ☒ three
- ☐ four

Recursive definition of Regular Expression(RE)

Step 1: Every letter of Σ including Λ is a regular expression.

Step 2: If r_1 and r_2 are regular expressions then
(r_1)

$r_1 r_2$

$r_1 + r_2$ and

r_1^*

are also regular expressions.

Step 3: Nothing else is a regular expression.

Click to Save Answer & Move to Next Question



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MC170400710: MUHAMMAD ADNAN

Time Left: 90 sec(s)

CS402:Midterm Grand Quiz

Quiz Start Time: 09:02 AM, 12 July 2020

Question # 12 of 30 (Start time: 09:16:06 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- ☐ 1
- ☐ 2
- ☐ 3
- ☒ infinite

Click to Save Answer & Move to Next Question





The recursive method for defining a language has _____ steps.

Select the correct option

- ☐ one
- ☐ two
- ☒ three
- ☐ four

Click to Save Answer & Move to Next Question



Given S, Kleene star closure is denoted by _____.

Select the correct option

- ☒ S^*
- ☐ S^{**}
- ☐ S^+
- ☐ S^-

Click to Save Answer & Move to Next Question



Kleene's Theorem Part III expresses the relationship between _____.

Select the correct option

- ☐ FA and TG
- ☐ TG and RE
- ☐ RE and FA
- ☐ FA and RE

Kleene's Theorem Part III

If a language can be expressed by a RE then it can be accepted by an FA as well.



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MC170400710: MUHAMMAD ADNAN

Time Left: 89 sec(s)

CS402:Midterm Grand Quiz

Quiz Start Time: 09:02 AM, 12 July 2020

Question # 15 of 30 (Start time: 09:19:32 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- ☐ initial and final states of FA1 and FA2 respectively
- ☐ initial states of both FAs
- ☐ initial state of FA1 only
- ☐ final and initial states of FA1 and FA2 respectively

NFA corresponding to Union of FAs

Method

Introduce a new start state and connect it with the states originally connected with the old start state with the same transitions as the old start state, then remove the ϵ -ve sign of old start state. This creates non-determinism and hence results in an NFA.



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

Select the correct option

- ☐ $a^* + b^*$
- ☐ $(ab)^*$
- ☒ $(a + b)^*$
- ☐ $(ab + ba)^*$

Click to Save Answer & Move to Next Question



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

Select the correct option

- ☐ abab
- ☐ babab
- ☒ aaaa
- ☐ ab

Click to Save Answer & Move to Next Question



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MC170400710: MUHAMMAD ADNAN

Time Left: 88 sec(s)

CS402:Midterm Grand Quiz

Quiz Start Time: 09:02 AM, 12 July 2020

Question # 18 of 30 (Start time: 09:23:22 AM, 12 July 2020)

Total Marks: 1

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.

Select the correct option

- ☐ Single
- ☐ Only one
- ☐ Only three
- ☐ Multiple

Click to Save Answer & Move to Next Question





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MC170400710: MUHAMMAD ADNAN

Time Left: 81 sec(s)

CS402:Midterm Grand Quiz

Quiz Start Time: 09:02 AM, 12 July 2020

Question # 28 of 30 (Start time: 09:33:53 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- ☐ 13
- ☐ 14
- ☒ 15
- ☐ 16

Now consider another language L_3 of strings of length three or more, defined over $\Sigma = \{a,b\}$, and the third letter from the right is a. As discussed by Martin, there is a straight forward method to build an FA recognizing L_3 i.e. a distinct state for every possible substring of length less than or equal to 3. It is obvious that for each length i , $i=0,1,2,3$, of substring, the number of states are 2^i and thus total number of states required to recognize the language L_3 are $2^0+2^1+2^2+2^3 = 2^{3+1}-1=15$ (using $2^0+2^1+2^2+\dots+2^n = 2^{n+1}-1$)

Click to Save Answer & Move to Next Question



Consider FA1 and FA2 are two finite automata representing two different languages. Now FA3 which is the sum of FA1 and FA2 will accept all strings accepted by:

Select the correct option

- ☒ FA1 and FA2
- ☐ FA1 or FA2
- ☐ FA1 but not FA2
- ☐ FA2 but not FA1

Click to Save Answer & Move to Next Question



Question # 2 of 30 (Start time: 09:46:36 AM, 12 July 2020)

Total Marks: 1

A transition graph is converted into a(n) _____ in order to obtain regular expression.

Select the correct option

☐

FA

☐

GTG

☒

NFA

It is to be noted that according to the Kleene's theorem, if a language can be accepted by an FA, then there exists a TG accepting that language. Since, an NFA is a TG as well, therefore there exists an NFA accepting the language accepted by the given FA.

☐

NFA-^

[Click to Save Answer & Move to Next Question](#)

Question # 3 of 30 (Start time: 09:47:43 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- ☐ Concatenation of a language with itself
- ☒ Kleene star closure of a language
- ☐ Multiplication of a language with itself
- ☐ Addition of a language with itself

[Click to Save Answer & Move to Next Question](#)

Question # 4 of 30 (Start time: 09:49:11 AM, 12 July 2020)

Total Marks: 1

There _____ be dead states in NFA.

Select the correct option

<input type="radio"/>	may not
<input type="radio"/>	must
<input type="radio"/>	should not
<input checked="" type="radio"/>	will

[Click to Save Answer & Move to Next Question](#)

Question # 6 of 30 (Start time: 09:51:56 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- ☐ Mealy machine
- ☒ Moore machine
It may be noted that the length of output string is 1 more than that of input string as the initial state prints out the extra character 1, before the input string is read.
- ☐ Finite automaton with output
- ☐ Non-deterministic finite automaton

[Click to Save Answer & Move to Next Question](#)

Question # 10 of 30 (Start time: 09:57:02 AM, 12 July 2020)

Total Marks: 1

Consider the languages $L1 = \text{and}$ and $L2 = \{a\}$. Which one of the following represents $L1 L2^* \cup L1^*$

Select the correct option

- | | |
|----------------------------------|-----------------------|
| <input checked="" type="radio"/> | \wedge |
| <input type="radio"/> | a^* sahir |
| <input type="radio"/> | All of the mentioned |
| <input type="radio"/> | None of the mentioned |

[Click to Save Answer & Move to Next Question](#)

Question # 11 of 30 (Start time: 09:57:58 AM, 12 July 2020)

Total Marks: 1

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

_____.

Select the correct option

<input type="radio"/>	three
<input type="radio"/>	four
<input checked="" type="radio"/>	five
<input type="radio"/>	six

[Click to Save Answer & Move to Next Question](#)

Question # 15 of 30 (Start time: 10:02:33 AM, 12 July 2020)

Total Mark:

What is false about the PALINDROME LANGUAGE?

Select the correct option

- ☐ Every word is reverse of itself.
- ☐ It is an infinite language.
- ☐ FA can be build for it.
- ☒ None of the given option

[Click to Save Answer & Move to Next Question](#)

Question # 16 of 30 (Start time: 10:03:20 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

<input type="radio"/>	1	
<input checked="" type="radio"/>	2	
<input type="radio"/>	3	
<input type="radio"/>	infinite	

Question

Question # 17 of 30 (Start time: 10:04:07 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- ☐ No initial and final states in FA1 and FA2 respectively
- ☐ No final and initial states in FA1 and FA2 respectively
- ☒ No initial state in FA1 only
- ☐ No final state in FA2 only

[Click to Save Answer & Move to Next Question](#)

Question # 19 of 30 (Start time: 10:06:46 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- | | |
|----------------------------------|-------------|
| <input checked="" type="radio"/> | FA1 only |
| <input type="radio"/> | FA2 only |
| <input type="radio"/> | FA1 or FA2 |
| <input type="radio"/> | FA1 and FA2 |

Question # 20 of 30 (Start time: 10:08:06 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- | | |
|----------------------------------|------------|
| <input type="radio"/> | is |
| <input type="radio"/> | cannot be |
| <input type="radio"/> | may be |
| <input checked="" type="radio"/> | may not be |

[Click to Save Answer & Move to Next Question](#)

Question # 22 of 30 (Start time: 10:10:23 AM, 12 July 2020)

Total Marks: 1

In regular expressions, the operator '*' stands for

Select the correct option

<input type="radio"/>	Concatenation
<input checked="" type="radio"/>	Iteration
<input type="radio"/>	Selection
<input type="radio"/>	Addition

Click to Save Answer & Move to Next Question

Statement if Σ is finite then Σ^* is finite is _____

Select the correct option

- ☒ True
- ☐ False
- ☐ Σ and Σ^* has no relationship
- ☐ None of the above

Click to Save Answer & Move to Next Question

Question # 25 of 30 (Start time: 10:12:59 AM, 12 July 2020)

Total Marks: 1

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.

Select the correct option

<input checked="" type="radio"/>	Union
<input type="radio"/>	Sum
<input type="radio"/>	Concatenation
<input type="radio"/>	Intersection

Closure of an FA, is same as concatenation of an FA with itself,

[Click to Save Answer & Move to Next Question](#)

Question # 27 of 30 (Start time: 10:15:18 AM, 12 July 2020)

Total Marks: 1

There can be more than _____ FA for a certain language but for _____ FA there is only one language associated with it.

Select the correct option

- ☒ one, one
- ☐ one, two
- ☐ two, three
- ☐ two, one

It may be noted that corresponding to a given language there may be more than one FA accepting that language, but for a given FA there is a unique language accepted by that FA

[Click to Save Answer & Move to Next Question](#)

Question # 29 of 30 (Start time: 10:17:46 AM, 12 July 2020)

Total Marks: 1

An FA is a collection of:

Select the correct option

- | | |
|----------------------------------|--|
| <input checked="" type="radio"/> | Finite states, finite transitions and finite input letters |
| <input type="radio"/> | Infinite states, infinite transitions and infinite input letters |
| <input type="radio"/> | Only finite states and finite transitions |
| <input type="radio"/> | Only infinite states and infinite transitions |

[Click to Save Answer & Move to Next Question](#)

Question # 30 of 30 (Start time: 10:18:36 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option

- | | |
|----------------------------------|--------|
| <input type="radio"/> | abbbab |
| <input type="radio"/> | bbba |
| <input checked="" type="radio"/> | bbbbab |
| <input type="radio"/> | ababbb |

sahir

Click to Save Answer & Move to Next Question

MC190401593: AMMARIA SAJID

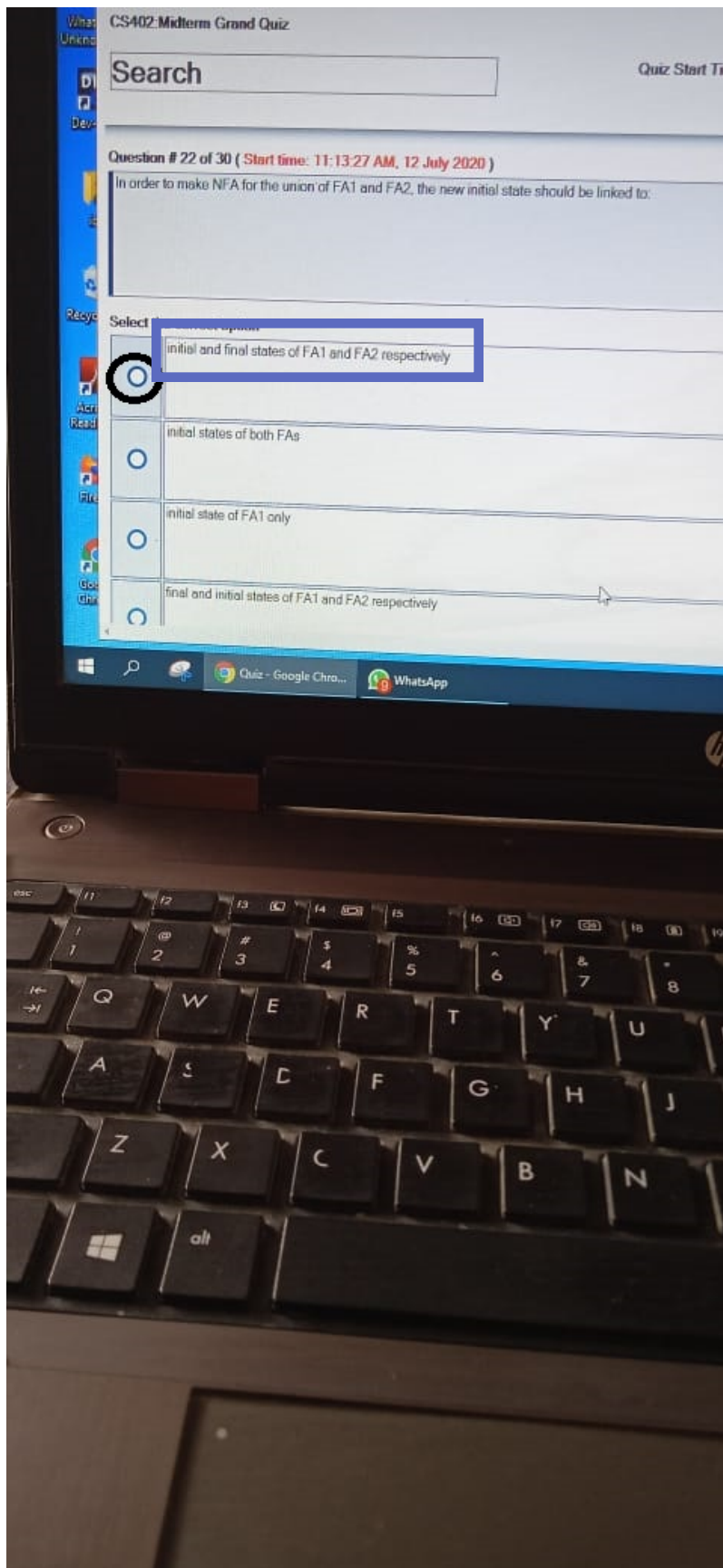
CS402:Midterm Grand Quiz

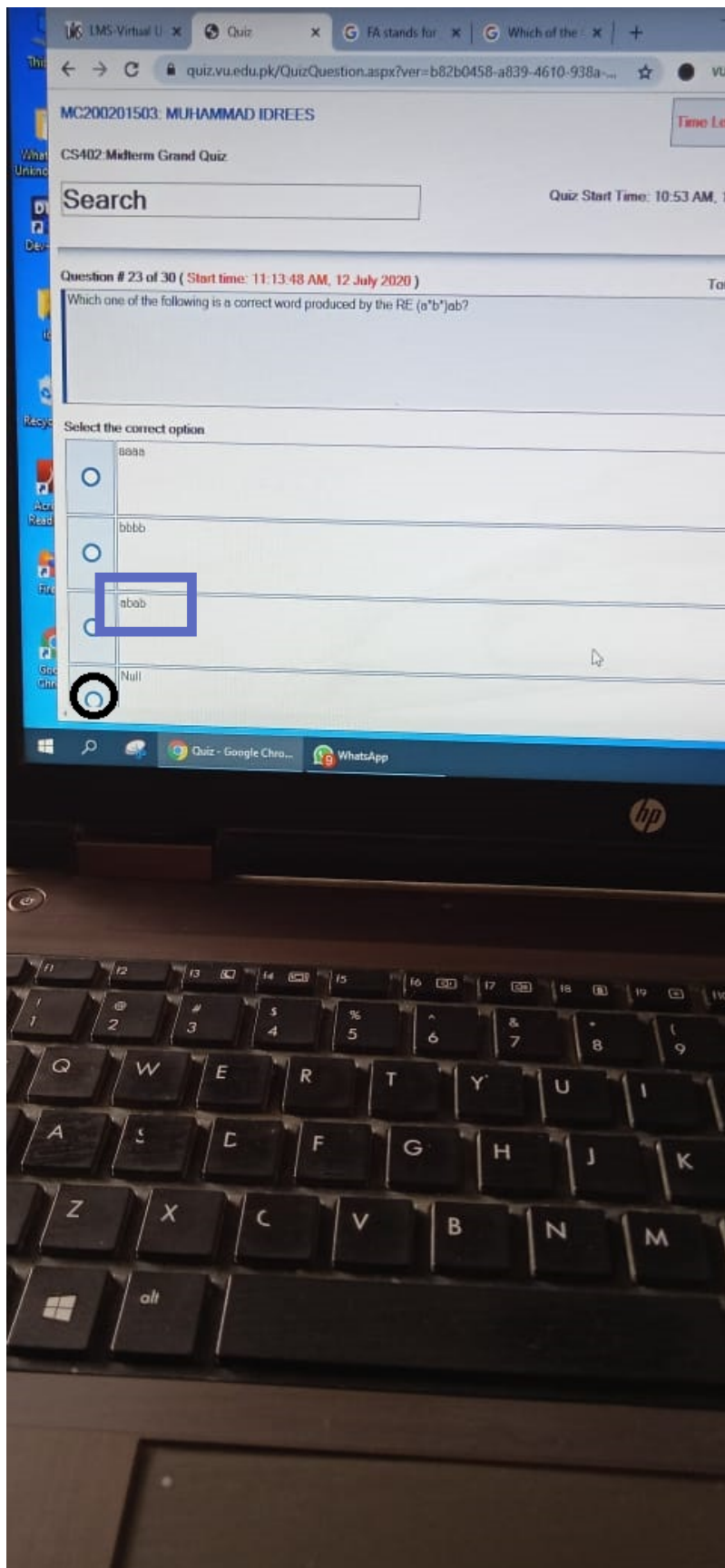
Question # 2 of 30 (Start time: 10:23:51 AM, 12 July 2020)

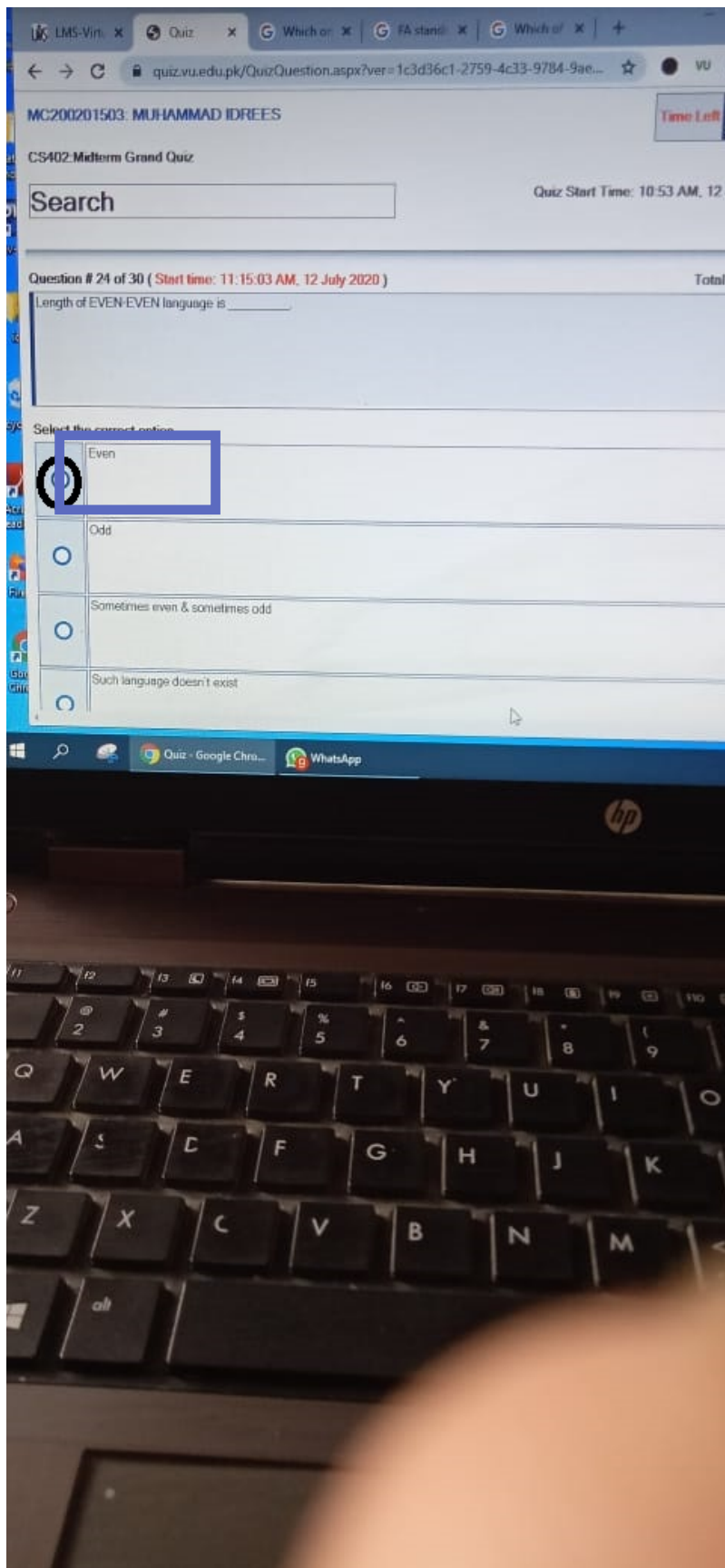
In _____ there must be transition for all the letters of a string.

Select the correct option

<input type="radio"/>	NFA
<input type="radio"/>	GTG
<input type="radio"/>	TG
<input checked="" type="radio"/>	FA







Search

Quiz Start Time: 10:53

Question # 25 of 30 (Start time: 11:15:36 AM, 12 July 2020)

Kleene's Theorem Part III expresses the relationship between _____

Select the correct option

☐ FA and TG

☐ TG and RE

☒ RE and FA

☐ FA and RE

Search

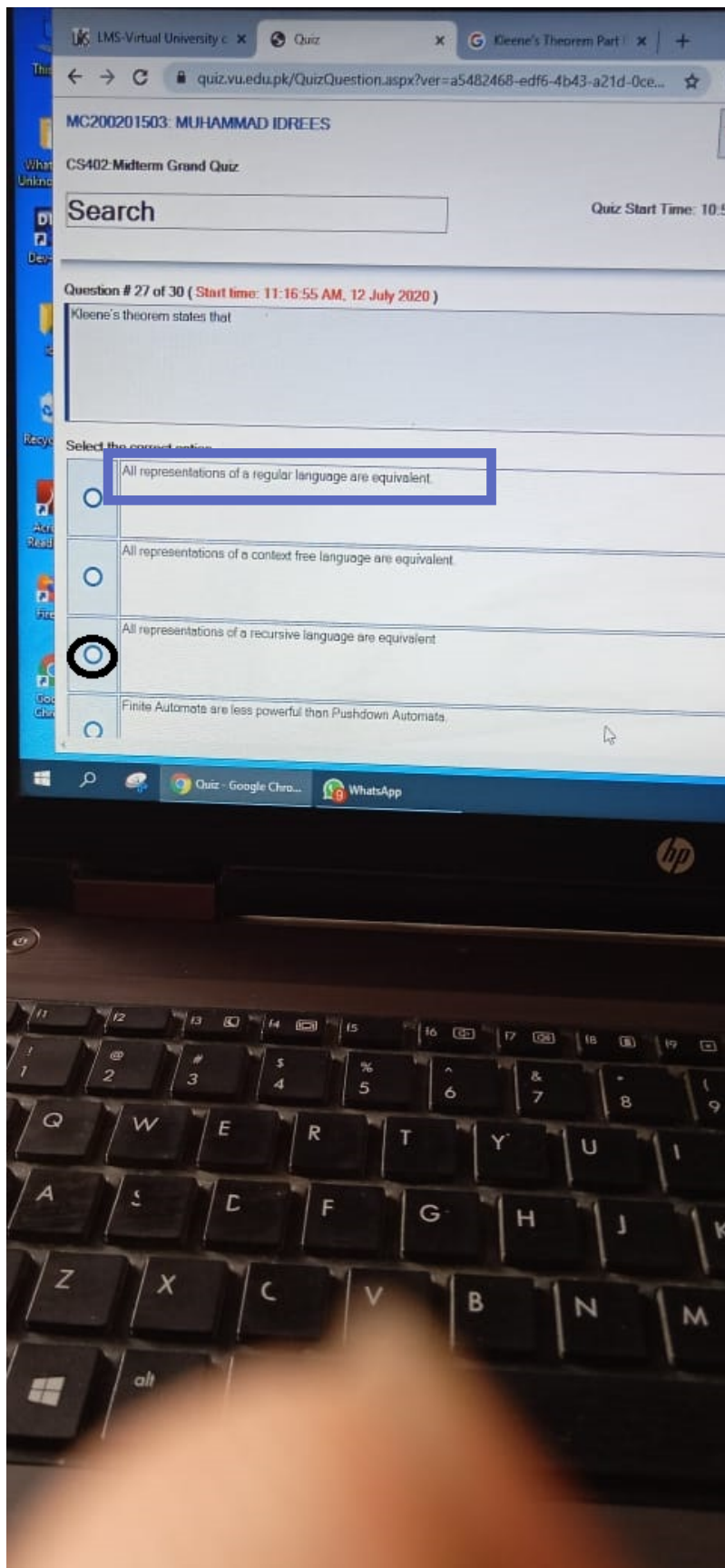
Quiz Start Time: 10:53 AM

Question # 26 of 30 (Start time: 11:16:22 AM, 12 July 2020)

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

Select the correct option

- ☐ Concatenation of a language with itself
- ☒ Kleene star closure of a language
- ☐ Multiplication of a language with itself
- ☐ Addition of a language with itself



Question # 28 of 30 (Start time: 11:18:05 AM, 12 July 2020)

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

Select the correct option



baba



baabbabb

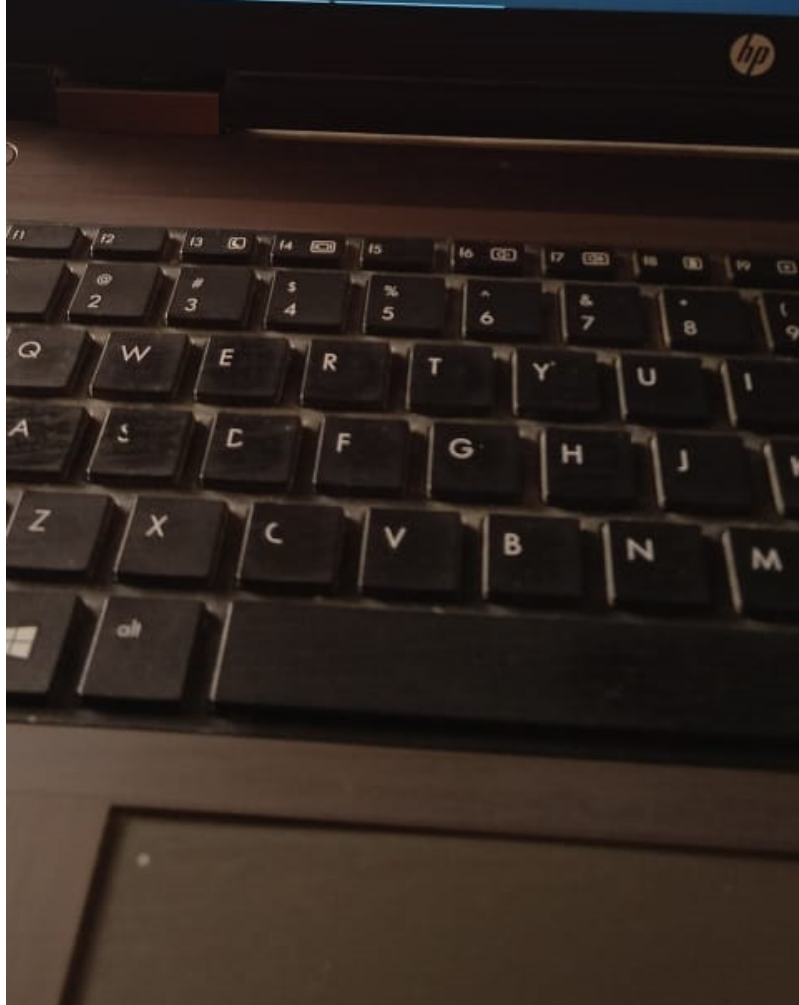


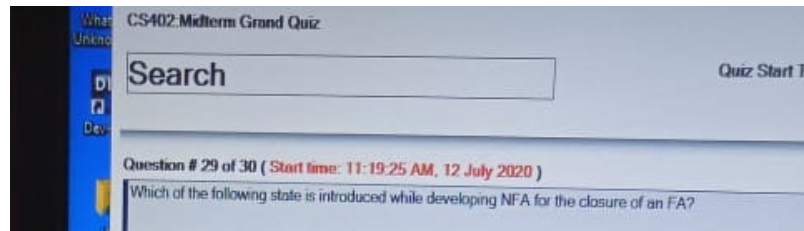
bbbaabb



bbbaabbabb

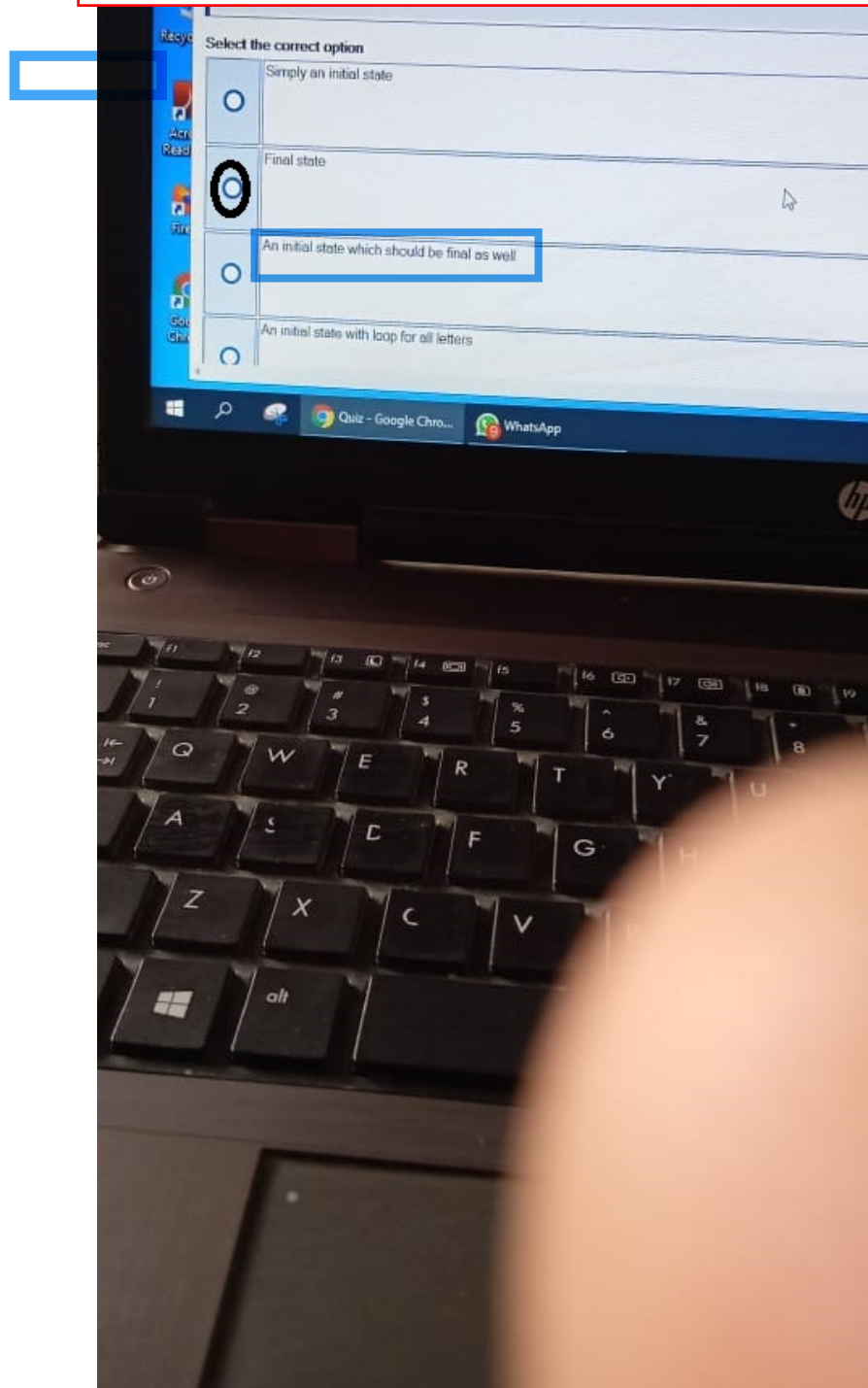
Taskbar showing icons for Windows, Search, Task View, Google Chrome (Quiz - Google Chro...), and WhatsApp.

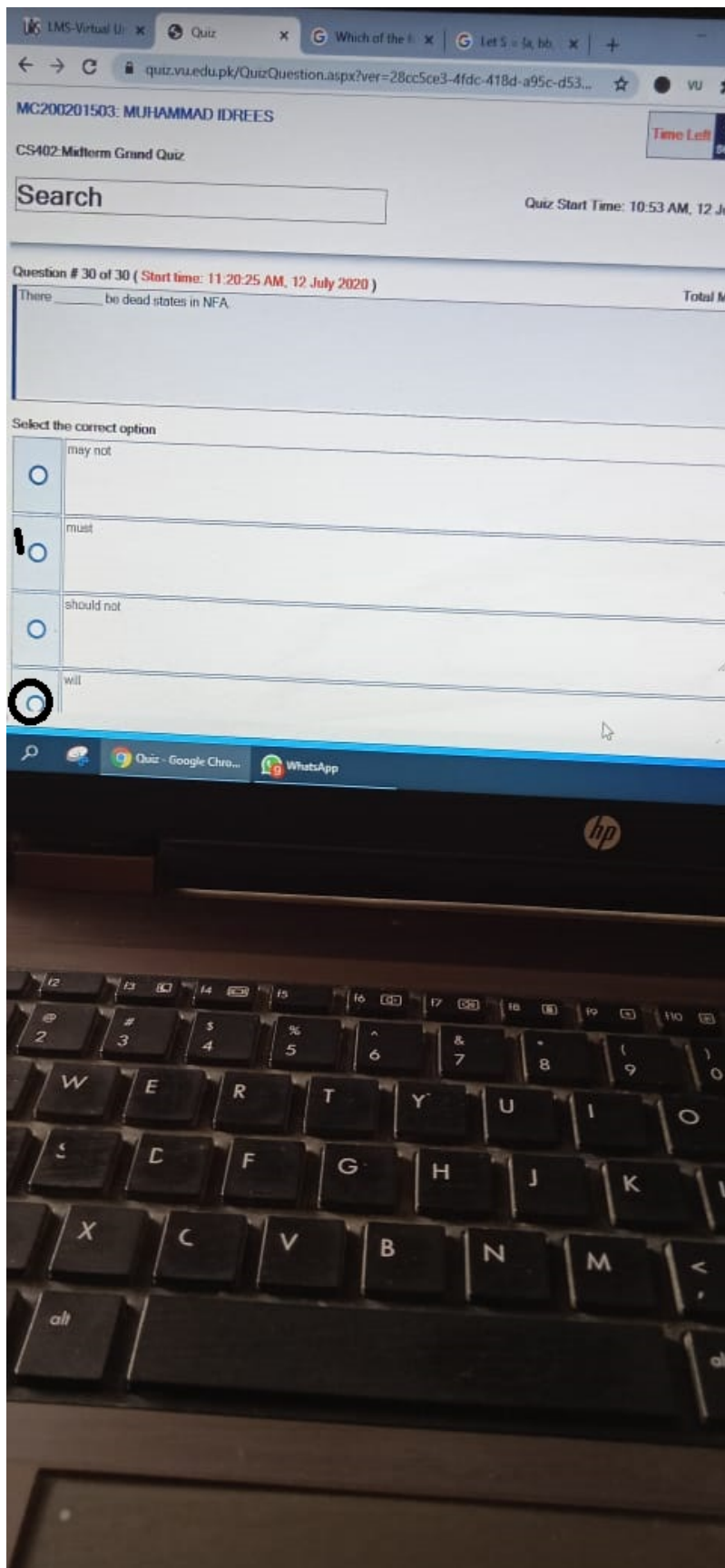




Method

Thus, to accommodate this situation, introduce an initial state which should be final as well





Search

Quiz Start Time: 11:25 AM, 12 July 2020

Question # 1 of 30 (Start time: 11:25:03 AM, 12 July 2020)

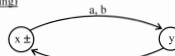
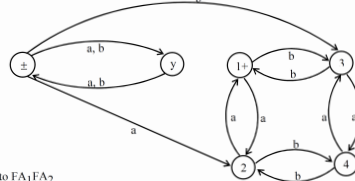
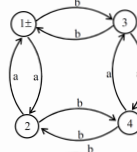
In the context of make NFA for the concatenation of FA1 and FA2 (Both FAs accepting null string), which of the following option is correct?

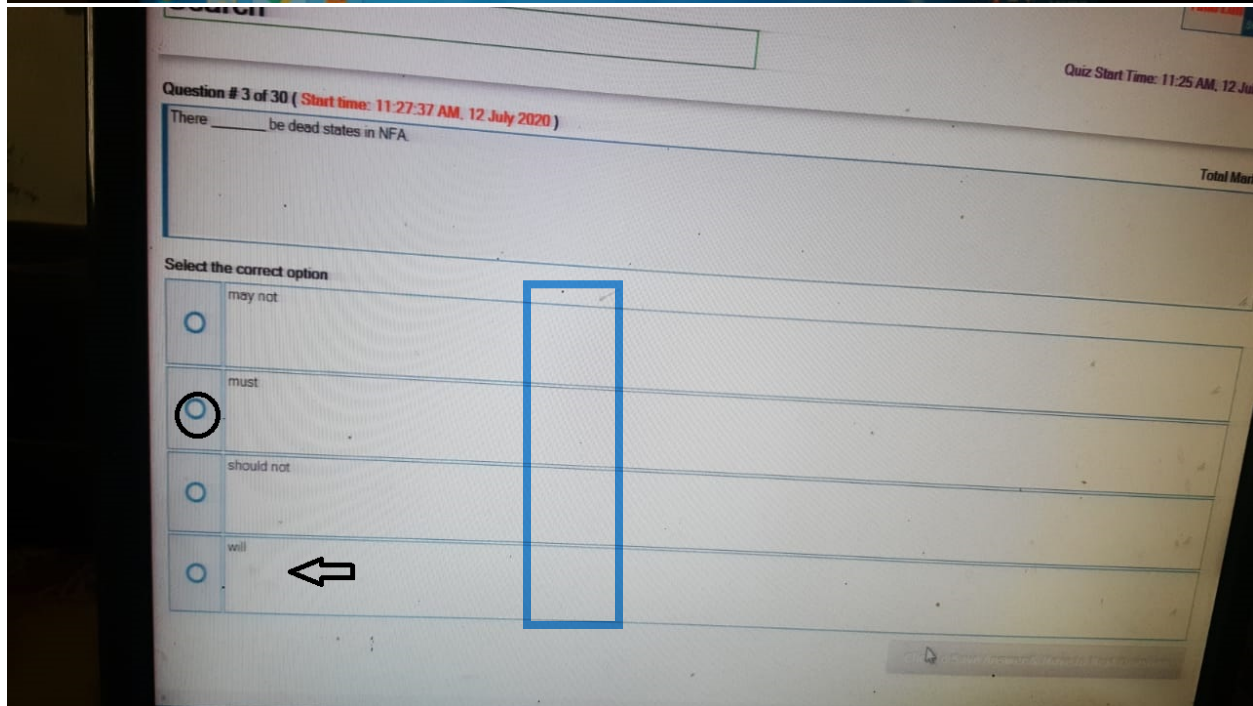
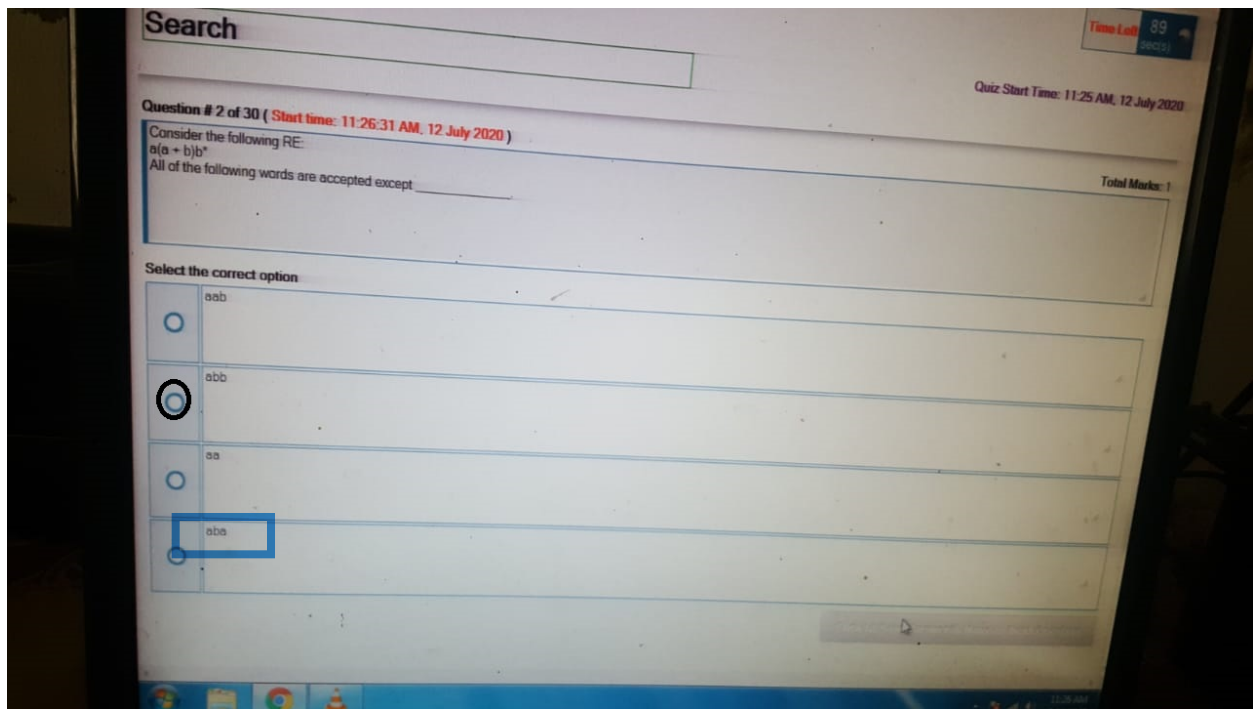
Total Marks: 1

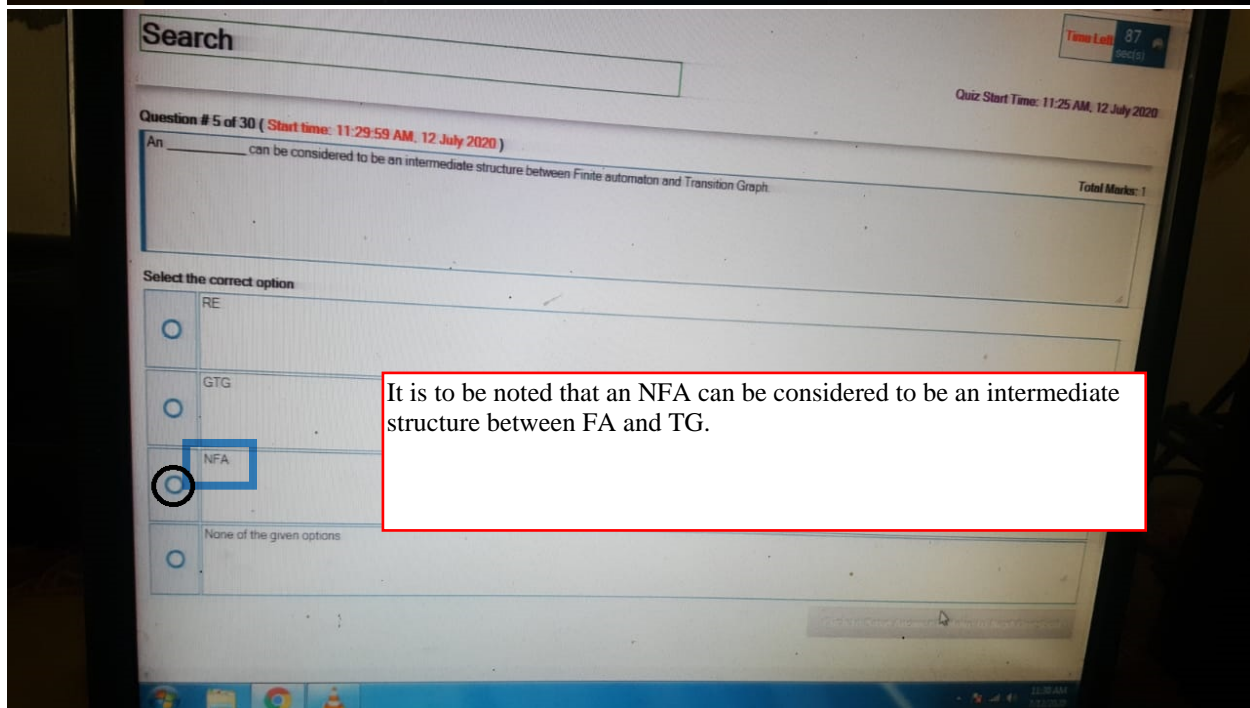
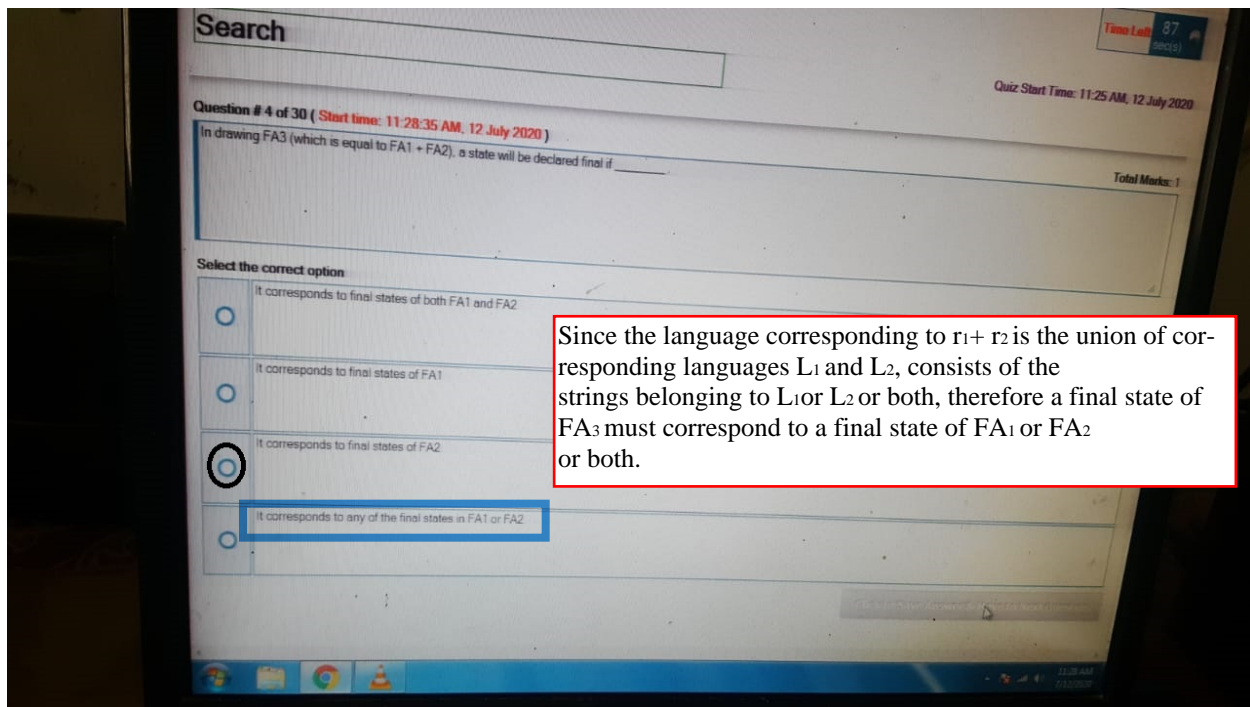
Select the correct option:

- ☒ Final states in both FAs
- ☐ Initial states in both FAs
- ☐ FA2 having initial state only
- ☐ FA2 having final state only

Example (Both FAs accept Null string)

FA₁FA₂NFA equivalent to FA₁FA₂





Search

Time Left: 88

Quiz Start Time: 11:25 AM, 12 July 2020

Question # 6 of 30 (Start time: 11:31:05 AM, 12 July 2020)

Statement 1: Null string is accepted in Moore Machine.
Statement 2: There are more than 5-Tuples in the definition of Moore Machine.
Choose the correct option:

Total Marks: 1

Select the correct option

☐ Statement 1 is true and Statement 2 is true

☒ Statement 1 is true while Statement 2 is false

☐ Statement 1 is false while Statement 2 is true

☐ Statement 1 and Statement 2, both are false

Question # 24 of 30 (Start time: 11:32:31 AM, 12 July 2020

Consider the following RE:

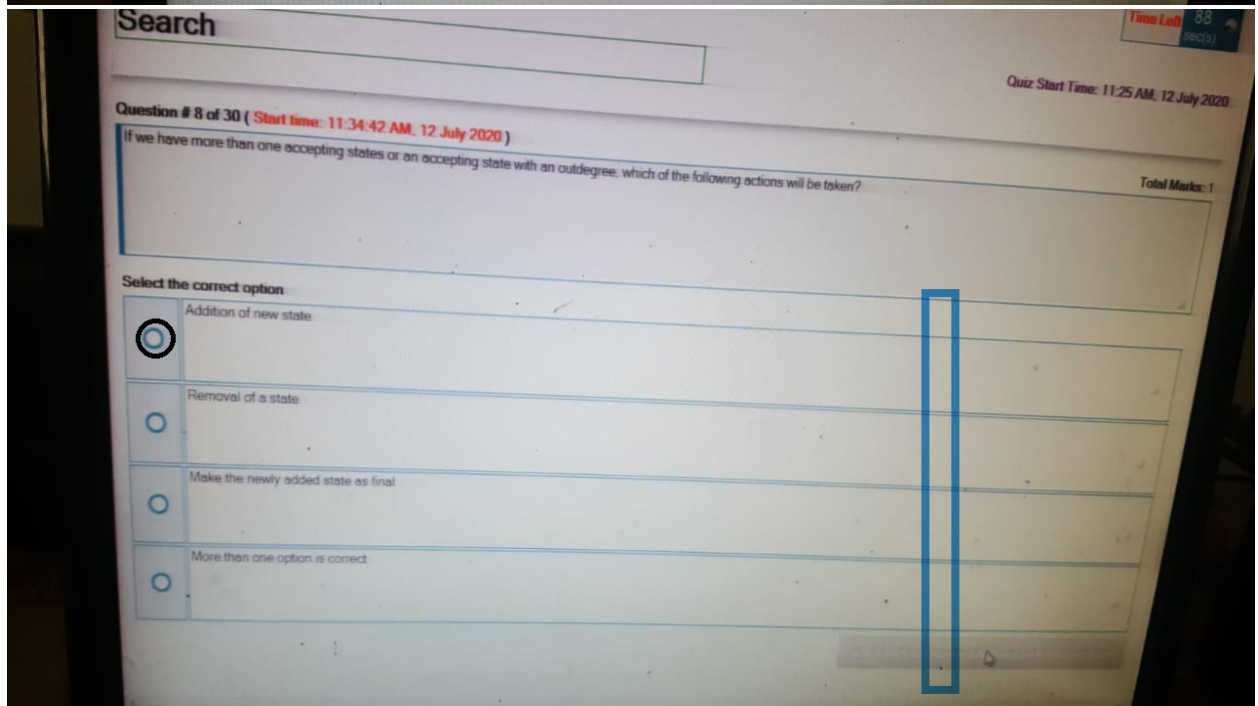
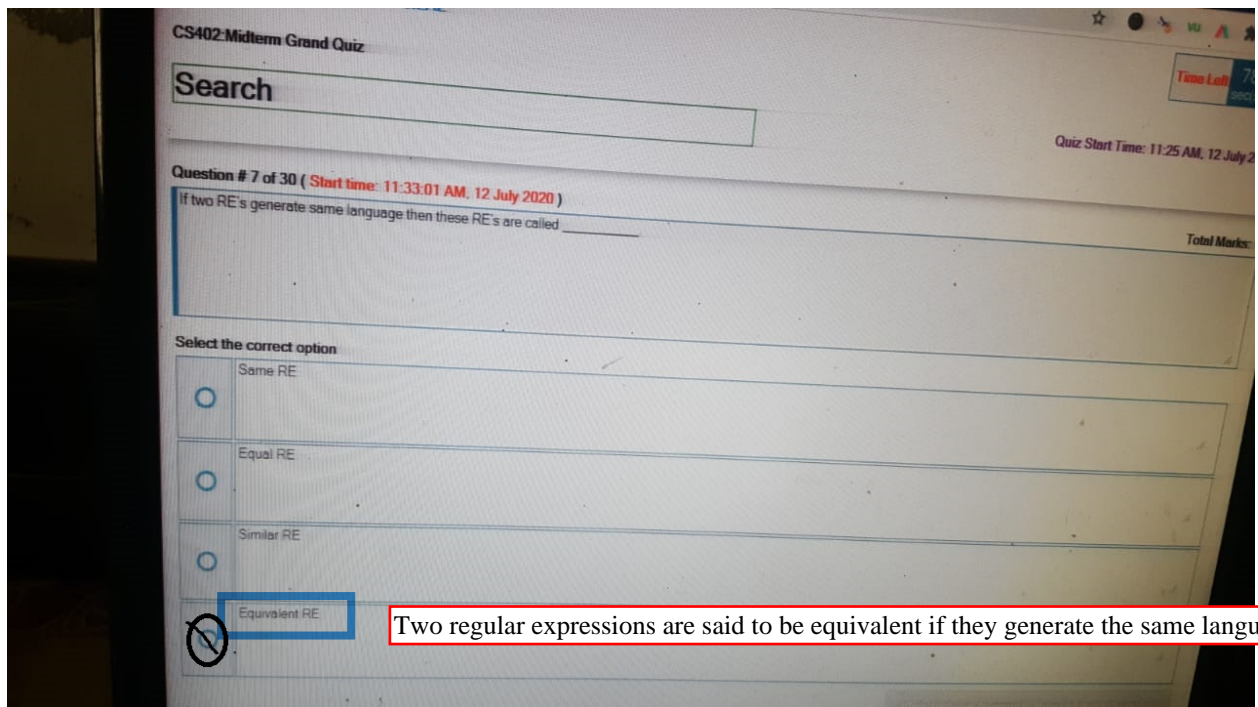
$a(a + b)b^*$

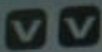
All of the following words are accepted except _____

Select the correct option

<input checked="" type="radio"/>	aab
<input type="radio"/>	abb
<input checked="" type="radio"/>	aa
<input type="radio"/>	aba







90%



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MC180401866: MUHAMMAD SALMAN CHAUDRY

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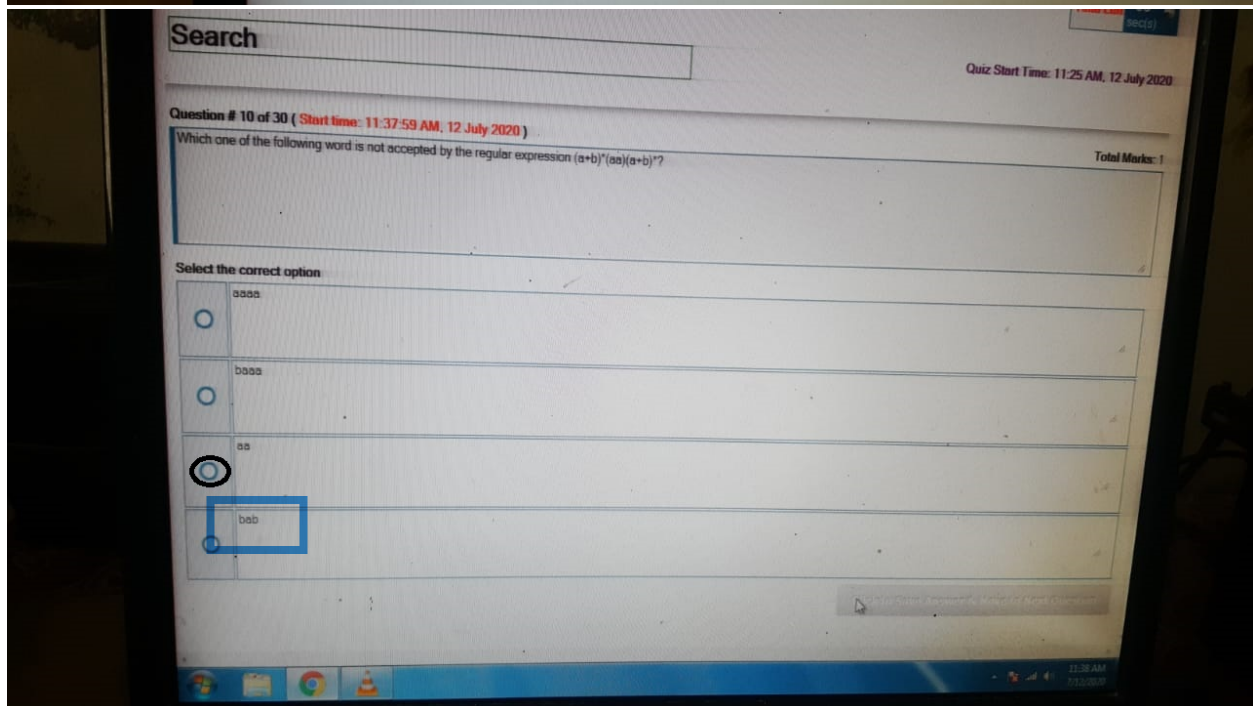
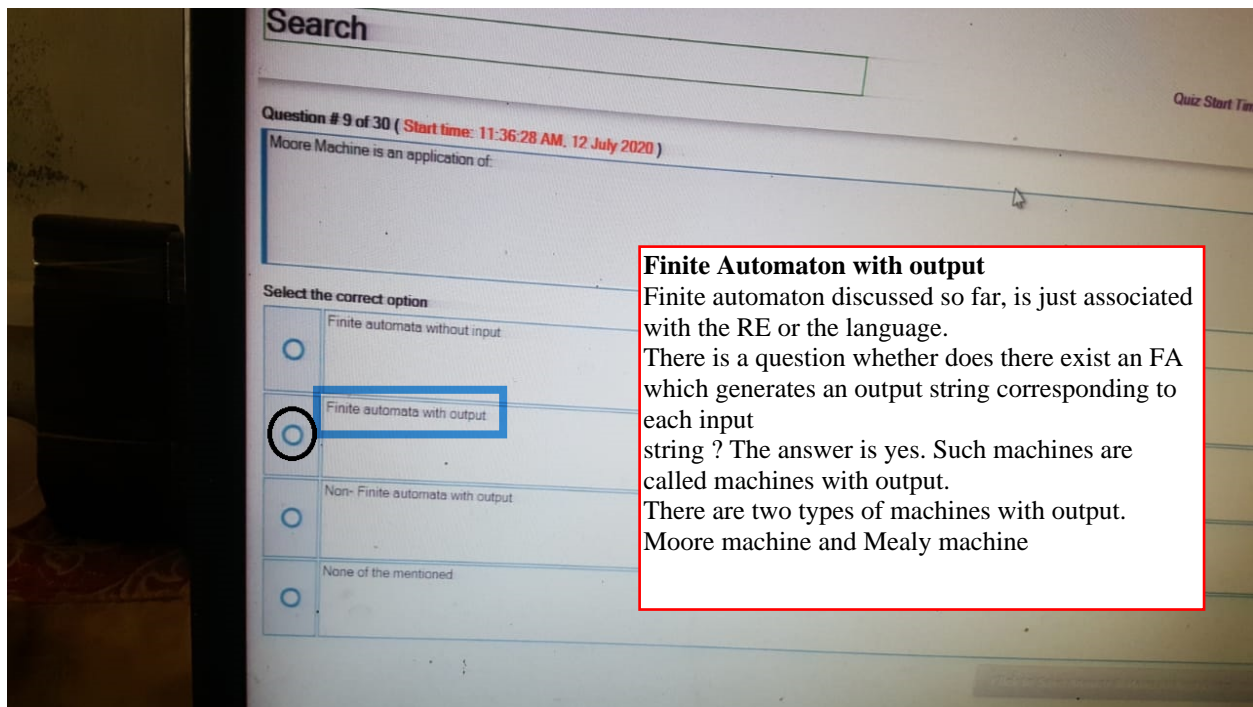
Question # 2 of 30 (Start time: 11:35:26 AM, 12 July 2020)

Which one of the following string is a part of EQUAL language?

Select the correct option

<input type="radio"/>	aabbba
<input type="radio"/>	babab
<input checked="" type="radio"/>	ababab
<input type="radio"/>	aabbbaa

The language **EQUAL**, of strings with number of a's equal to number of b's, defined over $\Sigma=\{a,b\}$, can be written as $\{\Lambda, ab, ba, aabb, abab, baba, abba, \dots\}$



Search

Quiz Start Time: 11:25 AM, 12 July 2020

Question # 11 of 30 (Start time: 11:39:30 AM, 12 July 2020)

Keeping in view the language of all strings ending with 'a', for which symbol we will take a loop on the final state of its transition diagram?

Select the correct option



b



c



d



89% 11:41 am



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Question # 6 of 30 (Start time: 11:40:46 AM, 12 July 20

Length of EVEN-EVEN language is _____.

Select the correct option

Even



Odd



Sometimes even & sometimes odd



Such language doesn't exist



MC180401866: MUHAMMAD SALMAN CHAUDRY

CS402:Midterm Grand Quiz

Question # 7 of 30 (**Start time: 11:41:30 AM, 12 July 2020**)

Given S, Kleene star closure is denoted by _____.

Select the correct option

- | | |
|----------------------------------|----------|
| <input checked="" type="radio"/> | S^* |
| <input type="radio"/> | S^{**} |
| <input type="radio"/> | S^+ |
| <input type="radio"/> | S^- |



89% 11:30



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CS402:Midterm Grand Quiz

Question # 8 of 30 (**Start time: 11:42:13 AM, 12 July 2020**)

Kleene's Theorem Part III expresses the relationship between _____

Select the correct option



FA and TG



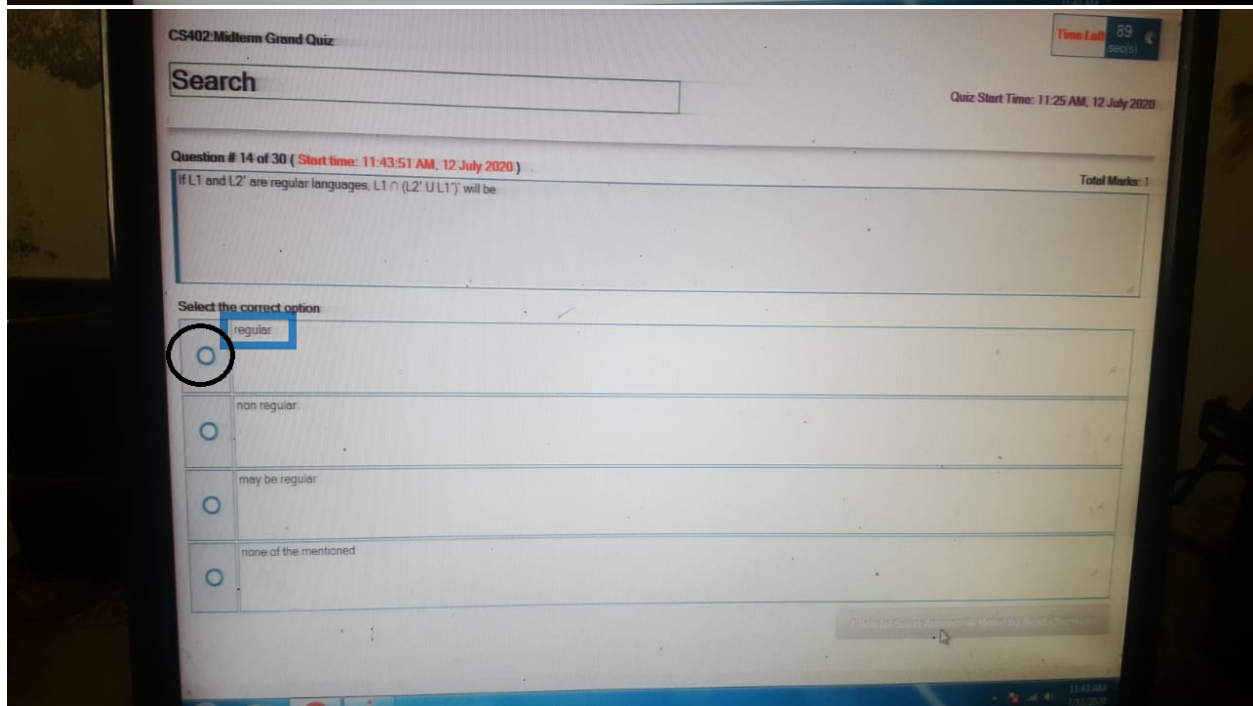
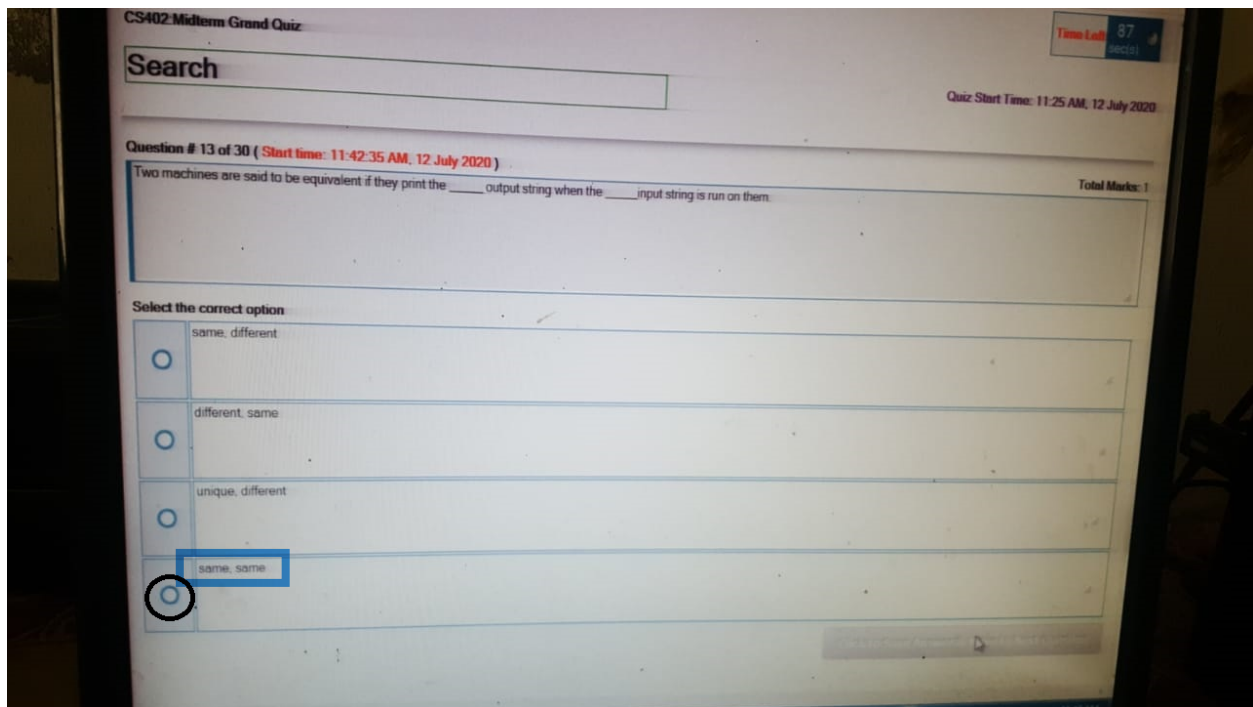
TG and RE



RE and FA



FA and RE



Search

Quiz Start Time: 11:25 AM, 12 July 2020

Question # 14 of 30 (Start time: 11:43:51 AM, 12 July 2020)

Total Marks: 1

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

Select the correct option



regular



non regular



may be regular



none of the mentioned

Please do not refresh the page



88% 11:44 a



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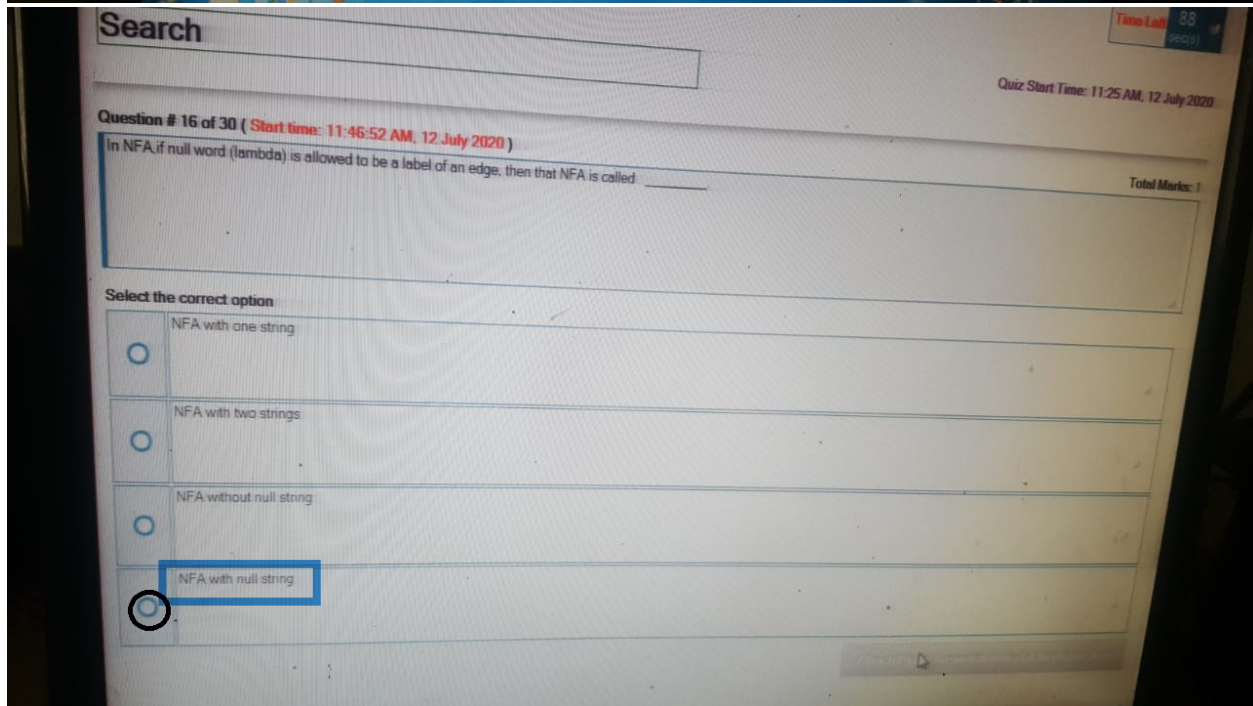
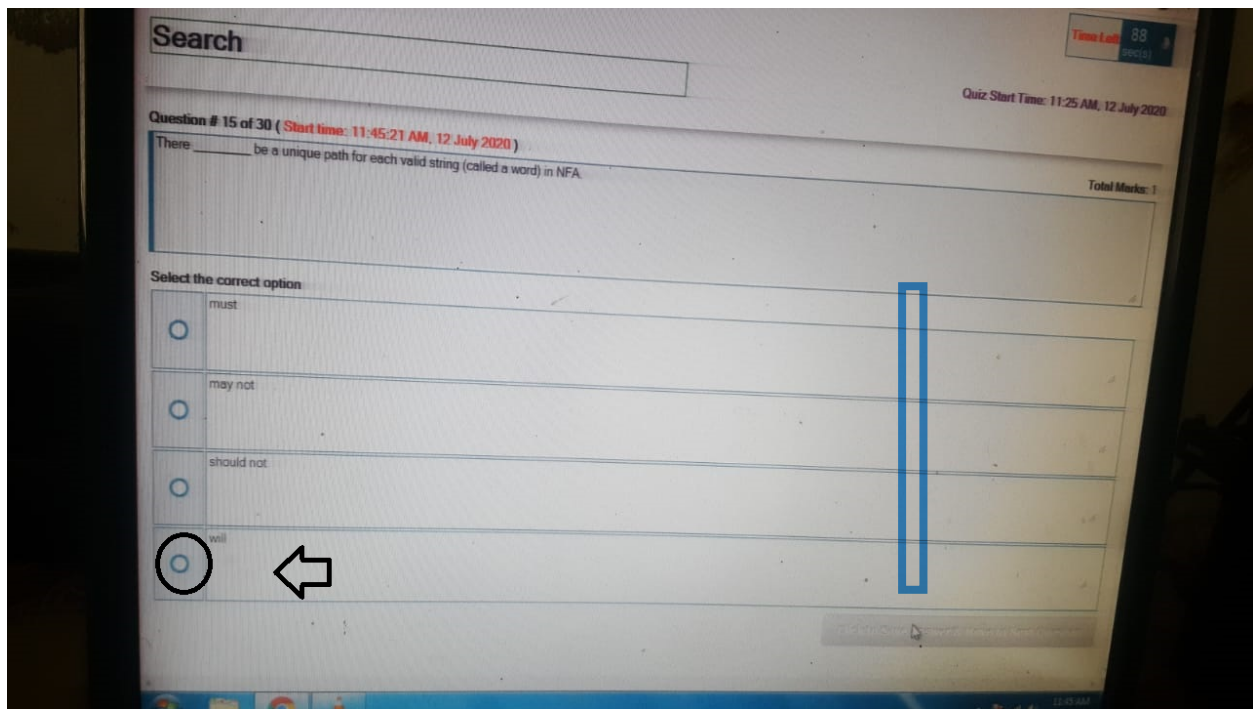
CS402:Midterm Grand Quiz

Question # 10 of 30 (Start time: 11:44:31 AM, 12 July 2020)

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

Select the correct option

- | | |
|----------------------------------|--|
| <input type="radio"/> | initial and final states of FA1 and FA2 respectively |
| <input type="radio"/> | initial states of both FAs |
| <input checked="" type="radio"/> | initial state of FA1 only |
| <input type="radio"/> | final and initial states of FA1 and FA2 respectively |





88% 11:47 am



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CS402:Midterm Grand Quiz

Question # 12 of 30 (Start time: 11:46:51 AM, 12 July 2020)

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

Select the correct option

- | | |
|----------------------------------|---------------------------|
| <input type="radio"/> | RE |
| <input type="radio"/> | GTG |
| <input checked="" type="radio"/> | NFA |
| <input type="radio"/> | None of the given options |