Cs 402

Quiz 1 and 2

Solved

CS402:Quiz# 02

Quiz Start Time: 11:14 AM, 24 August 2021

Question # 9 of 10 (Start time: 11:21:00 AM, 24 August 2021)

Total Marks: 1

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

Select the correct option

- from initial to initial back
- from final to back final
- from final to initial
- from initial to final

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 10:50 AM, 24 August 2021

Question # 10 of 10 (Start time: 11:01:09 AM, 24 August 2021)

Total Marks: 1

Identify the TRUE statement about following CFG:
S -> SB|AB
A -> CC
B -> b
C -> a

Select the correct option

- The given CFG has 8 Nonterminals
- The given CFG is in CNF
- The given CFG is not in CNF
- The given CFG has 8 Terminals

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:14 AM, 24 August 2021

Question # 8 of 10 (Start time: 11:20:42 AM, 24 August 2021)

Total Marks: 1

_____ is an operation that takes out a letter from the top of the STACK

Select the correct option

- ○ PUSH
- ○ WRITE
- ○ APPEND
- ● POP

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 10:50 AM, 24 August 2021

Question # 9 of 10 (Start time: 11:00:43 AM, 24 August 2021)

Total Marks: 1

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

Select the correct option

- may be good
- always impossible
- Always easy
- Impossible

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 10:50 AM, 24 August 2021

Question # 1 of 10 (Start time: 10:50:35 AM, 24 August 2021)

Total Marks: 1

The CFG S--> aSa | bSb | a | b | " represents _____ language

Select the correct option

- EVEN-EVEN
- ODD-ODD
- EQUAL
- PALINDROME

Click to Save Answer & Move to Next Question

Question # 4 of 10 (Start time: 12:57:53 PM, 24 August 2021) **Total Marks: 1**

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

Select the correct option

- ○ Terminal
- ○ Unit production
- ○ Null production
- ○ Non terminal

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:22 AM, 24 August 2021

Question # 1 of 10 (Start time: 11:22:08 AM, 24 August 2021)

Total Marks: 1

Identify the TRUE statement about following CFG:
S -> SB|AB
A -> CC
B -> b
C -> a

Select the correct option

- ○ The given CFG has 8 Nonterminals
- ○ The given CFG is not in CNF
- ○ The given CFG has 8 Terminals
- ● The given CFG is in CNF

Click to Save Answer & Move to Next Question

Question # 8 of 10 (Start time: 01:03:52 PM, 24 August 2021) Total Marks: 1

_____ states are called the halt states.

Select the correct option

- ACCEPT and REJECT
- ACCEPT AND WRITE
- ACCEPT AND START
- ACCEPT and READ

Click to Save Answer & Move to Next Question

Question # 2 of 10 (Start time: 12:55:26 PM, 24 August 2023) 3:55 am **Total Marks: 1**

Identify the TRUE statement:

Select the correct option

- Like TG, A PDA can also be non-deterministic
- A PDA is non-deterministic, if there are more than one REJECT states in PDA
- A PDA is non-deterministic, if there are more than one READ states in PDA
- A PDA is never non-deterministic

Click to Save Answer & Move to Next Question

Question # 7 of 10 (Start time: 01:02:21 PM, 24 August 2021) **Total Marks: 1**

Which of the following CFGs is in CNF:

CFG No. 1:

S -> XY
X -> aX | bX | a
Y -> Ya | Yb | a

Select the correct option

- ○ CFG No. 1 only
- ○ Both CFGs are in CNF
- ● Both CFGs are not in CNF
- ○ CFG No. 2 only

Saving and loading next question...

Question # 6 of 10 (Start time: 01:00:49 PM, 24 August 2021) **Total Marks: 1**

In conversion form of PDA, there is _____ accept state(s).

Select the correct option

- ○ At most one
- ○ More than One
- ○ At least one
- ○ Exactly one

Click to Save Answer & Move to Next Question

Question # 10 of 10 (Start time: 01:06:05 PM, 24 August 2021) **Total Marks: 1**

The production of the form: non-terminal ---> one non-terminal is called the _____.

Select the correct option

- NULL production
- Terminal production
- Unit production
- Non Terminal production

Click to Save Answer & Move to Next Question

Question # 5 of 10 (Start time: 12:59:17 PM, 24 August 2021) **Total Marks: 1**

Identify the correct statement from the following:

Select the correct option

- There does not exist a corresponding PDA for every CFG
- For a CFG to convert to PDA, the CFG should have at least 5 Nonterminals
- For a CFG to convert to PDA, the CFG should have at least 3 Nonterminals
- There always exists a corresponding PDA for every CFG

Click To Save Answer & Move to Next Question

Question # 2 of 10 (Start time: 12:55:26 PM, 24 August 2021) **Total Marks: 1**

Identify the TRUE statement:

Select the correct option

- Like TG, A PDA can also be non-deterministic
- A PDA is non-deterministic, if there are more than one REJECT states in PDA
- A PDA is non-deterministic, if there are more than one READ states in PDA
- A PDA is never non-deterministic

Click to Save Answer & Move to Next Question

Question # 3 of 10 (Start time: 12:56:21 PM, 24 August 2021) **Total Marks: 1**

The CFG that generates the regular language is called _____.

Select the correct option

- ○ non-regular grammar
- ○ regular expression
- ○ regular grammar
- ○ finite automata

Click to Save Answer & Move to Next Question

Question # 9 of 10 (Start time: 01:04:33 PM, 24 August 2021) **Total Marks: 1**

Tape and Stack alphabets

Select the correct option

- must be different
- may be different
- must be same
- are same

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 10:50 AM, 24 August 2021

Question # 5 of 10 (Start time: 10:56:06 AM, 24 August 2021)

Total Marks: 1

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

Select the correct option

- ○ N+1
- ● N-1
- ○ 2N
- ○ N

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:14 AM, 24 August 2021

Question # 3 of 10 (Start time: 11:16:46 AM, 24 August 2021)

Total Marks: 1

A _____ is the one for which every input string has a unique path through the machine.

Select the correct option

- nondeterministic PDA
- deterministic PDA
- PUSHDOWN store
- Input Tape

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:22 AM, 24 August 2021

Question # 4 of 10 (Start time: 11:22:58 AM, 24 August 2021)

Total Marks: 1

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

Select the correct option

- ○ Numbers
- ● Capital letters
- ○ Small letters and numbers
- ○ Small letters

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:22 AM, 24 August 2021

Question # 3 of 10 (Start time: 11:22:41 AM, 24 August 2021)

Total Marks: 1

The derivation of a word w, generated by a CFG, such that at each step, a production is applied to the left most nonterminal in the working string, is said to be _____

Select the correct option

- Right most derivation
- Left most Terminal
- Left most derivation
- Right most Terminal

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:14 AM, 24 August 2021

Question # 7 of 10 (Start time: 11:20:05 AM, 24 August 2021)

Total Marks: 1

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

Select the correct option

- Left most derivate
- Left most nonterminal
- Least Significant nonterminal
- Most Significant nonterminal

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:14 AM, 24 August 2021

Question # 4 of 10 (Start time: 11:17:50 AM, 24 August 2021)

Total Marks: 1

Which of the following states is not part of PDA?

Select the correct option

- START
- REJECT
- ACCEPT
- WRITE

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:22 AM, 24 August 2021

Question # 8 of 10 (Start time: 11:25:55 AM, 24 August 2021)

Total Marks: 1

Which of the following are called as Halt states in PDA?

Select the correct option

- Accept and Reject
- Start and Accept
- Read and Reject
- Start and Reject

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:22 AM, 24 August 2021

Question # 10 of 10 (Start time: 11:26:43 AM, 24 August 2021)

Total Marks: 1

In conversion form of PDA, no two _____ states exist in a row without _____ state.

Select the correct option

- POP , REJECT
- PUSH , START
- PUSH , READ
- POP , READ

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:22 AM, 24 August 2021

Question # 5 of 10 (Start time: 11:23:22 AM, 24 August 2021)

Total Marks: 1

"CFG" stands for _____.

Select the correct option

- Context Free Graph
- Context Finite Graph
- Context Finite Grammar
- Context Free Grammar

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 11:14 AM, 24 August 2021

Question # 1 of 10 (Start time: 11:14:49 AM, 24 August 2021)

Total Marks: 1

The locations into which we put the input letters on "Input Tape" are called _____.

Select the correct option

- ○ alphabets
- ○ elements
- ● cells
- ○ words

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 10:50 AM, 24 August 2021

Question # 3 of 10 (Start time: 10:53:18 AM, 24 August 2021)

Total Marks: 1

A problem that has decision procedure is called _____ problem

Select the correct option

- decidable
- Infinite
- un-decidable
- Regular language

Click to Save Answer & Move to Next Question

CS402:Quiz# 02

Quiz Start Time: 10:50 AM, 24 August 2021

Question # 1 of 10 (Start time: 10:50:35 AM, 24 August 2021)

Total Marks: 1

The CFG S--> aSa | bSb | a | b | ^ represents _____ language.

Select the correct option

- EVEN-EVEN
- ODD-ODD
- EQUAL
- PALINDROME

Click to Save Answer & Move to Next Question

Question # 2 of 10 (Start time: 10:57:27 PM, 26 August 2021) Total Marks: 1

Consider the following CFG:
S->a|Xb|aYa
X->Y|^ (NOTE: ^ means NULL)
Y->b|X
Which Non-terminals are nullable?

Select the correct option

- S,X and Y
- S and X
- X and Y
- Y and S

Click to Save Answer & Move to Next Question

Question # 2 of 10 (Start time: 10:08:38 PM, 26 August 2021)

The CFG is said to be ambiguous if there exist at least one word of its language that can be generated by _____ production trees.

Select the correct option

- More than one
- Two
- One
- At most one

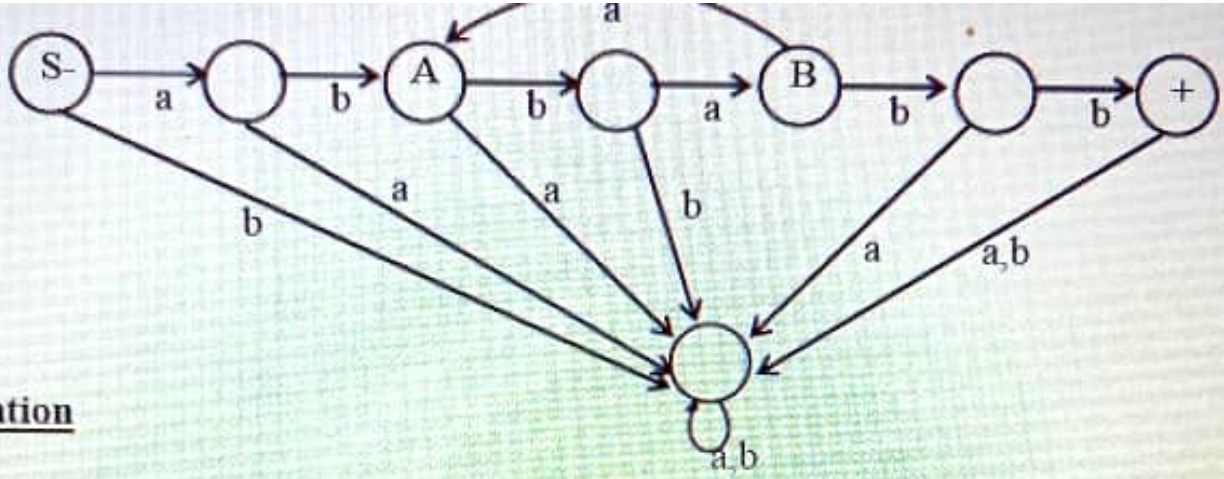
Quiz S

Question # 1 of 10 (Start time: 10:07:17 PM, 26 August 2021)

Which of the following statement is FALSE?

Select the correct option

- For a PDA, there exists a CFG that represents the same language.
- Every Regular Expression be expressed by a CFG.
- For every PDA, there always exists a regular expression.
- Every CFG cannot be expressed as a regular expression.



Left most derivation

Definition

The derivation of a word w, generated by a CFG, such that at each step, a production is applied to the left most nonterminal in the working string, is said to be ***left most derivation***.

It is to be noted that the nonterminal that occurs first from the left in the working string, is said to be ***left most nonterminal***.

Example

Consider the following CFG

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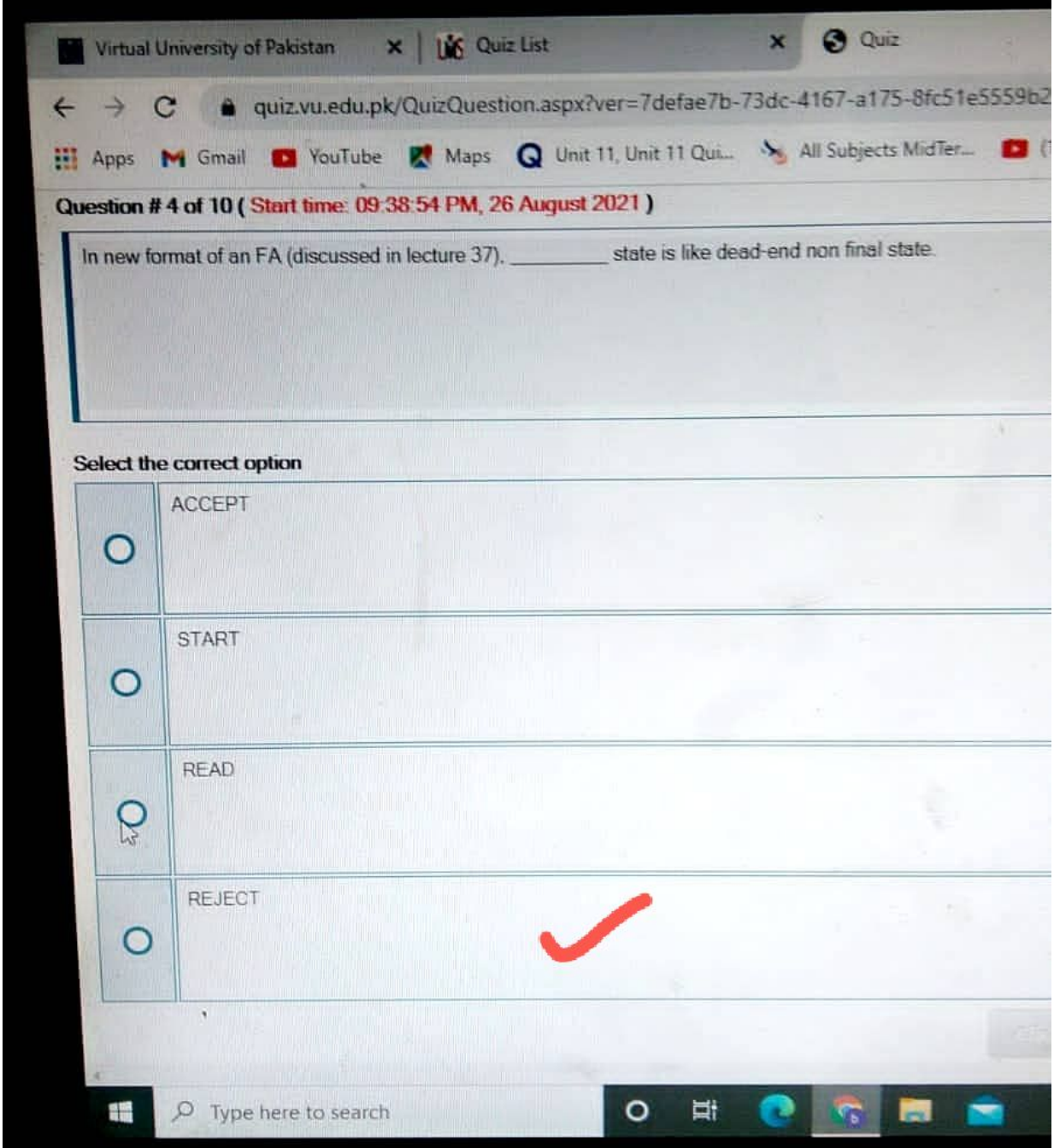
Question # 5 of 10 (Start time: 09:40:25 PM, 26 August 2021)

A PDA is called nondeterministic PDA if _____

Select the correct option

- there are more than one outgoing edges at READ or POP states with one label
- there are mroe than one POP states
- every READ state is followed by a HERE state.
- there are more than one PUSH states

Type here to search



9:38 PM

18 K/s

Quiz

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MC200404936: FAIQA ALIA

Time Left

CS402:Quiz# 02

Quiz Start Time: 09:29 PM, 26 A

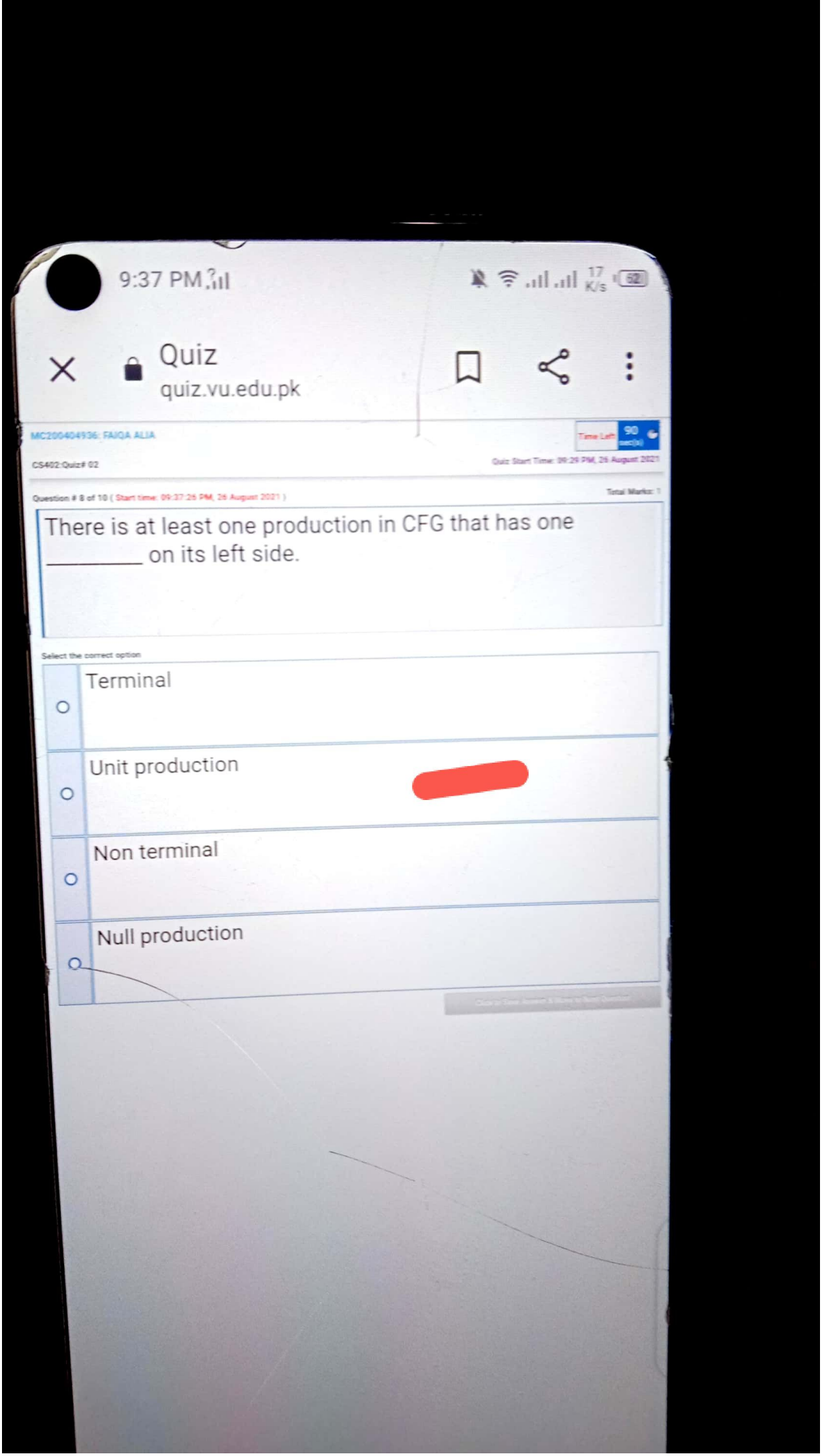
Question # 9 of 10 (Start time: 09:38:13 PM, 26 August 2021)

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

Select the correct option

- Operand - Operator – Operand
- Operand - Operand - Operator
- Operator - Operand – Operand
- Operand - Operand – Operand

Click to Save Answer & Move to Next Question

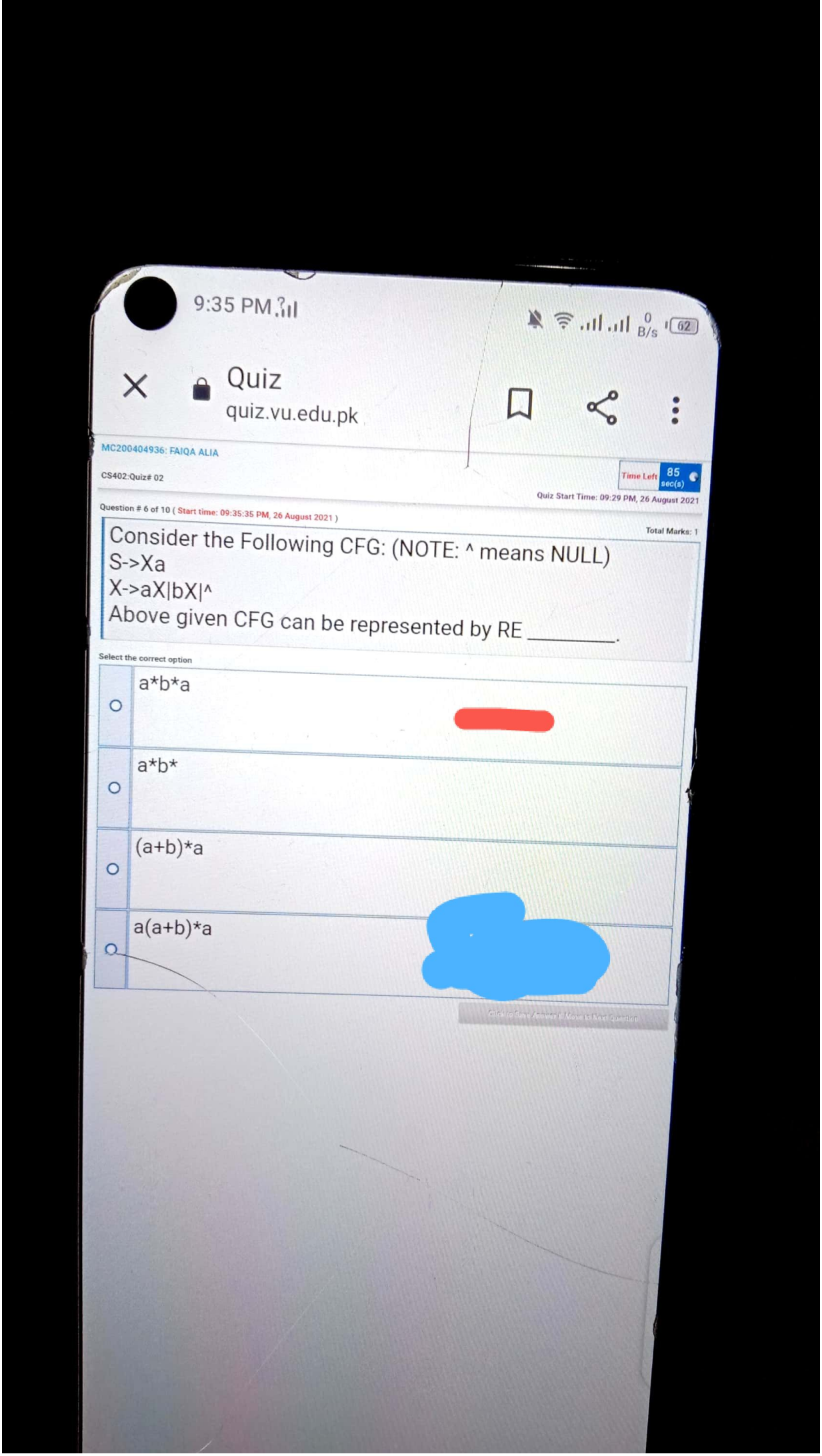


Question # 2 of 10 (Start time: 09:36:39 PM, 26 August 2021) **Total Marks: 1**

The major problem in the earliest computers was _____.

Select the correct option

- To load the contents from the registers
- To store the contents in the registers
- To display mathematical formulae
- To calculate the mathematical formula



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MC200404936: FAIQA ALIA

CS402:Quiz# 02

Time Left 89 sec(s)

Quiz Start Time: 09:29 PM, 26 August 2

Question # 4 of 10 (Start time: 09:32:44 PM, 26 August 2021)

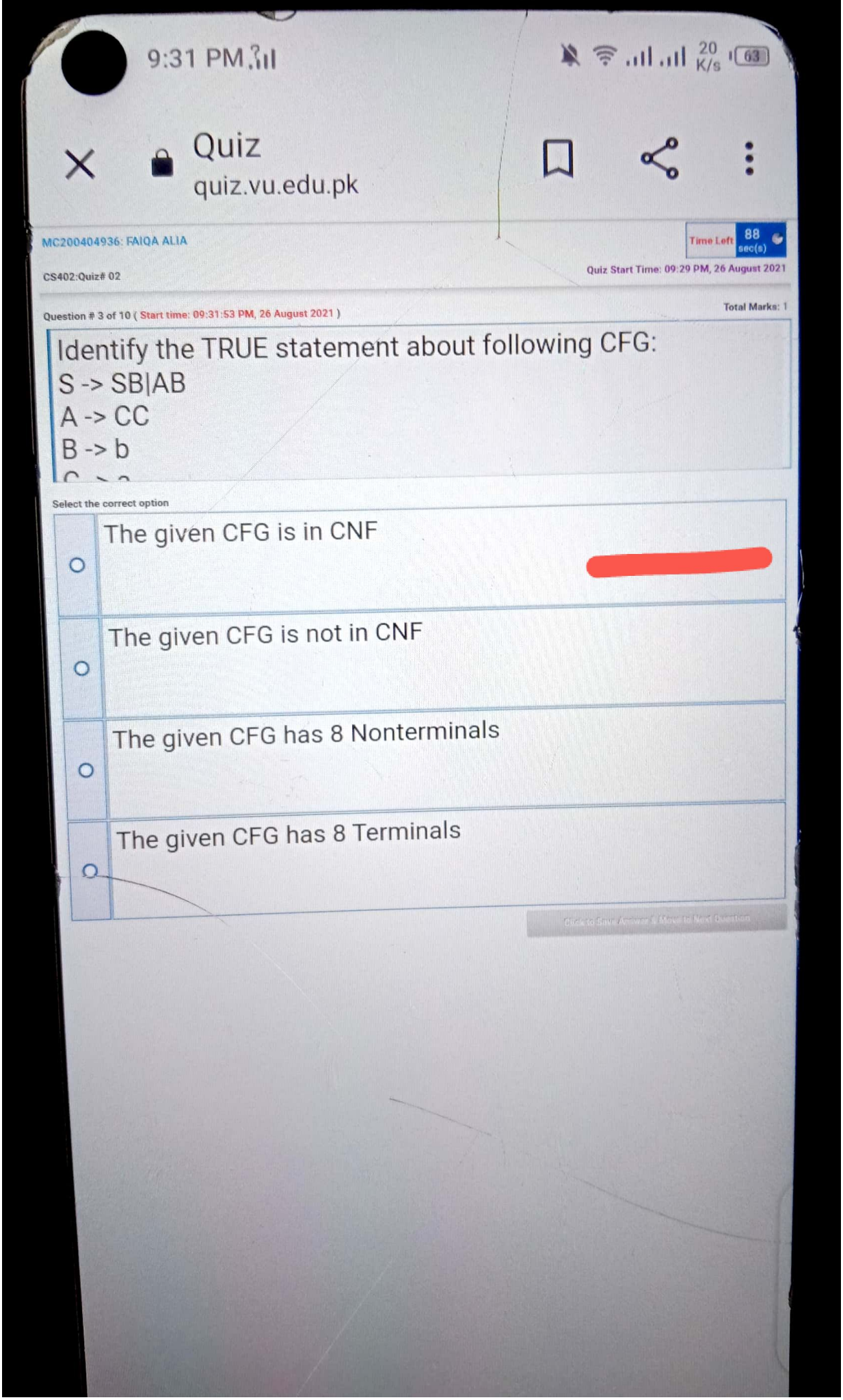
Total Mark

The unit production is _____.

Select the correct option

- Terminal --> Non Terminal
- Non terminal --> Non Terminal
- Non terminal --> Terminal
- Terminal --> Terminal

Click to Save Answer & Move to Next Question



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Time Left 88 sec(s)

CS402:Quiz# 02

Quiz Start Time: 09:29 PM, 26 August 2021

Question # 2 of 10 (Start time: 09:30:33 PM, 26 August 2021)

Total Marks: 1

The production of the form: non-terminal ----> one non-terminal is called the _____.

Select the correct option

- Terminal production
- Non Terminal production
- Unit production
- NULL production

Click to Save Answer & Move to Next Question

9:27 PM

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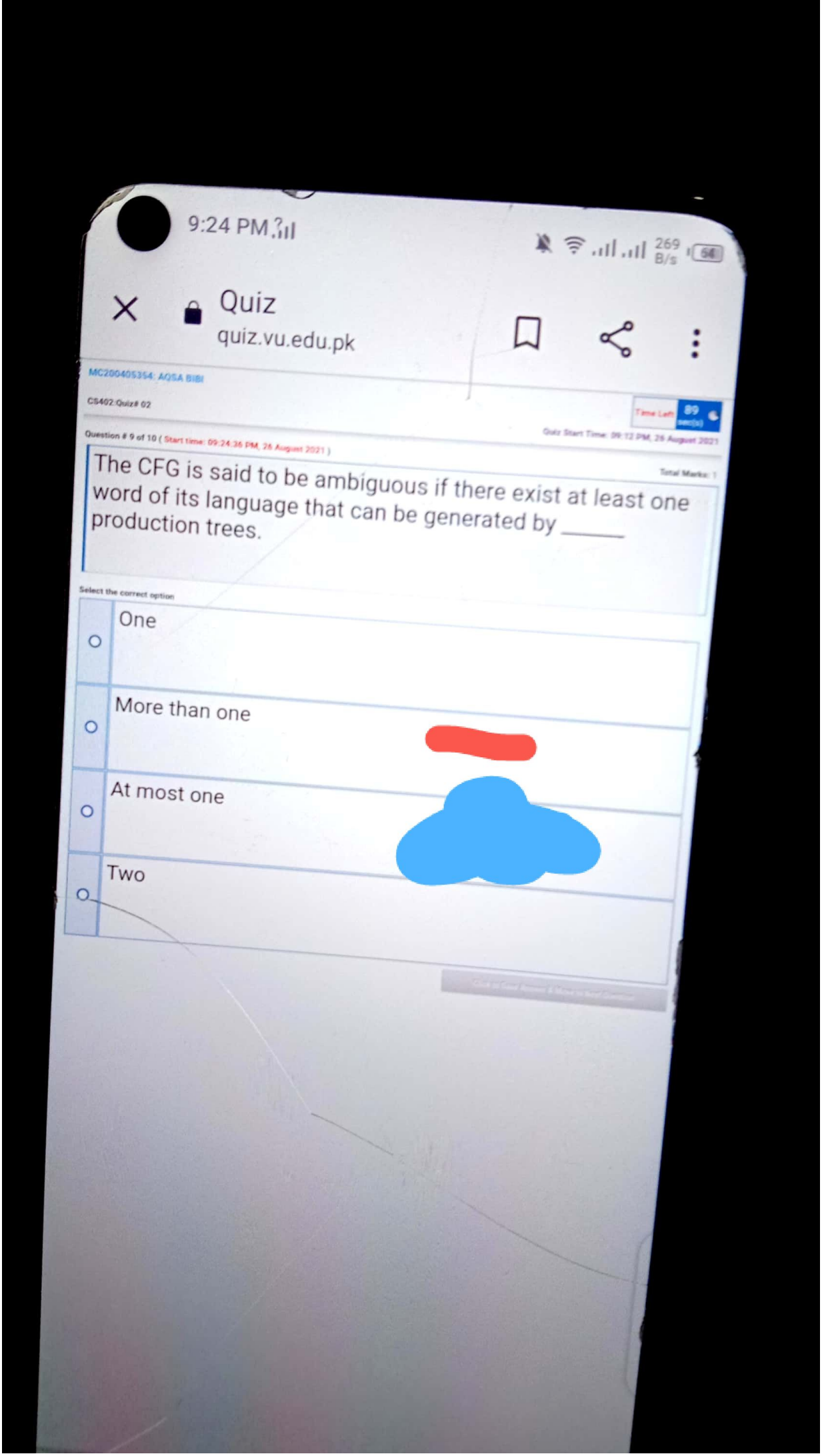
CS402:Quiz# 02

Question # 10 of 10 (Start time: 09:26:08 PM, 26 August 2021)

In pref(Q in R), Q is _____ to/than R.

Select the correct option

- Greater
- Equal
- Not equal
- Smaller



BC180408812: ANIQA BIBI

Time Left 90 sec(s)

CS402:Quiz# 02

Quiz Start Time: 08:53 PM, 26 August 2021

Question # 4 of 10 (Start time: 08:57:12 PM, 26 August 2021)

Total Marks: 1

PDA stands for _____

Select the correct option

- Push Deterministic Automaton
- Push and Drop Automaton
- Pop and Drop Automaton
- Push Down Automaton

BC180408812: ANIQA BIBI

Time Left 90 sec(s)

CS402:Quiz# 02

Quiz Start Time: 08:53 PM, 26 August 2021

Question # 3 of 10 (Start time: 08:55:59 PM, 26 August 2021)

Total Marks: 1

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

Select the correct option

- START
- ACCEPT
- REJECT
- READ

Question # 3 of 10 (Start time: 08:18:53 PM, 26 August 2021)

Null production is a _____.

Select the correct option

- String
- Terminal
- All of the given options
- Word

Question # 1 of 10 (Start time: 08:16:30 PM, 26 August 2021)

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

Select the correct option

- Q.Q
- R.R
- Q.R
- R.Q

Type here to search

- START
- REJECT
- READ
- ACCEPT (Handouts Page # 111)

If a CFG has a null production, then it is

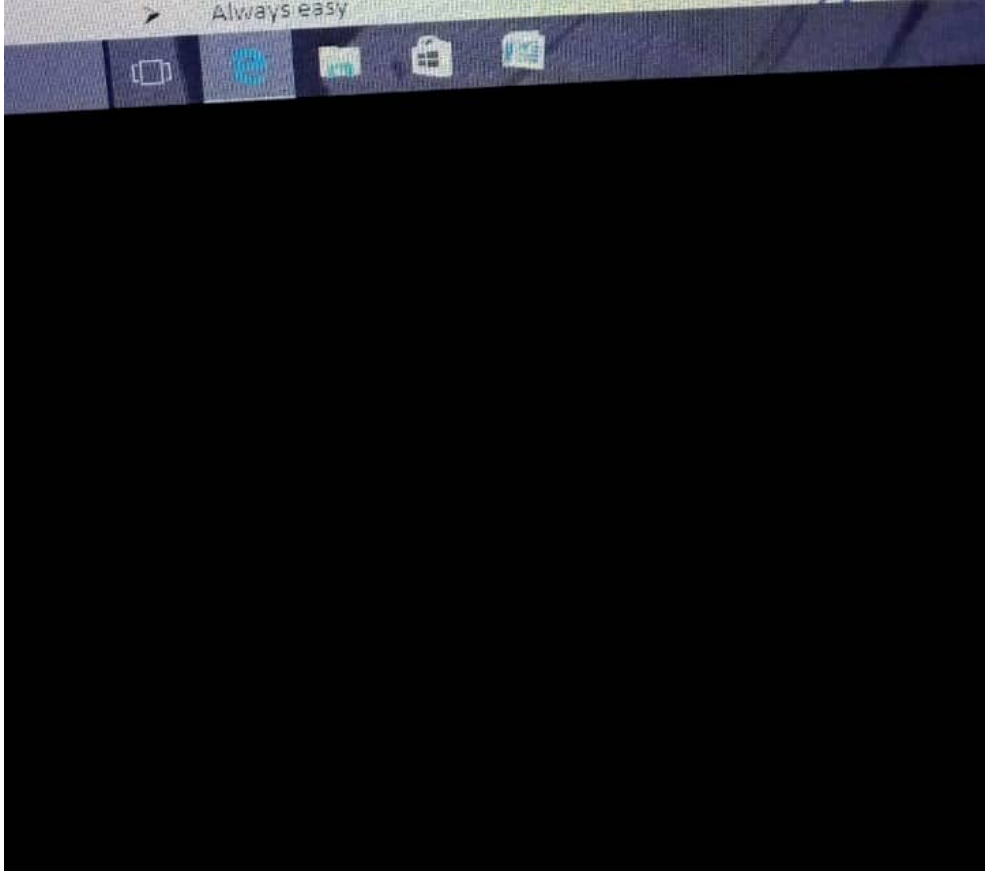
- Called Null CFG
- Not possible to construct another CFG without null production acce
  language with the exception of the word
- Called Chmosky Normal Form (CNF)
- Possible to construct another CFG without null production acceptin
  with the exception of the word

10. There is at least one production in CFG that has one ..... on its left s

- Non terminal (Handouts Page # 87)
- Null production
- Terminal
- Unit production

11. In large FA with thousands of states and millions of directed edges, witho
procedure it is ..... to find a path from initial to final state.

- Impossible (Handouts Page # 81)
- Always easy



MC210203408: RIMSHA FATIMA

Time Left 88 sec(s)

CS402 Quiz# 02

Quiz Start Time: 06:03 PM, 26 August 2021

Question # 7 of 10 (Start time: 06:10:45 PM, 26 August 2021)

Total Marks: 1

The structure given below is called _____.

S -> aA|bB
A -> aS|a
B -> bS|b

Select the correct option

- RE
- PDA
- TG
- CFG

Question # 7 of 10 (Start time: 04:44:32 PM, 26 August 2021) Total Marks: 1

The CFG is said to be ambiguous if there exist at least one word of its language that can be generated by _____ production trees.

Select the correct option

- At most one
- One
- More than one
- Two

Click to Save Answer & Move to Next Question

Question # 3 of 10 (Start time: 04:38:03 PM, 26 August 2021) Total Marks: 1

Identify the correct statement from the following:

Select the correct option

- For a CFG to convert to PDA, the CFG should have at least 5 Nonterminals
- There does not exist a corresponding PDA for every CFG
- There always exists a corresponding PDA for every CFG
- For a CFG to convert to PDA, the CFG should have at least 3 Nonterminals

No Idea

Click to Save Answer & Move to Next Question

Question # 2 of 10 (Start time: 04:37:03 PM, 26 August 2021)
Total Marks: 1

The locations into which we put the input letters on "Input Tape" are called _____.

Select the correct option

- words
- elements
- cells
- alphabets

Click to Save Answer & Move to Next Question

Before running the input string on PDA, it is first placed on _____.

Select the correct option

- Stack
- Tape
- Ram
- Memory

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Question # 1 of 10 (Start time: 01:27:35 PM, 26 August 2021) **Total Marks: 1**

The production of the form: non-terminal ----> one non-terminal is called the _____.

Select the correct option

- NULL production
- Non Terminal production
- Unit production
- Terminal production

Click to Save Answer & Move to Next Question

Links

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Question # 10 of 10 (Start time: 01:25:48 PM, 26 August 2021) **Total Marks: 1**

In conversion form of PDA, there is no _____ state.

Select the correct option

- READ
- ACCEPT
- REJECT
- PUSH

Links

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Question # 9 of 10 (Start time: 01:25:08 PM, 26 August 2021) **Total Marks: 1**

Null production is a _____.

Select the correct option

- Terminal
- String
- All of the given options
- Word

Click to Save Answer & Move to Next Question

Links

1:25 PM
8/26/2021

Question # 8 of 10 (Start time: 01:23:56 PM, 26 August 2021) **Total Marks: 1**

Which of the following CFGs is in CNF:

CFG No. 1:

S -> XY
X -> aX | bX | a
Y -> Ya | Yb | a

Select the correct option

- Both CFGs are not in CNF
- Both CFGs are in CNF
- CFG No. 1 only
- CFG No. 2 only

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Question # 6 of 10 (Start time: 01:22:24 PM, 26 August 2021) **Total Marks:** 1

The production of the form: Non-terminal-> ^ is said to be _____ production.

Select the correct option

- CNF
- Chomsky form production
- UNIT
- NULL

Links

1:22 PM
8/26/2021

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CS402:Quiz# 02

Quiz Start Time: 01:16 PM, 26 August 2021

Question # 5 of 10 (Start time: 01:21:46 PM, 26 August 2021)

Total Marks: 1

The CFG S → aSb|ab|Λ is used to express the language _____.

Select the correct option

Reload Math Equations

- Prime
- Palindrome
- Even
- Equal

Doubt

Activate Windows
Go to Settings to activate Windows.

Click to Save Answer & Move to Next Question

Links

1:21 PM
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Question # 4 of 10 (Start time: 01:20:42 PM, 26 August 2021) **Total Marks: 1**

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

Select the correct option

- Nm
- mN +mN+1+ mN+2 +... +m2N-1
- Nm +Nm+1+ N m+2 +... + N2m-1
- mN

Links

1:20 PM
8/26/2021

Question # 10 of 10 (Start time: 01:17:28 PM 26 August 2021) Total Mark

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

Select the correct option

- START or READ
- POP or REJECT
- READ or POP
- PUSH or POP

If Q = {xx, xyxxxy }, and R = {xyxyxyxxyy, xyxyyyxx} then Pref(Q in R) = _____

Select the correct option

- xyxyxy
- xyxyyy
- xx
- xxy

The derivation of a word w, generated by a CFG, such that at each step, a production is applied to the left most nonterminal in the working string, is said to be _____.

lect the correct option

- Right most Terminal
- Left most derivation
- Right most derivation
- Left most Terminal

CS402:Quiz# 02

Quiz Start Time: 01:08 PM, 26 August 2021

Question # 7 of 10 (Start time: 01:10 PM, 26 August 2021)

Total Marks: 1

A PDA is called nondeterministic PDA if _____

Select the correct option

- every READ state is followed by a HERE state.
- there are more than one outgoing edges at READ or POP states with one label
- there are mroe than one POP states
- there are more than one PUSH states

Question # 6 of 10 (Start time: 01:13:56 PM, 26 August 2021) Total Mar

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

Select the correct option

- REJECT
- START
- ACCEPT
- READ

CS403: Quiz# 02 Quiz Start Time: 01:05 PM, 26 August 20

Question # 5 of 10 (Start time: 01:11:54 PM, 26 August 2021) Total Marks

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

Select the correct option

- READ
- START
- REJECT
- ACCEPT

uestion # 4 of 10 (Start time: 01:10:04 PM, 25 August 2021) Total Mar

Which of the following statement is FALSE?

elect the correct option

- For every PDA, there always exists a regular expression.
- Every CFG cannot be expressed as a regular expression.
- Every Regular Expression be expressed by a CFG.
- For a PDA, there exists a CFG that represents the same language.

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

Select the correct option

- POP
- ACCEPT
- PUSH
- REJECT

Question # 10 of 10 (Start time: 10:27:39 AM, 26 August 2021) Total Marks: 1

S->a|Xb|aYa
X->Y|^ (NOTE: ^ means NULL)
Y->b|X
Which Non-terminal(s) is/are NOT nullable?

Select the correct option

- S,X and Y
- X
- S
- Y

Click to Save Answer & Move to Next Question

Theorem

If every production in a CFG is one of the following forms

Nonterminal → semiword

Nonterminal → word

then the language generated by that CFG is regular.

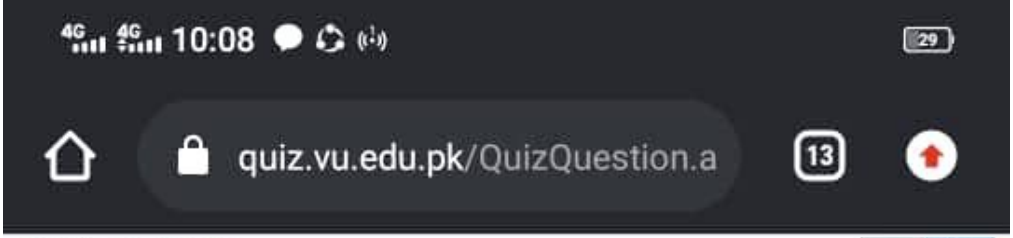
Regular grammar

Definition

A CFG is said to be a **regular grammar** if it generates the regular language *i.e.* a CFG is said t

grammar in which each production is one of the two forms

Nonterminal → semiword



MC200403225: ALTAF HUSSAIN

Time Left 89 sec(s)

CS402:Quiz# 02

Quiz Start Time: 10:05 AM, 26 August 2021

Question # 7 of 10 (Start time: 10:08:52 AM, 26 August 2021)

Total Marks: 1

The CFG that generates the regular language is called _____.

Select the correct option

- regular expression
- regular grammar
- non-regular grammar
- finite automata

BC180405514: MUHAMMAD NAWAZ

Time Left 90 sec(s)

CS402:Quiz# 02

Quiz Start Time: 10:22 AM, 26 August 2021

Question # 9 of 10 (Start time: 10:26:59 AM, 26 August 2021)

Total Marks: 1

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

Select the correct option

- intermediates
- terminals
- non-terminals
- productions

Click to Save Answer & Move to Next Question

Question # 6 of 10 (Start time: 10:25:06 AM, 26 August 2021) Total Marks: 1

Before the CFG corresponding to the given PDA is determined, the PDA is converted into the standard form which is called.

Select the correct option

- Finite Automaton
- None of given options
- Conversion form
- Chomsky Normal Form (CNF)

Click to Save Answer & Move to Next Question

BC180405514: MUHAMMAD NAWAZ

Time Left 89 sec(s)

CS402:Quiz# 02

Quiz Start Time: 10:22 AM, 26 August 2021

Question # 4 of 10 (Start time: 10:24:01 AM, 26 August 2021)

Total Marks: 1

The CFG S--> aSa | bSb | a | b | ^ represents _____ language.

Select the correct option

- EQUAL
- PALINDROME
- ODD-ODD
- EVEN-EVEN

Click to Save Answer & Move to Next Question

BC180405514: MUHAMMAD NAWAZ

Time Left 90 sec(s)

CS402:Quiz# 02

Quiz Start Time: 10:22 AM, 26 August 2021

Question # 3 of 10 (Start time: 10:23:22 AM, 26 August 2021)

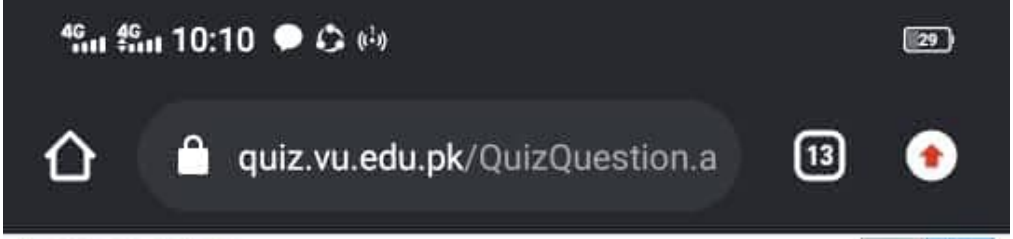
Total Marks: 1

In a STACK:

Select the correct option

- The element PUSHed in last is POPed in last
- The element PUSHed first is POPed first
- None of given options
- The element PUSHed first is POPed in the last

Click to Save Answer & Move to Next Question



MC200403225: ALTAF HUSSAIN

Time Left 89 sec(s)

CS402:Quiz# 02

Quiz Start Time: 10:05 AM, 26 August 2021

Question # 10 of 10 (Start time: 10:10:25 AM, 26 August 2021)

Total Marks: 1

The production of the form: non-terminal ----> one non-terminal is called the _____.

Select the correct option

- NULL production
- Unit production
- Non Terminal production
- Terminal production

MC200403223: TARIQ MEHMOOD

Time Left 78 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:59 PM, 25 August 2021

Question # 9 of 10 (Start time: 12:01:11 AM, 26 August 2021)

Total Marks: 1

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

Select the correct option

- ● Non terminal
- ○ Terminal
- ○ Unit production
- ○ Null production

Click to Save Answer & Move to Next Question

MC200403223: TARIQ MEHMOOD

Time Left 84 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:59 PM, 25 August 2021

Question # 8 of 10 (Start time: 12:01:02 AM, 26 August 2021)

Total Marks: 1

The CFG S → aSb|ab|A is used to express the language _____.

Select the correct option

Reload Math Equations

- ○ Prime
- ● Palindrome
- ○ Equal
- ○ Even

Click to Save Answer & Move to Next Question

MC200403223: TARIQ MEHMOOD

Time Left 75 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:59 PM, 25 August 2021

Question # 7 of 10 (Start time: 12:00:44 AM, 26 August 2021)

Total Marks: 1

_____ is an operation that takes out a letter from the top of the STACK.

Select the correct option

- ○ WRITE
- ○ PUSH
- ○ APPEND
- ● POP

Click to Save Answer & Move to Next Question

MC200403223: TARIQ MEHMOOD

Time Left 83 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:59 PM, 25 August 2021

Question # 6 of 10 (Start time: 12:00:33 AM, 26 August 2021)

Total Marks: 1

Consider the CFG given below:

S->A|bb
A->B|b

Select the correct option

- ○ S->bb
- ○ B->a
- ○ A->b
- ● A->B

Click to Save Answer & Move to Next Question

MC200403223: TARIQ MEHMOOD

Time Left 80 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:59 PM, 25 August 2021

Question # 2 of 10 (Start time: 11:59:54 PM, 25 August 2021)

Total Marks: 1

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

Select the correct option

- ○ REJECT
- ○ PUSH
- ● POP
- ○ ACCEPT

Click to Save Answer & Move to Next Question

MC200403224: NADEEM AKHTAR FAROOQI

Time Left 72 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:45 PM, 25 August 2021

Question # 6 of 10 (Start time: 11:47:37 PM, 25 August 2021)

Total Marks: 1

Given a PDA that accepts the language L _____

Select the correct option

- ○ There does not exist any CFG that generates exactly L
- ● There exists a CFG that generates exactly L
- ○ None of given options
- ○ that PDA will also accept Language L' (complement of L)

Click to Save Answer & Move to Next Question

MC200403224: NADEEM AKHTAR FAROOQI

Time Left 76 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:45 PM, 25 August 2021

Question # 4 of 10 (Start time: 11:47:00 PM, 25 August 2021)

Total Marks: 1

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

Select the correct option

- ○ Null production
- ○ Terminal
- ○ Unit production
- ● Non terminal

Click to Save Answer & Move to Next Question

MC200403224: NADEEM AKHTAR FAROOQI

Time Left 76 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:45 PM, 25 August 2021

Question # 3 of 10 (Start time: 11:46:40 PM, 25 August 2021)

Total Marks: 1

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

Select the correct option

- (●) union,final
- ( ) final, union
- ( ) initial, union
- ( ) union, initial

Click to Save Answer & Move to Next Question

MC200403224: NADEEM AKHTAR FAROOQI

Time Left 52 sec(s)

CS402:Quiz# 02

Quiz Start Time: 11:45 PM, 25 August 2021

Question # 2 of 10 (Start time: 11:45:58 PM, 25 August 2021)

Total Marks: 1

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

Select the correct option

- ○ Ambiguous tree
- ○ Non ambiguous tree
- ● Derivation tree
- ○ Total language tree

Click to Save Answer & Move to Next Question

MC200400534: MUHAMMAD ALI

Time Left 74 sec(s)

CS402:Quiz# 02

Quiz Start Time: 10:53 PM, 25 August 2021

Question # 4 of 10 (Start time: 10:54:22 PM, 25 August 2021)

Total Marks: 1

The grammatical rules which involve meaning of words are called _____.

Select the correct option

- strings
- alphabets
- semantics
- syntactics

Click to Save Answer & Move to Next Question

Before running the input string on PDA, it is first placed on _____.

Select the correct option

- Ram
- Memory
- Stack
- Tape

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

Select the correct option

- String of 0's with an odd length
- Language of odd-odd
- Language of even-even
- String of 0's with a prime length

Conversion form of PDA

Definition

A PDA is in conversion form if it fulfills the following conditions:

There is only one ACCEPT state.

There are no REJECT states.

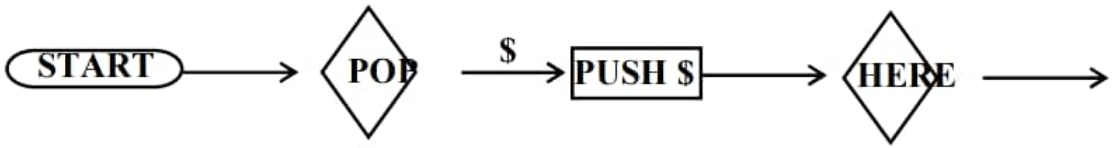
Every READ or HERE is followed immediately by a POP *i.e.* every edge leading out of any READ or HERE state goes directly into a POP state.

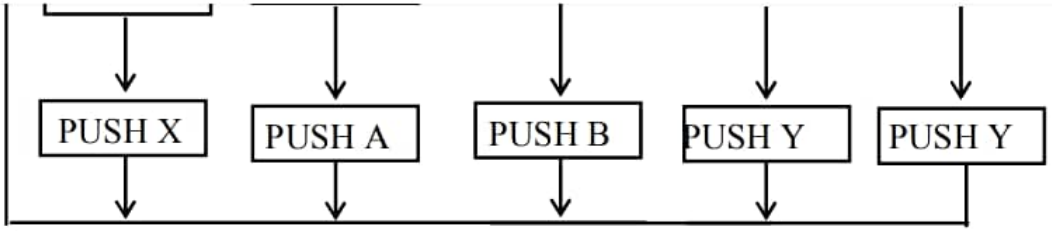
No two POPs exist in a row on the same path without a READ or HERE between them whether or not there are any intervening PUSH states (*i.e.* the POP states must be separated by READs or HEREs).

All branching, deterministic or nondeterministic occurs at READ or HERE states, none at POP states and every edge has only one label.

Even before we get to START, a "bottom of STACK" symbol $ is placed on the STACK. If this symbol is ever popped in the processing it must be replaced immediately. The STACK is never popped beneath this symbol. Right before entering ACCEPT this symbol is popped out and left.

The PDA must begin with the sequence





Theorem

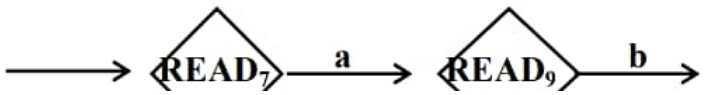
Given a PDA that accepts the language L, there exists a CFG that generates exactly L.

Before the CFG corresponding to the given PDA is determined, the PDA is converted into the **standard form** which is called the **conversion form**.

Before the PDA is converted into conversion form a new state HERE is defined which is placed in the middle of any edge.

Like READ and POP states, HERE states are also numbered *e.g.*

Like READ and POP states, HERE states are also numbered e.g.



$\Rightarrow$ aaaYY
$\Rightarrow$ aaabY
= aaabb

$\Rightarrow$ aaaYY
$\Rightarrow$ aaabY
= aaabb

Theorem
Any word that can be generated by a certain CFG has also a left most derivation.

It is to be noted that the above theorem can be stated for right most derivation as well.
Example
Consider the following CFG

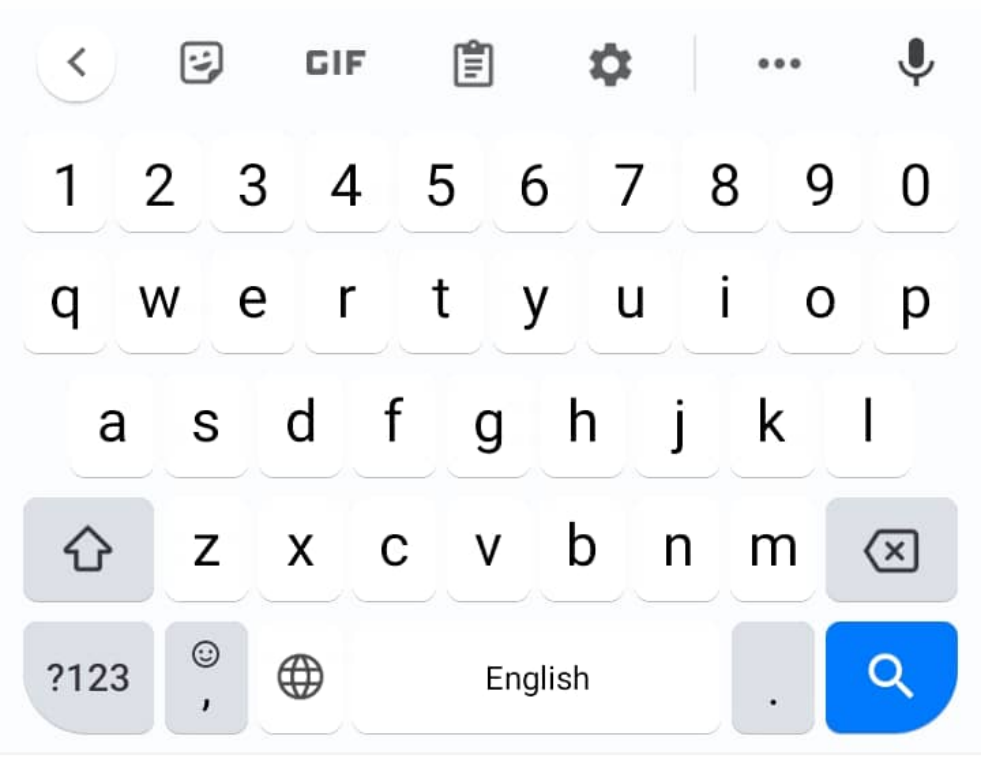
$S \rightarrow YX$
$X \rightarrow XX|b$
$Y \rightarrow YY|a$

Following are the left most and right most derivations of abbbb

$S \Rightarrow YX$
$\Rightarrow aX$
$\Rightarrow aXX$
$\Rightarrow abX$
$\Rightarrow abXX$
$\Rightarrow abbX$
$\Rightarrow abbXX$
$\Rightarrow abbbX$
= abbbb

$S \Rightarrow YX$
$\Rightarrow YXX$
$\Rightarrow YXb$
$\Rightarrow YXXb$
$\Rightarrow YXbb$
$\Rightarrow YXXbb$
$\Rightarrow YXbbb$
$\Rightarrow Ybbbb$
= abbbb

A new format for FAs
A class of machines (FAs) has been discussed accepting the regular language *i.e.* corresponding to r
language there is a machine in this class, accepting that language and cor hine
there is a regular language accepted by this machine. It has also been di CI
corresponding to regular language and CFGs also define some nonregula
There is a question whether there is a class of machines accepting the CFLs? The answer is yes. Th
machines which are to be defined are more powerful and can be constructed with the help of FAs with new
format.
To define the new format of an FA, some terms are defined in the next lecture.



Example

Consider the following CFG

$\sum = \{a,b\}$

productions:

$S \rightarrow aSa|bSb|a|b|\Lambda$

The above CFG generates the language PALINDROME. It may be noted that the CFG $S \rightarrow aSa|bSb|a|b$ generates the language NON-NULLPALINDROME.

Example

Consider the following CFG

$\sum = \{a,b\}$

$Z \rightarrow AB|A|B$
$W \rightarrow Z$
$A \rightarrow aA|a|bA|b$
$B \rightarrow Ba|a|Bb|b$

Note
While adding new productions all Nullable productions should be handled with care. All Nullable productions will be used to add new productions, but only the Null production will be deleted.

Unit production
The productions of the form nonterminal → one nonterminal, is called the ***unit production***.
Following is an example showing how ***to eliminate the unit productions from a given CFG.***

Example
Consider the following CFG

$S \rightarrow A|bb$
$A \rightarrow B|b$

those don't involve the meaning of the words are called **Syntactics**.
e.g. in English language, it can not be written " Buildings sing ", while in computer language one number is as good as another.
e.g. X = B + 10, X = B + 999

Remark
In general, the rules of computer language grammar, are all syntactic and not semantic. A law of grammar is in reality a suggestion for possible substitutions.

CFG terminologies
Terminals: The symbols that can't be replaced by anything are called terminals.
Non-Terminals: The symbols that must be replaced by other things are called non-terminals.
Productions: The grammatical rules are often called productions.

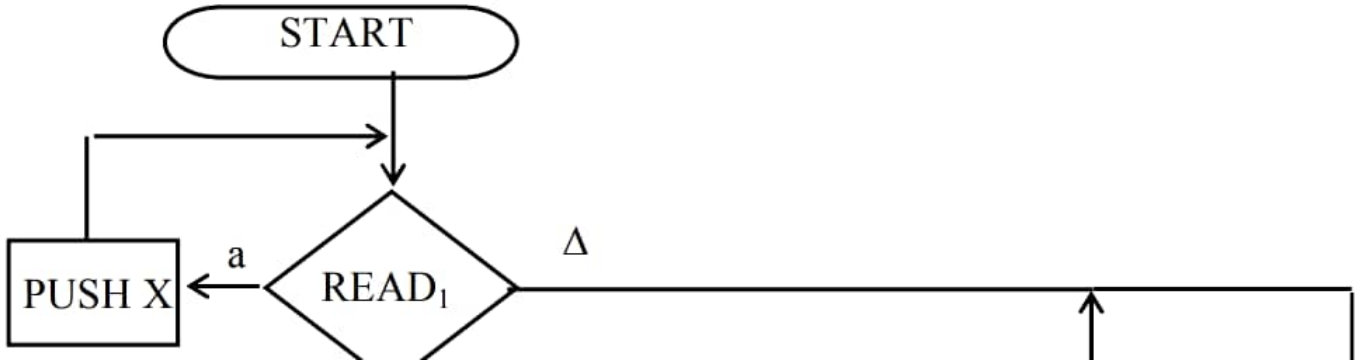
CFG
CFG is a collection of the followings
An alphabet Σ of letters called terminals from which the strings are formed, that will be the words of the language.

ACCEPT	Δ …	**aaabbbΔ** …

It may be observed that the above PDA accepts the language $\{a^n b^n : n=0,1,2,3, \ldots\}$.

Note

It may be noted that the TAPE alphabet Σ and STACK alphabet Γ, may be different in general and hence the PDA equivalent to that accepting $\{a^n b^n: n=0,1,2,3\ldots\}$ discussed above may be

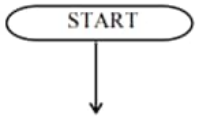


language there is a machine in this class, accepting that language and corresponding to a machine of there is a regular language accepted by this machine. It has also been discussed that there is a CFG corresponding to regular language and CFGs also define some nonregular languages, as well
There is a question whether there is a class of machines accepting the CFLs? The answer is yes. The machines which are to be defined are more powerful and can be constructed with the help of FAs wi format.
To define the new format of an FA, the following are to be defined
Input TAPE
The part of an FA, where the input string is placed before it is run, is called the input TAPE.
The input TAPE is supposed to accommodate all possible strings. The input TAPE is partitioned wit that each letter of the input string can be placed in each cell. The input string abbaa is shown in the f input TAPE.

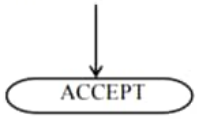
Cell i	Cell ii	Cell iii					
a	b	b	a	a	Δ	Δ	.

The character Δ indicates a blank in the TAPE. The input string is read from the TAPE starting from It is assumed that when first Δ is read, the rest of the TAPE is supposed to be blank.

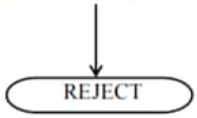
The START state
This state is like initial state of an FA and is represented by



An ACCEPT state
This state is like a final state of an FA and is expressed by

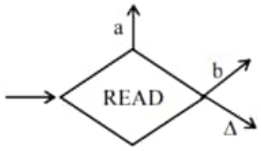


A REJECT state
This state is like dead-end non final state and is expressed by



Note: It may be noted that the ACCEPT and REJECT states are called the halt states

A READ state
This state is to read an input letter and lead to some other state. The READ state is expressed by



Example
Before some other states are defined consider the following example of an FA along with its new for

Conversion form of PDA

Definition

A PDA is in conversion form if it fulfills the following conditions:

There is only one ACCEPT state.

There are no REJECT states.

Every READ or HERE is followed immediately by a POP *i.e.* every edge leading c
state goes directly into a POP state.

No two POPs exist in a row on the same path without a READ or HERE bet n t
any intervening PUSH states (*i.e.* the POP states must be separated by READs or H

All branching, deterministic or nondeterministic occurs at READ or HERE states, r

Theory of Automata

Lecture N0. 39
Reading Material

Introduction to Computer Theory Chapter 15

Summary
PDA corresponding to CFG, Examples of PDA corresponding to CFG

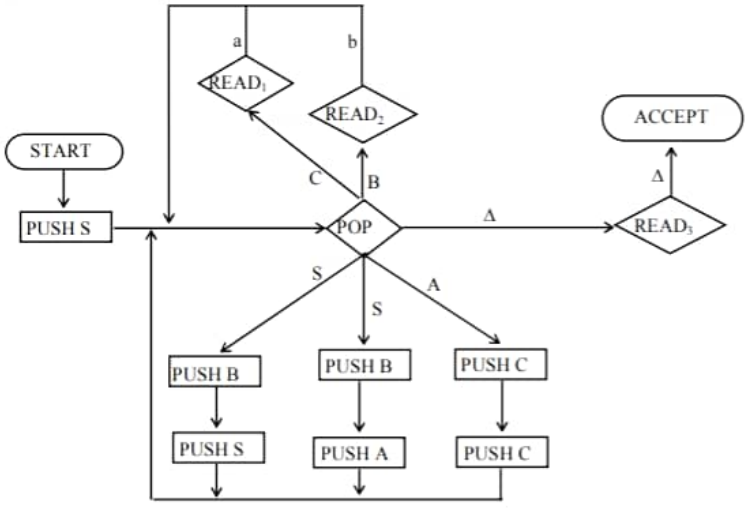
PDA corresponding to CFG
Theorem
Corresponding to any CFG there exists a PDA accepting the language generated by the CFG

Since an algorithm has already been discussed to convert the CFG in CNF, so the PDA can be constructed corresponding to the CFG. As the CFG in CNF generates all the nonnull words of the corresponding CFL, so accepting the null string (if it is contained in the CFL), can be managed separately.

Example
Consider the following CFG which is in CNF and does not generate the null string

$S \rightarrow SB|AB$
$A \rightarrow CC$
$B \rightarrow b$
$C \rightarrow a$

The corresponding PDA will be



Here the STACK alphabet $\Gamma = \{S, A, B, C\}$, where the TAPE alphabet $\Sigma = \{a, b\}$

Note: It may be noted that when the POP state is entered either a nonterminal is replaced by two nonterminals the top of the STACK accommodating a production, or a nonterminal is popped out from the top of the stack and a READ state is entered to read a specified letter from the TAPE or else the machine crashes.
The choice of path taken at POP state to accommodate the word belonging to the CFL can be determined by left most derivation of the word. Consider the word aab with its left most derivation, as follows

X→aaa

X is blue, so A is blue. Thus B and S are also blue. Since S is blue so X ca
from the given CFG.

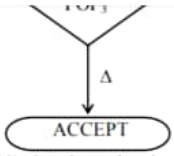
Note: It may be noted that a nonterminal is called useless if it cannot be
Following algorithm is used to determine whether the given CFG generate

Algorithm 3 (Finiteness)

Determine all useless nonterminals and eliminate all productions involvin
For each of the remaining nonterminals, determine whether they are self-e
Stop if a self-embedded nonterminal is discovered.
To test whether X is self-embedded
Change all X's on the left side of the productions into a Greek letter Ψ an
Paint all X's blue.
If Y is any nonterminal on the left side of the production with X in the rig
Repeat step (c) until no new nonterminal is painted.
If Ψ is painted, then the X is self-embedded, otherwise not.
If any nonterminal, left in the grammar, after step 1, is self-embedded ther
otherwise finite.

Example

Consider the CFG
S→ABa|bAZ|b
A→Xb|bZa
B→bAA
X→aZa|bA|aaa
Z→ZAbA
Here the nonterminal Z is useless, while all other are used in the derivatio
productions involving Z
S→ABa|b
A→Xb
B→bAA
X→bA|aaa
Starting with nonterminal X. Replacing X on left side of the production by
S→ABa|b
A→Xb
B→bAA
Ψ →bA|aaa
X is blue so A is blue and so Ψ is blue. Since A is blue, so B is blue and s
self-embedded and hence the CFG generates the infinite language.
To determine whether a string is generated by the given CFG, following a



Here the nondeterminism can be observed at state $READ_1$. It can be observed that the above PDA accepts the language

EVENPALINDROME={w reverse(w): w∈{a, b}*}

={Λ, aa, bb, aaaa, abba, baab, bbbb, …}

Now the definition of PDA including the possibility of nondeterminism may be given as follows

PUSHDOWN AUTOMATON (PDA)[including the possibility of non determism]

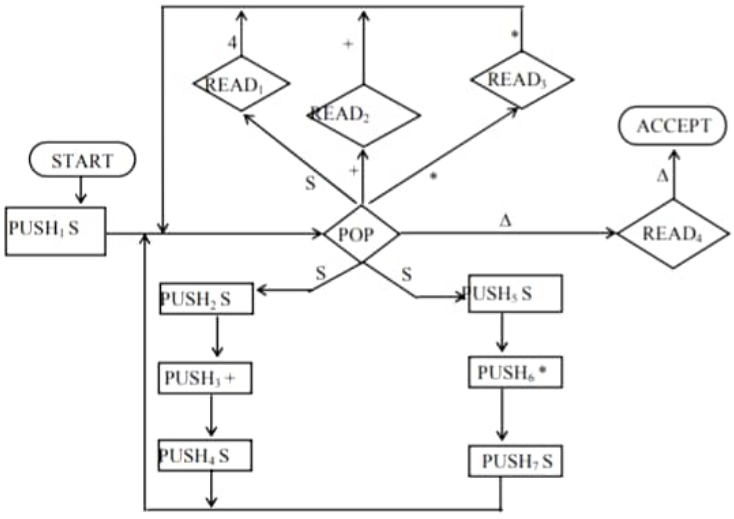
Pushdown Automaton (PDA), consists of the following

1. An alphabet Σ of input letters.
2. An input TAPE with infinite many locations in one direction. Initially the input string is placed in it starting from first cell, the remaining part of the TAPE is empty.
3. An alphabet Γ of STACK characters.
4. A pushdown STACK which is initially empty, with infinite many locations in one direction. Initially the STACK contains blanks.
5. One START state with only one out-edge and no in-edge.
6. Two halt states *i.e.* ACCEPT and REJECT states, with in-edges and no out-edges.
7. A PUSH state that introduces characters onto the top of the STACK.
8. A POP state that reads the top character of the STACK, (may contain more than one out-edges with same label).
9. A READ state that reads the next unused letter from the TAPE, (may contain more than one out-edges with same label).

Example: Consider the CFG

$S \rightarrow S+S|S*S|4$

Following is the PDA accepting the corresponding CFL



The string 4 + 4 * 4 traces the path shown in the following table

STATE	STACK	TAPE
START	Δ	4+4*4
$PUSH_1$ S	S	4+4*4
POP	Δ	4+4*4
$PUSH_2$ S	S	4+4*4

that in this way a high level language could be invented. Before the invention of computers, no one w
have dreamed of writing such complicated formula in parentheses *e.g.* the right side of formula can be

((1/2)+9)/(4+(8/21)+(5/(3+(1/2))))

The high level language is converted into assembly language codes by a program called compiler.
The compiler that takes the user's programs as its inputs and prints out an equivalent program written
assembly language.
Like spoken languages, high level languages for computer have also, certain grammar. But in case of
the grammatical rules, don't involve the meaning of the words.
It can be noted that the grammatical rules which involve the meaning of words are called **Semantics**,
those don't involve the meaning of the words are called **Syntactics**.
e.g. in English language, it can not be written " Buildings sing ", while in computer language one num
good as another.
e.g. X = B + 10, X = B + 999

Remark
In general, the rules of computer language grammar, are all syntactic and not semantic. A law of gram
reality a suggestion for possible substitutions.

CFG terminologies
Terminals: The symbols that can't be replaced by anything are called terminals.
Non-Terminals: The symbols that must be replaced by other things are called non-terminals.
Productions: The grammatical rules are often called productions.

CFG
CFG is a collection of the followings
An alphabet Σ of letters called terminals from which the strings are formed, that will be the words of t
language.
A set of symbols called non-terminals, one of which is S, stands for "start here".
A finite set of productions of the form
non-terminal → finite string of terminals and /or non-terminals.

Note
The terminals are designated by small letters, while the non-terminals are designated by capital letters
There is at least one production that has the non-terminal S as its left side.

Context Free Language (CFL)
The language generated by CFG is called Context Free Language (CFL).
Example
Σ = {a}
productions:
S →aS
S→∧
Applying production (1) six times and then production (2) once, the word aaaaaa is generated as

S ⇒ aS
⇒ aaS
⇒ aaaS
⇒ aaaaS
⇒ aaaaaS
⇒ aaaaaaS
⇒ aaaaaa∧
= aaaaaa

It can be observed that prod (2) generates ∧, a can be generated applying prod. (1) once and then pro
can be generated applying prod. (1) twice and then prod. (2) and so on. This shows that the grammar
language expressed by a*

SHDOWN AUTOMATON (PDA)[including the possibility of non determinism]

hdown Automaton (PDA), consists of the following

1. An alphabet Σ of input letters.
2. An input TAPE with infinite many locations in one direction. Initially the input string is placed in it starting from first cell, the remaining part of the TAPE is empty.
3. An alphabet Γ of STACK characters.
4. A pushdown STACK which is initially empty, with infinite many locations in one direction. Initially the STACK contains blanks.
5. One START state with only one out-edge and no in-edge.
6. Two halt states *i.e.* ACCEPT and REJECT states, with in-edges and no out-edges.
7. A PUSH state that introduces characters onto the top of the STACK.
8. A POP state that reads the top character of the STACK, (may contain more than one out-edges with same label).
9. A READ state that reads the next unused letter from the TAPE, (may contain more than one out-edges with same label)

Theory of Automata

Lecture N0. 39
Reading Material

Introduction to Computer Theory Chapter 15

Summary
PDA corresponding to CFG, Examples of PDA corresponding to CFG

PDA corresponding to CFG

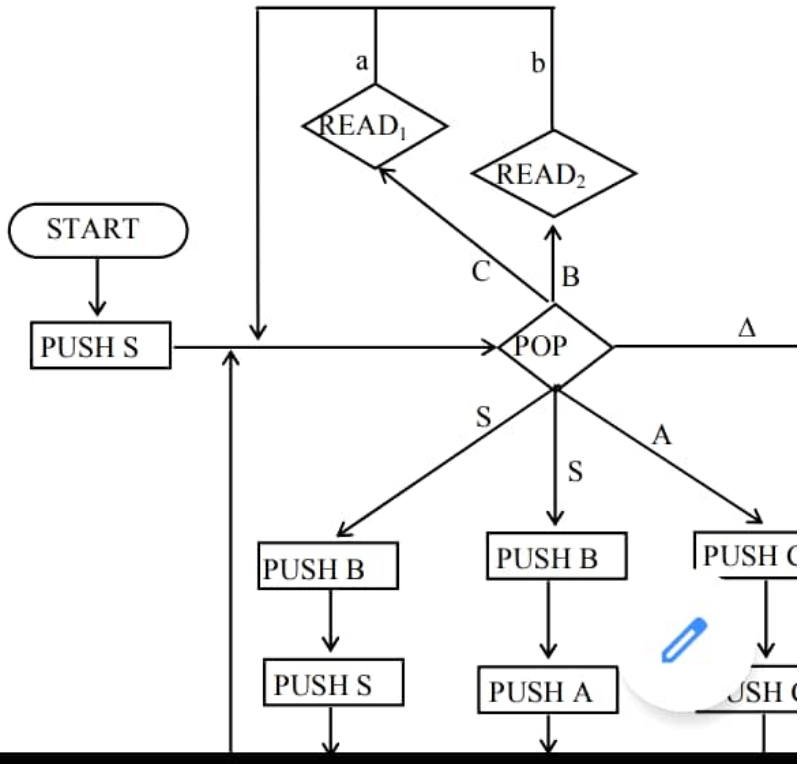
Theorem
Corresponding to any CFG there exists a PDA accepting the language gener

Since an algorithm has already been discussed to convert the CFG in CNF, s
corresponding to the CFG. As the CFG in CNF generates all the nonnull wo
accepting the null string (if it is contained in the CFL), can be managed sepa

Example
Consider the following CFG which is in CNF and does not generate the null

$S \rightarrow SB|AB$
$A \rightarrow CC$
$B \rightarrow b$
$C \rightarrow a$

The corresponding PDA will be



All of the given options

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

ACCEPT
REJECT
START
READ

The CFG which generates the regular language is called

Regular expression
Finite Automata
Regular grammar
None of the given options

PDA stands for _____

Push and Drop Automaton
Pop and Drop Automaton
Push Down Automaton
None of given options

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

TRUE
FALSE

Halt states are

Start and Accept
Accept and Reject
Start and Reject
Read and Reject

The production of the form: Nonterminal-> ^ is said to be _____ production

NULL
UNIT
Chomsky form production
None of the given options

Consider the Following CFG: (NOTE: ^ means NULL) S->Xa X->aX|bX|^ above given CFG can be represented by RE _____

Select correct option:

a*b*

a*b*a

(a+b)*a

a(a+b)*a

Identify FALSE statement:

Every Regular Expression be expressed by CFG and every CFG can be expressed by a Regular Expression

Every regular expression can be expressed as CFG but every CFG cannot be expressed as a regular expression.

For a PDA, there exists a CFG, that represents the same language as represented by PDA.

None of the given options

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

START or READ

POP or REJECT

READ or POP

PUSH or POP

Null production is a

Word

String

Terminal

All of the given options

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

ACCEPT

REJECT

START

READ

MC200405771: HASSAN RAZA

CS402:Quiz# 01

Question # 1 of 10 (Start time: 04:23:35 PM, 06 August 2021)

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

Select the correct option

- productions
- null productions
- non-terminals
- terminals

HASSAN RAZA

CS402:Quiz# 01

Question # 3 of 10 (Start time: 04:25:27 PM, 06 August 2021)

Finite Automaton (FA) must have _____ number of states while a language has ___

Select the correct option

- finite, infinite
- infinite, infinite
- finite, finite
- infinite, finite

quiz.vu.edu.pk/QuizQuestion.aspx?ver=75

MC200405771: HASSAN RAZA

CS402:Quiz# 01

Question # 5 of 10 (Start time: 04:27:30 PM, 06 August 2021)

In pref(Q in R), Q is _____ to/than R.

Select the correct option

- Equal
- Greater
- Smaller
- Not equal

CS402:Quiz# 01

Question # 10 of 10 (Start time: 04:29:56 PM, 06 August 2021)

The product of two regular languages is _____.

Select the correct option

- non-regular
- regular
- closure of a regular language
- infinite

MC200405771: HASSAN RAZA

CS402:Quiz# 01

Question # 7 of 10 (Start time: 04:28:29 PM, 06 August 2021)

A non regular language can be represented by

Select the correct option

- RE
- FA
- None of the given options
- TG

CS402:Quiz# 01

Question # 9 of 10 (Start time: 04:29:22 PM, 06 August 2021)

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

Select the correct option

- L1* is always regular
- L1 + L2 is always regular
- L1 L2 is always regular
- L1/L2 is always regular

CS402:Quiz# 01

Question # 8 of 10 (Start time: 04:28:53 PM, 06 August 2021)

Which of the following should not be NULL in the context of Pumping Lemma?

Select the correct option

- z
- x
- n
- y

MC200405771: HASSAN RAZA

CS402:Quiz# 01

Question # 4 of 10 (Start time: 04:26:43 PM. 06 August 2021)

The CFG S → aSb|ab|Λ is used to express the language _____.

Select the correct option

- Prime
- Palindrome
- Equal
- Even

CS402:Quiz# 01 Quiz Start Time: 04:32 PM, 06 August

Question # 2 of 10 (Start time: 04:33:26 PM, 06 August 2021) Total Mar

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

Select the correct option

- union of FAs
- distinguishable and indistinguishable strings
- closure of FAs
- concatenation of FAs

Click to Save Answer & Move to Next Question

CS402:Quiz# 01

Quiz Start Time: 04:32 PM, 06 August 202

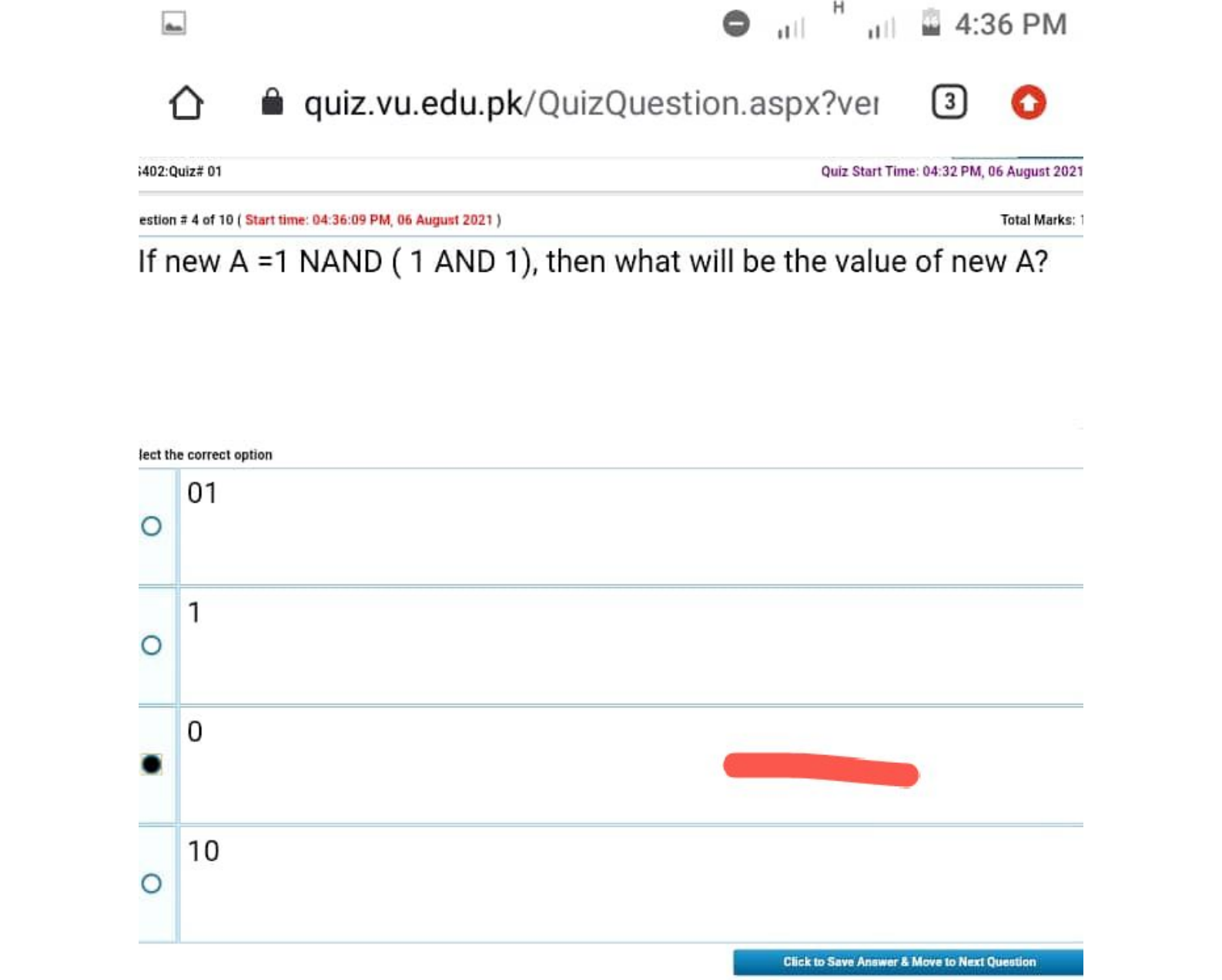
Question # 5 of 10 (Start time: 04:37:11 PM, 06 August 2021)

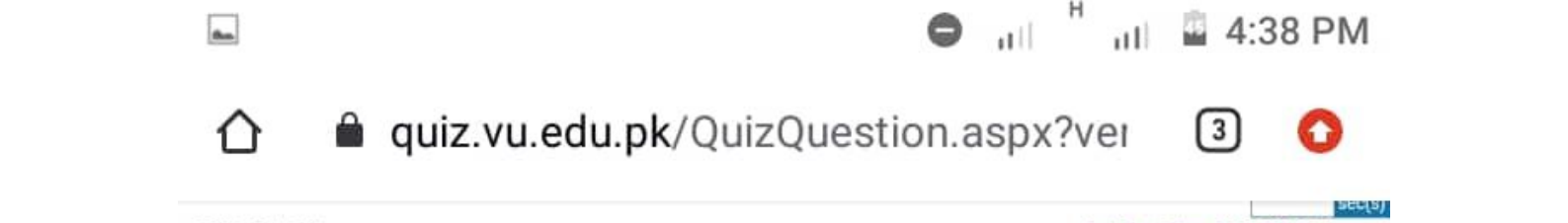
Total Marks:

If a language generates finite number of distinct classes then it must be _____.

Select the correct option

- context free
- both regular and context free
- non-regular
- regular





CS402:Quiz# 01

Quiz Start Time: 04:32 PM, 06 August 2

Question # 7 of 10 (Start time: 04:38:38 PM, 06 August 2021)

Total Mark

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

Select the correct option

- ○ infinite, finite
- ○ finite, finite
- ● finite, infinite
- ○ infinite, infinite

Click to Save Answer & Move to Next Question

CS402:Quiz# 01 Quiz Start Time: 04:32 PM, 06 August 20

Question # 9 of 10 (Start time: 04:40:06 PM, 06 August 2021) Total Marks

The language of all strings not beginning with 'b' partitions ∑* into _____distinct classes.

Select the correct option

- four
- three
- five
- two

Click to Save Answer & Move to Next Question

A problem that has decision procedure is called _____ problem.

Select the correct option

- ○ Regular language
- ○ Infinite
- ○ un-decidable
- ● decidable

Question # 6 of 10 (Start time: 05:49:33 PM, 06 August 2021)

Total Marks: 1

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

Select the correct option

- Complement
- Quotient
- Union
- Intersection

MC200205147: MUHAMMAD NAVEED

Time Left 84 sec(s)

CS402:Quiz# 01

Quiz Start Time: 04:50 PM, 06 August 2021

Question # 8 of 10 (Start time: 04:55:11 PM, 06 August 2021)

Total Marks: 1

The production S --> SS | a | b | ^ can be expressed by Regular expression _____.

Select the correct option

- (a+b)*
- (a+b)+
- (ab)*
- (a+b)

Click to Save Answer & Move to Next Question

MC200205147: MUHAMMAD NAVEED

Time Left 84 sec(s)

CS402:Quiz# 01

Quiz Start Time: 04:50 PM, 06 August 2021

Question # 10 of 10 (Start time: 04:57:11 PM, 06 August 2021)

Total Marks: 1

For a non-regular language, there exists _____ FA.

Select the correct option

- ○ one
- ○ at most one
- ● at least one
- ○ no

Click to Save Answer & Move to Next Question

MC200205147: MUHAMMAD NAVEED

Time Left 87 sec(s)

CS402:Quiz# 01

Quiz Start Time: 04:50 PM, 06 August 2021

Question # 9 of 10 (Start time: 04:55:53 PM, 06 August 2021)

Total Marks: 1

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

Select the correct option

- Language of odd-odd
- String of 0's with a prime length
- String of 0's with an odd length
- Language of even-even

MC200205147: MUHAMMAD NAVEED

Time Left 87 sec(s)

CS402:Quiz# 01

Quiz Start Time: 04:50 PM, 06 August 2021

Question # 7 of 10 (Start time: 04:54:46 PM, 06 August 2021)

Total Marks: 1

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

Select the correct option

- ○ Union
- ● Complement
- ○ Quotient
- ○ Intersection

Click to Save Answer & Move to Next Question

MC200205147: MUHAMMAD NAVEED

Time Left 90 sec(s)

CS402:Quiz# 01

Quiz Start Time: 04:50 PM, 06 August 2021

Question # 6 of 10 (Start time: 04:53:55 PM, 06 August 2021)

Total Marks: 1

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

Select the correct option

- NOT gate
- NAND gate
- OR gate
- Clock pulse

MC200205147: MUHAMMAD NAVEED

Time Left 87 sec(s)

CS402:Quiz# 01

Quiz Start Time: 04:50 PM, 06 August 2021

Question # 5 of 10 (Start time: 04:53:12 PM, 06 August 2021)

Total Marks: 1

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

Select the correct option

- ○ 0, 0
- ○ 1, 1
- ● 0, 1
- ○ 1, 0

Click to Save Answer & Move to Next Question

MC200205147: MUHAMMAD NAVEED

Time Left 82 sec(s)

CS402:Quiz# 01

Quiz Start Time: 04:50 PM, 06 August 2021

Question # 4 of 10 (Start time: 04:52:27 PM, 06 August 2021)

Total Marks: 1

The language of all strings partition Σ* into _____ class(es).

Select the correct option

- ○ two
- ● four
- ○ one
- ○ three

Click to Save Answer & Move to Next Question

CS402:Quiz# 01 Quiz Start Time: 04:40 PM, 06 August

Question # 8 of 10 (Start time: 04:47:33 PM, 06 August 2021) Total Ma

The language of all strings not beginning with 'b' partitions ∑* into _____distinct classes.

Select the correct option

- five
- three
- four
- two

_____ class(es).

Two

The language of all strings not beginning with 'b' partitions ∑* into _____distinct classes.

Two

If Q = {xx, xyxxxy }, and R = {xyxyxyxxyy, xyxyyyxx} then Pref(Q in R) = _____

xyxyyy

A language ending with 'b' partitions ∑* into _____distinct classes.

Three

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

Q,R

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

MC190403848: SYED WASEEM AKRAM SHAH

Time Left 80 sec(s)

CS402:Quiz# 01

Quiz Start Time: 06:05 PM, 06 August 2021

Question # 8 of 10 (Start time: 06:11:52 PM, 06 August 2021)

Total Marks: 1

For a non-regular language, there exists _____ FA.

Select the correct option

- ○ one
- ○ at most one
- ● no
- ○ at least one

Click to Save Answer & Move to Next Question

Question # 4 of 10 (Start time: 04:43:34 PM, 06 August 2021)

The language of all strings partition ∑* into _____ class(es).

Select the correct option

- two
- one
- four
- three

MC210203308: SAHAR KHALIQ

Time Left 90 sec(s)

CS402:Quiz# 01

Quiz Start Time: 05:49 PM, 06 August 2021

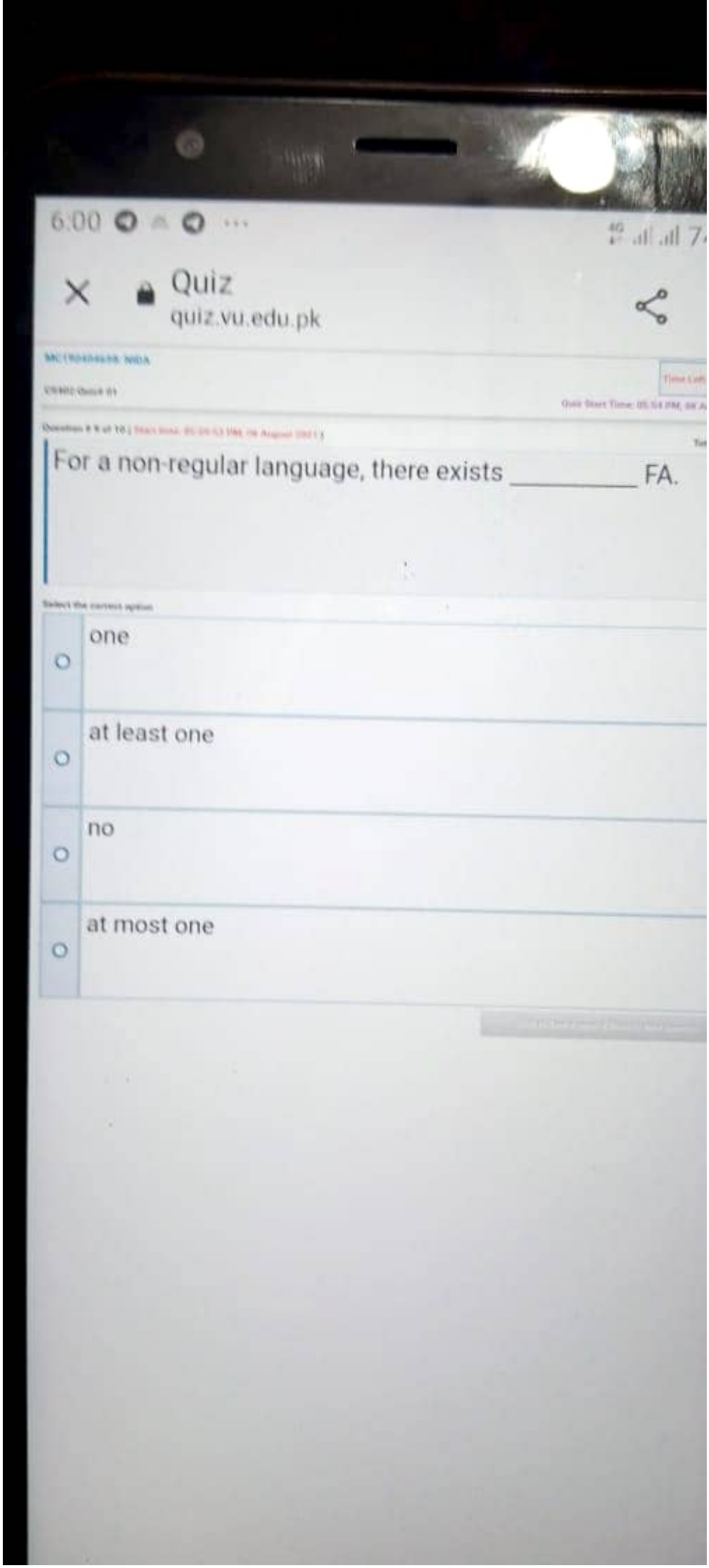
Question # 5 of 10 (Start time: 05:52:59 PM, 06 August 2021)

Total Marks: 1

The language "PRIME" is an example of _____ language.

Select the correct option

- regular
- non regular
- regular but finite
- non regular but finite



MC200401096: SOFIA KHADIM

Time Left 88 sec(s)

CS402:Quiz# 01

Quiz Start Time: 05:54 PM, 06 August 2021

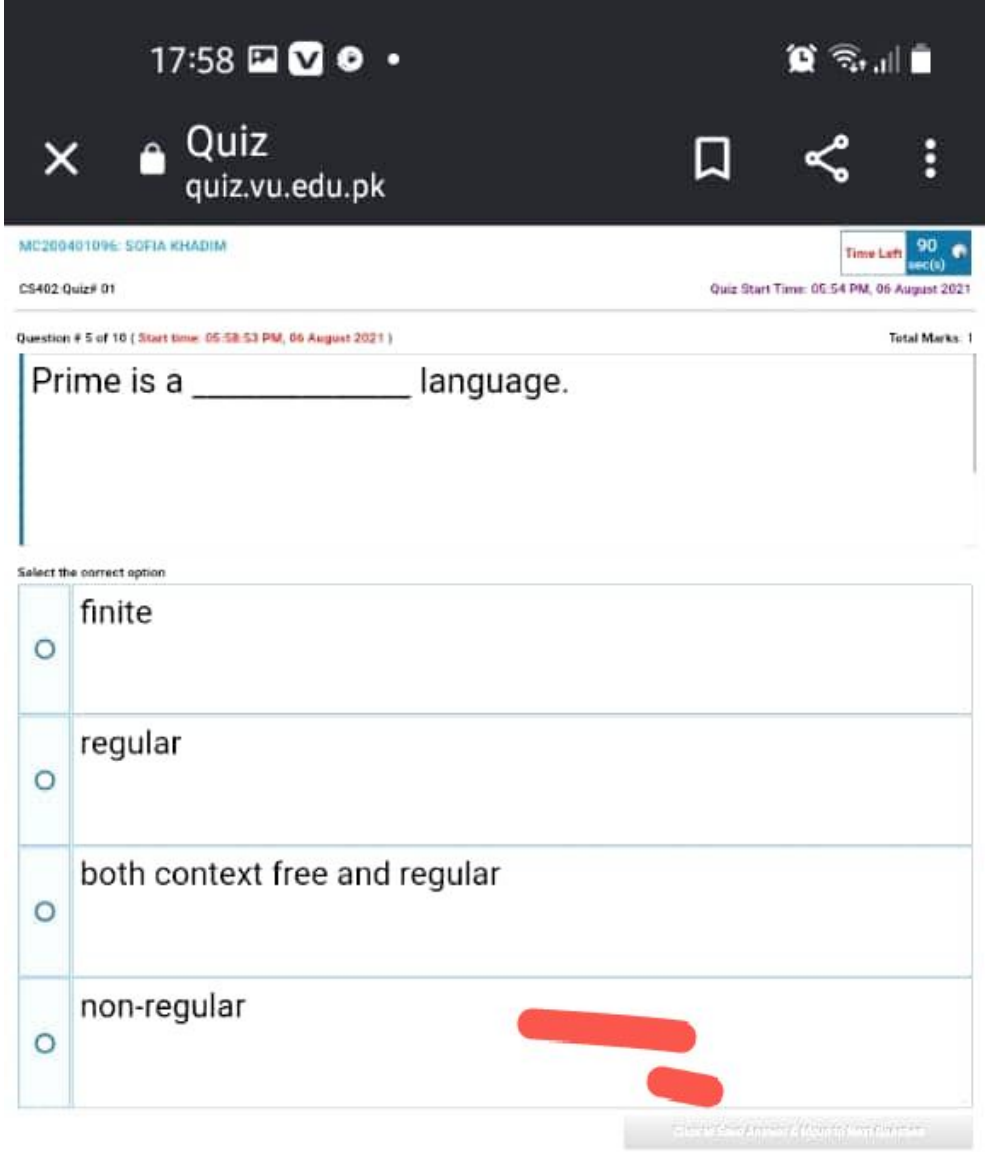
Question # 6 of 10 (Start time: 05:59:29 PM, 06 August 2021)

Total Marks: 1

The language of all strings not beginning with 'b' partitions Σ* into _____distinct classes.

Select the correct option

- two
- three
- five
- four



MC200401096: SOFIA KHADIM

Time Left 88 sec(s)

CS402 Quiz# 01

Quiz Start Time: 05:54 PM, 06 August 2021

Question # 4 of 10 (Start time: 05:58:13 PM, 06 August 2021)

Total Marks: 1

Which of the following is a non-regular language?

Select the correct option

- Odd-Odd
- Language of strings ending in abba
- Even-Even
- Prime

MC200401096: SOFIA KHADIM

Time Left 89 sec(s)

CS402 Quiz# 01

Quiz Start Time: 05:54 PM, 06 August 2021

Question # 3 of 10 (Start time: 05:56:49 PM, 06 August 2021)

Total Marks: 1

If a language generates finite number of distinct classes then it must be _____.

Select the correct option

- non-regular
- regular
- both regular and context free
- context free

Question # 9 of 10 (Start time: 05:52:01 PM, 06 August 2021) Total Marks: 1

Which of the following is not a true theorem?

Select the correct option

- Decidability theorem
- Pseudo theorem
- Equivalency theorem
- Myhill Nerode theorem

Click to Save Answer & Move to Next Question

Quiz Start Time: 07:03 PM, 06 August 2021

CS402:Quiz# 01

Total Marks: 1

Question # 3 of 10 (Start time: 07:04:22 PM, 06 August 2021)

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

Select the correct option

- effectively solvable, finite
- effectively unsolvable, infinite
- effectively unsolvable, finite
- effectively solvable, infinite

Search the web

CS402:Quiz# 01

Quiz Start Time: 06:42 PM, 06 August

Question # 10 of 10 (Start time: 06:52:46 PM, 06 August 2021)

Total Ma

If new A =1 NAND (1 AND 1), then what will be the value of new A?

Select the correct option

- 01
- 1
- 10
- 0

strings generated by b*. It may also be observed that the above [illegible]
$(b^*ab^*ab^*)^*$.

Example

Consider the following CFG

$\Sigma = \{a,b\}$

productions:

$S \rightarrow aSa|bSb|a|b|\Lambda$

The above CFG generates the language PALINDROME. It may be noted that the CFG $S \rightarrow aSa|bSb|a|b$ generates the language NON-NULLPALINDROME.

Example

Consider the following CFG

$\Sigma = \{a,b\}$

productions:

$S \rightarrow aSb|ab|\Lambda$

It can be observed that the CFG generates the language $\{a^nb^n : n = 0,1,2,3, \ldots\}$. It may also be noted that the language $\{a^nb^n : n=1,2,3, \ldots\}$ can be generated by the CFG, $S \rightarrow aSb|ab$

Example

Consider the following CFG

$S \rightarrow aXb|bXa$

$X \rightarrow aX|bX|\Lambda$

The above CFG generates the language of strings, defined over $\Sigma=\{a,b\}$, **beginning and ending in different letters**.