Σ={a,Aa,Abb}, then string aAaAbbAa has _____ length.

- ▶ One
- ▶ Two
- ▶ Three
- ▶ **Four (Page 4)**

Languages generated by kleene star are always _____.

- ▶ Finite
- ▶ **Infinite (Page 7)**
- ▶ Sometimes finite & sometimes infinite
- ▶ None of the these

Let S = {aa, bb} be a set of strings then s* will have

- ▶ **Λ (Page 7)**
- ▶ abba
- ▶ aabbbaa
- ▶ bbaab

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

- (r1)(r2)
- (r1 + r2)
- (r2)*
- **(r1)* (Page 10)**

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

- **True (Page 25)**
- False
- Depends on language
- None of the above

GTG can have _____ final state.

- 0
- 1
- More than 1
- All of the given **Click here for detail**

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

- -
- **+ (Page 27)**
- *
- None of the given

"One language can be expressed by more than one NFA". This statement is _____.

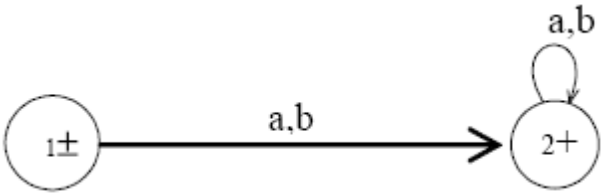
- False
- True (Page 41)
- Depends on NFA
- None of the given

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

- ▶ n+m
- ▶ (n)(m)
- ▶ m^n
- ▶ **n^m (Page 6)**

a*b* = (ab)* this expression is _____

- ▶ True
- ▶ **False**
- ▶ Can't be assumed
- ▶ None of these



Above given FA can be expressed as _____

- ▶ **(a + b)* (Page 19)**

►a* + b*

► (ab + ba)*

►None of these

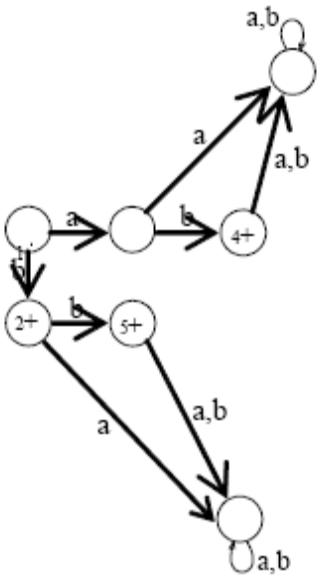
If a language is expressed through TG, then that language will have its RE.

►True (Page 25)

►False

►Depends on language

►None of these



Above given FA accepts _____

language.

▶ **Finite (Page 17)**

▶ Infinite

▶ Depends on alphabet

▶ None of these

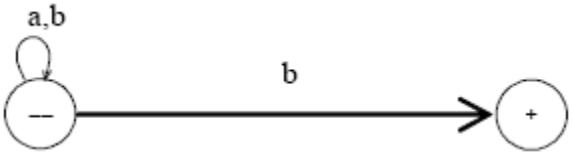
In TG there may exist no paths for certain string.

▶ **True (Page 25)**

▶ False

▶ Depends on the language

▶ None of these



Above given TG accepts the language in which

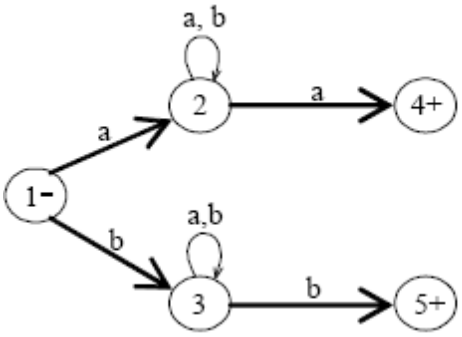
all strings

▶ **Ends in b**

► Begins with b

► Ends and begins with b

► None of the given



Above given TG has _____ RE.

► a(a + b)*b + b(a + b)*a

► b(b + a)*a + b(a + b)*a

► None of these

► **a(a + b)*a + b(a + b)*b**

TG can more then one initial state

► **True (Page 26)**

► False

- Depend on alphabets
- None of given

The clouser FA*(star on an FA) always accept _____string

- **Null (Page 7)**
- aa
- bb
- None of given

In FA final state represent by _____sign

- +
- -
- =
- *

In FA one enter in specific stat but there is no way to leave it then state is called

- Dead States
- Waste Baskets

► Davey John Lockers

► **All of above (Page 17)**

Length of strings, generated by infinite language is_____

► **finite (Page 7)**

► infinite

► none of these

RE for the language defined over Σ={a,b} having words starting with a is____

► **a(a+b)* (Page 12)**

► (a+b)*a

► (a+b)*

► None of these

Questions:

Q1. Point of Kleen Theory.

Answer:- (Page 25)

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

Q2. Difference and common between NFA & DFA

Answer:- (Page 25) Click here for detail

Difference

1-In FA Finite number of states, having one initial and some (maybe none) final states. While in NFA Finite many states with one initial and some final state.

2-In FA for each state and for each input letter there is a transition showing how to move from one state to another while in NFA there may be more than one transition for certain letters and there may not be any transition for certain letters.

3-In FA □ is valid while in NFA □ is not valid.

Common

Finite set of input letters,

Q3. What is the function of mealy machine?

Answer:- (Page 60)

1's complementing and incrementing machines which are basically Mealy machines are very much helpful in computing.

The incrementing machine helps in building a machine that can perform the addition of binary numbers.

Q4. Write the first step to convert GTG to FA?

Answer:- (Page 26)

Step 1 If a TG has more than one start states, and then introduces 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.

Q5. Explain with example that how in GTG's we directly join the initial state with the final state?

Answer:- (Page 27)

Eliminate the middle state and connect the first state with the last by a single transition (include the possibility of circuit as well) labeled by the RE which is the concatenation of corresponding two REs in the existing sequence.

Q6. Check the given statements or correct or not if not then correct it.

1. String in regular language can not be infinite **True**
2. Concatenation of finite letters from alphabets called sigma **False**
3. There cannot be more than one FA,s for same language. **False**

Q7. What is the difference between the strings and the words of a language?

Answer:- (Page 3)

Concatenation of finite number of letters from the alphabet is called a string. Words are strings belonging to some language.

Q8. Is there any difference in PALINDROME and reverse of palindrome explain it?

Answer:- (Page 6)

PALINDROME is The language and words of PALINDROME are called reverse of palindromes

Q9. explain Moor Machine?

Answer:- (Page 55)

A Moore machine consists of the following

A finite set of states q0, q1, q2, … where q0 is the initial state.

An alphabet of letters Σ

An alphabet □ ={x,y,z,…} of output characters from which output strings are generated.

A transition table that shows for each state and each input letter what state is entered the next.

An output table that shows what character is printed by each state as it is entered.

Q10. How can we show transition table of NFA to FA?

Answer:- (Page 45)

there may be more than one transition for a certain letter and there may not be any transition for certain letter, so starting from the initial state corresponding to the initial state of given NFA, the transition table along with new labels of states, of the corresponding FA, can be built introducing an empty state for a letter having no transition at certain state and a state corresponding to the combination of states, for a letter having more than one transitions.

Q11. Is Kleen's star & Kleen's closure are different?

Answer:- (Page 7)

There is no difference between both