

Question No: 27 (Marks: 2)

Differentiate between Regular and Non regular languages?

Answer: - (Page 10 & 71)

The language generated by any regular expression is called a regular language.

The language that cannot be expressed by any regular expression is called a Nonregular language.

Question No: 28 (Marks: 2)

What is meant by a "Transition" in FA?

Answer: - Rep

Question No: 29 (Marks: 2)

What are the halt states of PDAs?

Answer: - (Page 105)

ACCEPT and REJECT states are called the halt states.

Reject state is like dead non final state.

Accept state is like final state.

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Question No: 30 (Marks: 2)

Identify the null productions and nullable productions from the following CFG:

$S \rightarrow ABAB$

$A \rightarrow a | \Lambda$

$B \rightarrow b | \Lambda$

Answer: - (Page 102)

Here $S \rightarrow ABAB$ is nullable production and $A \rightarrow \Lambda, B \rightarrow \Lambda$ are null productions.

Question No: 31 (Marks: 3)

Describe the POP operation and draw symbol for POP state in context of Push down stack.

Answer: - Rep

Question No: 32 (Marks: 3)

What does the the following tape of turing machine show?

FROM Where	TO Where	READ What	POP What	PUSH What	ROW Number
READ ₉	READ ₃	b	b	abb	11

Answer: - (Page 124)

Row11 is not Net style sentence because the trip from READ₉ to READ₃ does not pop one letter form the STACK, while it adds two letters to the STACK. However Row11 can be concatenated with some other Net style sentences e.g. Row11Net(READ₃, READ₇, a)Net(READ₇, READ₁, b)Net(READ₁, READ₈, b) Which gives the nonterminal.

Net(READ₉, READ₈, b), now the whole process can be written as

Net(READ₉, READ₈, b) \rightarrow Row11Net(READ₃, READ₇,a) Net(READ₇, READ₁, b)Net(READ₁, READ₈, b)

Which will be a production in the CFG of the corresponding row language.

Question No: 33 (Marks: 3)

Find Pref (Q in R) for:

$Q = \{10, 11, 00, 010\}$

$R = \{01001, 10010, 0110, 10101, 01100, 001010\}$

Answer: - Rep

Question No: 35 (Marks: 5)

Consider the language L which is EVEN-EVEN, defined over $\Sigma = \{a,b\}$. In how many classes does L may partition Σ^* . Explain briefly.

Answer: - Rep

Question No: 36 (Marks: 5)

What are the conditions (any five) that must be met to know that PDA is in conversion form?

Answer: - Rep