

RGPV 2015 PYQ

Q. State and explain the properties of transition functions ?

Ans. A transition function is defined on every state for every input symbol.

Transition Function ( $\delta$ ) is defined as  $\delta = Q \times \Sigma \rightarrow Q$ .

Where,

$Q$  is set of all states.

$\Sigma$  is set of input symbols.

Properties of transition functions:

Property 1:  $\delta(q, \Lambda) = q$ . It means the state of a system can be changed by an input symbol.

Property 2: For all strings  $w$  and input symbol  $a$ ,

$$\delta(q, aw) = \delta(\delta(q, a), w)$$

$$\delta(q, wa) = \delta(\delta(q, w), a)$$

It means the state after the automaton consumes or reads the first symbol of a string  $aw$  and the state after the automaton consumes a prefix of the string  $wa$ .

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