

Theory of Computation

Regular Languages & Non Regular Languages

DPP-03

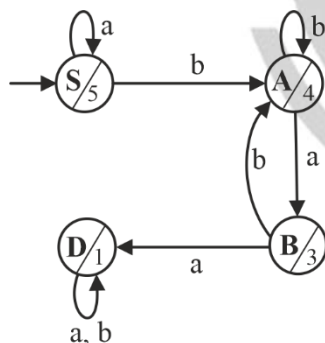
[MSQ]

1. Which of the following is/are correct?

- (a) Transition function (δ) in mealy machine and moore machine is same.
- (b) Output function (λ) in moore machine is $\lambda: Q \rightarrow \Delta$.
- (c) Output function (λ) in mealy machine is $\lambda: Q \times \Sigma \rightarrow \Delta$.
- (d) Output is associated with state in mealy machine.

[NAT]

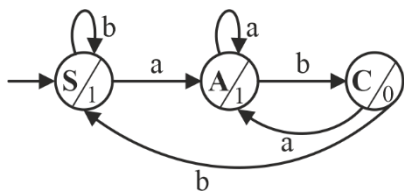
2. Consider the following moore machine:

Moore machine:

On input “abbabb” the output will be ____.

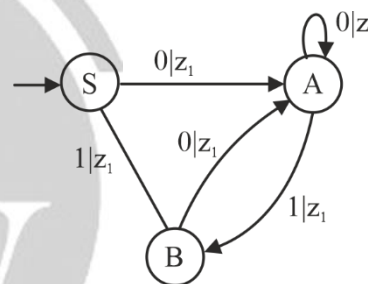
[MCQ]

3. Consider the following moore machine:



The above moore machine will produce

- (a) 0 output for every occurrence of bab.
- (b) 1 output for every occurrence of aa.
- (c) 0 output for ever occurrence of ab.
- (d) None of these.

[MCQ]4. Consider the following mealy machine on $\Sigma = \{0, 1\}$ 

For input “010100” what will be the output?

- (a) $z_1 z_1 z_1 z_1 z_1 z_2$.
- (b) $z_1 z_2 z_1 z_2 z_1 z_2$.
- (c) $z_1 z_2 z_1 z_2 z_1 z_2$.
- (d) None of these.

[MCQ]

5. Consider the following statements:

S₁: Mealy machine and moore machine both are equivalent.**S₂:** For n length input moore machine produces (n + 1) length output.

Which of the following is correct?

- (a) S_1 only.
- (b) S_2 only.
- (c) Both S_1 and S_2 are correct.
- (d) None of these.

Answer Key

- | | |
|--------------|--------|
| 1. (a, b, c) | 4. (a) |
| 2. (5544344) | 5. (c) |
| 3. (c) | |



Hints and Solutions

1. (a, b, c)

- (a) True: $\delta: Q \times \Sigma \rightarrow Q$ Moore machine
 $\delta: Q \times \Sigma \rightarrow Q$ Mealy machine
 (b) True: $\lambda: Q \rightarrow \Delta$ Moore machine
 (c) True: $\lambda: Q \times \Sigma \rightarrow \Delta$ Mealy machine
 (d) False: In moore machine output is associated with state.
 In mealy machine output is associated with transition.

2. (5544344)

Input: a b b a b b
 ↓ ↓ ↓ ↓ ↓ ↓
 Output: 5 5 4 4 3 4 4
 ↓
 start state

Hence, (5544344) is correct.

3. (c)

Input: ab b ab
 ↓ ↓ ↓
 Output: 1 1 0 1 1 0

Hence, option (c) is correct.

4. (a)

Input: 0 1 0 1 0 0
 Output: $z_1 z_1 z_1 z_1 z_1 z_1$

5. (c)

S_1 : Both are equivalent.

S_2 : Moore machine generates 1 extra output.



Any issue with DPP, please report by clicking here:- <https://forms.gle/t2SzQVvQcs638c4r5>

For more questions, kindly visit the library section: Link for web: <https://smart.link/sdfez8ejd80if>



PW Mobile APP: <https://smart.link/7wwosivoicgd4>