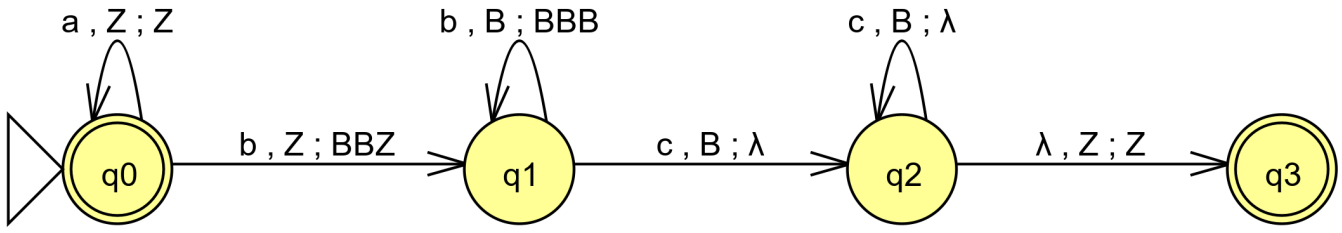
Quiz 7

1. The following PDA is deterministic.

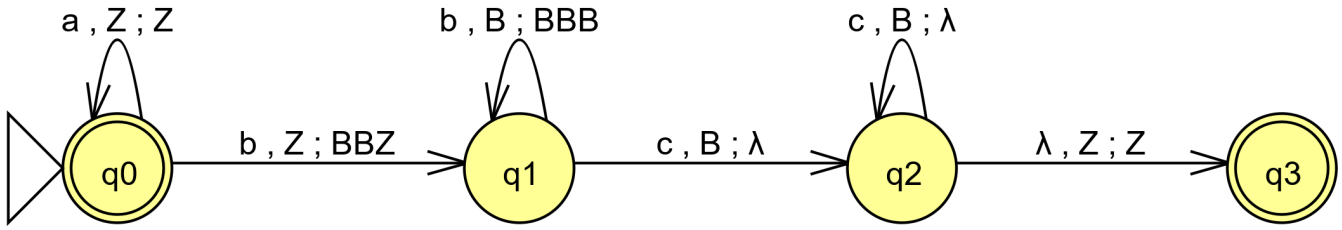


(a) True

(b) False

(c) Don't know!

2. What is the language accepted by this PDA, where Z is the bottom of the stack symbol?



(a) $\{a^n b^n c^k : n, k \geq 0\}$

(b) $\{a^{2n} b^n c^k : n, k \geq 0\}$

(c) $\{a^k b^n c^{2n} : n, k \geq 0\}$

(d) $\{a^k b^{2n} c^n : n, k \geq 0\}$

3. Consider the following two statements:

   (I). Every **CFL** can be accepted by an NPDA with 3 states.
   (II). Every **regular language** can be accepted by an NPDA with 3 states.

   Which of the following is correct?

   (a) Both (I) and (II) are true.

   (b) Only (I) is true but (II) is sometimes false.

   (c) Only (II) is true but (I) is sometimes false.

   (d) None of the above.

4. A valid reason why the following is not an s-grammar is ...?

1. $A \rightarrow aBA$
2. $B \rightarrow aAB$
3. $C \rightarrow ABC$
4. $A \rightarrow a$
5. $B \rightarrow b$
6. $C \rightarrow c$

(a) Because of simultaneous presence of 1 & 2

(b) Because of simultaneous presence of 1 & 4

(c) Because of simultaneous presence of 3 & 6

(d) All of the above

5. How many of the following rules are in Chomsky normal form and how many are in Greibach normal form?
(Capital letters are variables and lower cases are terminals.)

$$A \to aBA$$
$$A \to ab$$
$$A \to c$$
$$A \to CB$$
$$A \to aAB$$

(a) 3 in CNF and 3 in GNF

(b) 2 in CNF and 3 in GNF

(c) 2 in CNF and 2 in GNF

(d) 3 in CNF and 2 in GNF