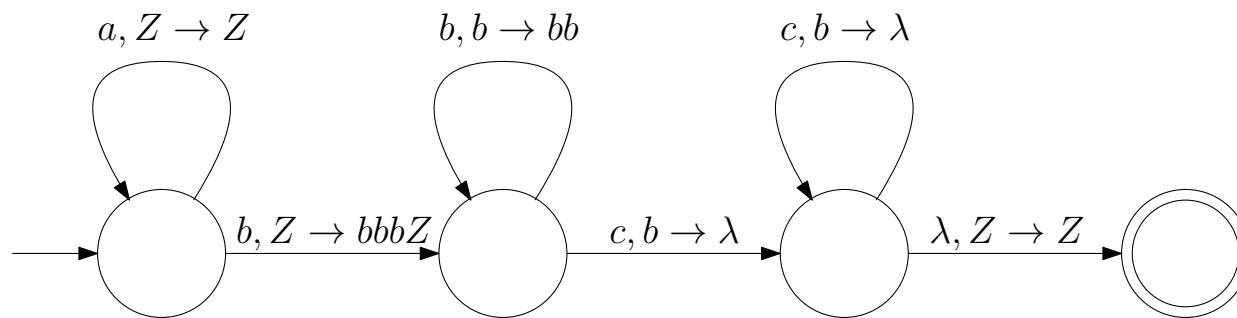


# Quiz 8

1. The following PDA is deterministic.



(a) True

(b) False

2. Let  $G$  be a context free grammar. There necessarily exists a deterministic PDA  $N$  such that  $L(G) = L(N)$ .

(a) True

(b) False

3. Let  $G$  be a regular grammar. There necessarily exists a deterministic PDA  $N$  such that  $L(G) = L(N)$ .

(a) True

(b) False

4. Suppose that  $L_1$  is a regular language, and  $L_2$  is context-free but not regular. Which of the following languages are context free?

(a)  $L_2 \setminus \overline{L_1}$

(b)  $(L_2)^* \cup (L_1 \cap L_2)$

(c)  $(L_2 L_1)^* \cap (L_1^* \cup (L_2 \cap \emptyset))$

(d) all of the above

(e) none of the above

5. During the procedure of converting an NPDA into an equivalent CFG,  $(q_i B q_j) \Rightarrow^* w$  has the following meaning:
- (a) NPDA goes from state  $q_i$  with  $B$  on top of the stack to  $q_j$  by reading  $w$ ,  $B$  is removed from the stack and the stack doesn't change below  $B$ .
  - (b) NPDA goes from state  $q_j$  with  $B$  on bottom of the stack to  $q_i$  by reading  $w$ ,  $B$  is removed from the stack and the stack doesn't change above  $B$ .
  - (c) NPDA goes from state  $q_i$  with  $w$  on top of the stack to  $q_j$  by reading  $B$ ,  $w$  is removed from the stack and the stack doesn't change below  $w$ .
  - (d) none of the above.