1. Considering the grammar **G**, we can find some values of *i* and *j*, so that LR(*i*) and SLR(*j*) parsers can handle **G** correctly. Please answer the following questions.

     a. Does the LR parser work properly when *i* is 0? Why? (2pt)

     b. What is the smallest value of *j*? Why? (3pt)

Grammar G

$$S \rightarrow Bxxxyz$$
$$| \quad Cxxxxz$$
$$| \quad xBxxxxy$$
$$B \rightarrow w$$
$$C \rightarrow w$$

Note: w, x, y, and z are terminals, whereas S, B, and C are non-terminals.

ANS

a. **No.**

Because can't determine whether to reduce to B or C

b. **5.**

SLR(j) uses follow sets for lookahead. If lookahead four characters, FOLLOW(B) contains {xxxy, xxxx} and FOLLOW(C) contains {xxxx}, to determine whether B or C to reduce, one more character need to lookahead. So the smallest value of j is 5.