Written Assignment: LR Parsing

October 1, 2013
Due October 8, 2013

1. Is the following grammar SLR(1)? Show your work. LR(1)? Show your work.

$$S \rightarrow Id := A;$$
$$A \rightarrow Id := A$$
$$A \rightarrow E$$
$$E \rightarrow E + P$$
$$E \rightarrow P$$
$$P \rightarrow Id$$
$$P \rightarrow (Id; Id)$$
$$P \rightarrow (A)$$

2. Show that the following grammar

$$S \rightarrow Xe \mid cXd \mid Yd \mid cYe$$
$$X \rightarrow w$$
$$Y \rightarrow w$$

is LR(1) but not LALR(1).

3. Consider the following grammar:

$$S \rightarrow F = T \mid T$$
$$T \rightarrow T + j \mid F$$
$$F \rightarrow F * \mid a \mid j$$

Construct the LR(1) DFA for the grammar. Is the grammar LR(1)? Justify your answer.