(1) Show that the following grammar is LL(1) but not SLR(1)

```
S → AaAb |BbBa
A → ε
B → ε
```

(2) Show that the following grammar is SLR(1) but not LL(1).

```
S → SA | A
A → a
```

(3) The following is an ambiguous grammar:

```
S → AS | b
A → SA | a
```

Build a SLR(1) parsing table for this grammar. There will be conflicting actions in the table. Suppose we tried to use the parsing table in a non-deterministic manner (i.e. a conflicting action is resolved non-deterministically). Show all possible sequences of actions on input abab.

(4) Construct a LR(1) parsing table for the following grammar:

```
S → SS+ | SS* | a
```

(5) Construct a LR(1) parsing table for the following grammar:

```
S → aSa | bSb | ε
```

(6) Construct a LALR(1) parsing table for the following grammar:

```
S → SS+ | SS* | a
```

by simply merging states from LR(1) automaton with common core.

Also apply the efficient construction of LALR parsing table; show (1) the spontaneous lookaheads, (2) propagation of lookaheads table, and (3) the computation of lookaheads for all items.