Review 1

Automata & Theory of Computation

Student ID: 2019042824 **Name:** 이 경준

1. Fill the blanks.

$$L = \{a^n b^n : n \geq 0\}$$

$L^0 = \{$ λ $\}$

$L^2 = \{$ $a^n b^n a^m b^m : n \geq 0,\ m \geq 0$ $\}$

$L^R = \{$ $b^n a^n : n \geq 0$ $\}$

$$L_1 = \{a, ab, bb\}$$
$$L_2 = \{b, bab, aa\}$$

$L_1 L_2 = \{$ ab, abab, aaa, abb, abbab, abaa, bbb, bbbab, bbaa $\}$

2. If the grammar G with productions

$$S \rightarrow SS,$$
$$S \rightarrow \lambda,$$
$$S \rightarrow aSb,$$
$$S \rightarrow bSa$$

are given, show a derivation of (1), (2) with G.

(1) *baab*

$S \Rightarrow SS \Rightarrow bSaS \Rightarrow bSaaSb \Rightarrow baab$

(2) *aabbba*

$S \Rightarrow SS \Rightarrow aSbS \Rightarrow aaSbbS \Rightarrow aaSbbbSa \Rightarrow aabbba$