

# Review 17

## Automata & Theory of Computation

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Student ID:

Name:

1. Find a context-free grammar without  $\lambda$ -productions equivalent to the grammar defined by

$$\begin{aligned} S &\rightarrow ABaC, \\ A &\rightarrow BC, \\ B &\rightarrow b \mid \lambda, \\ C &\rightarrow D \mid \lambda, \\ D &\rightarrow d. \end{aligned}$$

2. Remove all unit-productions from

$$\begin{aligned} S &\rightarrow Aa \mid B, \\ B &\rightarrow A \mid bb, \\ A &\rightarrow a \mid bc \mid B. \end{aligned}$$