



PES UNIVERSITY, Bangalore
(Established under Karnataka Act No. 16 of 2013)
Department of Computer Science & Engineering

Automata Formal Languages & Logic

Homework – Context Free Grammar

1. Given the grammar G:

$E \rightarrow E+T \mid T$

$T \rightarrow T * F \mid F$

$F \rightarrow (E) \mid a$

Given the parse tree and derivation for each string.

a. a

b. a+a+a

c. ((a))

2. Given a CFG that generates the language $L = \{a^i b^j c^k \mid i=j \text{ or } j=k \text{ where } i, j, k \geq 0\}$.
Is your grammar ambiguous? why or why not?

3.

4.