Daffodil International University

Department of Computer Science and Engineering
Faculty of Science and Information Technology (FSIT)
Quiz No. 3, Course Code: CSE221, Semester: Fall - 2022
Course Title: Theory of Computing
Section: EVE-A&B (221_DSC), Course Teacher: RHH

Time: 35 minutes   Total Marks: 15

Answer all questions.

1. Write at least five differences between the leftmost derivation and the rightmost derivation tree. Also, provide appropriate figures.   4

2. Explain four components of context free grammar with appropriate examples.   4

3. What is the minimum number of productions required to generate a language consisting of palindrome strings (even and odd) over $\sum = \{x, y\}$?   2

4. Construct a derivation tree for the string "gbg" from the CFG given by $S \rightarrow gSg \mid b \mid g$.   2.5

5. Draw a derivation tree for the string "ttsstsst" for the CFG given by,   2.5

$S \rightarrow tB \mid sA$
$A \rightarrow t \mid sS \mid sAA$
$B \rightarrow s \mid sS \mid tBB$

Success is not final; failure is not fatal: It is the courage to continue that counts. - Winston S. Churchill.