Birla Institute of Technology and Science-Pilani, Hyderabad Campus
First Semester 2020-2021
Lab Sheet-4
CS G526: Advanced Algorithms and Complexity
Date: 17/11/20

General Instructions: Argue logically. Write it in a manner that explains your logic very clearly. Do not miss steps in between.

Problem-1:[20 pts] You are given 3 matrices A, B, C each of size $n \times n$. Your goal is to check whether $A \times B = C$ or $A \times B \neq C$. Compute the error probability of your program. Inputs to the programs will be provided separately.

Problem-2:[30 pts] A tree is palindromic when it looks same when vertically mirrored at the root. Given a binary tree, check if the tree is palindromic or not.

Problem-3:[20 pts] Generate all possible strings of valid parenthesis for a given n. For example, when $n = 2$, your program should be able to generate the following strings: (()), ()().

Problem-4:[30 pts] Given a binary tree, write a program that will print all the elements level by level. Specifically, your program should print the root element first followed by the elements in the level 1, followed by the elements in the level 2 and so on. If some elements are missing in a subtree, your program should print "null" for those missing elements.