PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

SUMMER TERM / MAKE UP END TERM EXAMINATION

Semester: Summer Term 2019   **Date**: 26 July 2019

Course Code: CSE 201   **Time**: 2 Hours

Course Name: Data Structures   **Max Marks**: 80

Program & Sem: B.Tech & III Sem (2016 & 2017 Batch)   **Weightage**: 40%

Instructions:
- *(i)*   *Write legibly.*
- *(ii)*   *Answer all the questions.*
- *(iii)*   *Programmable and scientific calculators are not allowed.*

Part A

Answer **all** the Questions. **Each** question carries **five** marks.   (4Qx5M=20M)

1. A person is shopping in Big Bazar. Explain how the different items purchased by him can be stored in a structure. (Guess at least 5 items and it should be of different types).

2. In railway ticket counter there are 8 people standing in a queue. In a pictorial form depict the scenario naming the persons from p1 to p8 and mention the order in which they are served in the queue.

3. A IT company campus has total of 6 buildings and all the buildings have interconnection bridge from one building to another. Identify the data structure and depict the scenario pictorially and mention which data structure will be suitable to store the scenario.

4. Define a tree data structure. Mention the importance of a root node. List and explain different types of tree traversal method.

Part B

Answer **all** the Questions. **Each** question carries **ten** marks.   (3Qx10M=30M)

5. A student has information such as name, ID number, Branch and Mark. Write a program to store information of such 5 students and display the same.

6. In one of the library rack, there are set of 6 books which are arranged in alphabetical order with the starting letter from A to F. (The starting letter of first book is A and for the last book it is F). Depict the scenario pictorially and write function for book arrangement.

7. A train has 8 bogies which are connected to each other. Write a program to add the train engine and to remove a bogie from the last.

Part C

Answer **both** the Questions. **Each** question carries **fifteen** marks. (2Qx15M=30M)

8. Construct binary search tree step-wise for the following:
   a) 11, 6, 8, 19, 4, 13, 5, 17, 43, 49, 16, 31, 32
   b) 30, 20, 10, 15, 25, 23, 39, 35, 42

9. Write the functions for the different tree traversal methods. Also perform pre order, in order and post order traversal for the following binary tree.