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**BAHRIA UNIVERSITY (KARACHI CAMPUS**)

Lab Exam 2- FALL SEMESTER – 2020

**(Data structure & Algorithm: CSL-221)**

Class: BS (CS): **3B**  **(Morning)**

Lab Engineer: **Saba Imtiaz** Time Allowed: **2 Hours**

Date: **07 –Jan -2020** Max Marks: **15**

**Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enrolment #\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Note**

In order to avoid any run time electricity and internet unavailability situation, it is suggested that keep your laptop charged. Also activate 3G/4G connection as an alternative of Wi-Fi/internet option to upload your solution.

**Question no.1 (8 marks)**

Write a program to implement following scenario with appropriate data structure

There are n employees in an organization. You are supposed to create a system which can store data of all employees. The system administrator is responsible to store and update all records. The system must have following functionalities

* To store new record
* To update record
* To search any record with employee name.
* To delete record

1. Data must be sorted according to first letter of employee's name
2. There is no fixed size of data.
3. All employees have unique names. Entry with same name will not be accepted

**Question no. 2 (7 marks)**

1. Write a program that inserts the values in binary search tree and print total number of nodes in each level.
2. Write a program that takes an input “levels” of tree and display number of nodes in each level of complete binary tree.