DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

II SEMESTER B.TECH. (ALL BRANCHES)

FINAL LAB TEST – SET 1

SUBJECT: PROBLEM SOLVING USING COMPUTERS LAB (CSE 1061)

**Time**: 10:00-12:00 Noon (90+30 Mins) **Date**: 08/07/2021 **Max.Marks**: 20

**Note:**

1. First 90 Minutes for implementing the C program in Codeblocks and remaining 30 minutes for uploading
2. The Files to be uploaded :

i) C code file <FirstName\_RegNo.c>

ii) Snapshot of input-output <FirstName\_RegNo\_snap.PDF>

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| **Q. No** | **Question** | **Marks** | **CLO** | **AHEP LO** | **Blooms Taxonomy level** |
| 1. | **a**) Write a function *generateARow*(), the prototype of which is given below, generates a row of the pyramid (as shown in sample input/output) and places it in a string. In the pyramid, **On** stands for One, **Tw** for Two and so on. The content of each row depends on the row number(*R*) and total Number of Rows (*NR*), where *NR*<=10. Develop a logic to generate row content as a string(*rowstr*), given the row number (*R*) and total Number of Rows (*NR*).  The prototype of the function is as follows:  *void generateARow(int R, int NR, char rowstr[]);*  **Note**: Do not hardcode the input/rows of the pyramid. Rows should be generated in the function dynamically.  -7 Marks  **b**) Write the main program, which first prints your name and reg. num and then accepts the total number of rows (*NR*) from the user and generates the pyramid by using the above function and display.  -7 Marks  **c**) After displaying the pyramid, the main program should ask the user to enter a number (*N*),  i) If 1 <= *N* <= *NR*, display only the *Nth* row.  ii) If *N*=0, display all the rows (without mirror).  iii) If *N* >= *NR*+1, display all the rows along with their mirror (as shown in sample input-output).  -6 Marks  Write a single complete C program to implement the above.  **Sample Input/Output 1:**  Name: GGGGGGG and Reg. No.: 12345678  Enter number of rows in the pyramid: 3  **Output**:  On  On Tw On  On Tw Th Tw On  Enter a number: 4  **Output:**  On  On Tw On  On Tw Th Tw On  On Tw On  On  **Sample Input/Output 2:**  Name: GGGGGGG and Reg. No.: 12345678  Enter number of rows in the pyramid: 5  **Output:**  On  On Tw On  On Tw Th Tw On  On Tw Th Fo Th Tw On  On Tw Th Fo Fi Fo Th Tw On  Enter a number: 4  **Output:**  On Tw Th Fo Th Tw On  **Sample Input/Output 3:**  Name: GGGGGGG and Reg. No.: 12345678  Enter number of rows in the pyramid: 2  **Output**:  On  On Tw On  Enter a number: 0  **Output:**  On  On Tw On | 20 | 1 | 1 | 4 |