

Dr. Hemraj Saini

Roll No.: \_\_\_\_\_

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -III EXAMINATION- December 2018

B.Tech I Semester

COURSE CODE: 18B11CI111

MAX. MARKS: 35

COURSE NAME: Programming for Problem solving

COURSE CREDITS: 3

MAX. TIME: 2 Hrs

*Note: All questions are compulsory and carrying equal marks. Carrying of mobile phone during examinations will be treated as case of unfair means.*

**Que.1: [3Marks + 3Marks; CO5]**

- What do you mean by Call by Value and Call by reference? Explain the difference by writing a function to calculate the cube of an integer.
- What is dynamic memory allocation? Write and explain the different dynamic memory allocation functions in C.

**Que.2: [3Marks + 3Marks; CO5]**

- What do you understand by recursion? Differentiate between recursion and iteration. Write the code for generation of the Fibonacci series of a number using recursion.
- If an array *arr* contains *n* elements, then write a recursive program to check if  $arr[0]=arr[n-1]$ ,  $arr[1]=arr[n-2]$  and so on.

**Que. 3: [3Marks + 3Marks; CO6]**

- Write a C program to maintain a record of "N" student details using an array of structures containing four fields (Roll number, Name, Marks, and Grade). Each field is of an appropriate data type. Print the marks of the student given student name as input.
- What are self-referential structures? Explain it with a suitable example.

**Que. 4: [3Marks + 3Marks; CO6]**

- Write a program to print the elements of 1D array along with their memory address at which elements are stored using a pointer.
- Write a program in C to count the number of vowels and consonants in a string using a pointer.

**Que. 5: [3Marks + 3Marks; CO8]**

- Write a file handling program to copy content from one file 'abc.txt' into another file 'xyz.txt'
- Write a C program to reverse the first *n* characters in a file.

**Que.6: [5Marks; CO4]**

- Write a short note on the Generation of computers.
- Explain the difference between structure and union with an example.
- Write a short note on type casting.
- Write the difference between *while* and *do..while* loop.
- Explain the difference between the functions  $\{scanf() \text{ and } fscanf()\}$  and  $\{printf() \text{ and } sprintf()\}$ .