Roll Number:

B.E /B.TECH – END SEMESTER EXAMINATION. MAY 2019
Second Semester
GE 7151 – COMPUTING TECHNIQUES
(Regulation 2015)
Usage of calculator is not allowed

Time: Three Hours | Answer ALL Questions | Maximum: 100 Marks

PART A (10 x 2 =20 Marks)

1. What is a flow chart?
2. Determine which of the following are invalid identifiers. Justify your answer
   (a) chennai25 (b) @chennai (c) 25chennai (d)chennai
3. Suppose x,y and z are floating-point variables that have been assigned the values x=8.8, y=3.5 and z=-5.2. Determine the value of arithmetic expression : 8 * y + 3 * (x-z) / 2
4. List the differences between while and do-while loops
5. Define strings and list any two string functions
6. Determine the output generated by the following code snippets:

```
int a, b, c = 5;
int z[3][4] = {1,2,3,4,5,6,7,8,9,10,11,12};
for(a=0; a<3; ++a)
      for(b=0;b<4;++b)
            if(z[a][b] <c) c=z[a][b];
printf("%d",c);
```

7. List any four file handling functions
8. A C program contains the following statements:

```
float a = 0.001, b = 0.003;
float c, *pa, *pb;
pa = &a;
*pa = 2 * a;
pb = &b;
c = 3 * (*pb - *pa);
```

   What is the value of c?
9. What are enumerators?
10. Define a union "answers" which contains the following three members:
    (a) an integer quantity called correct
    (b) an integer quantity called incorrect
    (c) a floating-point quantity called score

PART B (5 x 16 = 80 Marks)

11. I. Describe the architecture of a computer with illustrative diagrams (10)
    II. A construction company is planning to give a 5% year-end bonus to each of its employee who are earning Rs.2,50,000 or less per year, and a fixed bonus of Rs.1250 to all other employees. Draw a flowchart to print the bonus of an employee. (6)

12.a. Describe the different classification of operators in C with illustrative code snippets

(OR)

12.b. Describe the working principle of the repetitive control structures in C with flowcharts and illustrative code snippets

13.a. I. Describe the working of any sorting technique to sort integers in descending order with an illustrative example. (10)

II. Write a C program which accepts and searches for a target element in a given array. State necessary assumptions if any. (6)

(OR)

13.b. I. Describe how one-dimensional and multi-dimensional arrays can be declared, initialized, accessed and applied. Also, describe how a one dimensional array can be represented using pointers. Illustrate with suitable code snippets. (10)

II. Write a C program to rotate a given matrix by 180 degrees. (6)

14.a I. Describe in detail the different storage classes in C (10)

II. Describe the output generated from the code snippet. Justify your answer (6)

```
#include<stdio.h>
int funct1(int a);
int funct2(int a);
main(){
   int a=0, b=1, count;
   for(count=1; count <=5; ++count){
     b+=funct1(a) + funct2(a);
     printf("%d ",b);
   }
}
funct1(int a){
   int b;
   b=funct2(a);
   return(b);
}
funct2(int a){
   static int b=1;
   b=+1;
   return(b+a);
}
```

(OR)

14.b. I. Explain the object, function, and conditional macros in C with code snippets (10)

II. Write a C program which given a sentence computes and prints the length of the sentence, number of words, number of vowels and consonants with or without using string functions. (6)

15.a. I. Explain structures and unions by describing their application, declaration, initialization and access syntax using illustrative code snippets. Also, differentiate structures and unions. (10)

II. Write a C program using structures to maintain the details of 5 students in a class. Details to be maintained are name, roll number, age, marks obtained in five subjects and percentage of total marks. Compute the mark percentage for each student and display all student details. (6)

(OR)

15.b. I. Describe pass by value and pass by reference with suitable code snippets (10)

II. Write a C recursive function to print a given string in reverse without using string library (6)