Total No. of printed pages = 4

CS 181106

Roll No. of candidate

The figures in the margin indicate full marks
for the questions.

PART A – (10 × 1 = 10 marks)

1. (i) In what sequence the initialization, testing and execution of body is done in a do-while loop?
   (a) Initialization, execution of body testing
   (b) Execution of body, initialization, testing
   (c) Initialization, testing, execution of body
   (d) None of the above

   (ii) What is the output of this C code.
   ```c
   #include<stdio.h>
   void f(int a[])
   {
   int i;
     for (i=0; i < 3; i++)
       a[i]++;
   ```

```
}
main ( )
{
  int, i, a [ ] = {10, 20, 30};
  f(a);
  for (i=0;i<3;++i)
  {
    printf(%d ",a[i]);
  }
}
```

(a)   10 20 30   (b) 11 21 31
(c)   Compile error   (d) Runtime error

(iii) What is the output of the following code.

```
#include<stdio.h>
main()
{
  for(;;)printf("Hello");
}
```

(a) Infinite loop
(b) Prints "Hello" once
(c) No output
(d) Compile error

(iv) Which of the following operations are allowed on pointer?
(a) Adding an integer to pointer
(b) Multiplying an integer to pointer
(c) Dividing two pointers
(d) Adding two pointers

(v) Which of the following is not logical operator?
(a) &   (b) &&
(c) | | (d) !

(vi) Which of the following cannot be checked in a switch-case statement?
    (a) Character   (b) Integer
    (c) Float   (d) Enum

(vii) The expressions an and & arr are same for an array of 10 integers. True or False?

(viii) malloc( ) allocates memory from the heap and not from the stack. True or False?

(ix) Point out the error in the program

```
f(int a, int b)
{
    int a;
    a = 20;
    return a;
}
```
    (a) Missing parenthesis in return statement
    (b) The function should be defined as int f(int a, int b)
    (c) Re-declaration of a
    (d) None of the above

(x) All structure elements are stored in contiguous memory locations. True or False?

PART – B

(Attempt any *four*)

2. (a) Differentiate between procedural programming and object oriented programming. (4)

(b) What is an algorithm? Write an algorithm to compute the following summartion:

$$S = 1 + 2 + 3 + 4 + ... + N.$$ (2+4)

(c) Draw a flowchart for finding largest of three numbers. (5)

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3. (a) Giving examples, explain the uses of break and continue using a while loop in C. (3+3)

(b) Write a program to receive an integer and find its binary equivalent. (6)

(c) Explain the difference between while and do-while loop. (3)

4. (a) Define the features of array in C. (2)

(b) Write a program to perform Bubble sort in an array of integers. Also illustrate with an array. (10)

(c) For the above program, suppose initially user has entered values to the array as a[ ] = {44, 33, 55, 22, 11}. What will be the values of the array after the 3rd iteration? (3)

5. (a) Define function in C. Write the general syntax of function prototype declaration, function call and function definition. (2+3)

(b) What do you mean by call by value and call by reference? Write a program to swap two numbers using call by reference. (4+6)

6. (a) What is recursion? Write a C program to find factorial of a number using recursion. Draw the recursion tree for factorial. (2+8)

(b) What is the difference between malloc() and calloc(), explain with the syntax / examples. (5)

7. (a) Define Macro in C? What are main types of pre-processor directives in C? (2+3)

(b) Define structure in C. Write a program to store the roll no. (starting from 1), name and age of 5 students and then print the details of the student with roll no. 2. (2+8)