

09-06-19

Total No. of printed pages = 4

CS 181106 BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & GIPS)
Azara, Hatkhowapara,
Guwahati - 781017

Roll No. of candidate

--	--	--	--	--	--	--	--	--	--

2019

B.Tech. 2nd Semester End-Term Examination

**PROBLEM SOLVING THROUGH PROGRAMMING
USING C**

**(New Regulation) (W.e.f. 2017-18) and
New Syllabus - (Group B) (w.e.f. 2018-2019)**

Full Marks – 70

Time – Three hours

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.

```
#include<stdio.h>
void f(int a[ ])
{
    int i;
    for (i=0; i < 3; i++)
        a[i]++;
```

[Turn over

```

}
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?

BINA CHOWDHURY CENTRAL LIBRARY  
(GIMT & GIPS)  
Azara, Hatkhowapara,  
Guwahati -781017

### 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 summation:  

$$S = 1 + 2 + 3 + 4 + \dots + N.$$
 (2+4)
- (c) Draw a flowchart for finding largest of three numbers. (5)

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 3<sup>rd</sup> 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)

BINA CHOWDHURY CENTRAL LIBRARY  
(GIMT & GIPS)  
Azara, Hatkhowapara,  
Guwahati -781017