



INTERNAL ASSESSMENT

Class: U.G. Sem-3 Session: 2025-26

Subject: Math-H-SEC-T-1A (C-Programming)

Full Marks: 40 Time: 2 Hours

1. Answer any FIVE questions: (2 marks each)

- a) Explain nested if-else statements with an example.
- b) What are the main Data Types present in C?
- c) Find x and y , where $(x.y)_{10} = (10111.1101)_2$
- d) What will be the output of the following C code?

```
#include <stdio.h>
```

```
int main() {  
    int a = 10;  
    printf("%d, %d, %d, %d\n", a++, ++a, a--, --a);  
    printf("%d", a);  
    return 0;  
}
```

- e) How many times will the loop be executed?

```
int x = 2345;  
while(x > 0)  
{  
    x = x / 10;  
}
```

- f) Convert $(101101)_2$ to hexadecimal.
- g) Differentiate between system software and application software.
- h) What are tokens in C programming? How many types of tokens are there?

2. Answer any TWO questions: (5 marks each)

- a) How do you initialize a two-dimensional array in C? Can it be passed through a function? Explain with an example.
- b) Illustrate function prototypes with an example. Define a function in C to calculate the factorial of a number using recursion.
- c) Define string in C. Write a program to find the length of a string without using library functions.

d) An electricity board charges the following rates to domestic consumers. First 100 units: ₹1.50 per unit, Next 100 units: ₹2.50 per unit and Above 200 units: ₹4.00 per unit. Write a C program to input the number of units consumed by a consumer and calculate the total electricity bill. Add a fixed meter charge of ₹50 to the final bill. Display the total payable amount.

3. Answer any TWO questions: (10 marks each)

- a) Write a C program to find the largest and smallest element in an array of 10 integers. Write a C program to perform Matrix Multiplication of two 3×3 matrices. (5 + 5)
- b) What is a pointer? Explain pointer arithmetic. Write a program to swap two numbers using call by reference. (2 + 2 + 6)
- c) Draw a flowchart to check if a given number is a palindrome or not. Write the C program for the same. Write a C program to find the mean of 10 given numbers. (4 + 4 + 2)
- d) Write a short note on bubble sort. Write a C program that takes an integer as input from the user and checks whether it is even or odd using bitwise operator. Write a C program to find all roots of a quadratic equation. (2 + 4 + 4)



☀️ **BEST OF LUCK FOR YOUR EXAM!** ☀️

"Believe in yourself and all that you are."