



বাংলাদেশ আর্মি ইন্টারন্যাশনাল ইউনিভার্সিটি অব সায়েন্স এন্ড টেকনোলজি, কুমিল্লা
 BANGLADESH ARMY INTERNATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY (BAIUST), CUMILLA

Mid Term Examination, Spring 2025
 Department of Computer Science and Engineering
 Level-1 Term-II
 Course Code: CSE 121 [Only for Retake]
 Course Title: Structured Programming Language
 Credit Hour: 3.0
 Exam Duration: 1 hour 30 Minutes
 Full Marks: 90

Notes:

- Figure on the right of each question indicates the marks for the respective question.
- Course Learning Outcomes are-
 - CO1: Illustrate the fundamental concept of computer programming.
 - CO2: Explain various data types and operations in C.
 - CO3: Apply decision making and looping statements in problem solving.
 - CO4: Illustrate the advantages of using array and modular programming in problem solving.
 - CO5: Apply structured programming principles to implement structures, pointers, and dynamic memory allocation to optimize resource management and computational efficiency.
 - CO6: Explain different file operations on text and binary files.

1. a. Write the output for the following code? [CO2→C4]

[10]

```
int main () {
    int x = 10;
    int y = 9;
    bool a = false, b = false;
    printf("%d %d %d %d %d %d\n", x > y, x >= y, 13 >= 13, a == b, a >= b, a <= b );
    printf("%d %d %d %d\n", 10 != 10, 10 == 15, x != y, x <= y);
}
```

OR

- What is printed by the following program? [CO2→C4]

```
int main(){
    int a = 3, b = 7, c = 5;
    int middle = (a < b) ? ((b < c) ? b : ((a < c) ? c : a)) : ((a < c) ? a : ((b < c) ? c : b));
    printf("Middle number: %d", middle);
}
```

- b. Find output: [CO2→C4]

[10]

```
int main(){
    printf("%d", printf("%d", printf("%d", printf("%s", "Welcome to BAIUST"))));
}
```

- c. Have you ever heard about prime numbers? A prime number is a number that is greater than 1 and has only two factors which are 1 and itself. The first few prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23 and 29. Given a number N. Determine whether N is prime or not. [CO3→C3]

[10]

2. a. How to take input from user for integer, float, double and character type variable? [10]
Show with appropriate C program.. [CO3→C4]

OR

Show the output that the following C program will generate: [CO3→C4]

```
#include<stdio.h>
int main() {
    int end = 5;
    printf("Output of the pattern: \n");
    int i = 1;
    while (i <= end) {
        printf("\n");
        int j = 1;
        while (j <= i) {
            printf("%d ", j);
            j = j + 1;
        }
        i = i + 1;
    }
}
```

- b. Write a program that can perform bitwise shift (left and right) operation. You must [10]
take input from the user and show necessary output. [CO3→C3]
- c. Correct the following code and write down the required output: [CO2→C4] [10]

```
#include<studio.h>
#define month 12
#define PI 3.1416
const int ar=15;
const float age=25.5
const double d;
int main()
    const int ar=5;
    ar = 6;
    Print("constant variable ar : %d\n", ar);
    print("constant variable age : %f\n", age);
    printf("constant variable d : %lf\n", d);
    d =45
    printf("month : %d\n", momth);
    printf("value of pi : %f\n", PI);
}
```

3. a. Write a c program that can operate like a simple calculator using switch case. [10]
The operations are add (+), sub (-), mult(*), div(/), modulus(%). You must take user input and show necessary output. [CO3→C3]
- b. Write a C program that can find the factorial (e.g. X!) of a number. [10]
[CO3→C3]
- c. Write a code that can print a pattern like the following output. You must take input [10]
from and show the output. [CO3→C3]

Enter the value of N: 4	Enter the value of N: 5
+ - + -	+ - + - +
- + - +	- + - + -
+ - + -	+ - + - +
- + - +	- + - + -
	+ - + - +