



Bangladesh University of Business and Technology (BUBT)

Department of Computer Science and Engineering

Final Term Examination: Spring 2021

Program: **B.Sc. in CSE** | Intake: **47** | Course Code: **CSE 111**

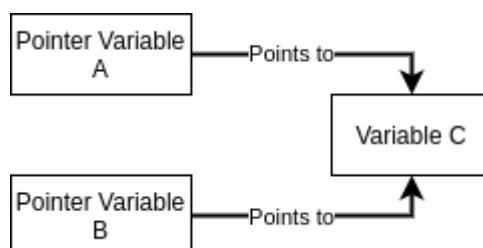
Course Title: **Structured Programming Language**

Total Marks: **40**

[Answer all questions]

CO4 1. a. **Define** a function that can swap two variables. Explain how the function operates to swap the variables. [03]

b. Let there be two integer pointer variables A, B. Also, let C be an integer variable. The pointer variable A and B points to variable C. An image explaining the situation is given below. [07]



Implement the given situation using C programming language. Then **explain** what would happen if:

1. The value of **C** is set to 20 ($C = 20$). What would be the value of variable **A** and **B** ?
2. The value of **A** is set to 40 ($*A = 40$). What would be the value of variable **B** and **C**?

CO4 2. a. Implement a C program that creates a file named **“answer.txt”**, which is like the following: [06]

```
Filename: answer.txt
-----
Name: Your Name
ID: Your ID
Intake: Your Intake
Section: Your Section
```

The file should contain the information of the examinee (student), such as: name, ID, intake, and section.

b. **Explain** the output of the following recursion function. [04]

```
void f(int x) {
    if(x == 5) return;
    printf("Roll-in function : x = %d\n", x);
    f(x + 1);
    printf("Roll-out function: x = %d\n", x);
}
```

- C03 3. a. Suppose “Y” is taking C programming class. Due to the pandemic, the class is taken online, specifically, in Google Meet. The students write their roll in the chat box, which is counted as attendance. However, a student writes his/her roll **multiple** times just to be sure his/her attendance is not missed. [06]

Given a list of the attendance rolls (integers), you have to find out the students who were present in the class. As one student can write his/her roll multiple times, you have to show them only once. You can assume that the roll number of the students are in the range **1-100**. See example for clarification.

Example 1:

Input	Output
Total integers in the list: 6 1 12 99 50 1 12	Attendance: 1 12 50 99

Example 2:

Input	Output
Total integers in the list: 6 2 2 2 10 10 1	Attendance: 1 2 10

- b. Suppose your roll is “X”. Write a C program that reverses your roll number. Explain the process which is followed to reverse the roll number. [04]

- C02 4. a. **Fix** the syntax errors in the given example code. Also explain the errors in brief. [04]

```
#include <stdio.h>

int main() {
    int x[10.0];

    for(i = 0; i <= 10; i += 1) {
        scanf("%d", x[i]);
    }

    return 0;
}
```

- b. **Briefly** compare between the functions given below: [06]
1. Compare between fgets and gets
 2. Compare between fprintf and printf
 3. Compare between malloc and calloc