International Islamic University Chittagong
Department of Electrical and Electronic Engineering
B. Sc. Engineering in EEE
Semester End Exam, Spring 2023

Course Code: **CSE 1105** Course Title: **Computer Programming I**
Time: 2 hours 30 minutes Full Marks: 50

(i) The figures in the right-hand margin indicate full marks
(ii) Course Outcomes and Bloom's Levels are mentioned in additional Columns

Course Outcomes (COs), Program Outcomes (POs) and Bloom's Levels (BL) of the Questions			
CO	**CO Statements**	**PO**	**BL**
CO1	Demonstrate an understanding of basic programming in C, Programming style, variables and data types.	**PO1**	**C1**
CO2	Apply basic programming laws and rules to complex cases like; Logical expressions and control constructs: if-else, switch, arithmetic.	**PO3**	**C3**
CO3	Analyze basic terms like: Sorting, Searching and Geometric.	**PO3**	**C4**

Bloom's Levels (BL) of the Questions						
Letter Symbols	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

Part A

[Answer the questions from the followings]

1. a) Using a diagram, explain the entry-controlled loop and the exit-controlled loop. Comparison between while and do...while loop **CO1** **C1** 4

1. b) i). What does the following program produce as a result? **CO2** **C3** 3

```
#include<stdio.h>

main()
{
  char *s = "CSE";

  while(*s!=NULL)
  printf("%c", *++s);
}
```

ii). Convert the for loop in the following program to a while loop. **CO3** **C4** 3

```
x = 5;
y = 50;
while (x<=y)
 {
   printf ("%d", x);
   y = y/x;
 } }
```

2. a) What happens when an array is used? Specify an array's initialization. **CO2** **C3**

2. b) Write a program to initialize one-dimensional array of size 8 and display the sum and average of array elements. **CO2** **C3** 5

OR

2. a) i). What is the output of this program? **CO2** **C3** 3+2

```
#include <iostream>
using namespace std;
int main()
{
        static int i;
        for (i++; ++i; i++) {
                printf("%d ", i);
                if (i == 6)
                        break;
        }
        return 0;
}
```

ii). What is the output of this C code?

```
#include <stdio.h>
void main()
{
  double k = 0;
  for (k = 0.0; k < 3.0; k++);
    printf("%lf", k);
}
```

2. b) Why do statement is used? Compare the do statement with the nested for statement with example. **CO2** **C3** 5

Part B

[Answer the questions from the followings]

3. a) How to use a pointer to access a variable is explained with an example. **CO3** **C4** 4

3. b) i). In C, what are the benefits and drawbacks of using pointers? **CO3** **C4** 3

ii). What will be the output of the program? **CO2** **C3** 3

```
#include <stdio.h>

int main () {

  int  var = 200;
  int  *ip;

  ip = &var;
```

```
    printf("Address of var variable: %x\n", &var );

    printf("Address stored in ip variable: %x\n", ip );

    printf("Value of *ip variable: %d\n", *ip );
    return 0;

}
```

4.	a)	Make a list of C's supported basic file operations. List the functions fopen(), fclose(), getc(), and putc() in a brief description ().	**CO3**	**C4**	5
4.	b)	Compare between Array and Structure. Give the prototype of "Union".	**CO3**	**C4**	5
5.	a)	How can we access a variable by using a pointer? Explain with proper example.	**CO3**	**C4**	5
5.	b)	i). Write a C program to add two distances entered by user. Measurement of distance should be in inch and feet.(Note: 12 inches = 1 foot).using Structure	**CO2**	**C3**	2+3

ii). Suppose you want to declare a pointer and allocate some space for it. You write the following code:

```
char *p;
*p = malloc(10);
```

What's wrong with this code? Explain and correct the code.

OR

5.	a)	Design a structure **structemployee** which contains information about the ID, name, age, department, designation, mobile number, salary, and address. Produce a code segment to take the input for five employee objects and display the information.	**CO3**	**C4**	5
5.	b)	What is the output of this program?	**CO2**	**C3**	2+3

I)

```
#include <stdio.h>
int main()
{
  int* pc, c;

  c = 22;
  printf("Address of c: %p\n", &c);
  printf("Value of c: %d\n\n", c);  // 22


  pc = &c;
  printf("Address of pointer pc: %p\n", pc);
  printf("Content of pointer pc: %d\n\n", *pc); // 22

  c = 11;
  printf("Address of pointer pc: %p\n", pc);
```

```
    printf("Content of pointer pc: %d\n\n", *pc); // 11

    *pc = 2;
    printf("Address of c: %p\n", &c);
    printf("Value of c: %d\n\n", c); // 2
    return 0;
}
```

II)

```
#include <stdio.h>

int main()
{
    float num1, num2;
    float *ptr1, *ptr2;

    float sum, diff, mult, div;

    ptr1 = &num1;
    ptr2 = &num2;

    printf("Enter any two real numbers: ");
    scanf("%f%f", ptr1, ptr2);

     sum  = (*ptr1) + (*ptr2);
    diff = (*ptr1) - (*ptr2);
    mult = (*ptr1) * (*ptr2);
    div  = (*ptr1) / (*ptr2);
    printf("Sum = %.2f\n", sum);
    printf("Difference = %.2f\n", diff);
    printf("Product = %.2f\n", mult);
    printf("Quotient = %.2f\n", div);

    return 0;
}
```