

International Islamic University Chittagong
Department of Electrical and Electronic Engineering
B. Sc. Engineering in EEE
Final Exam, Autumn 2022

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) of the Questions	
CO1	Demonstrate an understanding of basic programming in C, Programming style, variables and data types.
CO2	Apply basic programming laws and rules to complex cases like; Logical expressions and control constructs: if-else, switch, arithmetic.
CO3	Analyze basic terms like: Sorting, Searching and Geometric.

Bloom's Levels of the Questions						
Letter Symbols	R	U	App	An	E	C
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

Part A

[Answer the questions from the followings]

1. a) Why do you use the word "looping"? How many times can a do-while loop run before it becomes unusable? CO1 R, 1+4
Ap

- b) I). What does the following program produce as a result? CO2 Ap 2

```
#include<stdio.h>
main()
{
char *s = "IQAC";
while(*s!=NULL)
printf("%c", *++s);
}
```

- II.) Convert the for loop in the following program to a do loop.

CO3 An 3

```
int i, n = 10;
for (i=0; i<n; i++)
{
printf ("I like for loop.\n");
printf ("%d\n",i);
printf ("I also like while loop.\n");
}
```

2. a) Write the output of the following code segment.

CO2 An 3

```
int sum(int n){
    if(n<1)
        return n;
    else
        return n+ sum(n-1);
}

int main(){
    printf("%d", sum(6));
    return 0;
}
```

2. b) Define function and recursion? Write the advantages to the use of functions. Write a function prime () that returns 1 if its argument is a prime number and returns 0 otherwise.

CO2 R, 2+5
Ap

Or,

2. a) Write a C program to find the cube of a number using a function.

CO2 An 3

2. b) Write a C program to check whether a number is even or odd using the following four different aspects of function calls:

CO2 Ap 7

- i) Function without argument and without return value
- ii) Function without argument and with return value
- iii) Function with argument and without return value
- iv) Function with argument and with return value

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 U 5

3. b) I). In C, what are the benefits and drawbacks of using pointers?

CO3 U 2

II). What will be the output of the program?

CO2 An 3

```
#include <stdio.h>
int main () {
    int var = 300;
    int *op;
    ip = &var;
    printf("Address of var variable: %x\n", &var );
    printf("Address stored in ip variable: %x\n", op );
    printf("Value of *ip variable: %d\n", *op);
    return 0;
}
```


4. a) What is the difference between structure and union? Explain using a suitable example. CO2 R, U 2+3
4. b) What's wrong with this call?
 a) `FILE fp = foPen(c:\htyus\exp.dat", 'w');`
 b) `int fclose(FILE ***fp);` CO2 Ap 5
5. a) Create a structure named multinational company which has name, address, phone, and no. of employee as member variables. Read name of company, its address, phone, and no. of Employee. Finally, display these members' value. CO1 Ap 5
5. b) The words "array" and "structure" are compared and contrasted. The "Structure" prototype should be provided. CO2 An 5

Or,

5. a) `#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;`
`}` CO1 Ap 5
5. b) Write a program that reads a positive integer n and then prints a diamond of asterisks in $2n-1$ rows. For example, if n is 4, then the output would be CO2 An 5

```

      *
    * * *
  * * * * *
* * * * * *
  * * * * *
    * * *
      *

```