

The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc/ B. Ed Degree Programme



0801

Department	: Computer Science
Level	: 03
Name of the Examination	: Final Examination
Course Title and - Code	: Introduction to Computer Programming - CSU3200
Academic Year	: 2025/2026
Date	: 05.12.2025
Time	: 2.00 pm -4.00 pm
Duration	: Two hours only

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of (06) questions in (06) pages.
3. Answer any (04) questions only, and if you have answered more than four questions, they will not be marked. All questions carry equal marks.
4. Answer for each question should commence on a new page.
5. Draw fully labelled diagrams where necessary.
6. Involvement in any activity that is considered as an exam offense will lead to punishment
7. Use blue or black ink to answer the questions.
8. Clearly state your **Index Number** and **Question Numbers** in your answer script

Question No. 1 (Total 25 Marks)

1. A program written using a High-Level Language needs a compiler.
State two reasons why a program written in a high-level language needs a compiler.
(4 Marks)
2. A. What do you mean by a variable?
(2 Marks)

B. Briefly explain the Global variables and Local variables in the context of the C language
(4 Marks)
3. In C Language, Fundamental data types can be modified by adding special keywords called **Data type modifiers**. Mention those keywords.
(2 Marks)

4. What will be the output of the following program segments?

A. `int x = 20, y;
y = x%3 + x/5;
printf(" y = %d", y);`

(2 Marks)

B. `int i= 2, j;
j = 3 + 2 * i++;
printf(" j = %d \n i = %d", j, i);`

(4 Marks)

5. Write necessary statements in C Language to print natural numbers from 0 to 100 using "for loop".

(7 Marks)

Question No. 2

(Total 25 Marks)

- Basically, there are two kinds of locations in a computer where a variable's value may be kept. Mention those two places. (2 Marks)
- What will be the output of the following A and B programs?

<p>A.</p> <pre>#include <stdio.h> void Check1() { auto int num1 =25; printf("%d\n", num1); num1 += 5; } void Check2() { static int num2 = 25; printf("%d\n", num2); num2 += 5; } int main() { Check1(); Check1(); printf("\n\n"); Check2(); Check2(); }</pre> <p>(8 Marks)</p>	<p>B.</p> <pre>#include <stdio.h> main() { auto int i = 1; { auto int i = 2; { auto int i = 3; printf ("\n%d ", i); } printf ("\n%d ", i); } printf ("\n%d ", i); }</pre> <p>(4 Marks)</p>
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- You are provided the size of char data type is 1 byte, the int data type is 2 bytes and the float data type is 4 bytes, how many bytes of memory do the following functions try to allocate?

1. `(int *) malloc (100 * sizeof(int));`

2. (float*) calloc (50 * sizeof(float));

3. (char*) malloc (200 * sizeof(char); (6 Marks)

4. Write a complete C program to display the following output using only one print statement.

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(5 Marks)

Question No. 3 (Total 25 Marks)

1. Identify the semantic errors in the following program segments.

1. int x;
x++;

2. int sum = "hello";

3. int a, b, c;
a+b = c;

4. int num1;
scanf("%d", num1);

(8 Marks)

2. What will be the output of the following program? (write separately if any output in the screen and/or if any content in the file)

```
#include <stdio.h>
int main()
{
    FILE *fp;
    fp = fopen("D:mypro.txt", "w");
    fputs("The Open University of Sri Lanka,", fp);
    puts("It is very easy\n");
    fclose(fp);

    fp = fopen("D:mypro.txt", "w");
    fputs("OUSL has 9 Regional centers", fp);

    fclose(fp);
    return 0;
}
```

(5 Marks)

3. Explain the functions of the following expressions ?

1. `fopen("test.bin", "r+b");`
 2. `fopen("test.txt", "a")`
 3. `fopen ("test.txt:", "w+");` (6 Marks)
4. Write a complete C program to check whether the input number is odd or even.
(The number should be input while running the program) (6 Marks)

Question no. 4**(Total 25 Marks)**

1. What are the two types of functions in the C Language? (4 Marks)
2. What will be the output of the following program segment?

```
int sum = 52;
char letter = 'B';
float money = 140.8234;
```

```
printf("Your output will be \n");
printf("The real value = %.2f\n", money );
printf("The character = %c and The integer value = %d", letter , sum);
```

(6 Marks)

3. How can you declare the value of pi ($\pi = 3.14$) as a constant in your program?
Write two different ways. (4 Marks)
4. State whether the following C statements are True or False.
 - A. The array declared as `char myname[20]` has twenty elements
 - B. The expression `myname[1]` refers the first element in the array
 - C. It is necessary to initialize the array at the time of declaration
 - D. The expression `myarray[15]` refers the sixteenth element in the array (4 Marks)
5. Write a complete C program to read a number between 1 – 7. Then print name of the week according to the given number using switch-case (consider 1 as Sunday). (7 Marks)

Question No. 5**(Total 25 Marks)**

1. A. What do you mean by a pointer?
B. There are two fundamental operators associated with pointers. Mention them. (4 Marks)
2. Assume that the value of the variable is stored in memory location 6422084. Then what will be the output of following program.

```
#include <stdio.h>
int main()
{
    int x=90;
    int *ptr = NULL;
    printf("the value of ptr : %d\n", ptr);
    ptr = &x;
    printf("the value of ptr : %u\n", ptr);
    printf("the value of ptr : %d\n", *ptr);
}
```

(9 Marks)

3. What would be the output of the following program segment

```
char c[4] = "Axe";
printf("%c", c[0]);
printf("\n%s", c);
```

(3 Marks)

4. Write a program that compares two given dates. To store date, use a structure, say **mydate**, that contains three members, namely date, month, and year. If the dates are equal, then display the message as "Equal"; otherwise, "Unequal". You may free to initialize the structure at the declaration.

(9 Marks)

Question No.6

(Total 25 Marks)

1. State whether the following statements are True or False.
 - A. A function may contain more than one **return** statement.
 - B. The same variable names can be used in different functions without any conflict.
 - C. A function may be called more than once from any other function.
 - D. It is necessary for a function to return some value.
 - E. The output of following code segment will be : Sum =10

```
void calculateSum()
{
    int x = 3;
    int y = 7;
    printf("Sum = %d", (x+y) );
}
int main()
{
    calculateSum();
    return 0;
}
```

(5 Marks)

2. A. C supports a wide range of functions that manipulate strings. Out of them mention four (4) most common string manipulation functions.

(4 Marks)

- B. By considering the following statements in a C program, write the output of each statement below.

```
char str1[12]="My country";
char str2[12]="Sri Lanka";
```

1. `printf("%d\n", strlen(str2));`
2. `printf("%s\n", str1);`
3. `printf("%s\n", strcat(str1,str2));`
4. `printf("%s\n", strcpy(str1,str2));`
5. `printf("%s",strcpy(str1,"Beautiful"));`

(5 Marks)

3. Write input statement/s to input one integer value and one float value to your program. Then write matching output statement/s to display the values of them.

(4 Marks)

4. What can you do with the following two library functions?

A. `gets()`

B. `puts()`

(2 Marks)

5. Write a function called "AreaRectangle" that computes the area of the rectangle based on the height and the width of the rectangle. It needs to provide height and width of the rectangle from the main function (but no need to read the values while running the program). The "AreaRectangle" function is not supposed to display anything on the screen. Instead, it should return the computed area to the main function.

(5 Marks)

End.

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