00728

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

Department	**: Computer Science**
Level	**: 03**
Name of the Examination	**: Final Examination (1st Semester)**
Course Title and - Code	**: Introduction to Computer Programming - CSU3200**
Academic Year	**: 2024/2025**
Date	**: 29.11.2024**
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, if you answer more than four (4) questions, the last question/s will cut off without marking. All questions carry equal marks**
4. Use a new page to answer new questions.
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

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Answer any (04) questions, if you answer more than four (4) questions, the last question/s will cut off without marking.

Question No.1

1. State the three classes of data types in C Language. (3 Marks)

2. Provide suitable variable declaration statements for the following situations. (8 Marks)
   a. To input the age of your best friend
   b. To input the name of your colleague
   c. To input the grade that you hope to get for this course
   d. To store the result, after calculating the area of a circle

3. Write a complete C program to print the following sequence of numbers using a ***for-loop:***
   2, 7, 12, 17, 22, 27 (10 Marks)

4. What would be the output of the following program if you input 25? (4 Marks)

```
#include<stdio.h>
int main()
{
   int x;
   goto aaaa;
```


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```
    printf("This is how goto command works\n");

    aaaa:
    printf("input any number : ");
    scanf("%d",&x);
    printf("You entered %d", x);
}
```

Question No. 2

1. What are the three types of errors you may have in your program? (3 Marks)

2. Write a complete C program to find the name of the weekday using **switch-case** statement when an integer between 1 and 7 is input. Consider 1 as Sunday. If the input number is not between 1-7 display an appropriate error message. (10 Marks)

3. Consider the following statement to answer the below questions. (5 Marks)

fopen("D:\\CSU3200\\myfile.bin", "rb");

a. What is the file name?
b. In which drive the file is located?
c. State the directory name where the file is located.
d. What type of file is it?
e. What is the mode of the file?

4. What would be the output of the following program segment, if you input 35.6? (2 Marks)

```
float rainfall;
    if (rainfall >= 45.5)
            printf("You need to get ready for a flood");
    else
            printf("Still you are not in danger of getting flood");
```

5. State the format modifiers of the following data types. (5 Marks)
   a. char
   b. float
   c. int
   d. string
   e. hexadecimal number

Question No. 3

1. Write down four storage classes in C Language and state the **default initial value** of each storage class. (8 Marks)
2. Write a complete C program to read a character from the keyboard and display the corresponding ASCII code. (5 Marks)

3. What would be the output of the following programs?

a. If you input "Department of Computer Science", and you run the following program. (2 marks)

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```
#include<stdio.h>
#include <string.h>

int main()
{
    char str[30];
    int len;

    printf("Enter string:\n");
    gets(str);
    len = strlen(str);
    printf("The result is: %d", len);
    return 0;
}
```

b.

```
#include<stdio.h>
#include <string.h>

int main()
{
   int a = 4, b  = 9, c;
   c = (a + b++) + (--a + b--);
   printf("%d",c);

   return 0;
}
```

(4 Marks)

4. What are the three input functions in C Language. State which type of data can be input for those functions. (6 Marks)

Question No. 4

1. What is the meaning of the following file opening modes? (8 Marks)
   a. W :
   b. A :
   c. AB :
   d. R+ :

2. What would be the output of the following program? (5 Marks)

```
#include <stdio.h>
#include <string.h>
#define M1 "How are you"

int main()
{
   char M2[40] = "Beat the clock";
   char words[80];
   int length;
```

```
    printf(M1);
    puts(M1);
    puts(M2);
    puts(M2+2);
    strcpy(words,M2);
    strcat(words, "Win a toy");
    puts(words);
     length = strlen(words);
    printf("No. of characters in the string words = %d", length);

    return 0;
}
```

3. Write a complete C program to print the following design on your screen by using a nested '**for**' loop. (7 Marks)

```
*
* *
* * *
* * * *
* * * * *
```

4. Suppose you want to store patients' information in a hospital. You want to store the patient's name (a string), address (a string), age (an integer), and blood group (a character). Create a structure to hold the above information. (5 Marks)

Question No. 5

1. a. Correct the five (5) syntax errors in the following program and **Rewrite** it.(5 Marks)

```
#include <stdio.h>
#include <string.h>
int main()
{
   char name1[12]="Computer"
      char name2[12]="Science";

   printf("%s %s", name1,name2);
   printf("\n %d", strlen(name2));
   printf("\n %s"  strcpy(name1,name2));

   print("\n %s", strcat(name1,name2));
    strcy(name1,"Open);
         printf("\n %s", strcat(name1,name2));
   }
```

b. After correcting the five errors, what would be the output of the above program? (5 Marks)

b°

2. Basic data types of C language can be modified (can change the value range of the data type) by adding some special keywords called data type modifiers. What are the two types of data type modifiers and state the keywords used with those modifiers. (6 Marks)

3. A company pays Rs. 200 per hour for their daily paid workers up to 8 hours. For additional time of working, they pay Rs. 150 for half an hour. Write a C program to calculate the whole payment for any employee by getting the number of hours worked by him/her. (9 Marks)

Question No. 6

1. Use the below program to answer the questions given below. (6 Marks)

```
#include <stdio.h>
int main()
{
    FILE * fp;
    fp = fopen("H:program4.txt", "w");
    fputs("The Open University of Sri Lanka,", fp);
    puts("It is very easy\n");
    fclose(fp);
    return 0;
}
```

   a. What would be the content of the "**program4.txt**" file, when the above program is executed?

   b. What will be displayed on the **screen** after the execution of the above program?

   c. What is the purpose of having fclose() function in this program?

2. There are 25 students in a class and all the students follow 5 subjects. At the end of the term, the teacher wants to store their marks in a matrix. To help the teacher, define a two-dimensional array to store the marks of students (4 Marks)

3. Evaluate the following two expressions. (2 Marks)

   a. (4 + 3) * 2 – 6 / 2
   b. (4 + 3 * 2 – 6) / 2

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4. In C language, character constants must be enclosed between single quotes like 'A'. But some characters can't be represented in this way. So, we use a 2-character sequence, and they are called as an escape sequence. State the meaning of the following character sequences. (5 Marks)

   a. **\n**

   b. **\t**

   c. \\

   d. \'

   e. **\0**

5. Write a complete C program to find the shaded area in the diagram below, considering the given details for calculation.

   For the triangle, height (H) is 11; base (L) is 7; radius of the circle (r) is 2,

   pi = 3.14 (a constant). Format your answer to print the area to 2 decimal places. (8 Marks)

   (Hint : area of a triangle = (L * H) /2
   area of a circle = (pi * r^2) ;