



UGANDA INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

END OF SEMESTER ONE EXAMINATIONS

ACADEMIC YEAR 2025/2026

DEPARTMENT:	ICT
YEAR OF STUDY:	ONE
PROGRAMME:	DIPLOMA IN SOFTWARE ENGINEERING (DSWE)
COURSE:	COMPUTER PROGRAMMING I
COURSE CODE:	CSC1103
DATE:	WEDNESDAY 10TH DECEMBER, 2025
TIME:	09:00 AM – 12:00 NOON
DURATION:	3 Hours

INSTRUCTIONS:

- (a) This paper consists of two sections A and B**
- (b) Section A carry 40 marks and is compulsory**
- (c) Attempt any THREE questions from section B**
- (d) Any number in section B carry equal marks**
- (e) Credit will be given for use of relevant examples and illustrations**
- (f) Begin each number on a new page of the answer sheet**

SECTION A [40 MARKS]

Attempt ALL the Questions in this section.

Question 1

- (a) What is meant by the term “**abstraction**” in programming? (3 marks)
- (b) List **any two benefits** of abstraction in software development. (2 marks)
- (c) Explain the concept of “**control flow**” in programming. (3 marks)
- (d) Identify and describe the **three main categories** of control flow. (6 marks)
- (e) With clear illustrations, differentiate between single-line and multi-line comments in C. (4 marks)
- (f) Define a “**struct Student**” in C with “**id**” of an integer datatype and “**name**” of character array datatype as its members. (5 marks)
- (g) Differentiate between low-level and high-level programming languages; providing an example for each. (6 marks)
- (h) Explain the difference between compiled and interpreted languages. (4 marks)
- (i) Describe what an array is in C programming. (3 marks)
- (j) Provide a code snippet in C to declare and initialize an integer array of size 5. (4 marks)

SECTION B [60 MARKS]

Attempt Only Three Questions in this section.

Question 2

- (a) Write the syntax for the “**for loop**” and explain how it works. (5 marks)
- (b) Using sample code, distinguish between a “**do-while**” loop and a “**while**” loop. (6 marks)

- (c) Given the following code fragment:

```
int b = 6;  
b += 8;  
printf("%d \n", b);  
b = b + 7;  
printf("%d \n", b);
```

What is the complete output of this code?

(3 marks)

- (d) The following program written in C, is meant to output the first 50 multiples of 5 to the console:

```
1. #include <stdio.h>  
2. int main()  
3. {  
4.   int a = 5, m = 1;  
5.   while(m <= 50); {  
6.     printf("%f " m * a);  
7.     ++ m;  
8.   }return 0; }
```

However, this program has got syntax errors so it will not compile successfully.

- (i) By giving the line number where each error is found, point out all the errors in the program.
- (ii) State how you would rectify each error, so that the program can compile and run successfully. (6 marks)

Question 3

- (a) State and describe **three operations** that can be performed on data structures in programming? (6 marks)
- (b) Explain the usage of the “**return**” statement in C programs. Discuss its impact on the control flow within functions. (4 marks)
- (c) State and describe **two types of errors** that can occur in C programming. (4 marks)
- (d) Assuming that n is an integer variable, write a simple program to print to the screen “**positive**” if n is a positive number, “**negative**” if n is a negative number or “**zero**” if n is zero. (6 marks)

Question 4

- (a) State and describe **any two disadvantages** of using arrays in programming. (4 marks)
- (b) Write a simple program in C, using arrays that takes in ten numbers with decimal points from a user. (6 marks)
- (c) Using the array created and populated in part (b) above, write a program that computes and prints to the screen the following:
 - (i) The Sum of the numbers in the array (5 marks)
 - (ii) The Maximum (The largest of the 10 numbers) (5 marks)

Question 5

- (a) What is the difference between a “**structure**” and a “**union**” in C? (4 marks)
- (b) Given the following conditional statements:

```
int a, x = 5;
if (a == 1) {
    x += 5;
} else if (a == 2) {
    x += 10;
} else if (a == 3) {
    x += 16;
} else if (a == 4) {
    x += 30;
} else {
    x += 116; }
```

Re-write the above statements using a **switch statement**. (8 marks)

- (c) Write a program in C that performs the following tasks:
 - (i) Prompts the user to input a string. (1 mark)
 - (ii) Receives and stores this string in a user defined variable (1 mark)
 - (iii) Calculates how many times the letter 'h' appears in the string.
If the letter 'h' does not appear, the program should display 0.
Assume the input string is non-empty. (6 marks)

Question 6

(a) Define a String in C. (2 marks)

(b) How is a string different from a regular array? (4 marks)

(c) With illustrations, show any two ways of creating the string "Hello World!!!" in C? (4 marks)

(d) Develop a grading system for an institution which can be used to carry out grading of students' marks following the table below:

Marks	Grade	Comment
80 - 100	A	5.0
70 - 79	B	4.0
60 - 69	C	3.0
50 - 59	D	2.0
0 - 49	F	0.0

(10 marks)

END