



**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 BUSINESS COMPUTING (DBC)
COURSE: INTRODUCTION TO COMPUTER PROGRAMMING
COURSE CODE: BCS1101
DATE: FRIDAY 12TH 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) State **any two**:
 - (i) structured programming languages other than C.
 - (ii) object oriented programming languages other than Java **(4 marks)**
- (b) Differentiate between a compiler and an interpreter **(4 marks)**
- (c) (i) Define the term algorithm.
- (ii) State any **three** properties of an algorithm. **(5 marks)**
- (d) A computer program is required to compute the following details about a student;
national ID, name, fees payable and number of meals per day the student has paid for.
For each of these items above, state a corresponding data type **(8 marks)**
- (e) Draw a program flowchart that finds the area of a circle.
The program should only accept the radius of a circle between 5 to 50. **(7 marks)**
[Area $A = \pi \times r^2$. Where r is radius and $\pi = 3.14$]
- (f) For the program in (e) above, state any **two examples** of:
 - (i) correct data
 - (ii) incorrect data **(2 marks)**
- (g) Define these terms:
 - (i) Datatype
 - (ii) Identifier
 - (iii) Operator precedence **(6 marks)**
- (h) Explain the function of:
 - (i) the brace symbol } in a C program
 - (ii) the main program in a C program **(4 marks)**

SECTION B [60 MARKS]

Attempt Only Three Questions in this section.

Question 2

- (a) State **any three categories** of computer programming languages. **(3 marks)**
- (b) Describe each of the categories above, and clearly highlight its:
 - (i) characteristics
 - (ii) advantages
 - (iii) disadvantages
 - (iv) examples **(17 marks)**

Question 3

- (a) Define these terms in computer programming:
 - (i) Operators
 - (ii) Control statements
 - (iii) Return statements **(6 marks)**
- (b) Identify and briefly explain the relational operators in PC programming **(6 marks)**

(c) Study the C++ code segment below:

```
int num1 = 30,num2 = 40,num3 = 50,result1 = 0,result2 = 0,result3 = 0;
```

Evaluate the statements below:

- (i) `result1 = (num1 > 20) && (num2 < num3);`
- (ii) `result2 = num3 % num2;`
- (iii) `result3 = (--num1 + num3++) * (++num2 + 5);`
- (iv) `cout << !(num1 > 20) && (num2 < num3);` **(8 marks)**

Question 4

(a) Explain the variations of the integer data type in computer programming. **(8 marks)**

(b) Study the C++ code statement below and answer the questions that follow:

```
int salary = 2000000;
```

- (i) State the number of bytes reserved for salary in Code:Blocks IDE. **(2 marks)**
- (ii) Mathematically prove that the value of salary can fit in the bytes reserved for salary in the Code:Blocks IDE. **(4 marks)**
- (c) State and explain the different software found in the C/C++ IDEs. **(6 marks)**

Question 5

(a) Write the letter corresponding to only one correct item from the given alternatives.

1. What is a program in computer science?

- A. a planned series of events, a schedule
- B. a translated language that is easy for the computer to understand
- C. a sequence of instructions that specifies how to perform a computation
- D. a general process for solving a category of problems

2. What is the function of the compiler?

- A. It loads the program from its saved location and makes the computer execute it.
- B. It reads a high-level program and translates everything at once, before executing any of the commands.
- C. It translates the program from the low-level language you coded in to a high-level language that the computer can understand.
- D. It translates the program line-by-line, alternately reading lines and carrying out commands.

3. What is the difference between source code and object code?

- A. Source code can contain simple things like variables and values. Object code can contain more complex objects like data structures.
- B. Object code can contain simple things like variables and values. Source code can contain more complex objects like data structures.
- C. Object code is the code that your program is written in. Source code is the translated version of this code that the computer can understand.
- D. Source code is the code that your program is written in. Object code is the translated version of this code that the computer can understand. **(6 marks)**

(b) Write the letters corresponding to all correct items from the given alternatives.

1. What are the basic functions that appear in every programming language?

- A. math operations
- B. debugging
- C. testing for conditions
- D. repetition
- E. input/output from the terminal and saved files

2. Assume you are to calculate the volume of a cylinder.

What type of error would the following code cause?

```
int radius = 7,height = 8;  
double volume = 3.14 * radius * height;
```

- A. syntax error
- B. run-time error
- C. semantic error
- D. no error

3. C++ is a.....

- A. formal language.
- B. natural language.
- C. foreign language.
- D. high-level language.
- E. low-level language.

4. Which of the following is true about writing a C/C++ program.

- A. The compiler ignores anything after //.
- B. There is no limit the number of statements you can put in main function.
- C. Program execution begins at the first line of code.
- D. Main function is enclosed by squiggly brackets { }.
- E. The end of each statement is marked with a colon :.

5. Which is true about programming languages?

- A. Low-level languages are only used for a few special applications
- B. Programs written in low-level languages must be translated before they can be run.
- C. It's easier to program in a high-level language than a low-level language.
- D. Computers can only execute programs written in low-level languages.
- E. High-level languages can run on many different kinds of computers without an issue.

6. You were asked to parse through your program, what should this entail?

- A. You should walk through your program line by line to make sure it's that your code doing what it is supposed to.
- B. You should search through your program for syntax errors.
- C. You should translate your program to object code.
- D. You should run your program and check for run-time errors.

(14 marks)

Question 6

(a) Define these terms:

- (i) Paradigm
- (ii) Step wise refinement
- (iii) Parameter
- (iv) Data encapsulation
- (v) Data inheritance
- (vi) Class
- (vii) Instantiation

(14 marks)

(b) Describe how sub problems can be coded in C++.

(4 marks)

(c) State the purpose of a Linker in programming.

(2 marks)

~~~GOD BLESS YOU~~~