

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**Y1S2 EXAMINATION FOR THE AWARD OF DIPLOMA IN
COMPUTER SCIENCE**

COSC 0140: FUNDAMENTALS OF PROGRAMMING

STREAMS: DIP COMP SCI.

TIME: 2 HOURS

CAMPUSES: MAIN

DAY/DATE.....

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INSTRUCTIONS:

- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.

SECTION A {Attempt all questions in this section}

Question one (30 marks)

- Define what is a function. [1 marks]
- Differentiate between declaring and defining a function. [4 marks]
- Using functions, write a C++ program that reads length and width of a rectangle and gives an output of the area and perimeter respectively. [4 marks]
- What is the main difference between while loop and do-while loop? [4 marks]
- Distinguish two ways of calling C++ functions. [4 marks]
- Name four rules a programmer should adhere to while naming variables [4 marks]
- State the difference between pre and post increment/ decrement operations. (2 marks)
- Describe the use of a linker and a loader during program execution process. [4 marks]

- i. What are comments in a C++ program and show two ways of writing comments in C++ program. (3 marks)

SECTION B

Question two (20 marks)

- a. Write a program in C++ to calculate the volume of a cylinder. (5 Marks)
Input the radius of the cylinder : 6
Input the height of the cylinder : 8
- b. What will *i* and *j* equal after the code below is executed? Explain your answer. (5 marks)

```
int i = 5;  
int j = i++;
```

- c. Write the description of the following escape sequence [10 marks]

- i. `\n`
- ii. `\t`
- iii. `\r`
- iv. `\\`
- v. `\"`

Question two (20 marks)

- a. Using flow diagrams, write the syntax for the following decision structures
 - i. For-loop [5 marks]
 - ii. Switch statement [5 marks]
- b. Generally, there are stages involved in developing and implementing a solution. Explain five main stages of a software development process. [10 marks]

Question three (20 marks)

- a. Write a language program in C++ which accepts the user's first and last name and print them in reverse order with a space between them. (5 marks)
- b. Design a flowchart to find the highest of three numbers X, Y and Z. [5 marks]
- c. Distinguish between human language, machine language and assembly language. [6 marks]
- d. What is the meaning of line 1, 2, 3 and 6 in the program below? [4 marks]

```

1. #include <iostream>
2. using namespace std;
3. int main ()
4. {
5. cout << "Hello World";
6. return 0;
7.}

```

Question four (20 marks)

- Giving an example, distinguish between syntax, run time, and logical error experienced in programming. [9 marks]
- Draw and describe five symbols used in flow charts [10 marks]
- What is the meaning of the term pointer in programming? [1 mark]

Question five (20 marks)

- Tabulate two differences between a compiler and an interpreter [2 marks]
- What is the difference between equal to (==) and assignment operator (=)? (4 marks)
- Using switch statements, write a C++ program that reads marks from a keyboard and then outputs the grade as per the scale below [10 marks]

Marks (%)	Grade
70 - 100	A
60 - 69	B
50 - 59	C
40 - 49	D
0 - 39	E

- All variables that we intend to use in a program must be declared. Distinguish between local and global scope of variables [4 marks]