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 & THARAKA

DAY/DATE…… **……**

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)

a. What is the difference between Library function and user defined function. [4 marks]
b. Using a short fragment of code to compliment your answer, differentiate between declaration and definition of a variable. [4 marks]
c. Describe the use of a linker and a loader during program execution process. [4 marks]
d. Comments allows programmers to insert notes or descriptions to their source code. Highlight two ways of inserting comments [4 marks]
e. What is the meaning of line 1, 2, 3 and 6 in the below program. [4 marks]

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

f. Describe three reasons why programmers use functions in their code [3 marks]
g. In an array of N integers, Array index starts with____and ends with ____ [2 marks]
h. All variables that we intend to use in a program must be declared. Distinguish between local and global scope of variables [4 marks]
i. Give one difference between C and C++ programming language. [1 mark]

SECTION B {choose any two questions from this section}

Question two (20 marks)

a. Explain four general properties of a good software. [8 marks]
b. Problem solving involves identifying problem and applying a known solving technique. Explain four major stages of developing a computer program. [8 marks]
c. Write an algorithm to swap the content of two variables. [4 marks]

Question three (20 marks)

a. 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

b. Algorithms are implemented using flowcharts. Draw a flowchart diagram to find the minimum of three numbers X, Y and Z. [10 marks]

Question four (20 marks)

a. Use flowcharts to explain the syntax of for, do and do-while loops. [9 marks]
b. Given five integers, write a C++ program to accept the numbers into array, and Print the numbers in ascending order. [11 marks]

Question five (20 marks)

a. Giving an example, distinguish between syntax, run time, and logical error experienced in programming. [9 marks]
b. Write a program that outputs prime integers from range of 1 to 10 [6 marks]
c. What is the output of the following section of code. [3 marks]

```
#include <iostream>
using namespace std;
int main ()
{
    int x =30;
    int y =x++;
    int z =++x;
    cout<<x“ ”<<y“ ”<<z;
    return 0;
}
```

d. What is a pointer? [2 marks]