KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2024/2025 ACADEMIC YEAR
FIRST YEAR, SECOND SEMESTER EXAMINATION
FOR THE DIPLOMA IN BUSINESS & INFORMATION TECHNOLOGY
DIT 1006 – OBJECT ORIENTED PROGRAMMING

Date: 15TH April 2024
Time: 8:30AM – 10:30AM

INSTRUCTIONS TO CANDIDATES
ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Describe three underlying concepts of object-oriented programming language that makes it be preferred over other programming languages (3 Marks)

b) In this technological era, programmers prefer using object-oriented programming languages over procedural programming language. Explain advantages of object-oriented programming language over procedural programming language (4 Marks)

c) List other object-oriented programming languages apart from C++ (4 Marks)

d) Comments are used during coding to explain different parts of codes. By use of examples, explain two ways of using comments in C++ (4 Marks)

e) In the following program the variable was assigned two different values. Explain the output of the program (4 Marks)

```cpp
#include <iostream>
using namespace std;

main() {
int myAge = 15;
myAge=24;
cout << "I am " << myAge << " years old.";
return 0;
}
```

f) Define the following terms the object, attribute and methods and in the list below indicate the object, attribute and methods: weight, color, car, drive, brake (5 Marks)

g) Programmers have a variety of computer programming languages they can use during coding. State reasons why programmers might decide to use C++ over other programming languages (6 Marks)

QUESTION TWO (20 MARKS)

a) Write a simple C++ program to output your name and explain the program step by step (10 Marks)

b) Escape sequences are used to determine the display of the out. Write a C++ program that demonstrates introduction of a new line by use of an escape sequence and four different lines in the output (10 Marks)

QUESTION THREE (20 MARKS)

a) Data types are used mostly when declaring variables. Explain the different data types and demonstrate how to declare each (10 Marks)

b) A high school student is unable to calculate the volume of a sphere, write a program that allows the student to enter floating-point values and calculates the volume of a sphere (10 Marks)

QUESTION FOUR (20 MARKS)

a) Distinguish between the two categories of inheritance concept in C++ (4 Marks)

b) Describe the different arithmetic operators used to perform common mathematical operations by use of examples (8 Marks)

c) Create a simple calculator that allows user to input five numbers and prints the sum of the five numbers (8 Marks)

QUESTION FIVE (20 MARKS)

a) Identify and discuss the two types of polymorphism (4 Marks)

b) Distinguish between constructors and destructors (4 Marks)

c) Explain the three-access specifier used in C++ (6 Marks)

d) Describe the classes included in the fstream library (6 Marks)