# KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
## UNIVERSITY EXAMINATION, 2023/2024 ACADEMIC YEAR
## FIRST YEAR, SECOND SEMESTER EXAMINATION
## FOR THE DIPLOMA IN BUSINESS INFORMATION TECHNOLOGY
## DIT 1006 – OBJECT ORIENTED PROGRAMMING

Date: 08TH December 2023
Time: 8:30AM – 10:30AM

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

### QUESTION ONE (30 MARKS)
a)  Describe the two ways to define functions that belongs to a class in C++ programming languages
(4 Marks)
b)  List and describe three main underlying concepts of object-oriented programming          (6 Marks)
c)  State reasons why programmers might decide to use C++ over other programming languages
(4 Marks)
d)   Highlight the general rules for naming variables as used in C++ programming languages   (4 Marks)
e)  Write a C++ programming language script to create class 'Shapes' and objects 'triangle and 'square'
(6 Marks)
f)  List and explain the access specifiers used in C++ programming language          (6 Marks)

### QUESTION TWO (20 MARKS)
a)  Write a C++ program that has a class name *Cars*, object names *toyota* and *audi*. The program should contain at least two attributes and a method. Call the attributes and output them          (10 Marks)
b)  Write a C++ program that demonstrates introduction of a new line by use of an escape sequence and displays four lines          (10 Marks)

### QUESTION THREE (20 MARKS)
a)  C++ program uses a variety of data types, identify, explain and declare each data type.    (10 Marks)
b)  Explain the different types of variables (defined with different keywords) used in C++, give example in each          (10 Marks)

### QUESTION FOUR (20 MARKS)
a)  A high school student is unable to add three values that seem to be complex values to him. Write a C program that can help the student multiple the three floating point values by prompting the student to enter values          (10 Marks)
b)  Explain the following C++ program step by step          (10 Marks)

```
#include <iostream>
using namespace std;
int main () {
 cout << "Hello World! \n";
 cout << "I am learning C++";// second output in this program
 return 0;
}
```

## QUESTION FIVE (20 MARKS)

a) Identify and explain the types of constructors (6 Marks)

b) State the two main types of polymorphism (4 Marks)

c) Write a C++ program that prompts the user to enter the radius and calculates the area of a circle. Declare PI as a constant by using the keyword **const** (10 Marks)