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**KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2023/2024 ACADEMIC YEAR
FIRST YEAR, SECOND SEMESTER EXAMINATION
FOR THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE
KCS 102 – OBJECT ORIENTED PROGRAMMING I**

Date: 15TH AUGUST 2023

Time: 11:30AM – 1:30PM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Describe the following concepts used in Object oriented programming.
- i) Objects (2 Marks)
 - ii) Classes (2 Marks)
 - iii) Encapsulation (2 Marks)
 - iv) Inheritance (2 Marks)
 - v) Polymorphism (2 Marks)
- b) Describe the importance of the statements in a C++ program:
- i) `#include<iostream>` (3 Marks)
 - ii) `Int main ()` (3 Marks)
 - iii) `Cout<< "This is Daystar university\n";` (3 Marks)
 - iv) `Return 0;` (3 Marks)
- c) Explain any FOUR benefits of high level languages over low level. (8 Marks)

QUESTION TWO (20 MARKS)

- a) Explain any FIVE benefits of OOP as used in programming. (10 Marks)
- b) You are employed by the Daystar University of Africa, which is a faith-based institution as a computer programmer cum system analyst. One of your core duties is to design and write programs that enables the institution to capture the exam Marks of students, calculate totals, mean score and grade them accordingly. Write down the formulas used to calculate the totals, mean score and grade the students accordingly. (10 Marks)

QUESTION THREE (20 MARKS)

- a) Discuss the main areas of OOP applications. (10 Marks)
- b) Write the C++ code used to perform the following activities:
- i) Get the sum of two numbers (3 Marks)
 - ii) Calculate the product of two numbers (3 Marks)
 - iii) Calculate the Area of a triangle. (4 Marks)

QUESTION FOUR (20 MARKS)

- a) Write the C++ code used to calculate the Area and Perimeter of a circle given PI as a constant. (10 Marks)
- b) Using the C++ program below, identify any FIVE syntax errors and rewrite the program correctly. (10 Marks)

```
#include<iostream.h> // include header file
using namespace;
Int main()
{
float number1, number2,sum, average;
Cin >> number1; // Read Numbers
cin >> number2; //from keyboard
Sum = number1 + number2;
Average = sum\2;
cout << "Sum = " << sum << "\n";
cout << "Average = " << average < "\n";
Return 0;
} //end of example
```

QUESTION FIVE (20 MARKS)

- a) Discuss any THREE main types of translators. (9 Marks)
- b) Define the term variable and explain any THREE rules of naming variables in C++. (7 Marks)
- c) Explain two types of comments used in C++. (4 Marks)