KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS, 2020/2021 ACADEMIC YEAR
FIRST YEAR, SECOND SEMESTER EXAMINATIONS
FOR THE DEGREE OF BACHELOR OF SCIENCE
(MATHEMATICS)

KCS 102 - OBJECT ORIENTED PROGRAMMING I

Date: 14th December, 2020
Time: 11.30am – 1.30pm

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a)   One of the stages of program development is the definition of the problem. Explain the three components of the problem giving an example in each case.

(6 Marks)

b)   Differentiate between the following terms as used in computer programming.
   i)   Testing and Debugging

   ii)   Compiler and interpreter

   iii)   Source code and object code   (6 Marks)

c)   Outline four rules for declaring variables in C++.

(4 Marks)

d)   Write a program in C++ that calculates the volume of a sphere.

(7 Marks)

e)   Examine the following algorithm:
   1.   let sum = 0
   2.   let x = 1
   3.   while x is less than 199 do
           Add x to sum
           Increment by 2
   4.   Display the value of sum
   5.   Stop
   Use a suitable construct, write a program to implement the above algorithm.

(7 Marks)

QUESTION TWO (20 MARKS)

a)   What do you understand by the term comment? As you explain give the general syntax for each of the two forms of comments in C++.

(4 Marks)

b)   Define a variable and give two ways we can get data into a variable and out of a variable.

(6 Marks)

c)   Write a program that computes and displays the area and circumference of a circle.

(6 Marks)

d)   Discuss four features of a well coded program.

(4 Marks)

QUESTION THREE (20 MARKS)

a)   List the different categories of structures and give an example of each in pseudocode.

(9 Marks)

b)   Why is it important to declare variables before we use them in off?

(3 Marks)

c)   What is a preprocessor directive? Give two examples of the directive.

(4 Marks)

d)   Differentiate between a low-level and a high-level language.

(4 Marks)

QUESTION FOUR (20 MARKS)

a)   Discuss the criteria for evaluating a programming language.

(6 Marks)

b)   List four different statements that can be used in C++ to increment the value of an integer variable x by 1.   (4 Marks)

c)   You are required to write a program that computes and displays the sum of even number between 0 and 100. Document your design using a flow chart outlining the advantages of using a flow chart to document your design.   (10 Marks)

QUESTION FIVE (20 MARKS)

a)   Discuss four classes of program maintenance that are mainly to be performed on it in course of its life cycle.

(8 Marks)

b)   Why is it important to document a program.

(6 Marks)

c)   Explain why you think the main () function is deemed special.

(2 Marks)

d)   Define the term syntax. Give the syntax of the following constructs;
   i)   ternary conditional statement

   ii)   switch…. case statement   (4 Marks)