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**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
(COMPUTER SCIENCE)**

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)