Kasarani Campus
Off Thika Road
Tel. 2042692 / 3
P. O. Box 49274, 00100
NAIROBI
Westlands Campus
Pamstech House
Woodvale Grove
Tel. 4442212
Fax: 4444175

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: 11TH December 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) Abstract (3 Marks)
   ii) Interface (3 Marks)
   iii) Encapsulation (3 Marks)
   iv) Inheritance (3 Marks)
   v) Polymorphism (3 Marks)

b) Describe the importance of the statements in a C++ program:
   i) #include<iostream> (4 Marks)
   ii) Int main() (3 Marks)
   iii) Cout<< "This is KWUST university\n"; (4 Marks)
   iv) Return 0; (4 Marks)

QUESTION TWO (20 MARKS)

a) Explain the major features of object-oriented programming languages. (6 Marks)
b) Discuss the relationship between abstract classes and interfaces and highlight how you would you choose one over the other in your OOP design? (4 Marks)
c) Discuss three key components of an interface in OOP (6 Marks)
d) Give Three example of a real-world use case where you would use an interface to define a contract in OOP (4 Marks)

QUESTION THREE (20 MARKS)

a) Discuss Five the main pillars of OOP applications. (10 Marks)
b) Write the C++ code used to perform the following activities:
   i) Get the sum of four numbers (3 Marks)
   ii) Calculate the product of three numbers (3 Marks)
   iii) Calculate the Area of a Rectangle. (4 Marks)

QUESTION FOUR (20 MARKS)

a) Explain the Three role of interfaces in achieving code modularity and extensibility. (6 Marks)
b) Discuss the control structures used in the implementation of logic in a C++ program. (4 Marks)
c) Explain any FIVE benefits of OOP as used in programming. (10 Marks)

QUESTION FIVE (20 MARKS)

a) Discuss any THREE main types of translators. (3 Marks)
b) Define the term variable and explain any THREE rules of naming variables in C++. (3 Marks)
c) Explain two types of comments used in C++. (4 Marks)
d) Explain any Two benefits of high level languages over low level. (4 Marks)
e) Discuss with relevant examples the major classifications of programming languages. (6 Marks)