

W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2014/2015**

**YEAR II SEMESTER I EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY AND YEAR III SEMESTER II BACHELOR OF INFORMATION TECHNOLOGY**

**ICS 2104: OBJECT ORIENTED PROGRAMMING I**

**DATE: AUGUST 2015 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

1. Outline any THREE characteristics of C++ [3 marks]
2. Describe the purpose or use of the return statement in a function. [2 marks]
3. Discuss the following terms as applied in object oriented programming;
4. Function
5. Constructor
6. Data members
7. Object
8. Class
9. Identifier [6 marks]
10. Describe the different ways and how to enforce data abstraction. [5 marks]
11. Discuss the main access specifies in a class declaration. [2 marks]
12. Discuss the following object oriented concept using example in each case;
13. Inheritance [4 marks]
14. Polymorphism [4 marks]
15. Write a C++ program that allows the user to the key in a number of items a customer has bought and the cost of each item the program should display this details should have two function one for input and another display the program should a class called item and two object namely milk and broad. [4 marks]

**QUESTION TWO (20 MARKS)**

1. Describe any FOUR types of inheritance used in C++ [8 marks]
2. At Jomo Kenyatta University of Agriculture and Technology the admission criteria require that an applicant must got a mean grade equivalent to 60 marks to enroll for Bsc in Computer Science and applicant must have minimum of 60 marks in group I subject; Physics, Mathematics and English. However, a candidate with 65 marks, in groups 2 subject; English, Physics and Chemistry also qualifies for admission.

Write an Object Oriented Program that accepts input from an applicant and advise whether one qualifies for admission or not. [12 marks]

**QUESTION THREE (20 MARKS)**

1. Devise an object oriented program that uses an array to store your names and display the names. [8 marks]
2. Write a C++ program that request TWO numbers from the user and calculates the average of the two numbers. [4 marks]
3. Describe a constructor and write an object oriented program that demonstrate the use of constructors. [8 marks]

**QUESTION FOUR (20 MARKS)**

1. Encapsulation is an important concept in object oriented programming, device a working program that depicts the use of this concept, your program should prompt input from the user. [8 marks]
2. Discuss exception and explain the significance of exception handling in a program. [4 marks]
3. Write a program that requests student’s age from the user. The program should accept positive age only. If the user enter a negative number, the program should throw an exception, and display a string or message. [8 marks]

**QUESTION FIVE (20 MARKS)**

1. Discuss function overloading [3 marks]
2. Write an object oriented program that illustrate the concept of overloading a function. [6 marks]
3. Create a class “my circle” that uses two members function “area” and “circumference” to calculate and print the area and the circumference of a circle plus and additional function “input” to capture the required input from a user. [5 marks]

A =

π = 3.142

1. Differentiate between local and global variables using a snippet code examples. [6 marks]