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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2020/201 ACADEMIC YEAR TWO**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF SCHOOL OF PURE AND APPLIED SCIENCES**

**DIPLOMA IN INFORMATION TECHNOLOGY**

**COURSE CODE: DIT 024**

**COURSE TITLE: OBJECT ORIENTED PROGRAMMING II**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 24/08/2021 TIME: 12.00-2.00 PM**

**INSTRUCTION TO CANDIDATES**

* **The examination has FIVE (5) questions**
* **Question ONE (1) is COMPULSORY**
* **Choose any other TWO (2) questions from the remaining FOUR (4) questions**
* **Use sketch diagrams to illustrate your answer whenever necessary**
* **Do not carry mobile phones or any other written materials in examination room**
* **Do not write on this paper**

**This paper consists of THREE (3) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

* 1. As opposed to procedural oriented languages Object Oriented Programming is a fairly new approach to programming; discuss the concept of O.O.P highlighting its merit and demerits. (8 Marks)
	2. Discuss the concept of encapsulation as used in O.O.P (2 Marks)
	3. Write a C++ program to read two Numbers typed by a user at the keyboard, compute their sum and print the result on the screen. (6 Marks)
	4. Giving examples describe three major types of operators used in C++ (9 Marks)
	5. Explain the fundamental difference between procedure oriented programming languages and object oriented programming languages. (5 marks)

**QUESTION TWO**

1. Describe the following terms as used in OOP
	* 1. Data hiding and abstraction
		2. Objects
		3. Namespace
		4. Pure virtual function (8 Marks)
2. State the general syntax of a function definition in C++ (3 Marks)
3. Using an example illustrate the use of Type Def declarations in C++ (4 Marks)
4. State the general syntax used in for loop control structure in C++. (5 marks)

**QUESTION THREE**

1. Describe the following terms as used in object oriented programming.
2. Dynamic binding
3. Classes
4. Object
5. Polymorphism (8 marks)
6. Write a C++ program that prompts the user to enter an integer X from the keyboard and display the result when the integer is multiplied 2. The output should display the following on the screen;

**Output**

Please enter an integer value

The value you entered is \_\_\_\_\_\_\_\_\_\_ and its result is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (7 Marks)

1. Write a program in C++ to calculate the area of a circle (5 marks)

**QUESTION FOUR**

1. Garissa University applies the following conditions to calculate the end of semester final mark for each student.
* Each of the student must take three continuous assessment tests (CATs) and a final exam;
* The CAT are averaged and contributes to 30% of the student’s final score
* The final examination which is marked out of 100% contributes to 70% of the student final score.

**Required:**

Write a c++ program using the concept of classes that would accept the CATs and final examination marks for a student. The program should then calculate the total final score for the student through the use of a function and output it. (12 marks)

1. Differentiate between function declaration and function definition as used in programming

 (2 Marks)

1. State the general syntax used in For loop control structure in C++ . (6 marks)

**QUESTION FIVE**

1. Discuss the concept of inheritance as used on object oriented programming (3 marks)
2. Examine the following concepts as used in OOP
	1. Public Inheritance
	2. Protected inheritance
	3. Private inheritance (12 marks)
3. Discuss the concepts of namespaces as used in C++ giving an example (5 Marks)