



## GARISSA UNIVERSITY

UNIVERSITY EXAMINATION **2017/2018** ACADEMIC YEAR **TWO**  
**THIRD** TRIMESTER EXAMINATION

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCE  
FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

COURSE CODE: DIT 024

COURSE TITLE: OBJECT ORIENTED PROGRAMMING II

EXAMINATION DURATION: 2 HOURS

**DATE: 09/08/18**

**TIME: 2 .00-4.00 PM**

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### INSTRUCTION TO CANDIDATES

- The examination has **SIX (6)** questions
- Question **ONE (1)** is **COMPULSORY**
- Choose any other **THREE (3)** questions from the remaining **FIVE (5)** 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 **FOUR (4)** printed pages

*please turn over*



## QUESTION ONE (COMPULSORY)

a) Define the following terms

i) **Data hiding** [2 Marks]

ii) **Base class** [2 Marks]

iii) **Derived class** [2 Marks]

b) i) Define **Operator Overloading** and use the (+) operator to demonstrate two cases of operator overloading [6 Marks]

ii) Distinguish between **Encapsulation** and **Abstraction** [4 Marks]

c) Write a C++ program to accept and display student details as follows

- Student Marks scored in five units
- Total Marks
- Average Marks
- Grade

Use if...else statements in the following grading criteria

RANGE	GRADE
70-100	A
60-69	B
50-59	C
40-49	D
0-39	E
Else	X

[9 Marks]



## QUESTION TWO

- a. What is an **exception** in C++ [1 Marks]
- b. Discuss the following errors in a C++ Program
- i. Syntax Error [2 Marks]
  - ii. Logical Error [2 Marks]
- c. State the role of the following operators in Memory management
- i. **delete** [2 Marks]
  - ii. **new** [2 Marks]
- d. Define the following terms
- i. default constructor [2 Marks]
  - ii. copy constructor [2 Marks]
  - iii. Destructor [2 Marks]

## QUESTION THREE

a) Write a program with class **Rectangle** to calculate the area with the following functions.

- **void getdata();**
- **void calculate();**
- **void display();** [9 Marks]

b) Define a **constructor** [2 Marks]

c) Differentiate between **static** and **dynamic** binding [4 Marks]

## QUESTION FOUR

a) Give **FOUR** characteristics of C++ as an **Object Oriented** Programming language [4 Marks]

b) State **SIX** benefits of **Object Oriented** Programming in software development [6 Marks]

c) Write a C++ program to find the sum, product and average of six integers [5 Marks]

## QUESTION FIVE

a) Define inheritance [2 Marks]

b) Give three advantages of inheritance [3 Marks]

c) i) What is **function overloading**? [2 Marks]

ii) State **TWO** reasons why function overloading is important in C++ [2 Marks]

iii) Why is data **Encapsulation** important in Object Oriented Systems? [2 Marks]

iv) Describe **TWO** types of **polymorphism** [4 Marks]



## QUESTION SIX

1. Describe the following types of Inheritance using well labelled diagrams

- a. Single inheritance **[3 Marks]**
- b. Multiple Inheritance **[3 Marks]**
- c. Multilevel Inheritance **[3 Marks]**
- d. Hierarchical inheritance **[3 Marks]**
- e. Hybrid Inheritance **[3 Marks]**

