

ZIMBABWE EZEKIEL GUTI UNIVERSITY



**FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS
DEVELOPMENT**

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

COURSE CODE: BIS212
COURSE TITLE: Object Oriented Programming
SPECIAL REQUIREMENTS: NONE
LEVEL:
EXAM DURATION: 3 hours
DATE:

INSTRUCTIONS TO CANDIDATES:

1. Answer any **four** questions
2. Number your answers accordingly
3. Start each question on a new page

Question 1

- a) Define instantiation and support your definition with a Java code snippet.
[5 marks]
- b) Explain with an example the role of getters and setters with respect to classes in Java
[10 marks]
- c) Use an appropriate example to distinguish between a class and an object in Java
[6 marks]
- d) Write short notes on constructor overloading in relation to object-oriented programming.
[4 marks]

Question 2

Write a Java program to create a class called Dog with private attributes Name and Breed. Create two instances of the Dog class, set their attributes using the constructor and modify the attributes using the setter methods and print the updated values using the getter methods.

[20 marks]

Question 3

- a) Explain how encapsulation is different from data abstraction in object-oriented programming
[5 marks]
- b) Explain the major advantages of object-oriented programming
[6 marks]
- c) Use an example to explain how interfaces enable multiple inheritance in Java
[8 marks]
- d) Differentiate between an abstract class and an interface in Java
[6 marks]

Question 4

Write a Java program to create a class called "Building" with attributes for address, number of floors, and total area. Create subclasses "ResidentialBuilding" and "CommercialBuilding" that add specific attributes like number of apartments for residential and office space for commercial buildings. Implement a method to calculate

the total rent for each subclass.

[20 marks]

Question 5

Write a Java program to create a class called "ElectronicsProduct" with attributes for product ID, name, and price. Implement methods to apply a discount and calculate the final price. Create a subclass "WashingMachine" that adds a warranty period attribute and a method to extend the warranty..

[20 marks]

Question 6

- a) Enumerate the Rules for naming Identifiers in Java. [6 marks]
- b) Write a program segment to demonstrate how to overload a constructor in Java [8 marks]
- c) Compare and contrast overloading and overriding in OOP. [6 marks]
- d) Explain polymorphism in OOP [5 marks]

END

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