



ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS DEVELOPMENT

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

COURSE CODE : BIS416
COURSE TITLE : OBJECT ORIENTED PROGRAMMING II
SPECIAL REQUIREMENTS : None
DURATION : 3 Hours
LEVEL : 4.1
DATE : 2024 12 JUN 2024

INSTRUCTIONS TO CANDIDATES:

1. No cell phones are allowed in the examination venue.
2. Answer any **All in Section A** and any **Three** questions.
3. Begin each question on a new page.
4. The number of marks for each question or part question is shown in brackets []

SECTION A

Answer All Questions

QUESTION 1

- a) Define the following terms:
- Object Oriented Programming [2]
 - Object [3]
- b) Distinguish between polymorphism and inheritance as applied in Object Oriented Programming [6 marks]
- c) With the aid of a diagram, distinguish between base class and derived class as applied in object oriented programming. [3 marks]
- d) Distinguish between switch statement and for loop [6 marks]
- (e) Demonstrate five coding standards for variables in Java? [5 marks]
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SECTION B

Answer any 3 Question

QUESTION 2

- a) Discuss the difference between abstract classes and interfaces in Java. [8]
- b) Implement a class hierarchy for a simple banking system. Create a base class called **Account** with attributes for **accountNumber** and **balance**. Derive two subclasses called **SavingsAccount** and **CheckingAccount**. Implement methods for depositing and withdrawing money, and demonstrate the functionality of the classes in a test program. [17]

QUESTION 3

- a) Discuss how method overriding and method overloading contribute to achieving polymorphism, and provide examples of each [8].
- b) Write a Java program that prompts the user to enter an integer n and prints the sum of all even numbers from 1 to n using a while loop [17]

QUESTION 4

- a) Explain the difference between checked and unchecked exceptions, [10].

- b) Write a Java program that prompts the user to enter a day of the week (as an integer from 1 to 7) and prints the corresponding day name using a switch statement. [15]

QUESTION 5

- a) What is the difference between method overloading and method overriding in Java? [8]

- b) Design an abstract class called Animal with the following abstract methods:

void makeSound(): Prints a sound that the animal makes.

void move(): Prints a movement action of the animal.

Create two concrete classes, Cat and Dog, that extend the Animal class.

Implement the abstract methods in each of these classes.

In your Main class, create objects of type Cat and Dog, and demonstrate the sound and movement actions of each animal [17]

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