

**PAN AFRICA CHRISTIAN UNIVERSITY
EXAMINATIONS PAPER**



PAN AFRICA CHRISTIAN UNIVERSITY

BBIT, BSCIT

END OF TERM EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: BSIT 302

CAMPUS: ROYSAMBU

COURSE TITLE: OBJECT ORIENTED PROGRAMMING II

EXAM DATE: MONDAY, DATE (2ND DECEMBER 2024)

TIME: START HOUR – END 2:30-5:30 HRS

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other THREE questions in Section **B**.
- Write only your **student number** on the answer booklet provided.
- None programmable calculators permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

SECTION A

(Answer ALL questions in this section)

QUESTION 1

An Online Library Management System (OLMS) is designed to automate the management of books in a library, allowing users to search for, borrow, and return books. The system has two main user types: Librarians and Members. Librarians can add, update, and remove books from the library's collection, while Members can search for books and request to borrow or return them. Each book has a title, author, ISBN, and availability status. Members have a limited borrowing capacity and a defined return period.

- i. Explore the importance of polymorphism in the implementation of the borrowBook(Book book) method in the above program? **[4 Marks]**
- ii. Identify the classes and attributes from the scenario above. **[6 Marks]**

SECTION B

(Answer any THREE (3) questions in this section)

QUESTION 2

- a) Write a Java program to demonstrate an application involving GUI with controls menus and event handling. **[6 Marks]**
- b) Assume you are developing a console application that accepts user input for an integer value. Explain how you would handle exceptions for invalid input to ensure the application continues to run smoothly without crashing. **[4 Marks]**

QUESTION 3

- a) Design a graphical user interface (GUI) using Swing components to calculate the sum of two numbers entered by the user **[6 Marks]**
- b) Explain the concept of encapsulation in object-oriented programming with an example **[4 Marks]**

QUESTION 4

- a) Write a Java program to illustrate the multiple inheritance by using Interfaces.

[4

Marks]

- b) Write a simple program that would capture the details of students through a text box and display the captured details in a message box

[6

Marks]

QUESTION 5

- a) What is the output of the code below

[4 Marks]

```
public class FibonacciSeries {  
    public static void main(String[] args) {  
        int n = 10; // Number of Fibonacci numbers to print  
        int first = 0, second = 1;  
        System.out.println("Fibonacci Series up to " + n + " numbers:");  
        System.out.print(first + " " + second + " ");  
        for (int i = 3; i <= n; i++) {  
            int next = first + second;  
            System.out.print(next + " ");  
            first = second;  
            second = next;  
        }  
    }  
}
```

- b) Describe a constructor with an example in Java programming language

[6 Marks]

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QUESTION 6

- a) Write java program to create a button with ActionListener **[6 Marks]**
- b) Explain the difference between method overloading and method overriding, and discuss how each can be used in object-oriented programming. **[4 Marks]**

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