



PAN AFRICA CHRISTIAN UNIVERSITY

BSIT/BBIT

END-OF-TERM EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: BSIT/BBIT 204

CAMPUS: ROYSAMBU

COURSE TITLE: OBJECT-ORIENTED PROGRAMMING 1

EXAM DATE: FRIDAY, DATE (DDTH MONTH YEAR)

TIME: START HOUR – END 14:00-17:00 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**.
- 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

- a) State TWO benefits of programming in Java over other programming languages **(2)**

Marks)

- b) Using a FOR-LOOP, write a Java program to display the sum of all the even numbers between 10 and 20. **(3)**

marks)

- c) Use the code snippet to answer questions (i) and (ii) below

```
public class Student{  
    private String name;  
    public String getName(){  
        return name; }  
    public void setName(String name){  
        this.name=name }  
}
```

- i. Justify the object-oriented concept implemented by the code snippet

(1)

Mark)

- ii. Explain the significance of TWO access specifiers in the code snippet

(2)

Marks)

- d) Identify FOUR errors in the following code snippet:

(2)

marks)

```
Private class try {  
    public void main(string[] args) {  
        int i;  
        int k = 100.0;  
        intj = i + 1;  
  
        system.out.Println("j is " + j + " and k is " + k);  
    }  
}
```

SECTION B

(Answer any **FOUR (3)** questions in this section)

QUESTION 2

- a) Explain the rationale for the use of methods in writing programs **(4 Marks)**
- b) A program is required to read the width and the length of a rectangle and calculate and output both the area and perimeter. Write a Java program for this problem
(6 marks)

QUESTION 3

- a) Write a Java program with a base class **Employee** and derived classes **Staff** and **Faculty**. The base class should pass such features like rolno, name, and gender to its derived classes and display the results accordingly. **(5 Marks)**
- b) A student is awarded a mean grade in the range of A to E in an exam depending on his/her average score in six units. Write a Java program to allow input of the score of each of the six units, Calculate the average and output average score and the mean grade. The awarding grade scale is;

Average Score	Mean Grade
Average ≥ 70	A
60 to 69	B
50 to 59	C
40 to 49	D
Below 40	E

(5marks)

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QUESTION 4

- a) State the rationale for constructors in computer programming **(2 marks)**
- b) Demonstrate how a destructor contributes to garbage collection in OOP
(3

marks)

- c) Write a Java program that reads in the radius and length of a cylinder and computes its volume using the following formulas:

(5 marks)

$$\text{area} = \text{radius} * \text{radius} * p$$
$$\text{volume} = \text{area} * \text{length}$$

QUESTION 5

- a) Explain any FOUR layout managers that can be used to position components within a container. **(4 marks)**
- b) Write a Java program to display the first five months of the year **(6 marks)**

QUESTION 6

- a) Write a Java program that would capture students' details and display them back to the user in some organized format. **(5 marks)**
- b) Write a Java program that reads ten numbers and stores them in an array, computes their average, and finds out how many numbers are above the average.

(5 marks)

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