PAN AFRICA CHRISTIAN UNIVERSITY

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY

END OF SEMESTER EXAMINATION

DEPARTMENT:	**COMPUTING AND INFORMATION TECHNOLOGY**
COURSE CODE:	**DICT0125**
COURSE TITLE:	**OBJECT-ORIENTED PROGRAMMING I**
CAMPUS:	**ROYSAMBU**
EXAM DATE:	**TUESDAY 28TH JULY 2026**
TIME:	**8:00AM -11:00AM**

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.

SECTION A: (Answer ALL questions in this section)

Question One (15 marks) Compulsory

a) Define the following terms as used in Object Oriented Programming: **[3 Marks]**
   i. Object
   ii. Class
   iii. Polymorphism

b) State two advantages and two disadvantages of Object-Oriented Programming. **[4 Marks]**

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c) The following is a Java program segment. Use it to answer the question that follows:

```
                public class Car {
                        String model;
                                }
                 public static void main(String[] args){
    Car c = new Car();
    c.model = "Honda";
    System.out.println(c.model);
  }
}
```

i. State the access modifier used in the program **[1 Mark]**

ii. Identify the class name and the object name used in the program. **[1 Mark]**

iii. Explain the purpose of the line ***public static void main(String[] args)***.

[1 Mark]

d) Write a Java program that implements a class named Odd with a data member named x and method named read that accepts an integer from the keyboard. The program determines whether the integer is odd or even and displays an appropriate message. Use the *if statement*. **[5 Marks]**

SECTION B: (Answer any THREE (3) questions in this section)

Question Two (15 Marks)

a) With the aid of a diagram, distinguish between Single Inheritance and Multiple Inheritance as used in Object Oriented Programming. **[4 Marks]**

b) Write a Java program that adds two integers and returns the result. **[5 Marks]**

c) Write a Java program that uses a class named circle to accept the radius of a circle and compute both the area and circumference (area = pi* radius* radius, circumference = Pi* diameter) **[6 Marks]**

Question Three (15 Marks)

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a i) Define the term an identifier. **[1 Mark]**

ii. State three rules applied in naming a valid Java identifier. **[3 Marks]**

b) Explain two types of operators used in Java program. **[4 Marks]**

c) Write a Java program code to display odd numbers between 1 and 60. **[7 Marks]**

Question Four (15 Marks)

a i) Differentiate between method overloading and method overriding. **[4 Marks]**

ii. Highlight one advantage of method overloading. **[1 Mark]**

b) Write a Java program code that prints the following pattern of stars; **[10 Marks]**

```
    *
   ***
  *****
 *******
*********
```

Question Five (15 Marks)

a) Outline the basic structure of a Java program. **[3 Marks]**

b) Explain the term constructor as used in Object- oriented programming. **[3 Marks]**

c) Using the *for loop*, write a Java program that prints the numbers 1 through 20 on the screen. The program should not have user input. **[9 Marks]**

Question Six (15 Marks)

a) Discuss Re-usability, Encapsulation and Data abstraction as used in Object-oriented programming. **[6 Marks]**

b) Study the following Java program snippet. Use it to answer the question that follows:

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```
Public class Away Assign
Public Static Void main (String [ ] args)
{
int [ ] num = new int [3];
num [0] = 10;
num [1] = 20;
num [2] = 30;
system.out.print (“The numbers are:”);
for (int 2 = 0; i<num.length:++2)
{
system.out.print ln (num [i]);
                }
    }

}
```

i. Interpret the above program. **[7 Marks]**

ii. State the output to the console . **[2 Marks]**

END

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