



PAN AFRICA CHRISTIAN UNIVERSITY

DICT

END OF TERM EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: DICT

CAMPUS: ROYSAMBU

COURSE TITLE: OBJECT ORIENTED PROGRAMMING

EXAM DATE: DAY OF WEEK, DATE (DDTH MONTH YEAR)

TIME: START HOUR – END 13:00-17:00 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) Java is an object-oriented programming language of choice to many programmers. Explain why this is so.

(03 Marks)

- b) Using a code snippet, distinguish between while loop and do-while loop.

(04

Marks)

- c) Identify and fix the errors in the following code:

(03 marks)

```
public class Test {  
    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 use of methods in writing programs. **(04 Marks)**
- b) Write a method that computes Simple Interest given interest rate, principal for a specified number of years. The principal, rate and time are passed as parameters. Call the method within main. The Simple Interest is determined using the formula

$(\text{Principal} * \text{rate} * \text{time}) / 100.$

(06 marks)

QUESTION 3

- a) Explain the significance of access specifiers used in the following code snippet.
(06 marks)

```
class A{
    protected int data=40;
    private void msg(){System.out.println("Hello java");}
}
public class Simple{
    public static void main(String args[]){
        A obj=new A();
        System.out.println(obj.data);//Compile Time Error
        obj.msg();//Compile Time Error
    }
}
```

- b) Using looping structures, write a java program to display **"I am happy today"** five times.
(04 Marks)

QUESTION 4

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

area = radius * radius * p
volume = area * length

- b) DigitalLife Restaurant wants to automate its Entrance Management System. You have been approached to write a simple program to determine whether the potential client is under age or an adult and give appropriate advice. Write down the probable code that you would provide using conditional control structures.

(05

Marks)

QUESTION 5

- a) Describe your understanding of the term array and provide a code snippet on how to declare and initialize an array of five integers. **(05 marks)**
- b) Write a program that reads ten numbers and store them in an array, computes their average, and finds out how many numbers are above the average. **(05 marks)**

QUESTION 6

- a) Distinguish constructors from classes. **(02 marks)**
- b) Demonstrate how to define a constructor using a java code snippet **(03 marks)**
- c) Write a java program with a base class **Student** and derived classes **Diploma_Student** and **Bachelor_Student**. The base class should pass such features like regn0, name and gender to its derived classes and display the results accordingly. **(05 Marks)**

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