



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) Explain THREE reasons that make Java an object-oriented programming language of choice to many programmers.

(03 Marks)

- b) Using a code snippet, distinguish between while loop and for- 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) 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 for a restaurant entry management system. Write down the probable code that you would provide using conditional control structures.

(05 Marks)

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

(05 marks)

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

QUESTION 3

- a) Explain the advantages for using methods in program development. **(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
(Principal * rate * time) / 100. **(06 marks)**

QUESTION 4

- 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 for-loop, write a java program to display **"I am happy today"** five times. **(04 Marks)**

QUESTION 5

- 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 **CertificateStudent** and **DiplomaStudent**. The base class should pass such features like regn0, name and gender to its derived classes and display the results accordingly. **(05 Marks)**

QUESTION 6

- 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)**

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