**PAN AFRICA CHRISTIAN UNIVERSITY**

**DICT**

**END OF TERM EXAMINATION**

**DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY**

**COURSE CODE: DICT0125**

**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**

1. Explain why Java is a preferred object-oriented programming language to many programmers. **(03 Marks)**
2. Using **FOR-LOOP**, write a java program to display **“God is good”** five times. **(04 Marks)**
3. 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**

1. Distinguish constructors from classes. **(02 marks)**
2. Demonstrate how to define a constructor using a java code snippet **(03 marks)**
3. 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)**

**QUESTION 3**

1. PAC Restaurant wants to automate its Entrance Management System. You have been approached to write a simple program to determine whether the potential client is a child or an adult and give appropriate advice. Write down the probable code that you would provide using conditional control structures. **(05 Marks)**
2. 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**

**QUESTION 4**

1. Describe your understanding of the term array and provide a code snippet on how to declare and initialize an array of four integers. **(05 marks)**
2. 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 5**

1. Identify and briefly explain the significance of access specifiers 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

   }

}

1. Using a code snippet, distinguish between while loop and do-while loop. **(04 Marks)**

**QUESTION 6**

1. Explain the significance for use of methods in writing programs. **(04 Marks**
2. 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)**

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