UNIVERSITY COLLEGE TATI (UCTATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: DCT1094
COURSE	: OBJECT ORIENTED PROGRAMMING
SEMESTER/SESSION	: 2 - 2024/2025
DURATION	: 3 HOURS

Instructions:

1. This booklet contains 5 questions. Answer ALL questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise up your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 8 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) Write assignment statements that multiply the values of variables `b` and `c` and store the result in `b`. (2 marks)

b) Assume that the variables `x`, `y`, `z`, and `result` are all integers. `x = 1`, `y = 3`, and `z = 5`. What value will be stored in `result` in each of the following statements?

a) `result = x + y;` (1 mark)

b) `result = x + y * z;` (1 mark)

c) `result =z + (y * x);` (1 mark)

c) Explain the term `logic error`. Identify and correct any logic errors in the following Java program in Figure 1.

```
import java.util.Scanner;
public class Main
{
public static void main(String[] args) {
Scanner input = new Scanner(System.in);
System.out.println("Please enter score for DCT1094 ");
int score = input.nextInt();
if (score >=40)
System.out.println("Fails");
}
}
```

Figure 1: Logic Error Program (6 marks)

d) Write a Java program to input a five hundred (500) integers and print the average. Do not use an array. The initialization value =1111. (11 marks)

QUESTION 2

a) Identify and correct an error in the following method definition.

a)

```
public static void info();{
    System.out.println("Programmed by Abu");
}
```

(3 marks)

b)

```
public static void average(int N1, int N2) {
    return ((N1+N2)/2.0);
}
```

(3 marks)

b) The Figure 2, shows the source code with defined method. Identify the `modifier`, `returnType`, `NameofMethod`, `Parameter list` and `method body`.

```
class Util {
/** the snippet returns the
minimum between two numbers */
public int minimum(int n1, int
n2) {
int min;
if (n1 > n2)
min = n2;
else
min = n1;

return min;
}
}
```

Figure 2:Method Source Code (5 marks)

c) Access specifier or modifier is the access type of the method. Describe **TWO (2)** types of access specifier.

i) Public:

ii) Private:

iii) Protected:

(6 marks)

d) Based on the following sub program in Figure 3 and Figure 4,

i) Identify which one is predefine method and user defined method. (1 mark)

ii) Write the characteristics of both user defined method and predefine method. (2 marks)

```
public class Demo
{
public static void
main(String[] args)
{
System.out.print("Nilai
tertinggi adalah " +
Math.max(9,7));
}
}
```

Figure 3:Main method

```
public static void
findEvenOdd(int num)
{
if(num%2==0)
System.out.println(num+"
nombor genap");
else
System.out.println(num+"
nombor ganjil");
}
```

Figure 4:findEvenOdd

e) Consider the program is Figure 5 and answer the following questions.

```
public class JavaExample
{
  private int power = 100;


  public void myMethod()
 {
    int stream = 100;

    power++;
    stream++;
           System.out.print("variableOne: " +power);
           System.out.println("variableTwo:" +stream);
  }
  public static void main(String args[])
{
    JavaExample example = new JavaExample();

   example.myMethod();
   example.myMethod();
   example.myMethod();
   example.myMethod();    }}
```

Figure 5:JavaExample Program

i) Identify the local and global variable. (2 marks)

ii) Display the output of the above program. (4 marks)

QUESTION 3

a) Distinguish the terms "Object" and "Class" (4 marks)

b) Constructor is a block of code that initializes the newly created object.

i) When is a class constructor gets called? (1 mark)

ii) If you create **FIVE** (5) objects of a class, how many time will the constructors will be called? (1 mark)

iii) When writing a constructor, do constructors have a return type in their declaration? (1 mark)

iv) Why do you use a constructor? (1 mark)

c) Write a method named `FeetToCM` that receives a value in feet and returns the equivalent measurement in centimeters. 1 feet is equal to 30.48 centimeters. (5 marks)

d) Consider the following subprogram in Figure 6 that initiates several objects of a class and answer the following questions:.

```
public class Malaysia {
int x = 5;

      public static void main(String[] args)
{
      Malaysia myNegeri1 = new Malaysia();
      Malaysia myNegeri2 = new Malaysia();
      System.out.println(myNegeri1.x);
      System.out.println(myNegeri2.x);
}
```

Figure 6: Class Malaysia

i) How many objects created in the Figure 6? (1 mark)

ii) Display the output of the program in Figure 6, (3 marks)

QUESTION 4

a) Read the program in Figure 7 and understand its operation.

```
public class MaklumatPesakit {
    private int umur;
    private String nama;
    private double beratKG;

 public MaklumatPesakit (int umur, String nama, double beratKG)
{
        this.umur = umur;
        this.nama = nama;
        this.beratKG = beratKG;
}


public void CetakMaklumat() {
        System.out.println("UMUR: " + umur);
        System.out.println("NAMA: " + nama);
        System.out.println("BERAT(KG): " + beratKG);
    }

public static void main(String[] args) {
 MaklumatPesakit Pesakit1 = new MaklumatPesakit (10, "Satirah",
60.14);
Pesakit1.CetakMaklumat();

  MaklumatPesakit Pesakit2 = new MaklumatPesakit (20, "Hisham",
70.5);
Pesakit2.CetakMaklumat();


    }
}
```

Figure 7:Class MaklmumatPesakit

i) Identify the type of constructor used in the program. Describe the characteristic of appropriate constructor. (3 marks)

ii) How many objects are created in the program? List the name of the objects. (3 marks)

iii) Show the output of the program (3 marks)

QUESTION 5

a) Figure 8 shows the program for performing calculation operations.

```
class Calculation {
   int z;

   public void addition(int x, int y) {
      z = x + y;
      System.out.println("The sum of the given
numbers:"+z);
   }

   public void Subtraction(int x, int y) {
      z = x - y;
      System.out.println("The difference between the given
numbers:"+z);
   }
}

public class My_Calculation extends Calculation {
   public void multiplication(int x, int y) {
      z = x * y;
      System.out.println("The product of the given
numbers:"+z);
   }

   public static void main(String args[]) {
      int a = 20, b = 10;
      My_Calculation demo = new My_Calculation();
      demo.addition(a, b);
      demo.Subtraction(a, b);
      demo.multiplication(a, b);
   }}
```

Figure 8: Calculation Program

i) Identify the TWO(2) object oriented programming concept according to above program (Figure 8). (2 marks)

ii) What is the keyword used in child class to show the inheritance in Java. (2 marks)

iii) Create a UML diagram for the above program. (10 marks)

iv) State the number of classess in the program and list the class name. (2 marks)

v) Identify the characteristics of Class `calculation` that inherited by `My_Calculation`. (2 marks)

vi) Write the object created, (2 marks)

vii) Show the output. (2 marks)

b) What is difference between overloading and overriding? (4 marks)

----------End of question----------