Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2022/2023

COURSE NAME	:	VISUAL PROGRAMMING
COURSE CODE	:	BIE 20404
PROGRAMME CODE	:	BIP
EXAMINATION DATE	:	JULY / AUGUST 2023
DURATION	:	3 HOURS
INSTRUCTIONS	:	1. ANSWER **ALL** QUESTIONS.
		2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.
		3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

Q1 Determine whether each of the following Java code contain Error or No Error. Justify your answer.

(a)
```
JLabel myLabel = "Login";
```
(2 marks)

(b)
```
abstract public void calculateSalary() {
        salary = hourlyRate * hoursWork;
}
```
(2 marks)

(c)
```
class MyClass3 extends MyClass1, MyClass2 {
        ...
```
(2 marks)

(d)
```
throws new IOException("invalid device");
```
(2 marks)

(e)
```
public abstract double getArea() {
        return width*length;
}
```
(2 marks)

Q2 Indicate whether each of the following statements is **TRUE** or **FALSE**.

(a) All methods in an abstract class must be declared as abstract methods.
(2 marks)

(b) A `finally` block can be preceded by a `try` block or a `catch` block.
(2 marks)

(c) Every statement must be enclosed in a `try..catch..finally` block.
(2 marks)

(d) To implement multi-threading, a class must implements `Runnable` and extends `Thread` class.
(2 marks)

(e) To obtain a thread safe result, an operation must be serialized.
(2 marks)

Q3 Answer **Q3(a)** to **Q3(c)** based on **Figure Q3(a)** and **Figure Q3(b)**.

```
import javax.swing.JOptionPane;

public class Circle {

      public static void main(String[] args) {
            double radius;

            radius = Double.parseDouble(
                  JOptionPane.showInputDialog("Please enter the radius:"));

            double area = radius * radius * 3.14159;

            System.out.println("Circle area is:" + area);
      }
}
```

Figure Q3(a)

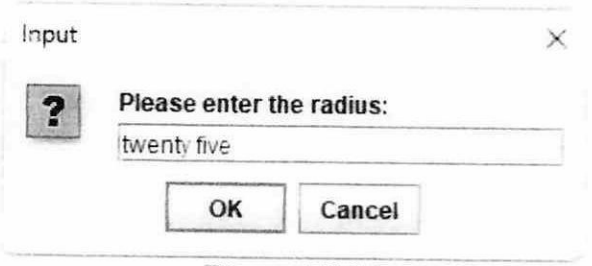

Figure Q3(b)

(a) If the user enters the input as in **Figure Q3(b)** and click the OK button. what is the output of the program? Justify your answer.

(6 marks)

(b) Apply exception handling for the segment code in **Figure Q3(a)** by using a `try..catch` block and a `showMessageDialog()` method.

(8 marks)

(c) Compare between `try..catch` block and `try..finally` block.

(6 marks)

Q4 Based on user interface in **Figure Q4(a)** and components specification in **Table 1**. write complete Java codes that display the output shown in **Figure Q4(b).**

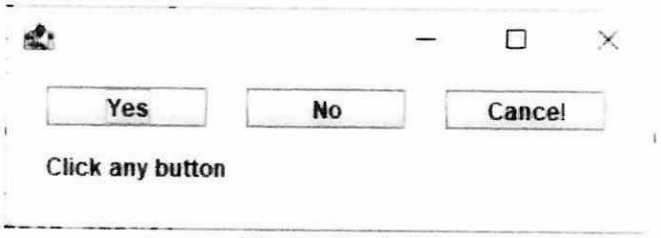

Figure Q4(a)

Table 1 : Components specification

Component	*Properties*
Main Container	Size: 340 x 120
"Yes" button	Bounds: 20, 10, 80, 20
"No" button	Bounds: 120, 10, 80, 20
"Cancel" button	Bounds: 220, 10, 80, 20
Message label	Bounds: 20, 40, 180, 20

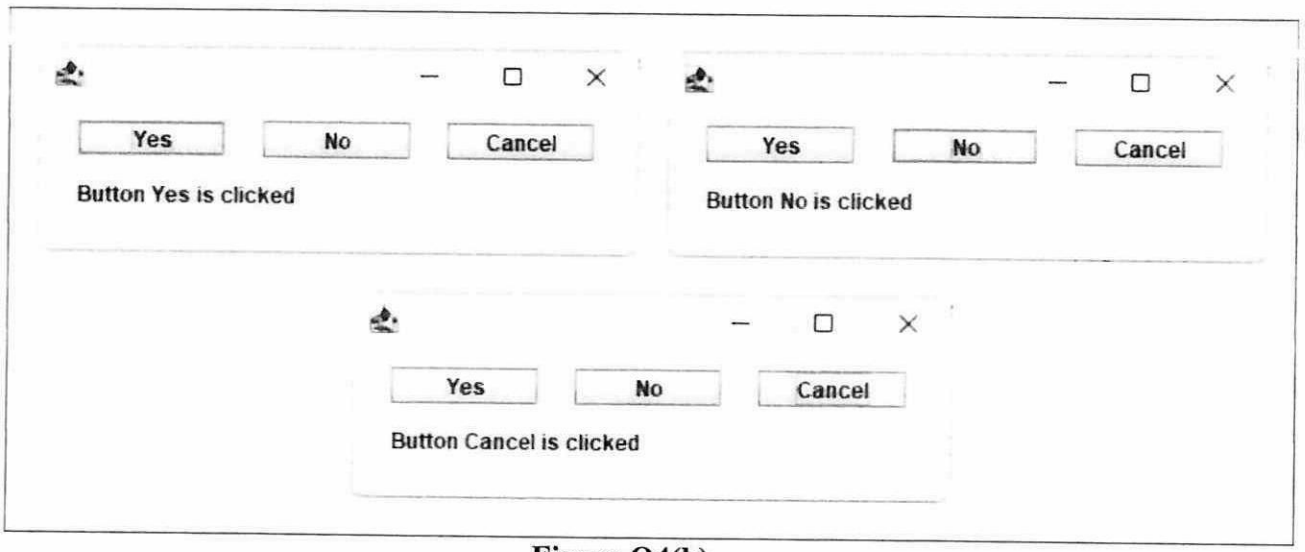

Figure Q4(b)

(20 marks)

Q5 Answer **Q5(a)** to **Q5(g)** based on the incomplete Java code in **Figure Q5(a)** and the GUI application in **Figure Q5(b).**

```
import java.awt.*;
import javax.swing.JFrame;

public class LoadingScreen extends Canvas{

      public void paint(Graphics g) {

            // (d) Instantiate a toolkit

            // (e) Get an image file named "icoLoading.gif"
            //      and assign to an image object

            // (f) Draw the image using the given graphics object

            // (g) Draw a string to display "...loading" text

      }

      public static void main(String[] args) {
            // (a) Instantiate an object of LoadingScreen class

            // (b) Create the main container

            // (c) Add the canvas to the main container

            f.setSize(200,200);
            f.setVisible(true);
      }

}
```

FIGURE Q5(a)

FIGURE Q5(b)

(a) Write the Java code to instantiate an object of the `LoadingScreen` class.
(3 marks)

(b) Create the main container using `JFrame`

(3 marks)

(c) Add the canvas to the main container.

(2 marks)

(d) Instantiate a toolkit from the default toolkit.

(3 marks)

(e) Get an image file named "icoLoading.gif" and assign to an image object.

(3 marks)

(f) Draw the image using the given graphics object at position (50,60).

(3 marks)

(g) Draw a string to display "…loading" text at position (40,40).

(3 marks)

- END OF QUESTIONS -