Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2016/2017

COURSE NAME	:	VISUAL PROGRAMMING
COURSE CODE	:	BIE 20404
PROGRAMME CODE	:	BIP
EXAMINATION DATE	:	JUNE 2017
DURATION	:	2 HOURS AND 30 MINUTES
INSTRUCTION	:	ANSWERS **ALL** QUESTION

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

Q1 (a) List **FIVE (5)** Swing GUI Components.

(5 marks)

(b) Discuss **THREE (3)** important elements of a GUI application.

(9 marks)

(c) What is container?

(6 marks)

Q2 Explain the error(s) in each of the following:

a)
```
buttonName = JButton( "Caption" );
```
(2 marks)

b)
```
JLabel aLabel, JLabel; // create references
```
(2 marks)

c)
```
txtField = new JTextField( 50, "Default Text" );
```
(2 marks)

d)
```
// create a JFrame and display it
JFrame f = new JFrame( "A Window" );
f.setVisible( true );
```
(2 marks)

Q3 (a) Differentiate between event handler and event handling.

(4 marks)

(b) Explain **FOUR (4)** sequences for creating menus using Java.

(8 marks)

Q4 a) Consider the following Java code:

```
int lowerLimit;
int divisor;
int result;
try
{
System.out.println("Entering the try block.");
result = lowerLimit / divisor;
if (lowerLimit < 100)
throw new Exception("Lower limit violation.");
System.out.println("Exiting the try block.");
}
catch (ArithmeticException e)
{
System.out.println("Exception: " + e.getMessage());
result = 110;
}
catch (Exception e)
{
System.out.println("Exception: " + e.getMessage());
}
System.out.println("After the catch block");
```


i. Identify the output if the value of `lowerLimit` is 50 and the value of `divisor` is 10.

(3 marks)

ii. Identify the output if the value of `lowerLimit` is 150 and the value of `divisor` is 10.

(3 marks)

b) Rewrite the following Java codes without using exceptions:

```
public static boolean printString(){
try {
      System.out.println(refVar.toString());
}
catch (NullPointerException ex) {
      System.out.println("refVar is null");
}}
```

(4 marks)

Q5 (a) Based on **Figure Q5,** write the Java codes segment to display the following user interface components:

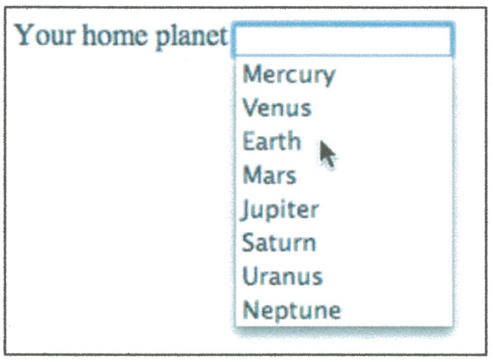

Figure Q5

(12 marks)

(b) Write the necessary Java code statements to create the following:

(i) A check box with the labels `Bold` and `Italic`.

(4 marks)

(ii) A group of three radio buttons with the labels `Beginner` and `Intermediate`.

(8 marks)

Q6 Question **Q6 (a)-Q6 (e)** are based on **Figure Q6**.

Figure Q6

(a) Analyze input, output and GUI element requirements to develop a Java program as depicted in **Figure Q6.**

(6 marks)

(b) Given the following Java program structure for **Figure Q6**:

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

public class BMI implements ActionListener {
// Swing GUI components declaration

private final JFrame frame;

public BMI() {
computeButton.addActionListener(this);

//Set up GUI components

 frame = new JFrame("BMI");
 frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
 frame.setLayout(new BorderLayout());
 frame.add(bmiLabel, BorderLayout.NORTH);
 frame.add(center, BorderLayout.CENTER);
 frame.add(computeButton, BorderLayout.SOUTH);
 frame.pack();
 frame.setVisible(true);
 }


 public void actionPerformed(ActionEvent event) {
 // Handles clicks on Compute button by computing the BMI.
// read height/weight info from text fields
 }

public static void main(String[] args) {
BMI gui = new BMI(); }}
```

(i) Write the Swing GUI components declarations statements for the Java program.

(4 marks)

(ii) Write the appropriate method definition for `actionPerformed()` if given the formula for calculating BMI as the following:

```
weight / (height x height) x 703
```

(6 marks)

(iii) Write the Java codes that adds the GUI components to the Java program for **Figure Q6.**

(10 marks)

- END OF QUESTIONS -