(KNOWLEDGE FOR DEVELOPMENT)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS

2018/2019 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS

SECOND YEAR SECOND SEMESTER

FOR THE DEGREE IN INFORMATION TECHNOLOGY

COURSE CODE: BIT 221

COURSE TITLE: EVENT DRIVEN PROGRAMMING

DATE: 17/05/2019 **TIME:** 2.00 P.M-4.0P.M

INSTRUCTIONS

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE [COMPULSORY] [30 MARKS]

a. What is meant by the following concepts? [5 marks]

i An event
ii A listener
iii An exception
iv Event handlers
v Event-driven programming

b. Explain the components shown on the **Figure1** screenshot [4 marks]

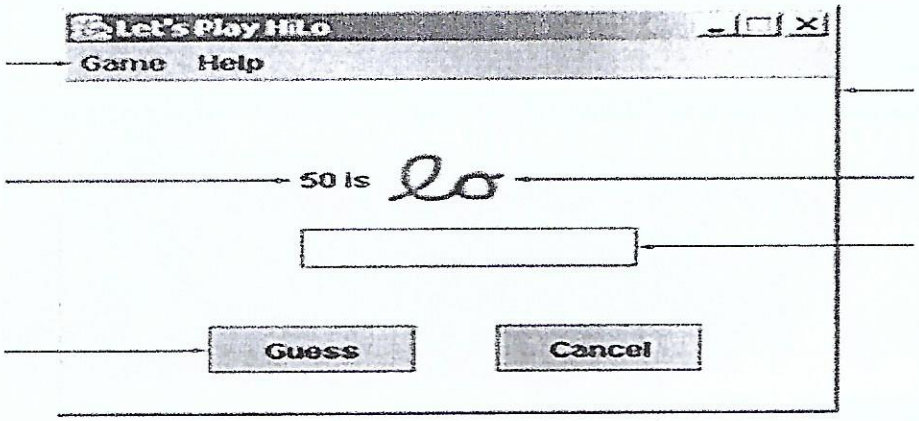

Figure1: JFrame components

c. Write a program that inputs three integers and outputs their sum. Use the JOptionPane class for both input and output routines. [4 marks]

d. What is the difference between textArea.setText("Hello") textArea.append("Hello")? [2 marks]

e. To which object do we register as an action lister- JMenu, JMenuItem, or JMenuBar? Explain. [2 marks]

f. How do we get the text of a selected menu item in the actionPerformed method? [2 marks]

g. Define a subclass of JFrame and name it Demo. Set the subclass so its instances are 400 pixels wide and 450 pixels high and a blue background. Include the method such the program terminates when the Close box is clicked. [4 marks]

h. Define a JFrame subclass that has one pushbutton. Initially, the background color is white (Color.WHITE) and the button's text is ON. When the button is clicked, the background of the frame changes to yellow (Color.YELLOW) and the text of the button changes to OFF. If the button is clicked again, the frame returns to the initial state (ON button text and white background color). Because the button text switches back and forth between ON and OFF, such button is called a toggle switch. Closing the frame window terminates the program. [7 marks]

QUESTION TWO [20 MARKS]

a. Explain what the code below achieve. [4 marks]

```
EndingListener buttonEar = new EndingListener());
endButton.addActionListener(buttonEar);
```

b. Multiple components can be added to the content pane of a JFrame using the add method. However, the add method does not specify how these components are to be arranged. To describe how multiple components are to be arranged, a layout manager is used. State and explain various layout manager and in each case give a java code that creates it and initializes it. [8 marks]

c. Define a JFrame subclass that has four vertically positioned buttons. The labels for the four buttons are Senior, Junior, Sophomore, and Freshman. Figure2 shows one possible layout:

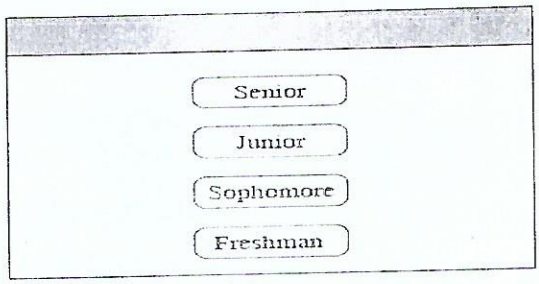

Figure2: JFrame Layout

When a button is clicked, display a message that identifies which button is clicked, using JOptionPane. [8 marks]

QUESTION THREE [20 MARKS]

a. i. Using JOptionPane input dialog, write a statement to input the person's first name. [3 marks]

ii. What user action will result in a JTextFeld object generating an action event? [2 marks]

iii. How do we get the text of a selected menu item in the actionPerformed method? [2 marks]

b. Many AWT classes are superseded by the Swing counterpart classes, but they are still available in the newer versions of Java SDK. Explain why we cannot do away with AWT? [4 marks]

c. Write a java program that implement the screenshot below (Figure3). [9 marks]

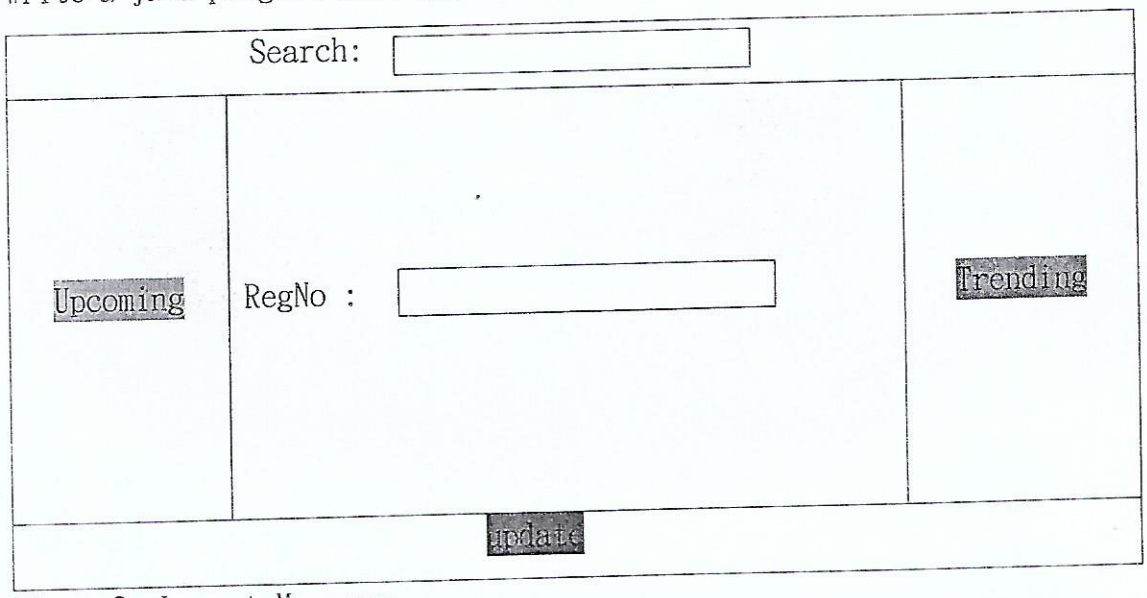

Figure3: Layout Manager

QUESTION FOUR [20 MARKS]

Below is a definition of a class Registration use it to answer the questions that follows.

*import javax.swing.**

*import java.awt.**

```
public class Registration extends JFrame{
private JLabel label1, label2, label3, label4, label5;
private JTextField text1, text2, text2;
private JComboBox cbo1,cbo2;
private JButton btn1, btn2;
public Registration()
{
 setVisible(true);
 setSize(700,700);
 setLayout(null);
 setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
```

a. Write java codes that create necessary objects of JLabels, JTextFields, JComboBoxes, JButtons use suitable names and option list as in the Figure 4. [7 marks]

b. Write java codes that will position these components on the JFrame using absolute positioning. [6 marks]

c. Write java codes that add the created components in (part (a) above) on the JFrame. [4 marks]

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

The completed the program show be able to display the output as in Figure 4 below.

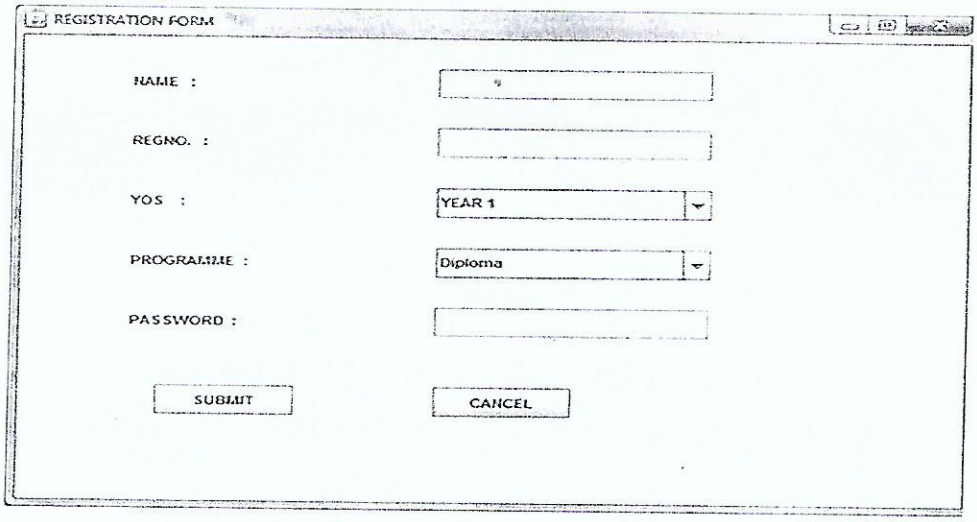

Figure4: Registration Form

d. It is not possible for one to apply color directly on a JFrame, using relevant java codes explain how this is managed? [3 marks]

QUESTION FIVE [20 MARKS]

A GUI for a simple calculator keeps a running total of numbers. The user enters a number in the text field, and then clicks either + or -. The number in the text field is then added to or subtracted from the running total, and displayed in the text field. This value is kept in the instance variable result. When the GUI is first run, or when the user clicks the Reset button, the value of result is set to zero. If the user enters a number in an incorrect format, then one of the methods throws a NumberFormatException. The exception is caught in the catch block inside the actionPerformed method. Note that when this exception is thrown, the value of the instance variable result is not changed. Write a java program to implement the above scenario use the appropriate layout manager.

[20 marks]