(KNOWLEDGE FOR DEVELOPMENT)

KIBABII UNIVERSITY
(KIBU)

UNIVERSITY EXAMINATIONS
2019/2020 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: 17/02/2021 **TIME:** 8.00 A.M. – 10.00 A.M.

INSTRUCTIONS

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

a. Explain the meaning of the following concepts as used in the study of Event driven programming:

i. What is event driven programming? **[2 marks]**

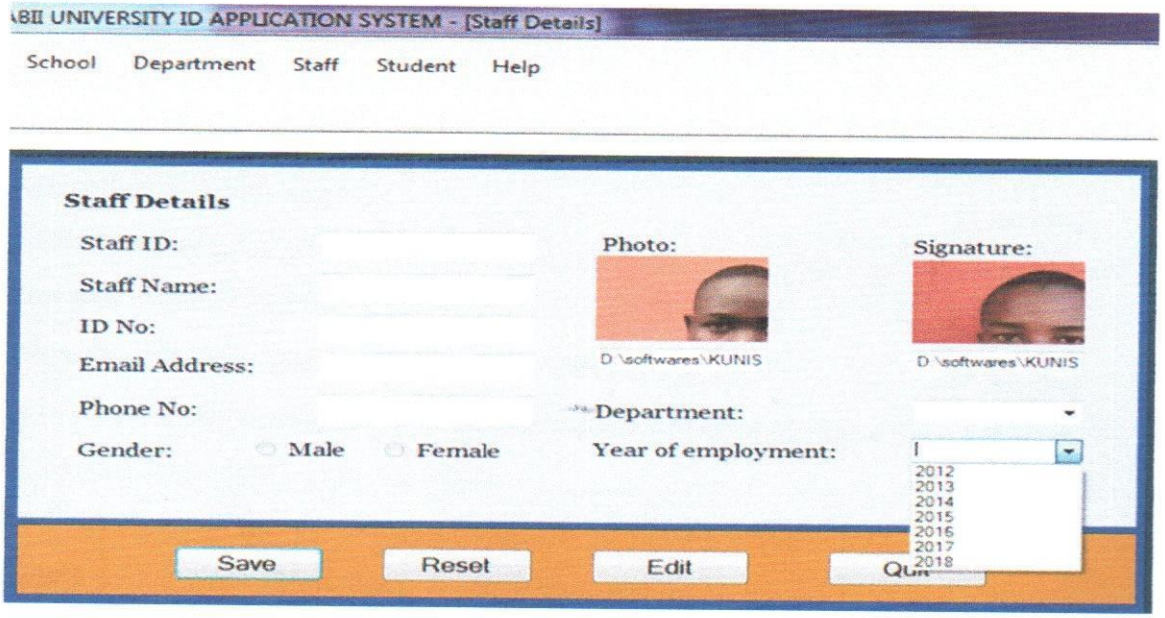
ii. Event delegation **[2 marks]**

b. A student wanted to add three Buttons and Panel object on a JFrame. He resorted in using FlowLayou manager in arranging the buttons objects on the Panel then BorderLayout in adding the Panel object on the North of a JFrame.

i. *Write a java code that will create and initialize Button objects as "Save", "Reset" and "Exit", the Panel object and the JFrame.* **[4 marks]**

ii. Write java code that will be used to add the created objects **in (i)** above on the JFrame object. **[4 marks]**

c. Explain the components and objects illustrated on the screen shot in **Figure 1** below.



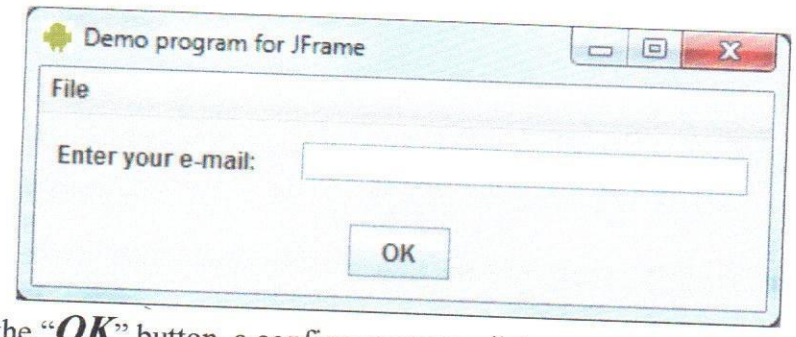
[10 marks]

d. i. Where do we register events: on a JMenu, JMenuItem or both. Explain. **[3 marks]**

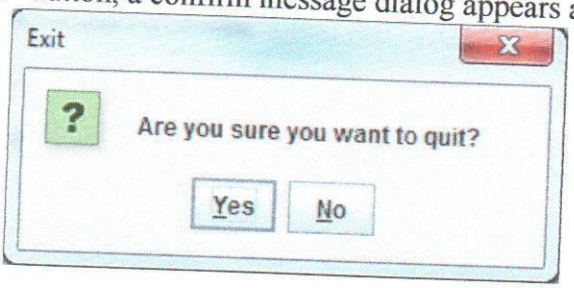
ii. Explain what the following code achieves.

```
JButton ear=new JButton ("Save);
ear.addActionListener(e -> System.Exit(0));
```

a. i. Create a Swing program that implement the displays on the screen shot below. **[3 marks]**



ii. On clicking the "***OK***" button, a confirm message dialog appears as below **[2 marks]**



QUESTION TWO [20 MARKS]

a. **i**. Explain the relationship between an actionEvent object and an actionListener interface. **[2 marks]**

ii. How can one create a class named Login that is both a JFrame and ActionListener type? Illustrate with a java code segment. **[1 marks]**

iii. Give that the inside of Login class above, you define a button object as follows:

JButton btn= new JButton("Submit");

Write a java statement that registers this button as listener object **[1 marks]**

b. Almost every GUI built using Swing container classes will be made up of three kinds of objects discuss these objects with examples. **[6 marks]**

c. A menu is an object of the class JMenu. A choice on a menu is called a Menu Item, and is an object of the class JMenuItem. A menu can contain any number of menu items. Explain the class you will import and write code segments that creates a new menu called phone with a title "Mobile Phone", and then add a menu item nokia to it with a title "Nokia Phone", techno with a title "Techno Phone", oppo with a title "Oppo Phone" and infinix with a title "Infinix Phone". add this menu to a JMenuBar object called jmb. **[6 marks]**

d. Write a program using JOptionPane that captures two integer inputs, computes their sum and product and display the results. **[4 marks]**

QUESTION THREE [20 MARKS]

a. Differentiate between Data Definition Language (DDL) and Data Manipulation Language (DML). **[2 marks]**

b. You are given a database scheme as **Courses(*course_Code*, Couse_Name, units, programme_Code**, semester)

i. Using appropriate datatypes, field size and constraints, write an sql statement that implements the scheme. **[3 marks]**

ii. Write an sql statement that can be used to populated the created scheme in b(i) above with the following details: **[3 marks]**

Course_Code	Couse_Name	units	programme_Code	semester
BIT 211	OOP II	3	BIT	SEM I
BIT 221	EDP	3	BIT	SEM II
CSC 210	OOP II	3	CS	SEM II

iii. Write sql statement or query that will retrieve all SEM II course of CS. **[2 marks]**

c. What is user-driven execution flow? How is it related to delegation-based event handling? **[3 marks]**

d. Suppose the Course details in part (b) are to be captured using a Graphical User Interface (GUI), using suitable GUI packages and layout managers, write a java program that will implement the GUI. Remember to include two button objects one to save the details and another one to Exit the application. **[7 marks]**

e.

QUESTION FOUR [20 MARKS]

a. How do we get the text of a selected menu item in the actionPerformed method? Explain using a java code excerpt. **[4 marks]**

b. In Java's event handling model, how does a client programmer invoke the event handler in his/her program? Explain. **[3 marks]**

c. Normally we create a frame window by creating a class that extends `javax.swing.JFrame` class:

```
Public class SwingJFrameDemo extends javax.swing.JFrame {
  public SwingJFrameDemo()
{
    super("Demo program for JFrame");
  }
}
```

You are requested to add components on the above class by writing a java code that will:

i. Set layout of the frame above to CardLayout **[2 marks]**

ii. Add a dropdown component to the frame's contentPane and set its list as COM, BIT, DIT and CIT. **[4 marks]**

d. Create a java GUI that allows the user to enter the desired user name and password. Provide a button, when clicked, inform the user that their account was successfully created. Include labels as appropriate. **[7 marks]**

QUESTION FIVE [20 MARKS]

a. Consider the following program. (Please pay attention to the syntax.)

```
1  class TestException{
2
3          public void A() throws Exception {
4             try {
5                B();
6             } catch (NumberFormatException e) {
7            System.out.println("Exception caught in A");
8             }
9          } // end method A
10          public void B() {
11            try {
12               C();
13            } catch (Exception e) {
14         System.out.println("Exception caught in B");
15            }
16         } // end method B
17          public void C() throws Exception {
18            D();
19         } // end method C
20          public void D() throws Exception {
21 throw new NumberFormatException("I am a trouble-maker!");
22         } // end method D
23          …
24
```

```
25  // somewhere here the method A() is called in the main
26  method.
27    TestException te = new TestException();
          te.A();
      }  // end class TestException
```

i. Where will the exception thrown by the method D() be caught? Explain.

[2 marks]

ii. Is there a method that is an exception thrower, propagator, AND catcher? If yes, identify and explain. If no, explain. **[2 marks]**

iii. If the exception thrown by D is to be caught by the main method that invokes "te.A()", show how the methods can be changed to allow that to happen?

[2 marks]

b. Write java code extract to demonstrate the parameters of : **[6 marks]**

i. Message dialog box

ii. Input dialog box

iii. Confirm dialog box

c. The volume (V) of a cylinder is given by $\pi r^2 h$ where (π) is pie which is constant, (r) is radius of the cylinder and (h) is the height or depth of the cylinder. Write a program that takes the values of r, h as inputs and value of PI from Math class compute and display the volume (V) as an output. Use the JoptionPane for both inputs and output routine.

[8 marks]