FreeExams.co.ke

UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

END OF SEMESTER EXAMINATION
YEAR TWO SEMESTER TWO EXAMINATIONS

FOR THE DEGREE OF BACHELORS OF SCIENCE
(INFORMATION TECHNOLOGY)

COURSE CODE : BIT 221

COURSE TITLE : EVENT DRIVEN PROGRAMMING

DATE: 20/04/2023   TIME: 2.00P.M. - 4.00P.M.   2HRS

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

a. Explain the meaning of the following terms and concepts as used in event driven programming.
   i   Listener
   ii Exception Object [1 mark]
   iii Event Handler [1 mark]
   iv Container class [1 mark]
   v   An Event Object [1 mark]
   vi Event Driven Programming [1 mark]
   [1 mark]

b. In graphical user Interface, explain the relationships between pixels, screen resolution and screen size.
   [4 marks]

c. One of the methods in the class JFrame is: public void setDefaultCloseOperation (int Operation). Which sets actions that will happen when the user clicks the close-window button. Explain at least two constants used as arguments to the method with suitable java statements.
   [4 marks]

d. Explain two basic things that a GUI developer MUST do in order to set up ActionListeners and ActionEvent.
   [4 marks]

e. i. Study the code below and explain what the it achieves.

```
public void actionPerformed(ActionEvent e)
{
System.exit(0);
}
```
   [2 marks]

   ii. Is it possible for one to change the actionPerformed method? Explain. [2 marks]

f. Explain the role of layout managers in GUI programming. [2 marks]

g. Using appropriate java code extract explain how one can use the following layout manager on a JFrame object or a Container.
   i   BorderLayout Manager
   ii GridLayout Manager [2 marks]
   iii FlowLayout Manager [2 marks]
   [2 marks]

QUESTION TWO [20 MARKS]

a. Using java code extract explain the differences between Message Dialog, Input Dialog and Confirm Dialog boxes.
   [6 marks]

b. The volume of a cuboid, **V** is given by length* width*height, write a java program to compute the volume of a cuboid. Use JOptionPane for both inputs and output routines. [6 marks]

c. Consider a class definition below

```
1    import javax.swing.*
2
3    public class Login extends JFrame
4    {
5       public final int HEIGHT=1000;
6       public final int WIDTH=700;
7       public Login( )
8        {
9          super( );
10        //code to set size
11        // code to set color
12        // code to set layout to grid layout manager
13        // code to create button object with an argument "Click On Me"
14        //code register the button created on line 13 as an ActionListener
15        //code to add the button created on line 13 on the frame window
16       setVisible(true);
17       }
18    public static void main(String [ ] args)
19     {
20        new Login ( );
21    }
22  }
```

   i Write Java statements or code extracts that will be inserted on Lines 10-15 respectively.

[5 marks]

  ii It is certain that the above program will not even compile, identify the lines that have errors and write down a java code extract that will be used to correct these errors. **[3 marks]**

QUESTION THREE [20 MARKS]

a. In which class are dialog boxes defined?   **[1 mark]**

b. Explain the three main kinds of objects that every GUI built using swing container classes is made up of.   **[3 marks]**

c. Explain the philosophy of the model-viewer-Controller pattern.   **[3 marks]**

d. Explain how one can register an Event Listener with Event source.   **[3 marks]**

e. Write a program that creates a JFrame window with the following specifications:

[10 marks]

- size 1000 by 700

- titled "Absolute Positioning"
- background color of the frame object is set to PINK
- set the default close to HIDE_ON_CLOSE
- create a menubar and add the menu items with the string name: Register, Add School, Add Class and add subject, on it. Add this menubar at the NORTH of a JFrame window using an appropriate java statements.
- create a text field and a button object with a string argument "Messaging" each of size 30 by 100 pixels
- add the text field on the frame at a point 200, 180 and a button at appoint 200, 260 respectively
- make the messaging button a listener object and implement it using relevant Dialog Box such that when a user clicks on the button a message is generated saying: "Are you Sure you want to send the Message?" concatenating this message to the string message typed in the text field, when Yes button of the dialog box is selected another popup window is generated with "sending ….".
- add necessary import statements and methods to enable the JFrame and its object be visible to the user.
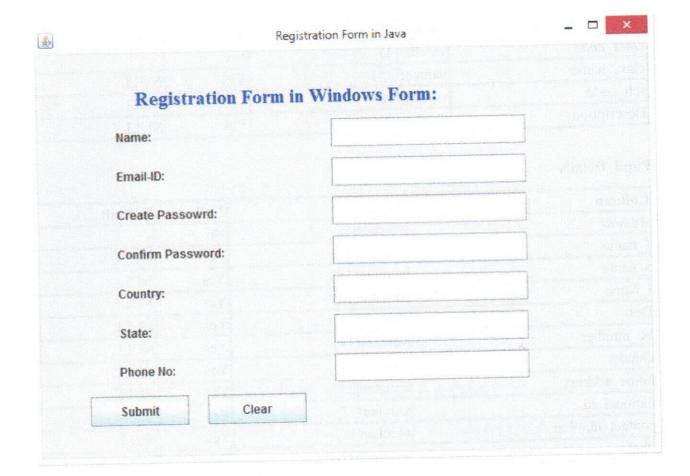
QUESTION FOUR [20 MARKS]

a. You are in the process of creating a student Registration Form in a Windows Forms application using Swing in Java.

   i State why you will require each of the following files: **[2 marks]**

- Java file
- SQL file
- odjbc.jar file
- NetBeans IDE

   ii State why you need each of the following import statements.   **[2 marks]**

- javax.swing.*;
- java.awt.*;
- java.awt.event.*;
- java.sql.*;

b. Write a java statement that will create a class called Registration which extends the JFrame components and implements the ActionListener. **[2 marks]**

c. Write a complete programs, including relevant GUI objects, set methods, add methods, exceptional objects and event handling that will run to display the window form below. When all the fields are entered and **"clear"** button is clicked on, the contents will be cleared and if **"submit"** button is clicked on a message to confirm the submission is generated.**[14 marks]**

Registration Form in Windows Form:

Name:

Email-ID:

Create Passowrd:

Confirm Password:

Country:

State:

Phone No:

Submit   Clear

QUESTION FIVE [20 MARKS]

You are in the process of developing a java application that will be used to manage pupils' academic data in Junior Secondary schools in Kenya. Assume that you went through conceptual design, Logical design and created the following 5 data structures.

School_Details

Column	Type	Null	Default
sch_code	varchar(10)	No	
sch_name	varchar(60)	Yes	NULL
sch_location	varchar(35)	Yes	NULL
postal_address	varchar(25)	Yes	NULL
Town	varchar(25)	Yes	NULL
Logo	varchar(60)	Yes	NULL
Description	varchar(100)	Yes	NULL

Class_Detail

Column	Type	Null	Default
class_code	varchar(4)	No	
class_name	varchar(25)	Yes	NULL
sch_code	varchar(10)	Yes	NULL
Description	varchar(60)	Yes	NULL

Pupil_Details

Column	Type	Null	Default
Admno	varchar(6)	No	
f_name	varchar(15)	Yes	NULL
s_name	varchar(15)	Yes	NULL
l_name	varchar(15)	Yes	NULL
Dob	date	Yes	NULL
bc_number	varchar(14)	Yes	NULL
Gender	varchar(7)	Yes	NULL
home_address	varchar(25)	Yes	NULL
national_id	varchar(12)	Yes	
contact_number	varchar(15)	Yes	NULL
Photo	varchar(65)	Yes	NULL

a. Write down an SQL statement that was used to create the Pupil_Details structure or table [a table in tumain database]. **[3 marks]**

b. Write a java code extracts that creates a menuBar having School as a menu with School_Detail and Class_Details as sub-menus, Calendar as a menu with Academic_Year and Terms as sub-menus and Pupil_Detail as a menu. **[3 marks]**

c. Design a suitable interface using java that will be used to capture the school_Details, include three control buttons (Save, Refresh and Exit) and adding the menubar created in **(ii)** above in appropriate positions or location on the JFrame. **[8 marks]**

d. With a suitable procedure, write a java code that will be used to connect the interface created in (iii) above to a local server (mySQL server) database called tumaini_db. **[3 marks]**

e. Implemented the save button such that it if it is clicked on it initiates saving process for the pupils' information to a table called **pupil_Details** after testing and throwing necessary exceptions such as empty fields, connection, active server etc. **[3 marks]**