INSTITUTE OF TECHNOLOGY BLANCHARDSTOWN

Year	**Year 2**
Semester	**Semester 1**
Date of Examination	Thursday 12 January 2012
Time of Examination	12.30pm – 2.30pm

Prog Code	BN002	**Prog Title**	Higher Certificate in Science in Computing in Information Technology	**Module Code**	COMP H2011
Prog Code	BN013	**Prog Title**	Bachelor of Science in Computing in Information Technology	**Module Code**	COMP H2011
Prog Code	BN104	**Prog Title**	Bachelor of Science (Honours) in Computing	**Module Code**	COMP H2011

Module Title	GUI Programming

Internal Examiner(s): **Dr. Luke Raeside**

External Examiner(s): **Dr. Richard Studdert**

Instructions to candidates:

1) **To ensure that you take the correct examination, please check that the module and programme which you are following is listed in the tables above**
2) **Answer Question 1 and TWO other questions**
3) **Question 1 is worth 40 marks. Questions 2, 3 and 4 are worth 30 marks each.**

DO NOT TURN OVER THIS PAGE UNTIL YOU ARE TOLD TO DO SO

Question 1

Attempt any 8 parts of this question. (5 marks each)

a)	Write Java code statements to declare a **JList** object called *fruitList*. Instantiate the *fruitList* object using a one-dimensional array of String objects.
b)	List ONE functional difference between the **JPasswordField** and **JTextField** in Java Swing. Outline the function of ONE method that is specfic to **JPasswordField** objects.
c)	Explain briefly the difference between the following layout managers: • GridLayout • FlowLayout
d)	Define the function of the **getContentPane()** method of the JFrame class in Java. List the methods responsible for setting the size and visibility of a JFrame (include the parameters to the methods in your answer).
e)	Explain briefly the role of each of the following in GUI Programming: • Event Listener • Event Handler
f)	Describe briefly the function of the **JPanel** component. Write Java code statements to illustrate how to override the default layout manager of a **JPanel** component.
g)	Explain clearly the effect of adding several **JRadioButton** components to a **ButtonGroup** component. In your answer specifically refer to how the **JRadioButton** behaviour changes when compared to their normal operation.
h)	Detail using Java code statements how to set a **mnemonic** AND a **keyboard accelerator** on a **JMenuItem**.
i)	Write Java code statements to demonstrate how to add an image to a **JButton**.
j)	List FOUR of the regions of the **BorderLayout** manager. Use the correct Java syntax for EACH of the regions listed in your answer.

Candidates should attempt any 2 of the following 3 questions

Question 2

a) Clearly define the function of the **MVC** pattern.

(4 marks)

b) Use an intuitive example and appropriate diagrams to describe how the **MVC** pattern achieves its goals.

(10 marks)

c) Outline the function of EACH of the following Swing components:

- JOptionPane
- JScrollPane
- JFileChooser
- JCheckBoxMenuItem

(8 marks)

d) Write Java code statements to declare and instantiate any TWO of the components listed in part (c) above.

(8 marks)

[Total 30 marks]

Question 3

Write a Java **JFrame** application to achieve the following:

a) Create a menu bar and add to the **JFrame**

(5 marks)

b) Add TWO menus to the menubar above called *File* and *Edit*

(5 marks)

c) Add TWO menu items to EACH of the menus created in section (b) above. Set the name of the menu items to any value you wish.

(6 marks)

d) Add an **image** to ONE of the menu items created in part (c) above (assume an image called *image.gif* is available)

(4 marks)

e) Add an appropriate **keyboard accelerator** to ONE of the menu items created above

(5 marks)

f) Outline the steps remaining to allow the menu items to respond to user interactions using event handling

(5 marks)

[Total 30 marks]

Question 4

a) Write Java code statements to achieve the following GUI **JFrame** implementation:

- Create a JFrame window with the title set to "GUI Exam Frame"
- Set the size of the window to 300 x 300 pixels
- Add a **JLabel** component to the window with the Arial text size 15, the label should read: "This is my GUI Exam JFrame": add this to the top of the JFrame
- Add a **JList** to the first grid section; add three items to the list
- Add a **JTextArea** with a **JScrollPane** to the center of the frame
- Add a THREE **JCheckBox** components (in a **JPanel** AND **ButtonGroup**) to bottom of the frame

(20 marks)

b) Briefly outline TWO differences between Java **SWING** and Java **AWT**.

(4 marks)

c) Describe briefly the function of a **JInternalFrame**. Write a Java code statement to declare and instantiate an internal frame.

(6 marks)

[Total 30 marks]