INSTITUTE OF TECHNOLOGY BLANCHARDSTOWN

Year	**Year 2**
Semester	**Repeat Paper**
Date of Examination	Tuesday 16th August 2011
Time of Examination	10.00am – 12.00pm

Prog Code	BN002	**Prog Title**	Higher Certificate in Science 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): **Mr. John Dunnion**

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.**

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Question 1

Attempt all parts of this question (4 marks each)

a)	Write Java code statements to declare a combo box object called vehicleList. Instantiate the vehicleList combo box object using a one-dimensional array of String objects.
b)	Briefly explain the function of a ButtonGroup component. Outline ONE programming scenario where the use of a ButtonGroup would be necessary.
c)	Explain briefly the difference between the following layout managers: • GridLayout • FlowLayout
d)	Write Java code statements to demonstrate how to set the size and visibility of a Java JFrame object.
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. List the default layout manager for JPanel component.
g)	Write Java code statements to declare and instantiate a password field. Set the echo character of the password field to the 'x' character.
h)	Describe the function of the following methods in Swing: • setMnemonic • setAccelerator
i)	Write Java code statements to demonstrate how to add an image to a JLabel.
j)	Draw an outline diagram of the regions defined by the layout manager BorderLayout.

Candidates should attempt any 2 of the following 3 questions

Question 2

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

- Create a JFrame window with the title set to "My GUI JFrame Application"
- Set the size of the window to 400 x 300 pixels
- Set the layout of the JFrame to GridLayout with two rows and two columns
- Add a JButton to the JFrame; the button should read: "Reset"
- Add a text area with a scroll panel to the JFrame
- Add three radio buttons (together in a panel) to the JFrame
- Finally add a username and password field (together in a panel) to the JFrame

(20 marks)

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

(5 marks)

c) Briefly describe the function of a JFileChooser component. Write a Java code statement which declares and instantiates and JFileChooser object.

(5 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 Open and Close menu items to the menu

(5 marks)

c) Add listeners and handlers so that the JFrame throws up a JOptionPane stating which menu option was chosen.

(10 marks)

d) Add a mnemonic so that the Open menu can be selected using the 'O' key

(4 marks)

e) Add a keyboard accelerator to the Open menu so that the key selection 'ALT-O' invokes the open menu item

(6 marks)

[Total 30 marks]

Question 4

a) Explain the function of the Model View Controller pattern.

(5 marks)

b) Use an intuitive example and appropriate diagrams to explain how the Model View Controller pattern achieves its goals.

(10 marks)

c) Copy the table below into your answer book and complete the Source Object and Handler Method for each user action.

User Action	Source Object	Handler Method
Button click		
Hit return in a text field		
Select a menu item		
Select an item from a list		

(10 marks)

d) Briefly outline TWO differences between Java SWING and Java AWT.

(5 marks)

[Total 30 marks]