

INSTITUTE OF TECHNOLOGY BLANCHARDSTOWN

Year of Study	Year 2		
Semester	Semester 1		
Date of Examination		Monday 11th January 2010	
Time of Examination		3.30 - 5.30	

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 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
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Dr. Richard Studdert

Instructions to candidates:

- 1) 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 animal List. Instantiate the animal List combo box object using a one-dimensional array of String objects.
- (b) Write Java code statements to declare and instantiate a text field called input Field. List the methods used to modify the text and retrieve the text from the text field.
- (c) Explain briefly the difference between the following layout managers:
 - Grid Layout
 - Border Layout
- (d) Describe briefly the function of the getContentPane() method used in JFrame programming. List the default layout manager for JFrame components.
- (e) Explain briefly the role of each of the following in GUI Programming:
 - Event listener
 - Event handler
- (f) Write Java code statements to create a JPanel object called button Panel. Set the layout manager of button Panel to Border Layout.
- (g) Briefly explain the function of a Button Group component. List ONE programming scenario where the use of a Button Group would be necessary.
- (h) Describe the function of the set Mnemonic and set Accelerator methods in SWING.
- (i) Write Java code statements to demonstrate how to add an image to a JButton.
- (j) List FOUR different event listeners found in the AWT event package.

Candidates should attempt any 2 of the following 3 questions

Question 2

- (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 describe the function of a JFile Chooser component. Write Java code statement which declares and instantiates a JFile Chooser 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 JOption Pane stating which menu option was chosen. (10 marks)
 - (d) Add a mnemonic so that the Open menu can be selected using the 'O' key. (5 marks)
 - (e) Add a keyboard accelerator to the Open menu so that the key selection 'ALT-O' invokes the Open menu item. (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 "Exam Frame"
- Set the size of the window to 600x800 pixels
- Set the layout of the JFrame to Grid Layout with four rows and four columns
- Add a JLabel component to the JFrame with Arial text size 15, the label should read:

"This is a JLabel added to a frame": This label should be added to the top of the frame.
- Add a JCombo Box to the first grid section of the layout; add three items to the combo box.
- Add a text area with a scroll panel to the second grid section.
- Add three radio buttons (in a panel) to the third grid section.
- Finally add a username and password field (in a panel) to the fourth grid section.

(20 marks)

(b) Briefly outline TWO differences between Java SWING and Java AWT

(5 marks)

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

(5 marks)

(Total 30 marks)