

**HIGHER CERTIFICATE IN SCIENCE IN COMPUTING
IN INFORMATION TECHNOLOGY - BN002 YEAR 2**

**BACHELOR OF SCIENCE IN COMPUTING
IN INFORMATION TECHNOLOGY - BN013 YEAR 2**

**BACHELOR OF SCIENCE (HONOURS) IN COMPUTING
IN INFORMATION TECHNOLOGY – BN104 YEAR 2**

**GUI Programming
COMP H2011**

**Stage 2
Semester 1**

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**External Examiner(s): Mr John Dunnion
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**Monday 14th January 2008
12.30pm – 2.30pm**

Instructions to candidates:

- 1) Answer question 1 and two other questions.
- 2) 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 the Java code to populate a combo box from a 1D array called courses . Use a For loop and transfer every second element.
b)	Write two lines of Java code that will <ul style="list-style-type: none"> - Create a password field which will accept a maximum of 8 characters - Set the echo character to "?" instead of the default value "*".
c)	Write the line of code to create a standard open dialog for selecting files.
d)	Explain the purpose of JInternalFrame . Illustrate, with the use of a diagram.
e)	Write a single line of JAVA code which draws a rectangle , 20 x 30 pixels in size at x,y coordinates 10,15.
f)	In an existing Java code segment a label called myButton is declared. Write the code to set this label to the following attributes : <div style="margin-left: 20px;"> Text Fancy Big Label Type Serif Font BOLD and ITALIC Size 32 </div>
g)	Explain the purpose of the addSeparator() method
h)	What is a layout manager ? Describe the use of the grid layout manager.
i)	Explain the purpose of the following code: <pre> color = JColorChooser.showDialog(ShowColors2.this, "Choose a color", color); if (color == null) color = Color.lightGray; container.setBackground(color); </pre>
j)	Write a single line of code to display the message "Hello World" in a message dialogue box .

[Total 40 marks]

Candidates should attempt any 2 of the following 3 questions.

Question 2

a) Explain the **purpose** of the Model View Control Design Pattern.

(5 marks)

b) List **five advantages** of using the Model View Controller Architecture.

(5 marks)

c) A simple example of a model is a **clock object**. Using this clock scenario describe the following components:

- model
- view
- controller

(10 marks)

d) Copy the table below into your answer book and complete the **Source Object** and **Listener Type** for each user action.

User Action	Source Object	Listener Type
Click a button		
Press return on a text field		
Select a new item		
Click a check box		
Select a menu item		

(10 marks)

[30 marks]

Question 3

a) Most Java GUI programs follow a similar code structure. Write the **Java code** to provide a **GUI template** incorporating the following:

- Import packages
- Class and method definitions
- Create a frame, container and panel
- Set the title
- Create a label object and attach
- Set the size and display
- Main method

(10 marks)

b) Demonstrate your understanding of Java **GUI fundamental objects** by writing the Java code to include the following objects:

- Add a text field which contains the text "Patient Name" to the frame (as declared in part a above)
- Add a text area which contains the text "Medical History"
- Add a check box which contains the text "Medical Card Holder"
- Add a button with the text 'Pathology'
- Add a button with the text 'x-Rays'.

(10 marks)

c) Demonstrate your understanding of Java **GUI event handling** by implementing the following:

- When the user clicks on the button 'Pathology' a message dialog box is displayed with an appropriate message.
- When the user clicks on the button 'x-Rays' a message dialog box is displayed with an appropriate message.

(10 marks)

[30 marks]

Question 4

Demonstrate your understanding of Java **menu** development and event handling by answering the following:

- a) Create a menu bar with a **File** and **Edit** menu. (5 marks)
 - b) Add **Open** and **Close** menu items to the File Menu. (5 marks)
 - c) Each menu should have an action listener assigned and registered. When a menu is selected a **dialogue** should be displayed indicating to the user which menu was selected. (10 marks)
 - d) Add code allowing the user to select Alt + F to select File. (5 marks)
 - e) Explain the need for keyboard accelerators. (5 marks)
- [30 marks]