

## 2006 Paper 10 Question 2

### Foundations of Programming

(a) What is the difference between `MouseListener` and `MouseAdapter`? [3 marks]

(b) Via suitable HTML, the compiled version of the following Java code is presented to the `appletviewer` application:

```
import java.applet.Applet;
import java.awt.Graphics;
import java.awt.event.MouseAdapter;
import java.awt.event.MouseEvent;

public class MouseTest extends Applet
{ private String s = "Hello World";

    public void init()
    { this.addMouseListener(new ML());
    }

    public void paint(Graphics g)
    { g.drawRect(15, 15, 270, 70);
      g.drawString(this.s, 100, 60);
    }

    class ML extends MouseAdapter
    { public void mousePressed(MouseEvent e)
      { MouseTest.this.s = "Mouse Pressed";
      }
    }
}
```

Briefly explain what the code does and describe the initial appearance of the applet window. [6 marks]

(c) The programmer moves the mouse pointer into the applet window, presses the mouse button and expects a new message to appear. Why doesn't it appear? Give *three* ways in which the expected result can be provoked without leaving `appletviewer`. [6 marks]

(d) The line `MouseTest.this.paint(MouseTest.this.getGraphics());` is added to the method `mousePressed()`. Describe the behaviour now if the mouse button is pressed when the pointer is in the applet. [3 marks]

(e) What would have been a more appropriate amendment to the method `mousePressed()`? Explain. [2 marks]