Sample Hour Exam

The second hour exam will be held on Friday, March 2 at 11:00am in Moore 100.

The exam has 5 problems. The first four are worth 20 points. The last, the fifth, is worth 40 points

1. The following two applications are in the same directory:

   public class Util
   {
       public int sum(int x, int y)
       {
           return (x+y);
       }
   }//end class Util

   public class Sum
   {
       public static void main(String args[])
       {
           System.out.println("sum = "+Util.sum(3,4));
           System.exit(0);
       }
   }//end class Sum

   What modifications would you make to the first to get the second to print out "sum = 7", (without the quote marks).

2. A class Pet has already been defined for application in a veterinarian's office. It contains information about its owner, license number and vaccination date. A cat is a pet and you expect the class Cat, which contains further information about a cat, to be used freely by the veterinarian.

   How would you make the opening declaration of the Cat class, up to but not including the first opening brace? Use only the words selected from: Cat, class, Date, extends, Object, Owner, Pet, private, protected, public, String.
3. The files for the two following classes are in separate files, in the same directory:

```java
public class Ship {
    public void method(int i) {
        System.out.println("Value is " + i);
    }
}

public class Carrier extends Ship {
    public void method(int i) {
        System.out.println("This value is " + i);
    }
    public void method(String s) {
        System.out.println("I was passed " + s);
    }
    public static void main(String args[]) {
        Ship ship = new Ship();
        Ship carrier = new Carrier();
        ship.method(5);
        carrier.method(7);
    }
}
```

What is the output when Carrier is run?
4. The separate text files for the classes Soldier and Corporal are kept in the same directory.

public class Soldier {

    protected String name;

    public Soldier(String n) {
        name = n;
    }

    public String toString() {
        return name;
    }
}

public class Corporal extends Soldier {

    protected String rank;

    public Corporal(String n, String r) {
        super(n);
        rank = r;
    }

    public String toString() {
        return (rank + " " + name + " " + super.toString());
    }

    public static void main(String args[]) {
        Corporal bob = new Corporal("Bob", "Corporal");
        System.out.println(bob.toString());
        System.exit(0);
    }
}

What is the output when Corporal is run?
5. The application you are to complete is to produce a 5x2 grid as pictured:

The first 9 components are to be JButtons, the last is to be a JTextField. When the user clicks on any of the buttons the button's number is to appear in the text area. The text area is to be set ineditable.

Partial code for this application is listed below. It is to serve as an outline for you. You are to fill in whatever is missing.

```java
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;

public class Buttons extends implements {
    private Container c;
    private JButton button[];
    private GridLayout grid;
    private JTextField field;

    public Buttons() {
        c = getContentPane();
        grid = new GridLayout(5,2,3,3);
        c.setLayout(grid);
        button = new JButton[9];
        for (int i = 0; i < 9; i++) {
            button[i] = new JButton(" " + (i+1));
            button[i].addActionListener();
            button[i].setBackground(Color.white);
            c.add(button[i]);
        }
        field = new JTextField();
        c.add(field);
        setSize(200,200);
    }
}
```
show();
}

public void actionPerformed(  )
{
    for (int i = 0; i < 9; i++)
    {
        if (e.getSource() == button[i])
        {
            field.setText(  );
          
        }
    }
}

public static void main(String args[])
{
    Buttons   buttons = new Buttons();

    buttons.addWindowListener
    ( new WindowAdapter()
    {
        public void windowClosing(WindowEvent e)
        {
            
        }
    });
}