

Name: _____
please type or print your name

EE-WBC Exam No. 2 (100pts.)

General Remarks

Do not use back of the pages for answers. The back side of this test will not be graded. Attach more pages if necessary. Open books, open notes but no sharing allowed. No electronic equipment allowed during the exam, including cell phones.

DL: __ ERR: __ PTS: __ WTL: __ GR: __

Problem 1 (20pts.) Simple Questions about the Language

Please answer very briefly but straightforward the following questions that correspond to Java:

1. When I want to post a Java applet on a Web server

- do I need to copy my files with *.java extesnsion? yes / no

- in addition/instead of .java files I need to copy also *._____

2. Are primitive variable names (int, double, etc.) in Java case sensitive or not?

CIRCLE: yes / no

3. Are primitive variable passed by value or by reference?

CIRCLE: by value / by reference / both

4. Why do we need "synchronized" functions and variables in multithreaded programs?

5. Can I run an Applet posted on cegt201.bradley.edu that download images from a WebCam that are accessible from [lidya,Bradley.edu](http://lidya.Bradley.edu) as

<http://lidya.bradley.edu/webcam.jpg> ?

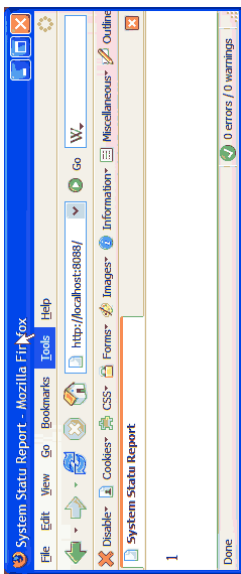
CIRCLE: yes / no

Problem 2 (20pts.) Network Programming, Client-Server Paradigm

Complete the implementation of the HTTP-based Counter server that runs on port 8088. When a Web browser connects to it, the browser should receive a complete valid HTML 4.01 STD Web page with the count number as the only information enclosed in a paragraph tag <p> inside the Web page body. The server should not print any unnecessary (debug) information to the console (exception reports should be printed though). The HTTP reply should promote not caching of the Web page.

```
import java.io.*;
import java.net.*;
class E2Prob2 {
    static final int port    = 8088;
    static final int maxque = 0;
    static    long  count    = 0;
    public static void main(String A[]) {
        try {
            ServerSocket server    = new ServerSocket(port, maxque);

            while (true)
            try {
                Socket client =server.accept();
                BufferedReader SR=new BufferedReader(new
                    InputStreamReader(client.getInputStream()));
                PrintWriter    SW=new PrintWriter (client.getOutputStream());
```



```
                SW.flush();
                client.close();

            } catch (Exception e) {
                System.out.println("Error while handling a Web browser: "+e);
            }
        } catch (Exception e) { System.out.println("Fatal Server Error: "+e); }
        System.out.println("Server terminated");
    }
}
```

Problem 3 (20pts.) TCP/IP+UDP Application Layer Protocols

Please write the exact sequence of commands (and approximate replies from the server marked with ">") that are required to send an email provided below. Note that you need to reformat the message, and also repeat some information twice in the dialog with SMTP server. After sending it log out gracefully for the server. Assume that the server answers affirmative (no error messages) to each of your inquiry. You need to write only the sequence of line exchanges and not the program to open the connection and perform it and/or check for errors.

The email message is:

```
From: "My Name" <me@bradley.edu>
To: "Your Name" <you@bradley.edu>
Subjct: WBC Exam 2 Question 2
Body following:
This is a sample email
```

```
.
```

That has a single dot on one of its lines.
That single dot case is not handled correctly by the discussed sample program.

Write your dialog with the server here (By the way, who starts - You or the server?):

Problem 4 (20pts.) GUI Layouts and Graphics

Complete code for a GUI applet that looks like one in the provided figure. Some instructions or their portions were left out and replaced by underscore. This is GUI elements, their initialization, and GUI layout exercise only. Applet does not have any functionality, nor actions attached to the elements.

```
import java.awt.*;
import java.applet.Applet;
// <applet code="E2Prob4.class" height="200" width="200"> </applet>
```

```
public class E2Prob4 extends Applet {
    _____ temp;

    _____ unit;

    _____ mode;

    _____ doit;

    public void init() {
        setLayout(new _____Layout());

        doit = new _____ ("Set");

        unit = new _____ ();
        unit.setText("F");

        temp = new _____ ("70",3);

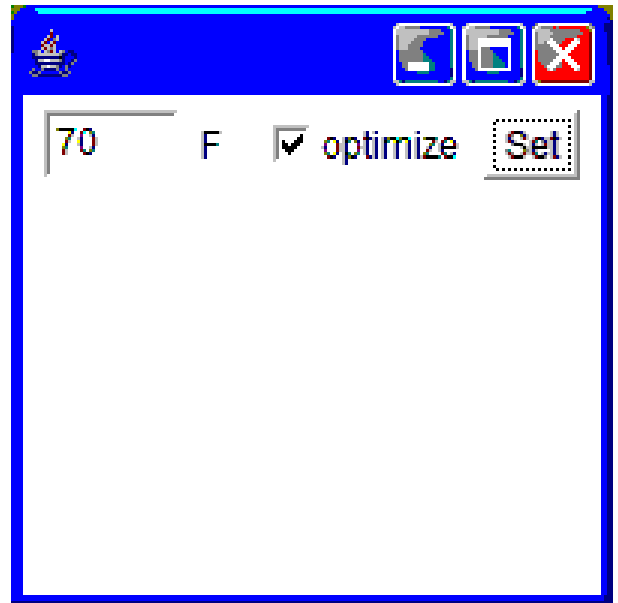
        mode = new _____ ();
        mode.setState(_____);
        mode.setLabel("optimize");

        add(_____);

        add(_____);

        add(_____);

        add(_____);
    }
}
```



Problem 5 (20pts.) Event Handling and Threads

Write code for a GUI applet that has two buttons. Initially both buttons are of Color.cyan. When one button is clicked it should become of Color.red and the remaining button should become of Color.green. The colors should be updated accordingly after a button is clicked. Follow the suggested class organization for event handling. Do not add unnecessary code.

```
import java.awt.*;
import java.awt.event.*;
import java.applet.Applet;
```

```
public class E2Prob5 extends Applet implements _____ {
```

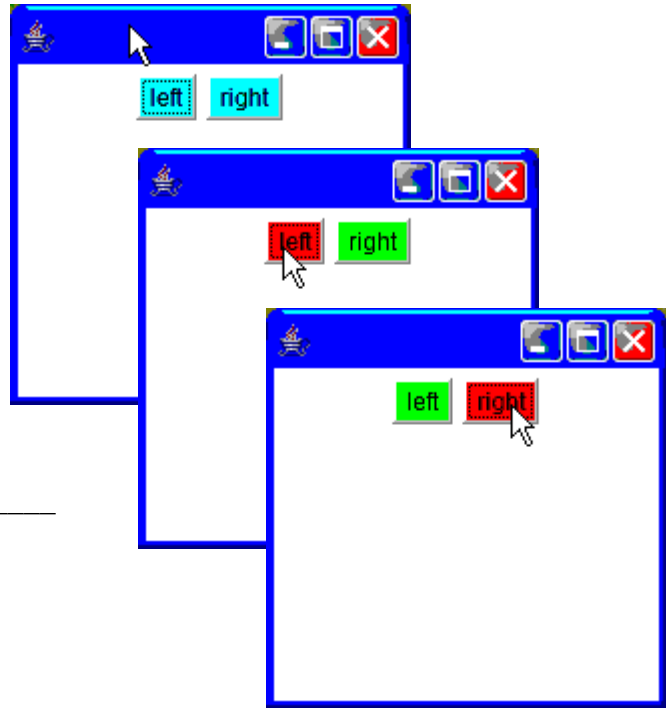
```
    Button B1, B2;
```

```
    public void init() {
        B1 = new Button("left");
        B1.setBackground(Color.cyan);
        add(B1);
        B2 = new Button("right");
        B2.setBackground(Color.cyan);
        add(B2);
```

```
    _____
```

```
    }
```

```
// INTERFACE _____
```



```
}
```