Reading:

1. All previous lecture notes.

Objectives:

1. Demonstrate knowledge on Java concepts from lectures and labs
2. To overview the final project.

Outline:

1. First Midterm
2. Overview of Final Project
CS 201: Week 5 – Midterm Exam

Time: 120 minutes
Closed Book/Notes

Name: __________________________________ (Please print)
StudentID: ________________

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Short Answer

1. Briefly describe the difference between a Java applet and an Application (5):

2. Use pseudocode to describe how to make a bed (10):

3. Write a Java program segment to execute the following pseudocode (15):

   Array a = {1,2,3,4,5}.
   Increment each value of a by 1 when the number is even and by 2 when the number is odd.
4. Briefly explain what the following program is doing and add comments to explain every statement (15):

```
public class Test {

    public static void main( String args[] )
    {
        final int ARRAY_LENGTH = 10;
        int array[];

        array = new int[ ARRAY_LENGTH ];

        for ( int counter = 0; counter < array.length; counter++ )
            array[ counter ] = 2 + 2 * counter;

        String output = "Index\tValue\n";

        for ( int counter = 0; counter < array.length; counter++ )
            output += counter + "\t" + array[ counter ] + "\n";

        System.out.println( output );
    }
}
```
CS 201: Week 5 – Midterm Exam

**Solution**

Time: 120 minutes
Closed Book/Notes

Name: ____________________________ (Please print)
StudentID: _______________

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Short Answer

1. Briefly describe the difference between a Java applet and an Application (5):

The main difference between JAVA applets and applications are it's usage. applet is primarily implement onto a website, a html file, and cannot write to files. On the other hand, a JAVA application is used just like a regular application on a computer with full functionality. JAVA applications and applet are different in their coding style.

2. Use pseudocode to describe how to make a bed (10):

Answers may vary, read pseudocode to determine correctness

3. Write a Java program segment to execute the following psuedocode (15):

Array a = {1,2,3,4,5}.
Increment each value of a by 1 when the number is even and by 2 when the number is odd.

```java
int array = {1,2,3,4,5};
for (int i=0; i< array.length; i++){
    if(array[i] % 2 == 0 ) array[i] = array[i]+1;
    else  array[i] = array[i]+2;
}
```
5. Briefly explain what the following program is doing and add comments to explain every statement (15):

```java
public class Test {

    public static void main( String args[] ) {

        final int ARRAY_LENGTH = 10;
        int array[];

        array = new int[ ARRAY_LENGTH ];

        for ( int counter = 0; counter < array.length; counter++ )
            array[ counter ] = 2 + 2 * counter;

        String output = "Index\tValue\n";

        for ( int counter = 0; counter < array.length; counter++ )
            output += counter + "\t" + array[ counter ] + "\n";

        System.out.println( output );
    }
}
```

This program instantiates an array to have the values: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. Then it outputs the values of the array.
Objectives:

1. Discuss Final Project
2. Formulate a schedule for Final Project

Assignment:
For the rest of the class, you will be working on the final project. Most of the work will be done outside of lab time. For this lab, you will set up a schedule for the completion of the final project. If you do not meet your own deadlines, you will be deducted points. For this project, you will have to design and implement an algorithm to simulate the movement and actions of an elevator and the persons who ride that elevator. This time should be used to produce a rough design and a schedule for the project which will be graded in lab today. This project can be done in groups of two or three people of your own choice.

As always, your code should be clear and well commented. You are graded on neatness as well as correctness.