Print Name (last name first): ________________________________________________

Do not open this exam until instructed to do so. The exam consists of 7 pages, numbered 1 through 7. Before starting to work, make sure that you have all 7 pages. There are five problems, each counting 20 points. The last page contains some miscellaneous facts that you may or may not find useful. Write all answers on the exam.

During this exam it is prohibited to:

(1) exchange information with any other person in any way, including by talking or exchanging papers or books;
(2) use any electronic aid, including calculators;
(3) use any books or notes;
(4) leave the exam room before you complete and turn in your exam.

I have read and understand all of the instructions above. On my honor, I pledge that I have not violated the provisions of the NJIT Academic Honor Code.

_____________________________________________________________________

Signature and Date
1. Circle true or false for each of the following statements.

a) It is valid in Java to assign an integer value to a boolean variable. true false

b) Once a value is assigned to a variable declared final, no other value can be assigned. true false

c) _5thPercentile is a valid Java identifier. true false

d) A String can be altered. true false

e) A return statement is required for all Java methods. true false

f) "Fred" + 5 is a valid Java expression. true false

g) The expressions (int) 2.7 + 4 and 27/4 have the same value. true false

h) It is necessary to create an object of class Math before using the Math.random() method. true false

i) The multiplication operator * has higher precedence than the addition operator +. true false

j) If expr1, expr2, and expr3 are boolean expressions, then in the expression

expr1 || expr2 || expr3

expr3 is always evaluated. true false
2. a) Consider the following code fragment.

```java
int k = 0;
System.out.print(k + k);
System.out.println(" " + k + (k>0 ? 1 : 0));
```

Circle the response that describes the output.

(1) Nothing; there is a syntax error.
(2) 11 1
(3) 0 2
(4) 0 11
(5) None of the above.

b) Consider the following code fragment.

```java
Integer alpha = new Integer(15);
Integer beta = new Integer(15);
boolean b = alpha == beta;
System.out.println("b = " + b);
```

Circle the response that describes the output.

(1) Nothing; there is a syntax error.
(2) b = true
(3) b = false
(4) None of the above.
3. Complete the following class definition so that the program prompts the user to enter three integers from the keyboard. If the integers are in increasing order, print out “increasing”; if the integers are in decreasing order, print out “decreasing”; otherwise print out “not monotone”. You can assume that the input is valid.

```java
import java.util.Scanner;

public class Order
{
    public static void main(String args[])
    {
```
4. Complete the definition of the following method `containsIst()` that determines if the string passed as its parameter contains the substring “ist”. For example, `containsIst("resistor")` should return `true`, while `containsIst("java")` should return `false`.

```java
public boolean containsIst(String st)
{
```
5. Write a method `isPalindrome` that takes a String argument and returns `true` if its input string is a palindrome (a word that reads the same forwards or backwards) and false otherwise. For example, `isPalindrome("radar")` should return `true` and `isPalindrome("fish")` should return `false`. 
Potentially Useful Facts

String Methods
   int length()
   int compareTo(String anotherString)
   char charAt(int index)
   String substring(int beginIndex, int endIndex)

Scanner Methods
   int nextInt()
   double nextDouble()
   String nextLine()