Exam 2 (100 points) Name: _____

Answer each question in the space provided. Point values are listed next to each question number. You may use your textbook and class notes while taking this exam.

1. Evaluate expressions a through e (each one will be either true or false) using the information in the statement below:
   int x = 4, y = -5, z = 0;

   a) (x >y) && (y < z)

   b) !(x == y) || (y == z)

   c) !((x == y) || (y == z))

   d) (x <= y) || (x > y)

   e) (x > y) && ((x < z) || (y < z))

2. Evaluate expressions a through e (as true or false). Use the declarations below, where applicable:
   String s1 = new String("France");
   String s2 = new String("Germany");
   a) s1.compareTo(s2) > 0

   b) s1.compareToIgnoreCase("france") == 0

   c) s2.compareTo(s1) > 0

   d) s2.equals("germany")

   e) s2.equalsIgnoreCase("GERMANY")

3. Using the code in the left column, show the **output** and **value of rate** after the code is run for each of the inputs in the middle column (assuming the program is run 5 separate times):
   Note: Yes, it will compile, and yes, it is inconsistent, and yes, that does affect the outcome!

Code	Input (values of age & carType)	Output / rate value

if(age > 21 || carType == 0) {
  rate = 500;
  Sopln("Low risk driver");
}
else
  Sopln("High risk driver");
  rate = 1000;
	age: 21 carType: 0	

	age: 45 carType: 1	
	age: 22 carType: 0	
	age: 18 carType: 1	
	age: 94 carType: 1	

4. Add a loop and a try-catch block to the following code fragment to make it more reliable; declare any (new) variables you need, but assume anything already you see has been declared and initialized:

```
System.out.print("Enter the secret number:");

secret = kb.nextInt();
```

5. Show the values of the loop counters and output for the code below:

Code	x	y	output

`public class E2NestLoop {`
`  public static void main(String [] args){`
`  for (int x = 0; x < 5; x++) {`
`  for (int y = x; y <= 5; y++)`
`  System.out.print(" . ");`
`  System.out.println();`
`  }`
`  }`
`}`			

6. Show the output of the following program if "Computer Science" is used as input:

Code	Output

`import java.util.Scanner;`
 	
`public class E2Loop2 {`
`  public static void main (String [] args) {`
`  int ctr=0;`
`  Scanner kb = new Scanner (System.in);`
`  char c;`
`  String input;`
`  System.out.print("Enter a string: ");`
`  input = kb.nextLine();`
`  while (ctr < input.length())`
`  {`
`  c = input.charAt(ctr);`
`  if ((c < 'a' || c > 'm') && c != ' ')`
`  System.out.println("" + c);`
`  ctr++;`
`  }`
`  }`
`}`	

7. Write a Java program that generates three random integers between 1 and 10, prints them, then writes a message based on their values. If the sum of any two of the numbers adds up to the third, output "You win"; otherwise, output "You lose." Sample runs of the program are shown below:

Sample run 1:	Sample run 2:	Sample run 3:
Values are: 1 2 3 You win!	Values are: 5 7 9 You lose!	Values are: 2 4 2 You win!

8. Write a Java program that reads in a String of characters then prints it out backwards. Sample runs of the program are shown below:

Sample run 1	Sample run 2	Sample run 3
Enter some input: jf kdjf dkla;d ksd dsk d;alkd fjdk fj	Enter some input: I wish I won the lottery! !yrettol eht now I hsiw I	Enter some input: snub no man nice cinnamon buns snub nomannic ecin nam on buns