**CSE2211: OOP Java**

**Quiz 5 DECISIONS and LOOPS (25.11.2018)**

1. Explain the difference between

**s = 0;**

**if (x > 0) { s++; }**

**if (y > 0) { s++; }**

**and**

**s = 0;**

**if (x > 0) { s++; }**

**else if (y > 0) { s++; }**

1. Explain why it is more difficult to compare floating-point numbers than integers.

Write Java code to test whether an integer n equals 10 and whether a floating-point

number x is approximately equal to 10.

1. What is wrong with the following program?

**System.out.print("Enter the number of quarters: ");**

**int quarters = in.nextInt();**

**if (in.hasNextInt()){**

**total = total + quarters \* 0.25;**

**System.out.println("Total: " + total);**

**}**

**else{**

**System.out.println("Input error.");**

**}**

1. Rewrite the following do loop into a while loop.

**int n = in.nextInt();**

**double x = 0;**

**double s;**

**do{**

**s = 1.0 / (1 + n \* n);**

**n++;**

**x = x + s;**

**}while (s > 0.01);**

1. What do the following program segments print? Find the answers by tracing the

code, not by using the computer.

1. **int n = 1;**

**for (int i = 2; i < 5; i++) { n = n + i; }**

**System.out.print(n);**

1. **int i;**

**double n = 1 / 2;**

**for (i = 2; i <= 5; i++) { n = n + 1.0 / i; }**

**System.out.print(i);**

1. **double x = 1;**

**double y = 1;**

**int i = 0;**

**do{**

**y = y / 2;**

**x = x + y;**

**i++;**

**}while (x < 1.8);**

**System.out.print(i);**

1. **double x = 1;**

**double y = 1;**

**int i = 0;**

**while (y >= 1.5){**

**x = x / 2;**

**y = x + y;**

**i++;**

**}**

**System.out.print(i);**

1. **int result = 1;**

**for (int i = 5; i > 0; i--) { result = result \* i; }**

**System.out.println(result);**

1. **int result = 1;**

**for (int i = 1; i <= 10; i = i \* 2) { result = result \* i; }**

**System.out.println(result);**

1. **int i = 10; int j = 0; int n = 0;**

**while (i > 0) { i--; j++; n = n + i - j; }**

1. **int i = 0; int j = 10; int n = 0;**

**while (i != j) { i = i + 2; j = j - 2; n++; }**

1. **for (int i = 0; i < 10; i++) { System.out.print(i + " "); }**
2. **for (int i = 1; i < 10; i = i \* 2) { System.out.print(i + " ");}**
3. **for (int i = 1; i < 10; i++) { if (i % 2 == 0) { System.out.print(i + " "); } }**

**Programming Problem**

1. A mass *m* is attached to the end of a rope of length *r* = 3 meters. The rope can only be whirled around at speeds of 1, 10, 20, or 40 meters per second. The rope can withstand a maximum tension of *T* = 60 Newtons. Write a program where the user enters the value of the mass *m*, and the program determines the greatest speed at which it can be whirled without breaking the rope. *Hint: T* = *mv*2 *r*.
2. Write an application to pre-sell a limited number of cinema tickets. Each buyer can buy as many as 4 tickets. No more than 100 tickets can be sold. Implement a program called ***TicketSeller*** that prompts the user for the desired number of tickets and then displays the number of remaining tickets. Repeat until all tickets have been sold, and then display the total number of buyers.