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OO Programming with Java Midterm Exam

, Nov…, 2010

Student Name: _____

Please read each question carefully. The total points are 100. You have 180 minutes. Good Luck!

PART I - THEORY

1) Sketch and describe the five phases of the development and execution cycle of Java. [5 points]

2) Explain the meaning of **static** methods in Java? [5 points]

3) Can constructors have return types? Motivate your answer. [5 points]

4) What is the effect of the **break** statement in a **switch** statement? [5 points]

5) Explain the difference between **call-by-value** and **call-by-reference**. [5 points]

PART II – EXERICES

1) Write a Java program that takes from input 10 numbers and finds the smallest and the second smallest numbers. [10 points]

2) Write a Java program that generates 10 random numbers. If 5 of these numbers are greater than 7, then the program prints the sum of the first 5 numbers entered, otherwise it prints the multiplication of the last 5 numbers entered. [10 points].

3) Write a Java program for a library with the following classes: [30 points]

   Book
   Library

   The Book should have the following attributes: Title, Author, Price, Publisher, Shelf Number, Status (borrowed or not).
   The library should have these attributes: Librarians, Number of Books, Last operation performed, Date of last operation performed.

   The program should have a menu for:
   Number of books,
   Insert new book,
   Delete book,

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Find book by Title.

Before the librarian selects a choice in the menu, she must enter name surname. Check if the librarian is in the list of librarians which is kept as class attribute.

4) What is the effect of the following program? [5 points]

```
public class MyProgram
{
  public static void main( String[] args )
  {
    double total = 0.0;

  for ( String argument : args )
       total += Double.parseDouble( argument );

    System.out.printf( "total is: %.2f\n", total );
  } // end main
} // end class MyProgram
```

5) Write a program that fills automatically a table 10x10 with numbers of type **double.** Then the program should fill another table where each element has twice the value of the corresponding element in the first table. Print the two tables. [10 points]

6) Write a program that randomly fills an array of 99 elements of type **double** and then determines and displays the smallest and largest values contained in the array. [10 points]

CHEATING POLICY

1. This test is subject to the STUDENT HONOUR CODE of UNYT.
2. If you are found **Cheating** your test will be invalid and the **whole course will be graded with F.**