Systems Programming

First miterm exam - Groups 65, 69 and 79

Part 1 - Theory (3 points) - 20 minutes

Each correct answer adds 0.3 points and each incorrect answer substracts 0.1 points

Q1	Given the following code snippet, what is printed on the screen after its execution?
	
	`public class A{`
	`  public static void main(String[] args){`
	`  int x = 1;`
	`  m(x);`
	`  System.out.println(x);`
	`  }`
	`  private static void m(int x){`
	`  x = x * 2;`
	`  }`
	`}`

1)	1
2)	2
3)	0
4)	x*2

Q2	The final modifier applied to a class...
1)	indicates that the class uses constants.
2)	indicates that the methods of the class cannot be overridden.
3)	The final modifier cannot be applied to classes.
4)	Indicates that the class cannot have derived classes.

Q3	In this ArrayList: ArrayList a = new ArrayList(); we can store...
1)	Objects of any class in Java.
2)	Objects of the class Object only.
3)	Objects of the class ArrayList only.
4)	Objects of the classes Object and String only.

Q4	Given the following code, divided in two files, one per class, which of the following sentences is correct?
	
	public class A{
	public static void main(String [] args){
	B b = new B(10);
	}
	}
	public class B extends A {
	int b;
	public B() { ; }
	}

1)	The compiler shows an error and does not finish the compilation.
2)	Class A in its main method cannot create an object of class B.
3)	The code is compiled and executed without problems, creating an object of class B.
4)	In order to create an object of class B, the main method must be in class B.

Q5	Given the following class hierarchy (with each class in a separate file), which of the following sentences is correct? public class File{ ; } public class FileOfficeMicrosoft extends File { ; } public class FileExcel extends FileOfficeMicrosoft{ ; } public class Folder extends FileOfficeMicrosoft{ ; } public class FileWord extends FileOfficeMicrosoft{ ; }
1)	FileOfficeMicrosoft is a base class for FileWord
2)	Folder is a superclass of FileExcel
3)	FileOfficeMicrosoft is a subclass of Folder
4)	FileExcel is a parent class of File

Q6	Method overloading consists of:
1)	Programming in a class methods with the same name, but that receive a different number or type of parameters
2)	Programming in a class methods with the same name, same number and type of parameters but different return types.
3)	Replacing an inherited method by another one with the same name in the subclass.
4)	Using class references to point to objects in classes that inherit from another class.

Q7	Which of the following statements is correct in relation to equivalence classes for input/output testing?
1)	Boundary values for equivalence classes must also be tested.

2)	Equivalence classes allow having equivalence objects.
3)	Input/output testing serves to inspect the code and achieve a certain coverage of methods/lines/instructions/branches.
4)	Equivalence classes can implement equivalence interfaces.

Q8	We are asked to program a method that calculates the sine of a certain angle (in radians) received as input (double type). The behavior of this method must be such that it will return the result of the sine of x (sin(x)) for the range 0<=x<=2*pi, and an undetermined value for any other input value. Select the set of values that would allow to test all the equivalence classes for this method.
1)	-4.0, 4.0, 8.0
2)	-2.0, 0.0, 2.0
3)	0, 3.14, 6.28
4)	-6.0, -5.0, -4.0, -3.0, -2.0, -1.0, 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0

Q9	Given the following recursive method, which statament is correct if this method is called with n equals to 5 and m equals to 2.
	
	public static int method(int n, int m){
	if(n < m){
	return 3;
	}else{
	return 3*method(n-m, n+m);
	}
	}

1)	The call to method(5,2) returns 3 as result.
2)	The call to method(5,2) returns 27 as result.
3)	This is a case of linear non-tail recursion.
4)	This is a case of non-linear cascading recursion.

Q10	Given the following method:
	
	public static int a(int x, int y) {
	if (x

1)	It is a nested recursion.
2)	It is not recursive.
3)	It is a linear recursion.
4)	It is a mutual recursion.

PREGUNTA	SOLUCIÓN
Q1	1
Q2	4
Q3	1
Q4	1

Q5	1
Q6	1
Q7	1
Q8	1
Q9	3
Q10	1