

Spring: Exam 1

1) Write a Java class that prints the following. (10 points)

Hola mundo!

```
public class Hola{

    public static void main(String[] args){

        System.out.println("Hola mundo!");

    }

}
```

Because we don't need to return anything, the return type of this method is void. In order to print this line, we use the System.out.println method. In the parenthesis we enter the content needs to be printed. We put quotation marks around strings.

2) Write a method named "counter" that takes two integers, A and B, and prints the numbers from A to B. (20 points)

```
public static void main(String[] args){

    if(a<b){

        for(int i=a;i<=b;i++){

            System.out.println(i);}

        else{for(i=a;i>=b;i++){

            System.out.println(i);}}}}}
```

It is stated in the question that this method would take two integer as the arguments, and the method doesn't return anything. So we place two different integers in the parenthesis and set the return type as void. Because we don't know which integer is greater, we use a for loop to account both the two situation.

3) Write some Java code that will fill an array with the numbers from 10 to 100. (20 points)

```
public static void main(int[] arr){  
    int[] arr = new int[91]  
    for(int i=0; i<91; i++){  
        arr[i]=i+10;}}
```

In the question doesn't ask us to return anything, so we still put void as the return type. Because it's an array filled with integers, we use the object `int[]` (which represents integer array). We need to declare the array when we first use it in the method. To fill in the numbers from 10 to 100, we can simply represent them by adding ten to the index number (the index counts from 0).

4) Write a method named "average" that will return the average value of an integer array.

It should return a double. (20 points)

```
public static double average(int[] arr){  
    int sum=0;  
    for(int i=0; i<arr.length;i++){  
        sum = sum + arr[i];}  
    return ((float)sum)/arr.length}
```

The average of an array is very unlikely to be an integer, so we set the return type of the method as a double. We give the method and integer array as the argument. To sum up the array, we use a for loop. The calculation has to be between the same data type, so we use `(float)` to turn the sum into a float. We can do the calculations in one line.

5) Draw the truth table for OR and XOR. (10 points)

OR	True	False	XOR	True	False
True	True	True	True	False	True
False	True	False	False	True	False

6) Write a method for the XOR operator named "xor". It should take two booleans as arguments and return a boolean. (20 points)

```
public static boolean xor(boolean a, boolean b){
```

```
if(a==b){  
    return false;  
else{return true;}}
```

The rule of the XOR operator is, when the two booleans are equal(both true or both false), then the output will be true. If the booleans are not equal, the output is false.

7) Explain how to compile and run a program "hello.java" from the command line. (10 points)

```
cd path/to/document  
javac hello.java  
java hello.
```