Please write your on the top of the page.

22c:21 Computer Science II: Data Structures

Quiz 2A (open book and notes; please circle all the correct solutions)

1. If you declare an array double[] list = {3.4, 2.0, 3.5, 5.5}, list[1] is ________.
   A. 3.4
   B. 2.0
   C. 3.4
   D. 5.5
   E. undefined

2. If you declare an array double[] list = {3.4, 2.0, 3.5, 5.5}, the highest index in array list is ________.
   A. 0
   B. 1
   C. 2
   D. 3
   E. 4

3. Suppose int i = 5, which of the following can be used as an index for array double[] t = new double[100]?
   A. i
   B. (int)(Math.random() * 100)
   C. i + 10
   D. i + 6.5
   E. Math.random() * 100

4. Which of the following statements is valid?
   A. int i = new int(30);
   B. double d[] = new double[30];
   C. int[] i = {3, 4, 3, 2};
   D. char[] c = new char();
   E. char[] c = new char[4]{'a', 'b', 'c', 'd'};

5. What would be the result of attempting to compile and run the following code?
   ```java
   public class Test {
       public static void main(String[] args) {
           double[] x = new double[]{1, 2, 3};
           System.out.println("Value is " + x[1]);
       }
   }
   ```
   A. The program has a compile error because the syntax `new double[]{1, 2, 3}` is wrong and it should be replaced by `{1, 2, 3}`.
   B. The program has a compile error because the syntax `new double[]{1, 2, 3}` is wrong and it should be replaced by `new double[3]{1, 2, 3}`;
   C. The program has a compile error because the syntax `new double[]{1, 2, 3}` is wrong and it should be replaced by `new double[30]{1, 2, 3};`
   D. The program compiles and runs fine and the output "Value is 1.0" is printed.
   E. The program compiles and runs fine and the output "Value is 2.0" is printed.

6. Assume int[] t = {1, 2, 3, 4}. What is t.length?
   A. 0
   B. 3
   C. 4
   D. 5
7. What is output of the following code:

```java
public class Test {
    public static void main(String[] args) {
        int[] x = {120, 200, 016};
        for (int i = 0; i < x.length; i++)
            System.out.print(x[i] + " ");
    }
}
```

A. 120 200 16
B. 120 200 14
C. 120 200 20
D. 016 is a compile error. It should be written as 16.

8. In the following code, what is the printout for list2?

```java
class Test {
    public static void main(String[] args) {
        int[] list1 = {1, 2, 3};
        int[] list2 = {1, 2, 3};
        list2 = list1;
        list1[0] = 0; list1[1] = 1; list2[2] = 2;
        for (int i = 0; i < list2.length; i++)
            System.out.print(list2[i] + " ");
    }
}
```

A. 1 2 3
B. 1 1 1
C. 0 1 2
D. 0 1 3

9. Analyze the following code:

```java
public class Test {
    public static void main(String[] args) {
        final int[] x = {1, 2, 3, 4};
        int[] y = x;
        x = new int[2];
        for (int i = 0; i < y.length; i++)
            System.out.print(y[i] + " ");
    }
}
```

A. The program displays 1 2 3 4
B. The program displays 0 0
C. The program has a compile error on the statement x = new int[2], because x is final and cannot be changed.
D. The elements in the array x cannot be changed, because x is final.

10. When you pass an array to a method, the method receives __________.

A. a copy of the array
B. a copy of the first element
C. the reference of the array
D. the length of the array

11. Assume int[] scores = {1, 20, 30, 40, 50}, what value does java.util.Arrays.binarySearch(scores, 30) return?

A. 0
B. -1
C. 1
D. 2
E. -2
12. Analyze the following code:

```java
public class Test1 {
    public static void main(String[] args) {
        xMethod(new double[]{3, 3});
        xMethod(new double[5]);
        xMethod(new double[3]{1, 2, 3});
    }
    public static void xMethod(double[] a) {
        System.out.println(a.length);
    }
}
```

A. The program has a compile error because xMethod(new double[]{3, 3}) is incorrect.
B. The program has a compile error because xMethod(new double[5]) is incorrect.
C. The program has a compile error because xMethod(new double[3]{1, 2, 3}) is incorrect.
D. The program has a runtime error because a is null.

13. Which of the following statements are correct?
A. char[][] charArray = {'a', 'b'};
B. char[2][2] charArray = {{'a', 'b'}, {'c', 'd'}};
C. char[2][2] charArray = {{'a', 'b'}, {'c', 'd'}};
D. char[][] charArray = {{'a', 'b'}, {'c', 'd'}};

14. Assume int[][] x = {{1, 2}, {3, 4, 5}, {5, 6, 5, 9}}, what are x[0].length, x[1].length, and x[2].length?
A. 2, 3, and 3
B. 2, 3, and 4
C. 3, 3, and 3
D. 3, 3, and 4
E. 2, 2, and 2

15. What is the prinout of the following program?

```java
public class Test {
    public static void main(String[] args) {
        int[][] values = {{3, 4, 5, 1 }, {33, 6, 1, 2}};
        for (int row = 0; row < values.length; row++) {
            java.util.Arrays.sort(values[row]);
            for (int column = 0; column < values[row].length; column++)
                System.out.print(values[row][column] + " ");
            System.out.println();
        }
    }
}
```

A. The program prints two rows 3 4 5 1 followed by 33 6 1 2
B. The program prints on row 3 4 5 1 33 6 1 2
C. The program prints two rows 3 4 5 1 followed by 33 6 1 2
D. The program prints two rows 1 3 4 5 followed by 1 2 6 33
E. The program prints one row 1 3 4 5 1 2 6 33