Please write your on the top of the page.

22c:21 Computer Science II: Data Structures

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

1. Which of the following is incorrect?
   A. int[] a = new int[2];
   B. int a[] = new int[2];
   C. int[] a = new int[2];
   D. int a = new int[2];
   E. int a() = new int[2];

2. How many elements are in array double[] list = new double[5]?
   A. 4
   B. 5
   C. 6
   D. 0

3. Analyze the following code.
   public class Test {
     public static void main(String[] args) {
       int[] x = new int[3];
       System.out.println("x[0] is " + x[0]);
     }
   }

4. How can you initialize an array of two characters to 'a' and 'b'?
   A. char[] charArray = new char[2]; charArray = {'a', 'b'};
   B. char[2] charArray = {'a', 'b'};
   C. char[] charArray = {'a', 'b'};
   D. char[] charArray = new char[]{'a', 'b'};

5. Assume int[] scores = {1, 20, 30, 40, 50}, what value does java.util.Arrays.binarySearch(scores, 3) return?
   A. 0
   B. -1
   C. 1
   D. 2
   E. -2
6. Analyze the following code.

```java
int[] list = new int[5];
list = new int[6];
```

A. The code has compile errors because the variable list cannot be changed once it is assigned.

B. The code has runtime errors because the variable list cannot be changed once it is assigned.

C. The code can compile and run fine. The second line assigns a new array to list.

D. The code has compile errors because you cannot assign a different size array to list.

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
class Test {
    public static void main(String[] args) {
        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 displays 0 0 3 4
D. The program displays 0 0 0 0
10. When you return an array from a method, the method returns _________.

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. Analyze the following code:

```java
public class Test {
    public static void main(String[] args) {
        int[] oldList = {1, 2, 3, 4, 5};
        reverse(oldList);
        for (int i = 0; i < oldList.length; i++)
            System.out.print(oldList[i] + " ");
    }
    public static void reverse(int[] list) {
        int[] newList = new int[list.length];
        for (int i = 0; i < list.length; i++)
            newList[i] = list[list.length - 1 - i];
        list = newList;
    }
}
```

A. The program displays 1 2 3 4 5.
B. The program displays 1 2 3 4 5 and then reports an error.
C. The program displays 5 4 3 2 1.
D. The program displays 5 4 3 2 1 and then raises an error.

12. Analyze the following code:

```java
public class Test {
    public static void main(String[] args) {
        int[] x = new int[5];
        int i;
        for (i = 0; i < x.length; i++)
            x[i] = i;
        System.out.println(x[i]);
    }
}
```

A. The program displays 0 1 2 3 4.
B. The program displays 4.
C. The program has a runtime error because the last statement in the main method causes a run time error.
D. The program has a compile error because i is not defined in the last statement in the main method.

13. Assume double[][] x = new double[4][5], what are x.length and x[2].length?

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

A. 2 and 1
B. 2 and 2
C. 3 and 2
D. 2 and 3
E. 3 and 3

15. What is the output of the following code?

```java
public class Test {
    public static void main(String[] args) {
        int[][] matrix =
            {{1, 2, 3, 4},
             {4, 5, 6, 7},
             {8, 9, 10, 11},
             {12, 13, 14, 15}};
        for (int i = 0; i < 4; i++)
            System.out.print(matrix[i][1] + " ");
    }
}
```

A. 1 2 3 4
B. 4 5 6 7
C. 1 3 8 12
D. 2 5 9 13
E. 3 6 10 14