Quiz 8 Multidimensional Arrays

1.   Which of the following statements are correct?

a.   char[][] charArray = {'a', 'b'};

b.   char[2][2] charArray = {{'a', 'b'}, {'c', 'd'}};

c.   char[2][] charArray = {{'a', 'b'}, {'c', 'd'}};

d.   char[][] charArray = {{'a', 'b'}, {'c', 'd'}};

2.   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

3.   What is the index variable for the element at the first row and first column in array a?

a.   a[0][0]

b.   a[1][1]

c.   a[0][1]

d.   a[1][0]

4.   When you create an array using the following statement, the element values are automatically initialized to 0.

int[][] matrix = new int[5][5];

a.   True

b.   False

5. How many elements are in array matrix (int[][] matrix = new int[5][5])?

a. 14

b. 20

c. 25

d. 30

6. Analyze the following code:

```java
public class Test {
  public static void main(String[] args) {
    boolean[][] x = new boolean[3][];
    x[0] = new boolean[1]; x[1] = new boolean[2];
    x[2] = new boolean[3];

    System.out.println("x[2][2] is " + x[2][2]);
  }
}
```

a. The program has a compile error because new boolean[3][] is wrong.

b. The program has a runtime error because x[2][2] is null.

c. The program runs and displays x[2][2] is null.

d. The program runs and displays x[2][2] is true.

e. The program runs and displays x[2][2] is false.

7.   Assume int[][] x = {{1, 2}, {3, 4}, {5, 6}}, what are x.length are x[0].length?

a.   2 and 1

b.   2 and 2

c.   3 and 2

d.   2 and 3

e.   3 and 3

8.   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

9.   What is the output of the following program?

public class Test {

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

a.   1

b.   3

c.   5

d.   6

e.   33

10.   What is the output of the following program?

```java
public class Test {
  public static void main(String[] args) {
    int[][] values = {{3, 4, 5, 1}, {33, 6, 1, 2}};
    int v = values[0][0];
    for (int[] list : values)
      for (int element : list)
        if (v > element)
          v = element;
    System.out.print(v);
  }
}
```

a.   1

b.   3

c.   5

d.   6

e.   33

11.   What is the output 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 2 1 6 33

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

12. 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++)
```

```java
      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

13. What is the output of the following code?

```java
public class Test5 {
  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[1][i] + " ");
  }
}
```

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

14. Suppose a method p has the following heading:

public static int[][] p()

What return statement may be used in p()?

a.   return 1;

b.   return {1, 2, 3};

c.   return int[]{1, 2, 3};

d.   return new int[]{1, 2, 3};

e.   return new int[][]{{1, 2, 3}, {2, 4, 5}};

15.   What is the output 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++) {
      System.out.print(m(values[row]) + " ");
    }
  }
  public static int m(int[] list) {
    int v = list[0];
    for (int i = 1; i < list.length; i++)
      if (v < list[i])
        v = list[i];
    return v;
  }
}
```

a.   3 33

b.   1 1

c.   5 6

d.   5 33

e.   33 5

16.   Assume double[][][] x = new double[4][5][6], what are x.length, x[2].length, and x[0][0].length?

a.   4, 5, and 6

b.   6, 5, and 4

c.   5, 5, and 5

d.   4, 5, and 4

17.   Which of the following statements are correct?

a.   char[][][] charArray = new char[2][2][];

b.   char[2][2][] charArray = {'a', 'b'};

c.   char[][][] charArray = {{'a', 'b'}, {'c', 'd'}, {'e', 'f'}};

d.   char[][][] charArray = {{{'a', 'b'}, {'c', 'd'}, {'e', 'f'}}};

18. What is the output of the following code?

public class Test {

  public static void main(String[] args) {

    int[][][] data = {{{1, 2}, {3, 4}},

      {{5, 6}, {7, 8}}};

    System.out.print(data[1][0][0]);

  }

}

a.   1

b.   2

c.   4

d.   5

e.   6

19. What is the output of the following code?

public class Test {

  public static void main(String[] args) {

    int[][][] data = {{{1, 2}, {3, 4}},

      {{5, 6}, {7, 8}}};

    System.out.print(ttt(data[0]));

  }

```java
public static int ttt(int[][] m) {
    int v = m[0][0];
        for (int i = 0; i < m.length; i++)
        for (int j = 0; j < m[i].length; j++)
        if (v < m[i][j])
        v = m[i][j];

    return v;
    }
}
```

a.   1

b.   2

c.   4

d.   5

e.   6