1.How many of the following are legal declarations?

```
[]double lion;
double[] tiger;
double bear[];
```

A. None
B. One
C. Two
D. Three

C. The array braces are allowed to appear before or after the variable name, making the tiger and bear declarations correct. The braces are not allowed to appear before the type making the lion declaration incorrect. Therefore, Option C is correct.

2.How do you determine the number of elements in an array?

A. buses.length
B. buses.length()
C. buses.size
D. buses.size()

A. Arrays use the length variable to determine the number of elements, making Option A correct. For an ArrayList, Option D would have been the answer.

3.Which of the following create an empty two-dimensional array with dimensions 2×2?

A. `int[][] blue = new int[2, 2];`
B. `int[][] blue = new int[2], [2];`
C. `int[][] blue = new int[2][2];`
D. `int[][] blue = new int[2 x 2];`

C. A two-dimensional array is declared by listing both sizes in separate pairs of braces. Option C correctly shows this syntax.

4.How many lines does the following code output?

```
String[] days = new String[] { "Sunday", "Monday", "Tuesday",
"Wednesday", "Thursday", "Friday", "Saturday" };
for (int i = 0; i < days.length; i++)
System.out.println(days[i]);
```

A. Six
B. Seven
C. The code does not compile.
D. The code compiles but throws an exception at runtime.

B. There is nothing wrong with this code. It correctly creates a seven-element array. The loop starts with index 0 and ends with index 6. Each line is correctly output. Therefore, Option B is correct.

5.How many of the following are legal declarations?

```
String lion [] = new String[] {"lion"};
String tiger [] = new String[1] {"tiger"};
String bear [] = new String[] {};
String ohMy [] = new String[0] {};
```

A. None
B. One
C. Two
D. Three

C. When using an array initializer, you are not allowed to specify the size separately. The size is inferred from the number of elements listed. Therefore, tiger and ohMy are incorrect. When you're not using an array initializer, the size is required. An empty array initializer is allowed. Option C is correct because lion and bear are legal.

6.How many of the following are legal declarations?

```
float[] lion = new float[];
float[] tiger = new float[1];
float[] bear = new[] float;
float[] ohMy = new[1] float;
```

A. None
B. One
C. Two
D. Three

B. Since no elements are being provided when creating the arrays, a size is required. There- fore, lion and bear are incorrect. The braces containing the size are required to be after the type, making ohMy incorrect. The only one that is correct is tiger, making the correct answer Option B.

7.Which line of code causes an ArrayIndexOutOfBoundsException?

```
String[][] matrix = new String[1][2];
matrix[0][0] = "Don't think you are, know you are."; // m1
matrix[0][1] = "I'm trying to free your mind Neo"; // m2
matrix[1][0] = "Is all around you ";  // m3
matrix[1][1] = "Why oh why didn't I take the BLUE pill?"; // m4
```

A. m1
B. m2
C. m3
D. m4

C. This code creates a two-dimensional array of size 1×2. Lines m1 and m2 assign values to both elements in the outer array. Line m3 attempts to reference the second element of the outer array. Since there is no such position, it throws an exception, and Option C is correct.

8.Which is the first line to prevent this code from compiling and running without error?

```
char[][] ticTacToe = new char[3,3];   // r1
ticTacToe[1][3] = 'X';     // r2
ticTacToe[2][2] = 'X';
ticTacToe[3][1] = 'X';
System.out.println(ticTacToe.length + " in a row!"); // r3
```

A. Line r1
B. Line r2
C. Line r3
D. None of the above

A. A multi-dimensional array is created with multiple sets of size parameters. The first line should be char[] ticTacToe = new char[3][3];. Therefore, Option A is the answer.

9.How many of the following are legal declarations?

```
[][] String alpha;
[] String beta;
String[][] gamma;
String[] delta[];
String epsilon[][];
```

A. Two
B. Three
C. Four
D. Five

B. As with a one-dimensional array, the braces must be after the type, making alpha and beta illegal declarations. For a multi-dimensional array, the braces are allowed to be before and/or after the variable name. They do not need to be in the same place. Therefore, the remaining three are correct, and Option B is correct.

10.What is a possible output of the following code?

```
String[] strings = new String[2];
System.out.println(strings);
```

A. [null, null]
B. [,]
C. [Ljava.lang.String;@74a14482
D. None of the above

C. Calling toString() on an array doesn't output the contents of the array, making Option C correct. If you wanted Option A to be the answer, you'd have to call Arrays.toString(strings).

10.What is the output of the following when run as java Count 1 2?

```
public class Count {
public static void main(String target[]) {
System.out.println(target.length);
}
}
```

A. 0
B. 1
C. 2
D. The code does not compile.