1. **Which of the following Java operators can be used with boolean variables? (Choose all that apply.)**

    1. ==
    2. +
    3. --
    4. ¡
    5. %
    6. <=
    7. Cast with boolean

R = 1 and 4.

2. **What data type (or types) Will allow the following code snippet to compile? (choose all that apply.)**

    1. Byte apples = 5;
    2. Short oranges = 10;
    3. _____ bananas = apples + oranges;

    1. Int
    2. Long
    3. Boolean
    4. Double
    5. Short
    6. Byte

R = 1, 2 and 4.

3. What change, when applied independently, would allow the following code snippet to compile?

3: long ear = 10;
4: int hearing = 2 * ear;

1. No change; it compiles as is.
2. Caste ear on line 4 to int.
3. Change the data type of ear on line 3 to short.
4. Cast 2 * ear on line 4 to int.
5. Change the data type of hearing on line 4 to short
6. Change the data type of hearing on line 4 to long

R = 2, 3, 4 and 6.

4. What is the output of the following program?

```
1: public class CandyCounter {
2: static long addCandy(double fruit, float
vegetables) {
3: return (int)fruit+vegetables;
4: }
5:
6: public static void main(String[] args) {
7: System.out.print(addCandy(1.4, 2.4f) + "-
");
8: System.out.print(addCandy(1.9, (float)4)
+ "-");
9: System.out.print(addCandy((long)(int)
(short)2, (float)4)); } }
```

1. 4-6-6.0
2. 3-5-6
3. 3-6-6
4. 4-5-6
5. The code does not compile because of line 9.
6. None of the above

R = 6.

5. What are the unique outputs of the following code snippet? (Choose all that apply.)

```
int a = 2, b = 4, c = 2;
System.out.println(a > 2 ? --c : b++);
System.out.println(b = (a!=c ? a : b++));
System.out.println(a > b ? b < c ? b : 2 : 1);
```

1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. The code does not compile.

R = 1, 4 and 5.

6. Given the following code snippet, what is the value of the variables after it is executed? (Choose all that apply.)

```
int ticketsTaken = 1;
int ticketsSold = 3;
ticketsSold += 1 + ticketsTaken++;
ticketsTaken *= 2;
ticketsSold += (long)1;
```

1. ticketsSold is 8
2. ticketsTaken is 2
3. ticketsSold is 6
4. ticketsTaken is 6
5. ticketsSold is 7
6. ticketsTaken is 4
7. The code does not compile.

R = 3 and 6.

7. What is the output of the following code snippet? (Choose all that apply.)

```
3: int temperature = 4;
4: long humidity = -temperature + temperature * 3;
5: if (temperature>=4)
6: if (humidity < 6) System.out.println("Too
Low");
7: else System.out.println("Just Right");
8: else System.out.println("Too High");
```

1. Too Low
2. Just Right
3. Too High
4. A NullPointerException is thrown at runtime.
5. The code will not compile because of line 7.
6. The code will not compile because of line 8.

R = 2.

8. Which statements, when inserted independently into the following blank, will cause the code to print 2 at runtime? (Choose all that apply.)

```
int count = 0;
BUNNY: for(int row = 1; row <=3; row++)
```

```
RABBIT: for(int col = 0; col <3 ; col++) {
if((col + row) % 2 == 0)
_____;
count++;
}
System.out.println(count);
```

1. break BUNNY
2. break RABBIT
3. continue BUNNY
4. continue RABBIT
5. break
6. continue
7. None of the above, as the code contains a compiler error

R = 2, 3 and 5.

9. What is the output of the following code snippet?

```
2: boolean keepGoing = true;
3: int result = 15, meters = 10;
4: do {
5: meters--;
6: if(meters==8) keepGoing = false;
7: result -= 2;
8: } while keepGoing;
9: System.out.println(result);
```

1. 7
2. 9
3. 10
4. 11
5. 15
6. The code will not compile because of line 6.
7. The code does not compile for a different reason.

R = 7.

10. What is the output of the following code snippet? (Choose all that apply.)

```
9: int w = 0, r = 1;
10: String name = "";
11: while(w < 2) {
```

```
12: name += "A";
13: do {
14: name += "B";
15: if(name.length()>0) name += "C";
16: else break;
17: } while (r <=1);
18: r++; w++; }
19: System.out.println(name);
```

1. ABC
2. ABCABC
3. ABCABCABC
4. Line 15 contains a compilation error.
5. Line 18 contains a compilation error.
6. The code compiles but never terminates at runtime.
7. The code compiles but throws a NullPointerException at runtime.

R = 6.

11. What is output by the following code? (Choose all that apply.)

```
1: public class Fish {
2: public static void main(String[] args) {
3: int numFish = 4;
4: String fishType = "tuna";
5: String anotherFish = numFish + 1;
6: System.out.println(anotherFish + " " +
fishType);
7: System.out.println(numFish + " " + 1);
8: } }
```

1. 4 1
2. 5
3. 5 tuna
4. 5tuna
5. 51tuna
6. The code does not compile.

R = 6.

12. What is the result of the following code?

```
7: StringBuilder sb = new StringBuilder();
8: sb.append("aaa").insert(1, "bb").insert(4,
"ccc");
9: System.out.println(sb);
```

1. abbaaccc
2. abbaccca
3. bbaaaccc
4. bbaaccca
5. An empty line
6. The code does not compile.

R = 2.

13. What is the result of the following code?

```
12: int count = 0;
13: String s1 = "java";
14: String s2 = "java";
15: StringBuilder s3 = new StringBuilder("java");
16: if (s1 == s2) count++;
17: if (s1.equals(s2)) count++;
18: if (s1 == s3) count++;
19: if (s1.equals(s3)) count++;
20: System.out.println(count);
```

1. 0
2. 1
3. 2
4. 3
5. 4
6. An exception is thrown.
7. The code does not compile.

R = 7.

14. What is the result of the following code?

```
public class Lion {
public void roar(String roar1, StringBuilder
roar2) {
roar1.concat("!!!");
```

```
roar2.append("!!!");
}
public static void main(String[] args) {
String roar1 = "roar";
StringBuilder roar2 = new
StringBuilder("roar");
new Lion().roar(roar1, roar2);
System.out.println(roar1 + " " + roar2);
} }
```

1. roar roar
2. roar roar!!!
3. roar!!! roar
4. roar!!! roar!!!
5. An exception is thrown.
6. The code does not compile.

R = 2.

15. Which of the following can replace line 4 to print "avaJ"? (Choose all that apply.)

```
3: var puzzle = new StringBuilder("Java");
4: // INSERT CODE HERE
5: System.out.println(puzzle);
```

1. puzzle.reverse();
2. puzzle.append("vaJ$").substring(0, 4);
3. puzzle.append("vaJ$").delete(0,
   3).deleteCharAt(puzzle.length() - 1);
4. puzzle.append("vaJ$").delete(0,
   3).deleteCharAt(puzzle.length());
5. None of the above

R = 1 and 3.