Java Software Development Quiz 4

1. Given the following declaration:

```
char c = 'A';
```

What is the simplest way to convert the character value in c into an int?

Select the one correct answer.

(a) int i = c;

(b) int i = (int) c;

(c) int i = Character.getNumericValue(c);

2. Which of the following expressions will be evaluated using floating-point arithmetic?

Select the three correct answers.

(a) 2.0 * 3.0

(b) 2 * 3

(c) 2/3 + 5/7

(d) 2.4 + 1.6

(e) 0x10 * 1L * 300.0

3. What is the value of evaluating the following expression (- -1-3 * 10 / 5-1)?

Select the one correct answer.

(a) –8

(b) –6

(c) 7

(d) 8

(e) 10

(f) None of the above.

4. Which statements are true?

Select the three correct answers.

(a) The expression (1 + 2 + "3") evaluates to the string "33".

(b) The expression ("1" + 2 + 3) evaluates to the string "15".

(c) The expression (4 + 1.0f) evaluates to the float value 5.0f.

(d) The expression (10/9) evaluates to the int value 1.

(e) The expression ('a' + 1) evaluates to the char value 'b'.

5.   Which of the following expressions evaluate to true?

Select the two correct answers.

(a) (false | true)

(b) (null != null)

(c) (4 <= 4)

(d) (!true)

(e) (true & false)

6.   Which statements are true about the output from the following program?

```
public class Logic {
  public static void main(String[] args) {
    int i = 0;
    int j = 0;
    boolean t = true;
    boolean r;
    r = (t &  0 < (i+=1));
    r = (t && 0 < (i+=2));
    r = (t |  0 < (j+=1));
    r = (t || 0 < (j+=2));
    System.out.println(i + " " + j);
  }
}
```

Select the two correct answers.

(a) The first digit printed is 1.

(b) The first digit printed is 2.

(c) The first digit printed is 3.

(d) The second digit printed is 1.

(e) The second digit printed is 2.

(f) The second digit printed is 3.

Answer

1. (a)

A value of type char can be assigned to a variable of type int. An widening conversion will convert the value to an int.

2. (a), (d), and (e)

A binary expression with any floating-point operand will be evaluated using floating-point arithmetic. Expressions such as 2/3, where both operands are integers, will use integer arithmetic and evaluate to an integer value. In (e), the result of (0x10 * 1L) is promoted to a floating-point value.

3. (b)

The expression evaluates to –6. The whole expression is evaluated as (((-(-1)) - ((3 * 10) / 5)) - 1) according to the precedence and associativity rules.

4. (a), (c), and (d)

The left associativity of the + operator makes the evaluation of (1 + 2 + "3") proceed as follows: (1 + 2) + "3" o 3 + "3" o "33". Evaluation of the expression ("1"+ 2 + 3), however, will proceed as follows: ("1" + 2) + 3 o "12" + 3 o "123". (4 +1.0f) evaluates as 4.0f + 1.0f o 5.0f and (10/9) performs integer division, resulting in the value 1. The operand 'a' in the expression ('a' + 1) will be promoted to int, and the resulting value will be of type int.

5. (a) and (c)

The expression (4 <= 4) is true. The null literal can be compared, so (null != null) yields false.

6. (c) and (d)

Unlike the & and | operators, the && and || operators short-circuit the evaluation of their operands if the result of the operation can be determined from the value of the first operand. The second operand of the || operator in the program is never evaluated because of short-circuiting. All the operands of the other operators are evaluated. Variable i ends up with the value 3, which is the first digit printed, and j ends up with the value 1, which is the second digit printed.