Exam: Section A

Instructions

- You will write your answers on a separate sheet of paper.
- Since each question is a multiple-choice question, your answer sheet should only contain the question numbers and your answers, as in

```
1.  a
2.  b
3.  c
... (and so on. This is only an illustration).
```

- You can use the question sheets to work through problems.
- Write your NAME on both the question sheets and answer sheets. Answer and question sheets without a name will not be graded.
- Submit both the question sheets and answer sheets. An answer sheet without an accompanying question sheet will NOT be graded and may result in dismissal from the program.

Exam questions

1. Consider the first line in our classic `HelloWorld` program:

```
public class HelloWorld {
```

   a. There needs to be exactly one space between each of `public`, `class` and `HelloWorld`.
   b. You can remove the space between `HelloWorld` and `{` but not between `public` and `class`
   c. You are allowed exactly one space after `{`
   d. You cannot have spaces before `public`.

2. Consider these two comments:

```
/* asdf */
/*
   qwer
*/
```

a. Only the first one is legal.
b. Only the second one is legal.
c. Both are legal.
d. Neither is legal.

3. Consider the statements

I. `System.out.println ("hello");`
II. `System.out.print ("hello\n");`

Which one of the following is correct?

a. I and II have the same effect.
b. I prints "hello" while II prints "hellon"
c. I prints "hello" while II prints "HELLO"
d. I prints "hello" while II prints "hello" followed a tab character.

4. Consider the identifiers

I. `asdf%3`
II. `1asdf!`

Which one of the following is correct?

a. Both are valid identifiers.
b. Neither one is a valid identifier.
c. I is valid, but II is not.
d. II is valid but I is not.

5. Consider

```
public static void main (String[] arg)
{
    // ...
}
```

This results in

a. No compiler error
b. A missing argument compiler error
c. A misspelling compiler error
d. A String method not-found compiler error

6. This program

```
public static void main (String[] argv)
{
```

```
    for (int i=5; i<1; i--) {
        System.out.print ("a");
    }
    System.out.println ("b");
}
```

results in the following being printed:

a. `aaaaab`

b. `aaaab`

c. `aaab`

d. `b`

7. The following

```
public static void main (String[] argv)
{
    for (int i=0; i<2; i++) {
        for (int j=0; j<i; j++) {
            System.out.print ("a");
        }
        System.out.print ("b");
    }
    System.out.println ();
}
```

results in:

a. `bab`

b. `aab`

c. `abaab`

d. `aabab`

8. Consider

```
public static void main (String[] argv)
{
    int j = i;
    int i = 5;
    System.out.println (j);
}
```

The above results in

a. the value 5 being printed

b. a compiler error

c. the value 0 printed

d. empty output

9. The following

```
public static void main (String[] argv)
{
    double a = 2;
    double b = a;
```

```
    a = a + 2;
    double c = 2*a + b;
    double d = c + a;
    System.out.println (d);
}
```

results in

a. 8
b. 10
c. 12
d. 14

10. The following

```
public static void main (String[] argv)
{
    int a = 1, b = 2, c = 0;
    for (int i=0; i<3; i++) {
        c = 2*a + b;
        a = b;
        b = c;
    }
    System.out.println (c);
}
```

results in

a. 8
b. 16
c. 24
d. 32

11. The following

```
public static void main (String[] argv)
{
    int[] A;
    A = {1,2,3,4,5};
}
```

a. Will not compile
b. Will create an array of size 5
c. Will create an array of size 6
d. Checks whether A is one of the numbers 1,2...5.

12. The following

```
public static void main (String[] argv)
{
    int[] A = {1,2,3,4,5};
    int[] B = {6,5,4,3,2};
    A[B[4]] = B[A[1]];
    printArray (A);          // A method that prints an array
}
```

prints

a. 5 2 4 4 5
b. 4 2 3 4 5
c. 2 4 3 4 5
d. 1 2 4 4 5

13. The following

```
int[] A = {1,2,3,1,2,2,1};
int k = 2;
int m = 0;
for (int i=0; i<A.length; i++) {
    if ((A[i] == k) || (A[i] == k+1)) {
        m++;
    }
}
System.out.println (m);
```

prints

a. 4
b. 7
c. 5
d. 0

14. The following

```
int a = 1, b = 2, c = 3;

if (a > 0) {
    if ((b < c) && (c < 1)) {
        System.out.println ("one");
    }
    else if (c > 0) {
        if (b < a) {
            System.out.println ("two");
        }
        else {
            System.out.println ("three");
        }
    }
    else {
            System.out.println ("four");
    }
}
```

prints

a. one
b. two
c. three
d. four

15. The following

```
boolean a = true, b = false, c = false;
boolean d = ((a && b) || c) || (!b);
System.out.println (d);
boolean e = true, f = true, g = false;
boolean h = ((!e) || (f)) && (!g);
System.out.println (h);
```

prints

a. `true` and `false`
b. `false` and `true`
c. `true` and `true`
d. `false` and `false`

16. The following

```
public static void main (String[] argv)
{
    String s = doStuff (doStuff("b") + doStuff("a"));
    System.out.println (s);
}

static String doStuff (String s)
{
    s = s + s + 'c';
    return s;
}
```

prints

a. `bbaac`
b. `bbcaac`
c. `bbaacbbaacc`
d. `bbcaacbbcaacc`

17. The following

```
public static void main (String[] argv)
{
    int k = weird (weird(1,2), 3);
    System.out.println (k);
}

static int weird (int a, int b)
{
    if (a < b) {
        return 2*a;
    }
    else {
        return 2*b;
    }
}
```

prints

a. 2
b. 4
c. 6
d. 8

18. What does the following program print?

```
static int a = 1;
static int b = 2;

public static void main (String[] argv)
{
    int a = 2;
    a = sillyMethod (a, b);
    System.out.println ("a=" + a + " b=" + b);
}

static int sillyMethod (int m, int n)
{
    a = a + 1;
    b = b + 1;
    return m + n + a + b;
}
```

This prints

a. 12 and 6
b. 9 and 3
c. 8 and 4
d. 8 and 2
