Program Flow Control
Practice

1. What will be the result of attempting to compile and run the following class?

```
public class IfTest {
  public static void main(String[] args) {
    if (true)
    if (false)
    System.out.println("a");
    else
    System.out.println("b");
  }
}
```

(a) The code will fail to compile because the syntax of the if statement is incorrect.
(b) The code will fail to compile because the compiler will not be able to determine which if statement the else clause belongs to.
(c) The code will compile correctly, and display the letter a at runtime.
(d) The code will compile correctly, and display the letter b at runtime.
(e) The code will compile correctly, but will not display any output.

In switch statement, the case labels are ***constant expressions*** whose values must be ***unique***, meaning no duplicate values are allowed. In fact, a case label must be a ***compile-time constant expression*** whose value is ***assignable*** to the type of the switch expression. In particular, all case label values must be ***in the range of the type*** of the switch expression. The type of the case label can ***NOT*** be boolean, long, or floating-point.

2. What, if anything, is wrong with the following code?

```
void test(int x) {
  switch (x) {
    case 1:
    case 2:
    case 0:
    default:
    case 4:
  }
}
```

Select the one correct answer.
(a) The variable x does not have the right type for a switch expression.
(b) The case label 0 must precede the case label 1.
(c) Each case section must end with a break statement.
(d) The default label must be the last label in the switch statement.
(e) The body of the switch statement must contain at least one statement.
(f) There is nothing wrong with the code.

3. What will be the result of attempting to compile and run the following program?

```
public class Switching {
  public static void main(String[] args) {
    final int iLoc = 3;
    switch (6) {
      case 1:
      case iLoc:
      case 2 * iLoc:
        System.out.println("I am not OK.");
      default:
        System.out.println("You are OK.");
      case 4:
        System.out.println("It's OK.");
    }
  }
}
```

Select the one correct answer.

(a) The code will fail to compile because of the case label value 2 * iLoc.
(b) The code will fail to compile because the default label is not specified last in the switch statement.
(c) The code will compile correctly and will print the following at runtime:
I am not OK.
You are OK.
It's OK.
(d) The code will compile correctly and will print the following at runtime:
You are OK.
It's OK.
(e) The code will compile correctly and will print the following at runtime:
It's OK.

4. What will be the result of attempting to compile and run the following program?

```
public class MoreSwitching {
  public static void main(String[] args) {
    final int iLoc = 3;
    Integer iRef = 5;
    switch (iRef) {
      default:
        System.out.println("You are OK.");
      case 1:
      case iLoc:
      case 2 * iLoc:
        System.out.println("I am not OK.");
        break;
      case 4:
        System.out.println("It's OK.");
    }
  }
}
```

Select the one correct answer.
(a) The code will fail to compile because the type of the switch expression is not valid.
(b) The code will compile correctly and will print the following at runtime:
You are OK.
I am not OK.
(c) The code will compile correctly and will print the following at runtime:
You are OK.
I am not OK.
It's OK.
(d) The code will compile correctly and will print the following at runtime:
It's OK.

5. Which case label declaration can be inserted at (1) so that the following program will compile, run, and print Hi, TomTom!?

```
public class Switcheroo {
  public static void main(String[] args) {
    final String TOM1 = "Tom";
          String TOM2 = "Tom";
    final String TOM3 = new String("Tom");
    switch ("TomTom") {
      default:
        System.out.println("Whatever!");
        break;
//    (1) INSERT case LABEL DECLARATION HERE.
        System.out.println("Hi, TomTom!");
    }
  }
}
```

Select the four correct answers.

(a) case "TomTom":
(b) case TOM1 + TOM1:
(c) case TOM1 + TOM2:
(d) case TOM1 + TOM3:
(e) case TOM2 + TOM3:
(f) case "Tom" + TOM1:
(g) case "Tom" + TOM2:
(h) case "Tom" + TOM3:
(i) case 'T' + 'o' + 'm' + TOM1:
(j) case "T" + 'o' + 'm' + TOM1:

6. Which case label declaration can be inserted at (1) so that the following program will compile, run, and print Enjoy your meal!?

```
public class SwitchingOnAString {
  public static final String MEDIUM = "Medium";
  public static final String HOT1 = "Hot";
  public static String HOT2 = "Hot";
  public static final String HOT3 = new String("Hot");

  public static void main(String[] args) {
    String spiceLevel = "Medium_Hot";
    switch (spiceLevel) {
      case "Mild":
//    (1) INSERT case LABEL DECLARATION HERE.
        System.out.println("Enjoy your meal!");
        break;
      case HOT:
        System.out.println("Have fun!");
        break;
      case "Suicide":
        System.out.println("Good luck!");
        break;
      default:
        System.out.println("You being funny?");
    }
  }
}
```

Select all correct answers.

(a) case `"Medium_Hot"`:

(b) case MEDIUM + "_" + HOT1:

(c) case MEDIUM + '_' + HOT1:

(d) case MEDIUM + "_" + HOT2:

(e) case MEDIUM + "_" + HOT3:

(f) case MEDIUM + "_" + "Hot":

(g) case "MEDIUM" + "_" + 'H' + 'o' + 't':