

Show all of your work clearly in the space provided. Be sure to **read each problem carefully**. Note that the exam is double sided. Look over the entire exam before starting. Be sure to pace yourself.

1. (10 points) Match the term/expression on the left with the most appropriate item on the right.

- | | |
|----------------------|---|
| _____ Declaration | 1. Scanner |
| _____ Typecast | 2. (int) |
| _____ Assignment | 3. 5 |
| _____ Primitive type | 4. '5' |
| _____ Reference type | 5. "5" |
| _____ Initialization | 6. a++ |
| _____ String literal | 7. System.out.println() |
| _____ Modulus | 8. int i = 5; |
| _____ Equality | 9. i = 5; |
| _____ Comment | 10. int i; |
| | 11. == |
| | 12. = |
| | 13. % |
| | 14. // i = 5; |
| | 15. "This" + " looks " + "interesting"; |
| | 16. int |

2. (5 points) Suppose `String number = in.next();` contains a floating point number, e.g., 3.14. Write code that converts the value stored in `number` into a `double` and store it in a variable called `dollars`.

3. (10 points) Suppose `double dollars;` represents an amount of dollars and cents. Write code that stores the number of dimes (in a variable called `dimes`) needed to represent a similar value (within ten cents of the amount stored in `dollars`). For example, if `dollars` is 3.14, `dimes` should be either 31 or 32.

4. (5 points) Explain the role of the Java compiler.

5. (10 points) Given `String text = "If you play your cards right..."`; Determine the result of each expression below.

```
System.out.println(text.substring(3, 8));
```

```
System.out.println(text.charAt(1));
```

```
System.out.println(text.indexOf('p'));
```

.

6. (10 points) Indicate what will be displayed by each of the following lines of code. If the code will instead cause an error, indicate that.

```
System.out.println(8 + 2 / 5 - 1);
```

```
System.out.println(8 % 4);
```

```
System.out.println(Character.isDigit('1'));
```

```
System.out.println(!false && "true".length() > 0);
```

```
System.out.println((int)Double.parseDouble("2.0"));
```

.

7. (5 points) What is the result of the following code? Explain your answer.

```
String text = "you don't need a full deck";
int num = Math.min(text.length(), 12);
if (num > 10 && text.indexOf('o') < 5) {
    System.out.println("full");
}
do {
    num -= 4;
    System.out.println(num);
} while (num > 0);
```

8. (10 points) Given three `ints`, `a`, `b`, and `c`, write code to display `true` if the distance between `a` and `b` is at least `c`. Note: `Math.abs(num)` computes the absolute value of `num`.

9. (15 points) Given a string, `text`, with at least four characters, write code to display the middle three characters if the string contains an odd number of characters; otherwise, display the middle four characters.

10. (20 points) Complete the program below.

```
/**
 * A program that asks the user to enter a long sequence of digits. The program
 * then displays the number of times three consecutive digits increase in magnitude.
 * Examples:
 *   INPUT      -> OUTPUT | Increasing sequences
 * - "123234"   -> 2      | "123" and "234"
 * - "321222210" -> 0      | none
 * - "12330489" -> 3      | "123", "048", "489"
 */
public class Quiz3 {
    public static void main(String[] args) {
        System.out.println("Please enter a long sequence of digits");
        Scanner in = new Scanner(System.in);

        System.out.println("There were " + count + " sequences of increase digit triplets");
    }
}
```