Part I	_____
Part II	_____
Part III	_____
Total	_____

I. Computing and programming fundamentals

1. (4 points) Give two examples of non-PC computing devices.

2. (4 points) What does Java program compilation do?

3. (4 points) Write a single statement to display the phrase *Life is good!*.

4. (5 points) What are the types and values of the following expressions?

   a. `7 / 2` Type _____ Value _____

   b. `13 % 5` Type _____ Value _____

   c. `7 / 2 + 1.0` Type _____ Value _____

   d. `2 + 4 * 2` Type _____ Value _____

   e. `2+4 * 2` Type _____ Value _____

5. (4 points) What is the value of `number` after the following statement completes? Explain.

```
int number = 12; // number = 14
```

6. (4 points) What is the importance of method `main()`?

7. (4 points) Define and initialize an `int` constant representing the number of inches in a foot.

8. (4 points) Define and initialize an `int` variable representing the number of miles traveled so far.

9. (4 points) What happens in an assignment statement?

10. (4 points) Suppose `int` variable `favoriteNumber` has already been defined. Write a single statement to updates its value to 88.

11. (4 points) If the following code segment compiles, what is it output and why? If instead it does not compile, what is wrong?

```
int numberOfApples;
System.out.println( numberOfApples );
```

II. Object-oriented programming fundamentals

12. (5 points) Write a single statement to define and initialize a `Scanner` variable representing standard input.

13. (5 points) Using your `Scanner` variable from the previous statement write a two-statement code segment that prompts and extracts a floating point value representing a Fahrenheit body temperature.

14. (5 points) What is the output of the following code segment?

```
String sequence = "1234567890";
System.out.println( "length = " + sequence.length() );
System.out.println( "charAt = " + sequence.charAt(1) );
System.out.println( "substring = " + sequence.substring(1, 2) );
System.out.println( "substring = " + sequence.substring(1) );
System.out.println( "indexOf = " + sequence.indexOf('a') );
```

```
length =

charAt =

substring =

substring =

indexOf =
```

15. (5 points) How do reference variables and primitive variables differ?

16. (5 points) Draw the variable memory diagram for the following code segment after it completes.

```
int xOrigin = 1;
double increment = 0.5;
String label = "Orange and blue";
```

17. (5 points) Draw the variable memory diagram for the following code segment after it completes.

```
String myColor = "Orange";
String yourColor = "Blue";
myColor = yourColor;
```

18. (5 points) Class `AirConditioner` supports default construction, turning on a air conditioner through the parameter-less method `turnOn()`, and setting the air conditioner temperature through method `setTemp()`. Method `setTemp()` takes a single `int` parameter indicating the desired temperature.

    Write a three-statement code segment to perform the following. Create a new `AirConditioner` variable called `myAC`, which is initialized via the default constructor. Then turn on that air conditioner and lastly set the desired temperature of that air conditioner to 72 degrees

III. Program development

19. (10 points) Write a complete program named `AddTwo.java`. The program extracts two integer numbers from standard input and displays their sum and product.

20. (10 points) Write a complete program named `GotMilk.java`. The program extracts a string from standard input and displays the starting positions of the first two occurrences of *milk* in that string. (You can assume that there are at least two occurrences.)

Bonus (5 points) Indicate either the DVD movie collection that Professor Bloomfield wants to acquire or the type of Professor Cohoon's relative that visited his lecture?

PLEDGE: