1. (5 points) Consider the following code fragment:

```cpp
int x, y;

cout << "Enter values for x and y: ";  // Line 1
cin >> x >> y;                         // Line 2
if (x > 10)                             // Line 3
    if (y < 3)                           // Line 4
        cout << "A\n";                   // Line 5
    else
        cout << "B\n";                   // Line 6
else
    if (y > 7)                           // Line 7
        cout << "C\n";                   // Line 8
    else
        cout << "D\n";                   // Line 9
```

(a) Using the line numbers given on the right, which lines of this program are always executed?
(b) Give inputs for x and y that would result in the outputs A, B, C, and D.

2. (5 points) Consider the following code fragment:

```cpp
bool honors, awards, goodStudent;

// Code to give honors and awards value...

if (honors)
    if (awards)
        goodStudent = true;
    else
        goodStudent = false;
else if (!honors)
    goodStudent = false;
```

(a) Write a single if-statement that is equivalent to this code fragment.
(b) Write a single assignment statement that is equivalent to this if-statement
3. Write (only) an analysis and design conforming to the on-line handout An Analysis and Design Style Guideline for each of the following problem statements:

(a) (5 points) In a certain region of the country, pesticide can be sprayed from an airplane only if the temperature is at least 70°, the relative humidity is between 15 and 35 percent, and the wind speed is at most 10 miles per hour. Write a program that reads in three numbers representing temperature, relative humidity, and wind speed, and outputs whether or not conditions allow spraying.

(b) (5 points) The problem statement in Programming Project 12 on page 107 of the textbook.