Instructions: This homework assignment focuses on the basics of C++ arrays. The answers to the following questions can be determined from Chapters 3 through 8 of the lecture notes and Chapters 11 and 12 of the text. Assume any #include directives, variable declarations, etc, which are needed to make the given code syntactically correct.

After you have analyzed the questions and decided what answers you believe are correct, you may find it useful to write some short programs to test your logic.

The on-line Opscan form for this quiz provided by the Curator system must be used for this assignment. (No other submissions will be accepted!) Check the course web site for the due date for this quiz.

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1. Given the declaration: 
   
   ```
   double Alpha[200];
   ```

   the logically valid range of index values for alpha is:

   1) 0 through 200 3) 0 through 199 5) 1 through 201
   2) 1 through 200 4) 1 through 199 6) None of these

2. What is the output of the following program fragment?

   ```
   int Gamma[3] = {5, 10, 15};
   for (int i = 3; i > 0; i--)
       cout << Gamma[i] << ' ';
   ```

   1) 5 10 15 4) 15 10 7) The code has a logic error.
   2) 15 10 5 5) 5 10 8) None of these
   3) 10 15 6) 10 5
3. Given the declarations:
   ```c
   int Status[10];
   int i;
   ```
   which of the following loops stores zeros at each valid index of the array `Status[]` without any logic errors?

   1) for (i = 1; i <= 10; i++)
      `Status[i] = 0;`
   2) for (i = 1; i <= 10; i++)
      `Status[i - 1] = 0;`
   3) for (i = 0; i <= 10; i++)
      `Status[i] = 0;`
   4) for (i = 0; i < 10; i++)
      `Status[i] = 0;`
   5) for (i = 1; i <= 11; i++)
      `Status[i] = 0;`

   6) 1 and 5 only
   7) 2 and 3 only
   8) 2 and 4 only
   9) 3 and 4 only
   10) None of these

4. You are writing a program to count the frequencies of characters that are read from a data file. (The computer uses the extended ASCII character set, which defines 256 different characters.) Which of the following array declarations is most appropriate, if the frequency counts are to be stored in the array `freqCount[]`?

   1) `char freqCount[256];`
   2) `char freqCount[int];`
   3) `int freqCount[256];`
   4) `int freqCount[char];`
   5) None of these

   For questions 5 and 6, consider execution of the code fragment:

   ```c
   int Arr[5];
   int i;
   for (i = 0; i < 5; i++) {
       Arr[i] = 2 * i + 3;
       if (i >= 3)
           Arr[i-1] = Arr[i] + 3;
   }
   ```

5. What value will be contained in `Arr[2]`?
   1) 3
   2) 5
   3) 7
   4) 9
   5) 10
   6) 11
   7) 12
   8) 14
   9) None of these

6. What value will be contained in `Arr[4]`?
   1) 3
   2) 5
   3) 7
   4) 9
   5) 10
   6) 11
   7) 12
   8) 14
   9) None of these
7. What is the output of the following program fragment?

```cpp
int Alpha[5] = {100, 200, 300, 400, 500};
int i;

for (i = 3; i >= 0; i--)
    cout << Alpha[i] << ' ';
```

1) 400 300 200 100  
2) 500 400 300 200 100  
3) 500 400 300 200  
4) 4 3 2 1  
5) It cannot be answered from the information given.  
6) None of these

8. Given a 5000-element integer array Beta[], which of the code fragments below could be used to print out the values of Beta[0], Beta[2], Beta[4], and so forth up to Beta[4998]?

1) for (int i = 0; i < 2500; i++)
   cout << Beta[2*i] << endl;

2) for (int i = 0; i < 5000; i++)
   cout << Beta[2*i] << endl;

3) for (int i = 0; i < 2500; i = i + 2)
   cout << Beta[i] << endl;

4) for (int i = 0; i < 5000; i = i + 2)
   cout << Beta[i] << endl;

5) 1 and 3 only  
6) 1 and 4 only  
7) 2 and 3 only  
8) 2 and 4 only  
9) None of these

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