Questions 1-5 are 4 points each.

Answer:

1. What is the first step in writing a program: a) test b) code c) design d) specification?
   **specification**

2. What value is assigned to x?
   ```cpp
   int x = int(double(17)/3 + 1/2);
   ```
   **5**

3. What does this print?
   ```cpp
   cout << string(8, 'x').substr(2, 1);
   ```
   **x**

4. What does this print?
   ```cpp
   cout << char('f' + 'B' - 'b');
   ```
   **F**

5. Suppose p is a `vector<int>::iterator`. What statement prints the object to which p points?
   **ANSWER:** `cout << *p;`

6. Suppose v is a `vector<int>` containing some numbers in the range 1 to 100. Write code to print the smallest even number in v, or print “none” if v does not contain any such number (20 pts).

   ```cpp
   // ANSWER
   int smallest = 101;
   for (int i=0; i<int(v.size()); ++i)
       if (v[i] < smallest && v[i] % 2 == 0)
           smallest = v[i];
   if (smallest == 101)
       cout << "none\n";
   else
       cout << smallest << endl;
   ```

7. Write a function `f(s)` that takes a string s and returns 0 if s contains at least one digit and 1 otherwise (20 pts).

   ```cpp
   // ANSWER
   int f(string s)
   {
     for (int i=0; i<int(s.size()); ++i)
       if (isdigit(s[i]))
         return 0;
     return 1;
   }
   ```

8. Write class Employee so that it works as in the example below (20 pts).

   ```cpp
   Employee x(25, "Joe", 60000), y(32, "Sam", 30000);
   x.print();    // prints “Joe’s age is 25 and salary is 60000”
   y.print();    // prints “Sam’s age is 32 and salary is 30000”
   ```

   ```cpp
   // ANSWER
   class Employee
   {
   public:
     Employee(int a, string n, int s);
     void print();
   private:
     string name;
     int age, salary;
   };
   ```
Employee::Employee(int a, string n, int s)
{
    name = n;
    age = a;
    salary = s;
}

void Employee::print()
{
    cout << name << "'s age is " << age << " and salary is " << salary
         << endl;
}

9. On the back, write a program to read in words (separated by white space) up to EOF, then print the first word containing 7 letters, for example (20 pts)

    this is another test
    ^Z
    another

    // ANSWER
#include <iostream>
#include <string>
using namespace std;

int main()
{
    string word;
    while (cin >> word)
    {
        if (int(word.size()) == 7)
        {
            cout << word << endl;
            break;
        }
    }
    return 0;
}