Questions 1-5 are 4 points each.

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

2. What value is assigned to x? int x = int(double(17)/6 + 1/2);  
   **2**

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

4. What does this print? cout << char('d' + 'E' - 'b');  
   **D**

5. Suppose p is a vector<int>::iterator. What statement assigns 1 to the object to which p points?  
   **ANSWER:** *p = 1;**

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

   // ANSWER  
   ```cpp
   int largest = 0;
   for (int i=0; i<int(v.size()); ++i)
       if (v[i] > largest && v[i] % 2 == 1)
           largest = v[i];
   if (largest > 0)
       cout << largest << endl;
   else
       cout << "none\n";
   ```

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

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

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

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

   // ANSWER  
   ```cpp
   class Employee
   {
   public:
       Employee(int s, int a, string n);
       void print();
   private:
       string name;
       int age, salary;
   };```
Employee::Employee(int s, int a, string n)
{
    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 starting with ‘a’, 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 (word[0] == 'a')
          {
              cout << word << endl;
              break;
          }
      }
      return 0;
  }
```