Questions 1-5 are 4 points each.
1. What is the first step in writing a program: a) specification b) test c) code d) design? **specification**
2. What value is assigned to x? `int x = int(double(15)/8 + 1/2);` **1**
3. What does this print? `cout << string(8, 'x').substr(3, 4);` **xxxx**
4. What does this print? `cout << char('e' + 'D' - 'd');` **E**
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 odd 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 == 1)
        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 1 if s contains at least one digit and 0 otherwise (20 pts).

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

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

```cpp
Employee x(60000, "Joe", 25), y(30000, "Sam", 32);
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 s, string n, int a);
    void print();
private:
    string name;
    int age, salary;
};
```
Employee::Employee(int s, string n, int a)
{
    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 last 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, lastword;
        while (cin >> word)
            if (word[0] == 'a')
                lastword = word;
        cout << lastword << endl;
        return 0;
    }