

Consider the following program:

```
#include<iostream>
using namespace std;
int function1(int);
int function2(int &);
int main(){
    int x, a, data;
    cin >> data;
    a = data;
    x = function1(a);
    cout << a << " " << x<< endl;
    a = data;
    x = function2(a);
    cout << a << " " << x<< endl;
}

int function1(int a){
    a = a + 1;
    return a;
}

int function2(int &b){
    b = b+1;
    return b;
}
```

What is printed if the user enters a 5?

Define the following:

- a) Pointer
- b) Pass-by-reference
- c) Pass-by-value
- d) Address
- e) Array
- f) Hexadecimal
- g) Binary
- h) Class
- i) Public
- j) Private

Write a function to reverse the values in an array of integers. The arguments to the function should be an array of integers and an integer giving the length of the array. The prototype for the function is:

```
void reverse(int [], int);
```

For example:

```
int a[5] = {1,2,3,9,7};
```

```
reverse(a,5);
```

```
// a is now {7,9,3,2,1}
```

Are the following true or false?

a) The following code fragment will print the number 10:

```
int x = 5;  
int *p;  
p = &x;  
*p = 10;  
cout << x;
```

b) The following code fragment will print the number 10:

```
int x = 5;  
int *p;  
p = &x;  
x = 10;  
cout << *p;
```

The following defines a part of a complex number class:

```
class complex {
public:
    void set(float,float);
    int print();
    complex(float,float);
    complex();
private:
    float realPart;
    float imaginaryPart;
    void square();
};
```

Answer the following questions regarding the complex class:

- a) What are the data members, if any?
- b) What are the constructors, if any?
- c) What are the public function members, if any?
- d) What are the private function members, if any?

Write the definition of the print function for the complex class that prints complex numbers in the form:

$$realPart + imaginaryParti$$

Where realPart and imaginaryPart are integer values from the object and + and i are the characters + and i.

Write a function to search an array of characters and *return the number of times a given character appears in the array*. The arguments to the function should be an array of characters, the size of the array, and the character to be found. The prototype of the function is:

```
int search(char [], int, char);
```

For *example* if the array contained the string: "This is a string" and the character to be found was an 'i' then the function should return a 3.

Convert numbers between hexadecimal, decimal, and binary.

Write a function to find the largest value in an array of integers.

Write a function to print a multiplication table.