

a)The code is explained as below:

1) `#include <iostream>` //provides proper definitions, includes "copy & paste" the content of a header file

2) `using namespace std;` //using the "std" namespace

3) `int main(int argc, char *argv[])` { // program entry point, required for every program "main"

4) `int p = myFunction(10);` //calls myFunction with value 10 and stores the value returned by the function in p

5) `cout << p << endl;` //prints the output of "p" on the terminal, defined by the namespace "std"
}

6) `double myFunction(int n)` { //defining myFunction with input parameter n, double before myFunction tells the return value should be of double type.

7) `unsigned int i = 0, j = 1, t, k;` //initializing i,j,t,k as unsigned int data type.

8) `for (k=0; k <= n; ++k){` //for loop runs 11 times from 0 to 10(value passed to function from main). for loop beginning at 0, while k is less than n, increasing by a value of k incrementally

9) `t = i + j;` //t stores sum of i and j in each run of the for loop
10) `i = j;` //value in i is swapped with value in j
11) `j = t;` //value in j is swapped with value in t
}

12) `return j;` //after the for loop value stored in j is returned to main function where the call was originated and stores the value in p.
}

This program first adds $i = 0$ and $j = 1$ and then makes i as current j value and j as the current t value then loops for 10 more times doing the same function.

The calculations are as bellow:

$$t = 0 + 1 \quad i = 1 \quad j = 1$$

$$t = 1 + 1 \quad i = 1 \quad j = 2$$

$$t = 1 + 2 \quad i = 2 \quad j = 3$$

$$t = 2 + 3 \quad i = 3 \quad j = 5$$

$$t = 3 + 5 \quad i = 5 \quad j = 8$$

$$t = 5 + 8 \quad i = 8 \quad j = 13$$

$$t = 8 + 13 \quad i = 13 \quad j = 21$$

$$t = 13 + 21 \quad i = 21 \quad j = 34$$

$$t = 21 + 34 \quad i = 34 \quad j = 55$$

$$t = 34 + 55 \quad i = 55 \quad j = 89$$

$$t = 55 + 89 \quad i = 89 \quad j = 144$$

with $x_0 = 0$, $x_1 = 1$ this program is doing $x_n = x_{n-1} + x_{n-2}$ which is the recurring function for Fibonacci series.

b) This code causes error while compiling as `myFunction` is used in main without declaration. The compiler takes the function as an undeclared function and fails at build.

c) The overall functionality is that this program computes the Fibonacci sequence, and stops at value of n passed to the function and outputs $n+2$ th Fibonacci number as 0 and 1 are already known. `myFunction` can be renamed as `Fibonacci`.

d)The value returned by p is 144

The correct code is:

```
#include <iostream>
```

```
using namespace std;
```

*/*issue with this problem is myFunction is not declared before the main function, hence the compiler interprets the function call to myFunction as undeclared function.*

```
*/
```

//fix to the code is declare the function before main.

```
double Fibonacci(int n);
```

```
//declaring myFunction
```

```
int main(int argc, char *argv[])
```

```
{
```

```
    int p = Fibonacci(10);           //calls myFunction with value 10 and  
stores the value returned by the function in p
```

```
    cout << p << endl;              //prints the value stored in p on terminal
```

```
}
```

```

double Fibonacci(int n) {           //defining myFunction

    unsigned int i = 0, j = 1, t, k; //initializing i,j,t,k

    for (k=0; k <= n; ++k)          //for loop runs 11 times from 0 to
10(value passed to function from main)

    {

        t = i + j;                  //t stores sum of i and j in each run of the
for loop

        i = j;                      //value in i is swapped with value in j

        j = t;                      //value in j is swapped with value in t

    }

    return j;

//after the for loop value stored in j is returned to main function where the call
was originated and stores the value in p.

}

```