

MCS 360 - Spring 2018 - Irene Tsapara

Exam 1

NAME: _____

Question 1)

Answer the following questions. No explanation is required.

- 1) The following code segment will produce an error:

```
int input = 123;  
double output = (double) input;
```

TRUE FALSE X

- 2) The following program will produce an error because we change the counter in a for loop:

```
#include <iostream>  
using namespace std;  
int main () {  
    // for loop execution  
    for( int a = 10; a < 20; a = a + 1 ) {  
        cout << "value of a: " << a << endl;  
        a++;  
    }  
    return 0; }
```

TRUE FALSE X

- 3) The ofstream, fstream and ifstream are all allow us to manipulate streams.

TRUE FALSE

- 4) The following declaration is not a valid declaration in C++:

```
int ****p;
```

TRUE FALSE X

Question 2):

Please provide the exact output of the following code:

```
#include <iostream>
using namespace std;
// Global variable declaration:
int g = 20;
int test2(){
    int f = 100;
    cout << g;
    cout << f;
}
int test(){
    int f = 19;
    test2();
    cout << g;
    cout << f;
    return 0;
}
int main () {
    // Local variable declaration:
    int g = 10;
    int f=8;
    test();
    cout << g;
    cout << f+g;
    return 0; }
```

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Question 3) If the address of p is: 0x7ffc67f6e6f0
And the address of I is 0x7ffc63874ed4

What is the output of the following code:

```
#include <iostream>
using namespace std;
int main () {
    int * p,q;
    int i=1;
    p=&i;
    cout << p <<'\n';
    cout << (*p)++ <<'\n';
    cout << *(p++) <<'\n';
    cout <<p <<'\n';
    q=++i;
    p=&q;
    cout <<i+q <<'\n';
    cout << *p+&q <<'\n';
    return 0;}
```

0x7ffc63874ed4_____
1_____
2_____
0x7ffc63874ed8_____
__6_____
__0x7ffc63874edc_____

Question 4) Write a function and the call command for the TwoMax function that given an array of integers of 20 values, it returns the max and the second max of the array.

The Max and the SecondMax are passed as arguments back to the program.

The definition of your array is the following:

```
void TwoMax( int * Max, int * SecondMax, int * ArrIntegers);
```

All variables used above are initialized in the main program that was given to you.

Question 5)

a) Write the code for a structure that is used to define a doubly linked list.

b) Create a Use case diagram for a class of Doubly Linked List, identifying all variables and at least 6 different methods.