

Exam I Review

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CS270– Computer Science II

Exam I

Closed Book, closed notes, no cellphone.

Study Resources

- Textbook (Chap 1.1-1.4).

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- Lecture Notes

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- Homework/Quiz

Main Topics

- Standard input/output

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- namespaces, variable scopes

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- Standard input/output
- namespaces, variable scopes
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- For loop/While loop
- Basic Data Types, Type Casting, Boolean Expression
- Function Declaration/Design, Function Definition, Pre/Post-Condition

Main Topics (Cont')

- Pointers, Reference Variables
- Arrays, Strings
- Dynamic Array, Dynamic Variables
- Structure, Typedef
- Call by Value/Reference

Practice Questions

Is `real` a valid C++ data type?

Practice Questions

Is `=` a valid operator to compare two numerical variables?

Practice Questions

Is `:=` a valid operator to compare two numerical variables?

Practice Questions

At the heart of a computer is its central processing unit (CPU). The CPU's job is:

- A) To fetch instructions
- B) To carry out the operations commanded by the instruction
- C) To produce some outcome or resultant information
- D) All of the above
- E) None of the above

Practice Questions

The purpose of a memory address is:

- A) To identify the location of a byte in memory
- B) To prevent multitasking
- C) To obtain an algorithm
- D) To improve the effectiveness of high-level languages
- E) None of the above

Practice Questions

What is (are) the error(s) of the following piece of code? and how can you fix it?

```
double* x;
```

```
x = 1.0;
```

Practice Questions

What is (are) the error(s) of the following piece of code? and how can you fix it?

```
double* dp[10];  
  
for (int i = 0; i<10; i++)  
{  
    dp[i] = 0.0;  
}
```

Practice Questions

```
double* dp[10];  
  
for (int i = 0; i<10; i++)  
{  
    dp[i] = new double;  
    *dp[i] = 0.0;  
}
```

Practice Questions

Write a piece of code that stores the integer number 123 as character array.

Practice Questions

Define/Implement the following function.

```
// precondition: n is a positive integer
// postcondition: return the sum of all integers from 1 to n.

int sumToN(int n)
{

}
```

Give a piece of client code to call the function.

Practice Questions

Write a C++ program that will print the following pattern

**

*

Practice Questions

Implement the following function.

```
//pre: start and end are two nonnegative integers.  
//post: return the sum of all integers  
//      between start and end.
```

```
// Example:  
// sum(9, 11), it returns 30 (=9+10+11);  
// sum(8, 5), it returns 26(=8+7+6+5);  
// sum(5, 5), it returns 5.
```

```
int sum(int start, int end){  
  
    // implement code here..  
  
}
```


Practice Questions

What are the errors? And how do you fix them? Suppose you corrected the errors, then what are the outputs?

```
#include<iostream>
using namespace std;
struct Date{
    int  year;
    int  month;
    int  day;
};
int main(){
    Date  myDate;
    Date *myDatePtr;
    myDate -> year = 2014;
    myDate -> month = 2;
    myDate -> day = 20;
    myDatePtr = &myDate;
    cout << myDatePtr -> year << endl;
    cout << myDatePtr -> month << endl;
    cout << myDatePtr -> day << endl;
    return 0;
```

Practice Questions

Define a structure named Student such that it contains 2 members: name of character array (size is 30), and id of integer.

Write a C++ program to declare 2 Students and initialize members for each Student.