

The American University in Cairo
Department of Computer Science & Engineering
CSCI 106-05&07

Dr. KHALIL	Quiz-II	Spring 2012
Last Name :		ID:
First Name:		Form – I

EXAMINATION INSTRUCTIONS

- * Do not turn this page until asked to do so.
- * Exam time is **40** minutes.
- * Put the answers on the same question sheet, do not use any additional papers, even for scratch.
- * Write your name, ID, section no. in the indicated places.
- * Read the exam instructions.
- * Read the honesty policy.
- * Sign the following statement.

Academic Integrity Policy

Cheating in Exams is a violation of the Academic Integrity policy of AUC. Whispering, talking, looking at someone else's paper, or copying from any source is considered cheating. Any one who does any of these actions or her/his answers indicates that she/he did any of them, will receive a punishment ranging from zero in this exam to failing the course. If repeated, it may lead to dismissal from AUC.

I have read the honesty policy and exam instructions and I am presenting this exam as entirely my effort.

Signature: _____

DO NOT USE THIS SECTION

Question	Points	Grade
1	10	
2	10	
3	10	
4	10	
5	20	
Total	60	

Question 1 (10 points)

Trace the following C++ program; i.e., show the effect of each numbered statement using the given table.

```
#include <iostream>
#include <cmath>
using namespace std;

void main () {
    float a = 3.5, b = 4.0, c = 2.5;           // statement 1
    int x = 5, y = 3.5, z, s, t;              // statement 2
    const int two = 2;                        // statement 3
    c = (x + y) / x * a;                      // statement 4
    z = y % x + sqrt(b) / two;                // statement 5

    if (x % y == 0)                           // statement 6
        s = (two * b + pow(x, y)) / (two * b) + 2.5; // statement 7
    else
        s = (two * b + pow(y, two)) / (two * b) + 3.75; // statement 8

    t = y / x * a + two * pow(two, y);        // statement 9

    cout << "z = " << z << endl;              // statement 10
    cout << "c = " << c << endl;              // statement 11
    cout << "s = " << s << endl;              // statement 12
    cout << "t = " << t << endl;              // statement 13
    cout << floor ((a + b + 0.35)*10 + 0.5)/10 << endl; // statement 14
}
```

Use the following table to trace the given program (i.e., to plot the value of different variables as instructions are executed one after the other and finally showing the output).

Statement Number	a	b	c	x	y	z	s	t
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								

Question 2 (10 points)

Draw the evaluation tree for the following expression:

$$r = (-b + 4 * a * c) / (2 * a)$$

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Question 3 (10 points)

Show the output of the following program:

Program	Output
<pre># include <iostream> using namespace std; void main() { int num = 307, d; const int ten = 10; d = num % ten; cout << "The new Number = " << d; num = num / ten; d = num % ten; cout << d; d = num / ten; cout << d << endl; }</pre>	

Question 4 (10 points)

Draw the FlowChart for the following program and show its final result:

Program	FlowChart
<pre># include <iostream> # include <string> using namespace std; void main() { int num = 3.5; string msg; if (num % two == 0) msg = "Even"; else msg = "Odd"; cout << "The number " << num << " is " << msg << endl; }</pre>	
Output:	

The volume of a pyramid is:

Where **A** is the area of the base and **h** is the height. Write a C++ program that asks the user to enter the necessary information about the pyramid, calculate the volume, and print the result rounded to the nearest hundredth. Display an error message if a zero or a negative value was entered for the area **A** or the height **h**..

The Analysis

[illegible]

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

This image shows a full page of a document template designed for handwriting practice. It consists of numerous thin, horizontal grey lines spaced evenly apart across the entire page. There are no margins, text, or other markings present.

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