

The American University in Cairo
Department of Computer Science & Engineering
CSCI 106-05&09

Dr. KHALIL	Exam-I	Fall 2009
Last Name :		ID:
First Name:	Form – I	Section No.:

EXAMINATION INSTRUCTIONS

- * Do not turn this page until asked to do so.
- * Exam time is **75** 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	20	
2	20	
3	10	
4	20	
5	30	
Total	100	

Question 1 (20 points)

Show the output of the following program:

Program	Output
<pre>#include <iostream> using namespace std; void main() { int num = 1101, d, s = 0; const int ten = 10; d = num % ten; s = s + d; num = num / ten; d = num % ten; s = s + 2 * d; num = num / ten; d = num % ten; s = s + 4 * d; d = num / ten; s = s + 8 * d; cout << "The final result is " << s << endl; }</pre>	

Question 3 (10 points)

Draw the evaluation tree for the following expressions:

$$r = (-b + \sqrt{\text{pow}(b, 2) - 4 * a * c}) / (2 * a)$$

[illegible]

Question 4 (20 points)

The following C++ program takes a positive integer number less than 16 and displays its equivalent binary value. There are some missings (represented by dots) in the given program. Complete these missings such that the program could be compiled and run correctly.

```
#include <iostream>
using namespace std;
void main ()
{
    // Declaration
    int num, d8, d4, d2, d1, rem;

    const int eight = 8;
    .....;

    const int two = 2;

    // Input
    cout << "Enter a positive integer lest than 16: " << endl;
    cin >> num;

    // Processing
    d8  = .....;
    rem = .....;
    d4  = .....;
    rem = .....;
    d2  = .....;
    d1  = .....;

    // Output
    cout << "The Equivalent Binary: " << ..... << ..... << ..... << ..... << endl; }
```

Question 5 (30 points)

In some computer applications, the birthdate of a person is represented as one integer number of six digits according to the format DDMMYY, where DD is the day, MM is the month, and YY is the year of birth. For example, the integer number 231189 is a birthdate of a person, where 23 is the day of his/her birth, 11 is the month, and 89 is the year. Write a C++ program that takes the birthdate of a person as one integer number of six digits according to the previous format and outputs the birthdate in the following format: **Month DD, YY**. For example, if the input is 231189, the output should be: **The birthdate is November 23, 89**

Be sure to use proper formatting and appropriate comments in your code. The output should be clearly labeled. Show the three phases of software development: the analysis, design (draw a Flow Chart), and implementation.

The Analysis

[illegible]

The Flow Chart

[illegible]

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