

The American University in Cairo
Department of Computer Science & Engineering
CSCE 106-07&09

Dr. KHALIL	Quiz-III	Fall 2011
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	15	
2	10	
3	15	
4	10	
Total	50	

question 1 (15 points)

Show the output of each of the following program segments:

<pre>int a = 5, b = 3, c = 7; if ((a > b) && (a > c)) cout << "the required number = " << a << endl; else if (b > c) cout << "The required number = " << b << endl; else cout << "The required number = " << c << endl;</pre>	
--	--

<pre>const int ten = 10; int d; int n = 204; d = n % ten; cout << d; n = n / ten; d = n % ten; cout << d; n = n / ten; cout << d << endl; cout << "done!!" << endl;</pre>	
--	--

<pre>float a = 2, b = 2, c = 1.5, x; int d = 4, e = 2.5, y, z; x = a * b - c + d / (e + 1); y = a * (b - c) + d / (e + 1); z = a * (b - (c + d - 0.5)) / e; cout << "x = " << x << endl; cout << " y = " << y << endl; cout << " z = " << z << endl;</pre>	
---	--

Question 2 (10 points)

Draw a Flowchart for the following C++ program.:

<pre>#include <iostream> #include <string> using namespace std; void main() { int num; string msg; cin >> num; if (num % 2 == 0) msg = "Even"; else msg = "Odd"; cout << msg << endl; }</pre>	The Flowchart
---	---

Write a C++ program that takes a positive integer number not less than **0** and not more than **999**. The program checks the number and prints the message **"One BIG digit"** if the number is composed of only one digit, the message **"Two BIG digits"** if it is composed of two digits and the message **"Three BIG digits"** otherwise. The program should display an error message if the entered number is out of range, then terminate.

The Analysis

.....

.....

.....

.....

.....

This image shows a full page of a document template designed for handwritten notes or essays. It features approximately 28 evenly spaced, thin grey horizontal lines extending across the entire width of the page. The margins are consistent on all sides, providing ample space for writing. There are no vertical lines, headers, footers, or other markings present on the page.

The Program

Dotted lines for writing.

Question 4 (10 points)

The following C++ program that computes and outputs volume of a cone and area of its base, given the diameter of its base and its height. The program should validate the user input to accept only values that are greater than 0 for both diameter and height and displaying an error message in case of violating these conditions. The formulas for computing the cone's base area and volume are:

Area of base = $\pi \times \text{radius}^2$

Volume of cone = $\frac{1}{3} \times \pi \times \text{radius}^2 \times \text{height}$

There are some missings (represented by dots) in the given program. Complete these missings such that the program could be compiled and run correctly.

The Program

```
#include <iostream>
using namespace std;
void main()
{
    float height, diameter, radius, area, volume;

    const ..... pie = 3.14;

    const ..... two = 2;

    cout << "Enter a value for the diameter : ";

    cin >> diameter;

    cout << "Enter a value for the height : ";

    cin >> height

    if (.....)

        cout << "Error, Invalid Input Values!!" << endl;

    else

        .....

        radius = diameter / .....;

        area = .....;

        volume = .....;

        cout << "The Area of Cone = " << ..... << endl;

        cout << "The Volume of Cone = " << ..... << endl;

        .....

}
```

Good Luck