

The American University in Cairo
Department of Computer Science & Engineering
CSCE 106-08

Dr. KHALIL	Quiz III	Spring 2010
Last Name :		ID:
First Name:		Form – I

EXAMINATION INSTRUCTIONS

- * Do not turn this page until asked to do so.
- * Exam time is **50** 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	10	
3	10	
4	20	
Total	60	

Question 1 (20 points)

At AUC, the academic standing of a student is determined based on the number of the credit hours that the student has achieved. The rules are as follows:

Number of Credit Hours (CrH)	Academic Standing
$\text{CrH} < 30$	Freshman
$30 \leq \text{CrH} < 60$	Sophomore
$60 \leq \text{CrH} < 90$	Junior
$90 \leq \text{CrH} < 120$	Senior
$120 \leq \text{CrH}$	Graduating Senior

Draw a flow chart and write a program in C++ to input the number of credit hours achieved by the student and print out his/her academic standing. **Show the three phases of software development: the analysis, design, and implementation. Implement your solution in C++ once using nested-if structure and second using switch structure.**
The program should validate the user input of the number of credit hours to be between 0 and 133 (inclusive).

The Analysis

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

The Flow Chart

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[illegible][illegible]

Question 2 (10 points)

1. Rewrite the Boolean expression eliminating the not (!) operator.

`! ( x > y )`

`! ( ( x < y ) || ( s >= t ) )`

2. What is the value of the following expressions:

`(x != x) && true`

`(x != 7) && (x == 7)`

`(y == 5) || true`

Question 3 (10 points)

Show the output of each of the following program segments:

```
int a = 5;
b = a++ / 2;
cout << setw(4) << a << setw(4) << b << endl;
```

```
for (int k=2; k < 12; k++)
    if ((k % 3) != 0)
        cout << setw(3) << k;
    cout << endl;
    cout << "k = " << k << endl;
```

```
int k = 5;
while ( k > 10 )
{
    if ((k % 2) == 0)
        cout << k << endl;
    k++;
}
cout << "Final Value of k = " << k << endl;
```

Question 4 (10 points)

Using only one variable, write a C++ for-loop to generate the following series:

1 4 16 64 256.

.....

.....

.....

.....

.....

.....

Question 5 (20 points)

Write a C++ program to enter **n** of readings of temperature of a day, compute and print out the average, maximum, and minimum temperatures of the day. The computer should validate the user input such that **n** should be greater than 0 and not more than 24 and each temperature reading to be between -5 and 42 (inclusive). Format the computed average temperature to the nearest integer value.

The Program

This image shows a full page of a document template. It consists of approximately 30 evenly spaced horizontal dotted lines across the entire width of the page, providing a guide for handwriting or typing. There are no margins, headers, footers, or other markings present.