



Dept. of Computer Engineering  
Second Exam, First Semester: 2013/2014

Course Title: Programming Language	Date: 29/12/2013
Course No: (630263)	Time Allowed: 50 minutes
Instructors: Dr. Ali Khawaldeh, Eng. Anis Nazer, Eng. Sultan Rushdan	No. of Pages: 3

Please Choose your section:

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Lecture time:  10:10 ح ث خ  13:10 ح ث خ  11:15 ن ر  14:15 ن ر

**Question 1:** (5 points)

Indicate whether the following statements is true or false

Statement	True/False
A "switch" statement must contain a default case.	false
Any "while" statement can be written using a "for" statement.	true
The body of the loop "for ( x = 3; x <= 15 ; x++ )" will be repeated 13 times	true
To display the fifth element in an array "a" we use cout<<a[5]<<endl;	false
To declare an integer array "p" of 100 elements, the programmer writes p[ 100 ];	false

**Question 2:** (4 points)

Answer the following questions

Task	Answer
a) Rewrite the following using a switch statement: <pre>if ( term == 1 )     cout &lt;&lt; "First semester" &lt;&lt; endl; else if ( term == 2 )     cout &lt;&lt; "Second semester" &lt;&lt; endl; else if ( term == 3 )     cout &lt;&lt; "Summer semester" &lt;&lt; endl; else     cout &lt;&lt; "Error" &lt;&lt; endl;</pre>	<pre>switch( term ) {     case 1:         cout &lt;&lt; "First semester" &lt;&lt; endl;         break;     case 2:         cout &lt;&lt; "Second semester" &lt;&lt; endl;         break;     case 3:         cout &lt;&lt; "Summer semester" &lt;&lt; endl;         break;     default:         cout &lt;&lt; "Error" &lt;&lt; endl; }</pre>
b) Indicate the error in the following code and rewrite the correct code: <pre>for ( int c=2; c &gt; 0 ; c++ )     cout &lt;&lt; "Hello" &lt;&lt; endl;</pre>	this is an infinte loop, corret code: <pre>for ( int c=2; c &gt; 0 ; c-- )     cout &lt;&lt; "Hello" &lt;&lt; endl;</pre>
c) write a loop to display the multiples of 3 that are between 5 and 35	<pre>for ( int c=6; c &lt;= 35 ; c += 3 )     cout &lt;&lt; c &lt;&lt; endl;</pre>

**Question 3:**

**(6 points)**

	Code	Output
a)	<pre>int count = 1; int y = 10; while (count &lt; 10) {     y = y - 1;     count++; } cout &lt;&lt; " y = " &lt;&lt; y &lt;&lt; " and count = " &lt;&lt; count &lt;&lt; endl;</pre>	y = 1 and count = 10
b)	<pre>int x = 4 , z=0; do {     z = z + 7;     cout &lt;&lt; z &lt;&lt; " "; } while (((z - x)% 3) != 0); cout &lt;&lt; endl;</pre>	7
c)	<pre>int r, c, s = 0; for ( r = 2 ; r &lt; 4 ; r++ ) {     for ( c = 1; c &lt; 3 ; c++ )     {         s = s + r + c;     } } cout &lt;&lt; s;</pre>	16
d)	<pre>int G[10] = { 9 , 3 , 1 , -2 , 7 , 4, -3 }; double S = 0; for ( int i=0; i &lt; 10 ; i+=2 )     S += G[ i ]; cout &lt;&lt; S;</pre>	14
e)	<pre>int x = 1; int y = 0; while ( y &lt;= 10 ) {     if ( x % 3 != 0 )         y = y + 3;     else         y = y - 2;      x++; } cout &lt;&lt; y;</pre>	11
f)	<pre>int Arr[5]; for (int i = 0; i &lt; 5; i++)     Arr[i] = 2 * i - 3;  for (int i = 4; i &gt;= 0; i--)     cout &lt;&lt; Arr[i] &lt;&lt; " ";  cout &lt;&lt; endl;</pre>	5 3 1 -1 -3

**Question 4:****(5 points)**

Write a program that reads 20 real numbers and stores them in an array, the program displays:

- the average of the numbers
- the following sum, where  $m$  is the average of the numbers and  $x_i$  is the number

$$S = \sum_{i=1}^{20} (x_i - m)^2 = (x_1 - m)^2 + (x_2 - m)^2 + \dots + (x_{20} - m)^2$$

```
#include <iostream>
using namespace std;
int main()
{
    double x[20];
    int i;
    double sum = 0, m;
    cout << "Enter 20 numbers: " << endl;

    // read the 20 numbers
    for ( i = 0 ; i < 20 ; i++ )
    {
        cin >> x[i] ;
    }

    // sum the 20 numbers
    for ( i = 0 ; i < 20 ; i++ )
    {
        sum += x[i];
    }

    // calculate the average
    m = sum / 20.0;

    sum = 0;
    // calculate the required sum
    for ( i = 0 ; i < 20 ; i++ )
    {
        sum += ( x[i] - m ) * ( x[i] - m ) ;
    }
    cout << "The average of the numbers is : " << m << endl;
    cout << "The S = : " << sum << endl;
    return 0;
}
```

GOOD LUCK