

**Programming Language (630263) First Exam**

**Student Name:** - ..... **ID:** - .....

**Instructor:**  Dr. nasser Halasa       Dr. Ali Khawaldeh       Eng. Sultan Al-Rushdan

**Lecture Time:**  11:10 حتم       13:10 حتم       15:10 حتم       9:45 نر       14:15 نر

**Question 1:** choose the correct answer for the following questions: **5 marks**

- 1- The value of the expression `17%3` is  
 A). 1      B). 2      C). 3      D). 4
- 2- Suppose that x and y are int variables which of the following is a valid input statement?  
 A). `cout<<x<<y;`      B). `cin>>x>>y;`      C). `cin>>x>> cin>>y`      D). `cin<<x<<y;`
- 3- Which of the following is a valid variable name.  
 A). `var_1`      B). `var 1`      C). `var!`      D). `1_var`
- 4- The output of the statement `cout<<pow(3.0,2.0)+5<<endl;`  
 A). 11.0      B). 12.0      C). 13.0      D). 14.0
- 5- Suppose that alpha and beta are int variables the statement `alpha=beta--` is equivalent to the statement(s)  

A). <code>alpha=beta;</code>	B). <code>beta=beta-1</code>
<code>beta=beta-1</code>	<code>alpha=beta</code>

  
 C). `alpha=beta-1`      D). `alpha=1-beta`

**Question 2:** Find the errors(logical or syntax) in the following codes the n correct them assume all required libraries are included **3 marks**

Code	Correction
<pre>void main {  int x_val=5 ; y_val=6;   cout&lt;&lt;x_val&lt;&lt;"  "&lt;&lt;y_val; }</pre>	<pre>void main() {  int x_val=5 , y_val=6;   cout&lt;&lt;x_val&lt;&lt;"  "&lt;&lt;y_val; }</pre>
<pre>void main() {  double a=3.5;   double b=1.5;   double c=a*b;   cout&lt;&lt;"c="&lt;&lt;c&lt;&lt;endl }</pre>	<pre>void main() {  int a=3;   int b=1;   int c=a*b;   cout&lt;&lt;"c="&lt;&lt;c&lt;&lt;endl; }</pre>
<pre>char c='a'; if(c='b')     cout&lt;&lt;"c="&lt;&lt;c&lt;&lt;endl;     cout&lt;&lt;"c is not a"&lt;&lt;endl; else     cout&lt;&lt;"c is a"&lt;&lt;endl;</pre>	<pre>char c='a'; if(c=='b'){     cout&lt;&lt;"c="&lt;&lt;c&lt;&lt;endl;     cout&lt;&lt;"c is not a"&lt;&lt;endl;} else     cout&lt;&lt;"c is a"&lt;&lt;endl;</pre>

**Question 3:** Perform the following tasks.

**2 marks**

Write if statement that perform the following equation $y = \begin{cases} x^2 + 7 & , x \leq -7 \text{ or } x = 0 \\ 3x - 5 & , \text{ otherwise} \end{cases}$	<pre>if(x&lt;=7    x==0)     y=pow(x,2)+7; else     y=3*y-5;</pre>
Write the instructions that declare and calculate find the average of three integer numbers	<pre>int x,y,z; cin&gt;&gt;x&gt;&gt;y&gt;&gt;z; float avg=static_cast&lt;float&gt;(x+y+z)/3;</pre>

**Question 4:** What is the output of the following codes:

**5 marks**

<pre>void main() {     int a = 500, b = 100, c;     if(!a &gt;= 400)         b = 300;     c = 200;     cout&lt;&lt;b&lt;&lt;"\n"&lt;&lt;c&lt;&lt;endl; }</pre>	100 200
<pre>void main() {     int k, num = 30;     if(num%2)         k = 200;     else         k = 300;     cout&lt;&lt;"k="&lt;&lt;k; }</pre>	k=300
<pre>void main() {     int x=4, y=7;     bool z;     z = x!=4    y == 2;     cout&lt;&lt;"z="&lt;&lt;z&lt;&lt;endl; }</pre>	z=0
<pre>void main() {     int x=4, y=7;     int z=x++*--y;     cout&lt;&lt;"x="&lt;&lt;x&lt;&lt;endl;     cout&lt;&lt;"y="&lt;&lt;y&lt;&lt;endl;     cout&lt;&lt;"z="&lt;&lt;z&lt;&lt;endl; }</pre>	x=5 y=6 z=24
<pre>void main() {     int x=8, y=7;     if(x!=8    y&lt;10)     {         cout&lt;&lt;"hello\n";         x=4;     }     if(x==4)         cout&lt;&lt;"hi\n"; }</pre>	hello hi

**Question 5:** Write a program that calculate the value of Z according to the following equation

$$Z = R^2 + \left(\omega L - \frac{1}{\omega C}\right)^2$$

The program should display Error message if the user enter a negative value for R or L or C or  $\omega$ . Use the appropriate data types for your variables. **5 marks**

```
#include<iostream>
#include<cmath>
using namespace std;
void main()
{
    float R,L,C,W,Z;
    cout<<"R=";
    cin>>R;
    cout<<"C=";
    cin>>C;
    cout<<"L=";
    cin>>L;
    cout<<"W=";
    cin>>W;

    if(R<0||L<0||C<0||W<0)
        cout<<"Error: the Values of R, L, C, W must not be negative\n";
    else
    {
        Z=pow(R,2)+pow((W*L+1/(W*C)),2);
        cout<<"Z="<<Z<<endl;
    }
}
```