

9. After the following statements execute, what are the contents of matrix?

```
int matrix[3][2];
int j, k;
for (j = 0; j < 3; j++)
    for (k = 0; k < 2; k++)
        matrix[j][k] = j + k;
```

a. 0 0 1 1 2 2	b. 0 1 2 3 4 5	c. 0 1 1 2 2 3	d. 1 1 2 2 3 3
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10. Which of the following is a valid C++ function definition?

a. <code>void funcTest(int& u, double& v) {cout << u << " " << v << endl;}</code>	b. <code>void funcTest(int& u, double& v); {cout << u << " " << v << endl;}</code>
c. <code>void funcTest(int& u, double& v) (cout << u << " " << v << endl)</code>	d. <code>void funcTest(int& u, double& v) [cout << u << " " << v << endl;]</code>

Question 2: find the error(s) (logical or syntax) in the following codes and correct them.

Code	Correction
<pre>float calc_avg(int x,int y,int z); { int sum=x+y+z; return static_cast<float>(sum)/3; } void main() { float a,b,c,s; cin>>a>>b>>c; s=calc_avg(a,b,c); cout<<s<<endl; }</pre>	<pre>float calc_avg(int x,int y,int z) { int sum=x+y+z; return static_cast<float>(sum)/3; } void main() { int a,b,c; float s; cin>>a>>b>>c; s=calc_avg(a,b,c); cout<<s<<endl; }</pre>
<pre>void main() { int A[3]={3,5,9,1}; for(i=0;i<3;i++) cout<<A[i]<<endl; }</pre>	<pre>void main() { int A[3]={3,5,9}; for(int i=0;i<3;i++) cout<<A[i]<<endl; }</pre>
<pre>void display(int A,int s) { for(int i=0;i<=s;i++) cout<<A[i]<<endl; } void main() { int A[5]={3,5,9}; display(A,5); }</pre>	<pre>void display(int A[],int s) { for(int i=0;i<s;i++) cout<<A[i]<<endl; } void main() { int A[5]={3,5,9}; display(A,5); }</pre>
<pre>float x=2.7; bool b=true; while(b=true) { x/=2; if(x<0.5) b=false; }</pre>	<pre>float x=2.7; bool b=true; while(b==true) { x/=2; if(x<0.5) b=false; }</pre>
<pre>char c='f'; switch(c); { case A: cout<<"hello"; break; case B: cout<<"hi"; break; default: cout<<"bay"; }</pre>	<pre>char c='f'; switch(c) { case 'A': cout<<"hello"; break; case 'B': cout<<"hi"; break; default: cout<<"bay"; }</pre>

Question 3: what is the output of the followings?

Code	Output
<pre>int x=13,y=5; float a=1.2; cout<<x/y<<endl; cout<<x%y*a<<endl;</pre>	<p>2 3.6</p>
<pre>int x=6,y=4,c=2; cout<<x+y/c<<endl; cout<<x/y-c<<endl;</pre>	<p>8 -1</p>
<pre>char ch='b'; int a=6; if(ch>'B' a==5) cout<<1111<<endl; else cout<<2222<<endl; if(ch<'a' && a==6) cout<<3333<<endl; else cout<<4444<<endl;</pre>	<p>1111 4444</p>
<pre>int x=5,y; if(x<=5) { y=10; x=-10; } if(x<=0) { y=15; x=-15; } cout<<x<<endl; cout<<y<<endl;</pre>	<p>-15 15</p>
<pre>int a=17,b=0; char c; switch(a%4) { case 0: c='A'; b++; case 1: c='B'; b++; case 2: c='C'; b++; case 3: c='D'; b++; } cout<<c<<endl; cout<<b<<endl;</pre>	<p>D 3</p>
<pre>int i,j; for(i=7,j=10;i+j<20;i++,j++) cout <<(i+j)<<endl;</pre>	<p>17 19</p>
<pre>for(int i=0;i<2;i++) { for(int j=3;j>1;j--) { if(i+j==3) { cout<<i+j<<endl; break; } } }</pre>	<p>3 3</p>

<pre>int z=0,a=0; while(a<5) z+=++a; cout<<z<<endl; cout<<a<<endl;</pre>	<p>15 5</p>
<pre>int z=3,a=9; while(a<13) { cout<<a%z<<endl; a+=2; z+=3; }</pre>	<p>0 5</p>
<pre>float x=0.5,sum=0; do { sum+=x; x*=3; }while(x<0); cout<<sum<<endl; cout<<x<<endl;</pre>	<p>0.5 1.5</p>
<pre>float Arr[6]={-3.6,2.5,6.8,9,-3,5.9}; for(int i=0;i<6;i++) if(Arr[i]<0) cout<<i<<endl;</pre>	<p>0 4</p>
<pre>int M[3][4]={{6,0,3,9},{4,5},{3}}; for(int i=0;i<6;i++) { for(int j=0;j<=i;j++) cout<<M[i][j]<<"\t"; cout<<endl; }</pre>	<p>6 4 5 3 0 0</p>
<pre>int test(int n) { if(n==0) return 1; else return 2*test(n-1); } void main() { cout<<test(2)<<endl; cout<<test(5)<<endl; }</pre>	<p>4 32</p>
<pre>int c=0; bool f1(int x) { c++; if(x>3&&x<6) return true; else return false; } void main() { int i=1,s=0; while(i<10) { if(f1(i)) s=s+1; i++; } cout<<c<<"\n"<<s<<endl; }</pre>	<p>9 2</p>
<pre>int f1(int x) { static int c=0; c++; return x*c; } void main() { int c=2; while(c<4) { cout<<f1(c)<<endl; c++; } }</pre>	<p>2 6</p>

Question 4: Write a program that perform the following tasks:

- 1- Define a real variable x and integer variable n and enter these values by user
- 2- Define a function called calc that accept the real value x and integer value n then calculate the real value y where y is:

$$y = \sum_{i=0}^n x^i$$

Then return the value y.

- 3- Display the result on screen.

```
#include<iostream>
#include<cmath>
using namespace std;

double calc(double x,int n)
{
    double y=0.0;
    for(int i=0;i<=n;i++)
        y+=pow(x,i);
    return y;
}
void main()
{
    double x,result;
    int n;
    cout<<"Enter the values of x and n\n";
    cout<<"x=";
    cin>>x;
    cout<<"n=";
    cin>>n;
    result=calc(x,n);
    cout<<"result="<<result<<endl;
}
```

Question 5: Write a program that perform the following tasks:

- 1- define an array A of 15 integer elements.
- 2- ask the user to enter the elements of the array A using function called Enter which has the following prototype.

```
void Enter(int A[],int s);
```

- 3- Define an array B of 15 integer elements.
- 4- Calculate the factorial of each element in the first array(A) using function called Fact which has the following prototype

```
int Fact(int n);
```

and store the factorial value in the corresponding element in the second array (B).

- 5- Display Array B on the screen.

```
#include<iostream>
#include<cmath>
using namespace std;

void Enter(int A[],int s)
{
    cout<<"enter array A:\n";
    for(int i=0;i<s;i++)
    {
        cout<<"A["<<i<<"]="";
        cin>>A[i];
    }
}

int Fact(int n)
{
    int f=1;
    for(int i=1;i<=n;i++)
        f*=i;
    return f;
}

void main()
{
    const int size=15;
    int A[size],B[size];

    Enter(A,size);
    for(int i=0;i<size;i++)
        B[i]=Fact(A[i]);

    for(int i=0;i<size;i++)
        cout<<B[i]<<endl;
}
```