


Philadelphia University Faculty of Engineering Department of Computer Engineering		Date:- 25/01/2017 Allowed time:- 2 Hours
Programming Language (630263) Final Exam		
Student Name: - ID: -		
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Lecture Time: <input type="checkbox"/> ح ١١:١٠ – ١٢:٠٠ <input type="checkbox"/> ح ١٣:١٠ – ١٤:٠٠ <input type="checkbox"/> ح ١٥:١٠ – ١٦:٠٠		
	<input type="checkbox"/> ٠٩:٤٥ – ١١:١٥	<input type="checkbox"/> ١٤:١٥ – ١٥:٤٥

Question 1: Choose the correct answers for the followings: **10 points**

- What is the output of the following C++ code?


```

num = 10;
while (num > 10)
    num = num - 2;
cout << num << endl;
      
```

a. 0 b. 6 c. 8 d. 10

- which parameters are useful when you want to return more than one value from a function.

a. Default b. Value c. Reference d. Automatic

- _____ a function refers to the creation of several functions with the same name.

a. Redefining b. Overnaming c. Overlapping d. Overloading

- Given the following function


```

int next(int x)
{
    return (x + 1);
}
      
```

 what is the output of the following statement?


```

cout << next(next(3)) << endl;
      
```

a. 5 b. 6 c. 7 d. 8

- What is the output of the following C++ code?


```

int alpha = 15, beta = 10;
alpha = alpha + 5;
{
    int alpha = 10;
    beta = beta + 15;
}
cout << alpha << " " << beta << endl;
      
```

a. 10 10 b. 20 25 c. 10 15 d. 15 20

- Suppose that you have the following function.


```

void mystery(int& one, int two)
{
    int temp
    temp = one;
    one = two;
    two = temp;
}
      
```

 What are the values of x and y after the following statements? (Assume that variables are properly declared.)


```

x = 10;      y = 15;
mystery(x, y);
      
```

a. x = 10; y = 10 b. x = 10; y = 15 c. x = 15; y = 10 d. x = 15; y = 15

- Suppose that sales is an array of 50 components of type double. Which of the following correctly initializes the array sales?

a. for (int i = 1; i < 49; i++)
 sales[i] = 0;

b. for (int j = 1; j <= 49; j++)
 sales[j] = 0;

c. for (int j = 0; j < 50; j++)
 sales[j] = 0.0;

d. for (int j = 0; j <= 50; j++)
 sales[j] = 0.0;

- Assume you have three int variables: x = 2, y = 6, and z. Choose the value of z in the following expression:


```

z = (y / x > 0) ? x : y;
      
```

a. 2 b. 4 c. 3 d. 6

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 |
|----------------------|----------------------|----------------------|----------------------|

10. Which of the following is a valid C++ function definition?

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

Question 2: find the error(s) (logical or syntax) in the following codes and correct them. **5 point**

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>void main() { int A[3]={3,5,9,1}; for(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>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<<"bye"; }</pre>	

Question 3: what is the output of the followings?

15 points

Code	Output
<pre>int x=13,y=5; float a=1.2; cout<<x/y<<endl; cout<<x*y*a<<endl;</pre>	
<pre>int x=6,y=4,c=2; cout<<x+y/c<<endl; cout<<x/y-c<<endl;</pre>	
<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>	
<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>	
<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>	
<pre>int i,j; for(i=7,j=10;i+j<20;i++,j++) cout <<(i+j)<<endl;</pre>	
<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>	

<pre>int z=0,a=0; while(a<5) z+=++a; cout<<z<<endl; cout<<a<<endl;</pre>	
<pre>int z=3,a=9; while(a<13) { cout<<a%z<<endl; a+=2; z+=3; }</pre>	
<pre>float x=0.5,sum=0; do { sum+=x; x*=3; }while(x<0); cout<<sum<<endl; cout<<x<<endl;</pre>	
<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>	
<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>	
<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>	
<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>	
<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>	

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

5 points

- 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.

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

5 points

- 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.