★★★★ 答题一律做在答题纸上，做在试卷上无效。 ★★★★

一、阅读下列程序，写出运行结果(共 5 题，每小题 9 分，共 45 分)

1.

```
#include<iostream>
using namespace std;
int a[8]={1,2,3,4,5,6,7};
void fun(int *pa,int n);
int main( ){
  int m=8;
  fun(a,m);
  cout<<a[7]<<endl;
  return 0;
}
void fun(int *pa,int n)
{   for(int j=0;j<n-1;j++)
      *(pa+7)+= *(pa+j);
}
```

2.

```
#include<iostream>
using namespace std;
class A{
public:
  A (int  i, int j )
  {
    a=i; b=j;
  }
```

```
    void Move(int x,int y) {
      a+=x; b+=y;
    }
    void Show(){
      cout<<"("<<a<<","<<b<<")"<<endl;  }
private:
    int a, b;
};

class B: public A{
public:
    B(int i, int j, int k , int l): A(i,j),x(k),y(l){}
    void Show(){cout<<x<<","<<y<<endl;}
    void F1(){Move(3,5);  A::Show();}
private:
    int x,y;
};

void main(){
    A a(1,2);
    a.Show();
    B b(3,4,5,6);
    b.A::Show();
    b.B::Show();
    b.F1();
}
```

3.

```
#include <iostream.h>
#include "math.h"
class Point
{
private:
    double X,Y;
public:
    Point(double xx=0, double yy=0)
```

```
    {   X=xx;   Y=yy;
        cout<<"Point("<<X<<","<<Y<<")"<<endl;
    }
    Point(Point &p)
    {   X=p.X;  Y=p.Y;
        cout<<"Point is copied."<<endl;
    }
    double Distance (Point &p);
};
double Point::Distance (Point &p)
{   double dx,dy;
    dx = X - p.X;
    dy = Y - p.Y;
    return sqrt( dx*dx + dy*dy );
}
Point f(double x, double y)
{   Point p(x,y);
    return p;
}
void main()
{   Point A(0,0);
    Point &B = f(3,4);
    cout << "Distance is "<<A.Distance( B ) << endl;
}
```

4.

```
#include <iostream>
using namespace std;
class A
{
public:
    A(){}
    A(const A &)
    {   cout << "A::A(const A &)" << endl;  }
    A & operator = (const A &)
    {   cout << "A::operator =" << endl;    return *this;   }
```

```
};
int main()
{
    A a;
    A b = a;
    b = b;
    return 0;
}
```

5.

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

class Sample{
    int A;
    static int B;
public:
    Sample(int a):A=a,B+=a;}
    static void func(Sample& s);
};
int Sample::B=0;
void Sample::func(Sample& s){
    cout<<" A=" <<s.A<<" ,B=" <<B<<endl;
}
int main(){
    Sample s1(2),s2(7);
    Sample::func(s1);
    Sample::func(s2);
}
```

二、程序改错题(共 5 题，每小题 6 分，共 30 分)

1.

```
#include<iostream>
using namespace std;
f(int *a[],int *b[],int n){
  int s=0;
```

```
    for(int i=0;i<n;i++)
      s+=a[i]*b[i];
    return s;
}

void main()
{
   double  c[4]={1.1,2.2,3.3,4.4},d[4]={10,  0,100,  0};
   cout<<f(c,d,4)<<endl;
 }
```

2.

```
#include<iostream>
using namespace std;
  class AA {
  public :
    AA (int i, int j) {
      A = i; B = j;
      cout << "Constructor.\n" ;
    }
~AA () {
      cout <<" Destructor.\n" ;
    }
    void Print ();
private :
    int A=0, B=0;
};
void AA::Print ()
{
    cout <<A<<" ," <<B<<endl;
}
void main ()
{
    AA  *a1, *a2;
    a1 = new AA (1,2);
    a2 = new AA (3, 4);
```

```
    a1.Print ();
    a2.Print ();
    delete  a1;
    delete  a2;
}
```

3.

```
#include <iostream>
using namespace std;
void f(char p)
{
    p ++;
    char &c = *p;
    c += 'A' - 'a';
}
void main()
{
    char str[] = "abcde";
    f(str + 3);
    cout << str << endl;
    return 0;
}
```

4.

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

class local
{
    int x,y;
    int printY(cout<<y;)
    public:
      void init(){x=0;y=1}
      int printX(){cout<<x;}
}
void main(void)
```

```
{
  local a,b,c;
  a.init();
  a.printX();
  b.printY();
}
```

5.

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

class Base
{
public:
        Base(){}
        Base(int c):count(c){}
        virtual void print() const=0;
private:
        int count;
};

class Derived:public Base
{
public:
       Derived():Base(0){}
       Derived(int c):Base(c){}
       void print() const {cout<<"Derived"<<endl;}
};

void main()
{
      Derived d(10);
       Base dd(1);
       Base *pb;
       pb=&d;
       pb->print();
```

```
        Base &cb=d;
        Derived ddd=*pb;
}
```

三、编程题（共 2 题，第 1 题 30 分，第 2 题 45 分，共 75 分）

1．设计一个时间类 Time，包括 3 个数据成员，时(h)，分(m)和秒(s)，另外包括存取各个数据成员和设置时间的成员函数，按 12 小时输出时间设计成员函数 disp12，以及默认构造函数，默认时间为 0 时 0 分 0 秒。运行结果按如下格式输出。

main 函数部分代码和运行输出如下所示：

```
int main()
{
    Time t1(13,45,12), t2(9,30,50);
    t1.disp12();
    t2.disp12();
}
```

运行结果为：

```
01:45:12PM
09:30:50AM
```

2. 编写一个按照平均分对学生进行排名的程序。

输入数据放在名为 abc.txt 的文件中，学生数量<=100。输出是按学生成绩平均分递减排好序的学生序号和名字，每个学生占一行。输入和输出格式如下：

输入格式：

<学生个数> <课程数目>

<学生姓名> <课程 1 成绩> <课程 2 成绩>... <课程 n 成绩>

...

输出格式：

<名次> <学生姓名>

...

例如输入：

```
2 3
smith  60 50 80
frank  80 60 70
```

输出：

```
1 frank
2 smith
```