

C 语言程序设计习题参考答案

第 1 章：C 语言程序设计概述

一：填空题

1. Main
2. 函数说明 函数体
3. 函数
4. 编辑源程序文件(.c 或.cpp)、编译生成目标文件(.obj)、连接生成可执行文件(.exe)、执行。
5. .c 或.cpp .obj .exe
6. ;

二：思考题

1-4 略

5、程序源代码如下：

```
#include <stdio.h>                    /* 包含标准库的信息 */  
  
int main(void)                        /* 定义名为 main 的函数，它不接受参数值 */  
{                                      /* main 函数的语句都被括在花括号中 */  
printf("This is My First Program! \n");  
  
printf("I am a student! \n");  
  
/* main 函数调用库函数 printf 以显示字符序列，其中\n 代表换行符 */  
  
return 0;
```

}

6、 略

第 2 章：简单的 C 程序设计

一：填空题

1. 控制语句 表达式语句 复合语句

2. ;

3. {}

4. 1

5. a

6. c:dec=120,oct=170,hex=78,ASCII=x

7. 32767, 32767

8. 10,A,10

9. 3 3

10.

(1) 123.456001

(2) 123.456

(3) 123.4560

(4) 8765.456700

(5) 8765.457

(6) 8765.4567

(7) 8765.4567

二：思考题

1.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int a=3,b=4,c=5;
```

```
    double x=1.2,y=2.4,z=-3.6;
```

```
    int u=51247,n=128765;
```

```
    char c1='a',c2='b';
```

```
    printf("a= %d  b= %d  c= %d\n",a,b,c);
```

```
    printf("x=%.6lf,y=%.6lf,z=%.6lf\n",x,y,z);
```

```
    printf("x+y= %.2lf  y+z=%.2lf  z+x=%.2lf\n",x+y,y+z,z+x);
```

```
    printf("u= %d  n=  %d\n",u,n);
```

```
    printf("c1=\'%c\' or %d(ASCII)\n",c1,c1);
```

```
    printf("c2=\'%c\' or %d(ASCII)\n",c2,c2);
```

```
    return 0;
```

```
}
```

2.

```
#include <stdio.h>
```

```
int main(void)
```

```
{  
    int a,b,c;  
    printf("请输入三个数 a,b,c:");  
    scanf("%d%d%d",&a,&b,&c);  
    printf("average of %d、 %d and %d is %.2f\n",a,b,c,(a+b+c)/3.0);  
    return 0;  
}
```

3.

```
#include <stdio.h>  
  
#define PI 3.1415926  
  
int main(void)  
{  
    double r;  
    printf("please input radius of a circle:");  
    scanf("%lf",&r);  
    printf("Perimeter is %.2f\n",2*PI*r);  
    printf("Area is %.2f\n",PI*r*r);  
    return 0;  
}
```

4.

```
#include <stdio.h>  
  
int main(void)
```

```
{  
    char ch;  
    ch=getchar();  
    printf("%c\n",ch-32);  
    return 0;  
}
```

5.

```
#include <stdio.h>  
  
int main(void)  
{  
    int n,a,b,c;  
    printf("Please enter a three digit number:");  
    scanf("%d",&n);  
    a=n%10;  
    b=(n/10)%10;  
    c=n/100;  
    printf("result: %d%d%d\n",a,b,c);  
    return 0;  
}
```

6.

```
#include <stdio.h>  
  
#include <math.h>
```

```
int main(void)
{
    double a,b,c,s,area;

    printf("Please enter the length of three sides of a triangle:");

    scanf("%lf%lf%lf",&a,&b,&c);

    s=(a+b+c)/2;

    area=sqrt(s*(s-a)*(s-b)*(s-c));

    printf("Area is %.2lf\n",area);

    return 0;
}
```

7.

```
#include <stdio.h>

#include <math.h>

int main(void)
{
    double price,discount;

    printf("Please enter price and discount:");

    scanf("%lf%lf",&price,&discount);

    printf("actual price is %.2lf",price*(1-discount));

    return 0;
}
```

第 3 章：选择（分支）结构程序设计

一：填空题

1. $y\%2==0$ 或 $y\&1==0$;
2. 1
3. $(a+b)>c\&\&(a+c)>b\&\&(b+c)>a$;
4. 2 3 3
5. 7

二：思考题

1.

```
#include <stdio.h>

int main(void)
{
    int n;

    printf("Please input a number:");

    scanf("%d",&n);

    if(n%5==0&& n%7==0)
        printf("yes\n");

    else
        printf("no\n");

    return 0;
}
```

2.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int a,b,c,maxv;
```

```
    printf("Please enter three numbers:");
```

```
    scanf("%d%d%d",&a,&b,&c);
```

```
    if(a>=b)
```

```
    {
```

```
        if(a>=c)
```

```
            maxv=a;
```

```
        else
```

```
            maxv=c;
```

```
    }
```

```
    else
```

```
    {
```

```
        if(b>=c)
```

```
            maxv=b;
```

```
        else
```

```
            maxv=c;
```

```
    }
```

```
    printf("max number is %d\n",maxv);
```



```
        return 0;
    }
3.
#include <stdio.h>
int main(void)
{
    int x,y;

    printf("please enter x:");
    scanf("%d",&x);
    if(x<1)
        y=x;
    else if(x<10)
        y=2*x-1;
    else
        y=3*x-11;
    printf("result is %d\n",y);
    return 0;
}
```

4.

```
#include <stdio.h>
int main(void)
{
```

```

int capital,year;

printf("Please enter capital and year:");

scanf("%d%d",&capital,&year);

double interest;

switch(year)
{
    case 1:interest=capital*year*0.00315;break;

    case 2:interest=capital*year*0.0033;break;

    case 3:interest=capital*year*0.00345;break;

    case 5:interest=capital*year*0.00375;break;

    case 8:interest=capital*year*0.0042;break;

}

printf("sum of capital and interest is %.2lf\n",capital+interest);

return 0;

}

```

5.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    double w,h,par;
```

```
    printf("please enter h(m) and w(kg):");
```

```
    scanf("%lf%lf",&h,&w);
```

```
par=w/(h*h);  
if(par<18)  
    printf("低体重\n");  
else if(par<25)  
    printf("体重正常\n");  
else if(par<27)  
    printf("超重体重\n");  
else  
    printf("体重肥胖\n");  
return 0;  
}
```

6.

```
#include <stdio.h>  
  
int main(void)  
{  
    double fah,mah,h;  
    int sex,pe,diet;  
    printf("请输入孩子的性别(1:男, 0:女): ");  
    scanf("%d",&sex);  
    printf("请输入父亲和母亲的身高(单位:cm):");  
    scanf("%lf%lf",&fah,&mah);  
    printf("是否喜爱体育运动(1:喜爱,0:不喜爱):");
```

```

scanf("%d",&pe);

printf("是否有好的饮食习惯(1:有, 0:没有):");

scanf("%d",&diet);

if(sex==1)
    h=(fah+mah)*0.54;

else
    h=(fah*0.923+mah)/2;

double inc=0;

if(pe==1)
    inc=h*0.02;

if(diet==1)
    inc+=h*0.015;

h+=inc;

printf("预测身高:%.1f\n",h);

return 0;
}

```

7.略

8.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int cnt=0,sum=0,score,maxv=-10000000;
```

```

printf("请输入某班某科目的成绩, 当输入成绩为负数时结束\n");
while(1)
{
    scanf("%d",&score);
    if(score<0)
        break;
    if(maxv<score)
        maxv=score;
    cnt++;
    sum+=score;
}
printf(" 平均分 :%.2lf\n 实际输入的学生人数 :%d\n 最高
分:%d\n",(double)sum/cnt,cnt,maxv);
return 0;
}

```

第 4 章：循环结构程序设计

一：思考题

1. $i < 10$ $j \% 3 \neq 0$
2. 7
3. $ch++$ $printf("\n")$

二：思考题

1.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int f1=1,f2=1,f3=2,f4=3;
```

```
    for(int i=1;i<=10;i++)
```

```
    {
```

```
        printf("%d %d %d %d\n",f1,f2,f3,f4);
```

```
        f1=f3+f4;
```

```
        f2=f1+f4;
```

```
        f3=f2+f1;
```

```
        f4=f3+f2;
```

```
    }
```

```
    return 0;
```

```
}
```

2.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int res=1;
```

```
    for(int i=2;i<=10;i+=2)
```

```
        res=res*i;
    printf("%d\n",res);
    return 0;
}
```

3.

```
#include <stdio.h>
int main(void)
{
    char ch;
    int cnt=0;
    while(1)
    {
        ch=getchar();
        if(ch=='\n')
            break;
        if((ch>='a'&&ch<='z')||(ch>='A'&&ch<='Z'))
            cnt++;
    }
    printf("字母个数:%d\n",cnt);
    return 0;
}
```

4.

```
#include <stdio.h>

int main(void)
{
    int n,m;

    printf("please input n,m:");

    scanf("%d%d",&n,&m);

    int r,a=n,b=m;

    while((r=a%b))
    {
        a=b;
        b=r;
    }

    r=b;

    printf("%d,%d 的最大公约数为:%d,最小公倍数为:%d\n",n,m,r,n*m/r);

    return 0;
}
```

5.

```
#include <stdio.h>

int main(void)
{
    int cnt=2,day=1;

    while(cnt<=100)
```



```
{  
    cnt*=2;  
    day++;  
}  
printf("平均每天花 %.1lf 元\n",cnt/2*0.8/day);  
return 0;  
}
```

6.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int cnt=0;
```

```
    for(int a=0;a<=100;a++)
```

```
        for(int b=0;b<=50;b++)
```

```
            for(int c=0;c<=20;c++)
```

```
                if(a+2*b+5*c==100)
```

```
                {
```

```
                    cnt++;
```

```
                    printf("1分:%d个,2分:%d个,5分:%d个\n",a,b,c);
```

```
                }
```

```
    printf("总共有%d种方法\n",cnt);
```

```
    return 0;
```

```
}
```

7.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int n;
```

```
    printf("please enter n:");
```

```
    scanf("%d",&n);
```

```
    for(int i=1;i<=n;i++)
```

```
    {
```

```
        for(int j=1;j<=n-i;j++)
```

```
            printf(" ");
```

```
        for(int j=1;j<=2*i-1;j++)
```

```
            printf("*");
```

```
        printf("\n");
```

```
    }
```

```
    return 0;
```

```
}
```

8.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```

int score,aver;
for(int i=1;i<=6;i++)
{
    printf("请输入第%d 个同学的五门成绩:",i);
    for(int j=1;j<=5;j++)
    {
        scanf("%d",&score);
        aver+=score;
    }
    printf("第%d 个同学的成绩为 %.1lf\n\n",i,(double)aver/5);
}
return 0;
}

```

9.

```

#include <stdio.h>
int main(void)
{
    int n,m;
    n=2;m=1;
    double ans=(double)n/m;
    for(int i=1;i<=19;i++)
    {

```

```

    int t=n;

    n+=m;

    m=t;

    ans+=(double)n/m;

}

printf("sum = %.1lf\n",ans);

return 0;

}

```

10.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int cnt=0,a,b,c;
```

```
    for(int a=0;a<=20;a++)
```

```
        for(int b=0;b<=33;b++)
```

```
            for(int c=0;c<=300;c++)
```

```
                if(a*5+b*3+c/3==100&&c%3==0)
```

```
                    {
```

```
                        cnt++;
```

```
                        printf("鸡翁:%4d    鸡母: %4d    鸡雏: %4d\n",a,b,c);
```

```
                    }
```

```
    printf("\n 总共有%d 种方案\n",cnt);
```

```

        return 0;
    }
11.
#include <stdio.h>
int main(void)
{
    int year,month,day;

    printf("please enter year ,month, day:");
    scanf("%d%d%d",&year,&month,&day);

    int sum=0;
    for(int i=1990;i<year;i++)
    {
        if((i%4==0&& i%100!=0)|| (i%400==0))
            sum+=366;
        else
            sum+=365;
    }
    for(int i=1;i<month;i++)
    {
        switch(i)
        {
            case 1:case 3:case 5:case 7:case 8:case 10:sum+=31;break;

```

```

        case 4:case 6:case 9:case 11:sum+=30;break;
        case 2:sum+=28;break;
    }
}
sum+=day;
if(month>2&&((year%4==0&&year%100!=0)||year%400==0))
    sum+=1;
int r=sum%5;
if(r<=2)
    printf("这一天是打鱼\n");
else
    printf("这一天是晒网\n");
return 0;
}

```

12.

```

#include <stdio.h>
int main(void)
{
    for(int i=1;i<7;i++)
        for(int j=0;j<7;j++)
            for(int k=1;k<7;k++)
                {

```

```

        int a=i*7*7+j*7+k;

        int b=k*9*9+j*9+i;

        if(a==b)

            printf("answer is %d\n",a);

    }

    return 0;

}

```

13.

```

#include <stdio.h>

int main(void)

{

    printf("1000 以内的阿姆斯特朗数:");

    for(int i=1;i<=1000;i++)

    {

        int sum=0,t=i;

        while(t)

        {

            int r=t%10;

            t/=10;

            sum+=r*r*r;

        }

        if(i==sum)

```

```
        printf("\t%d",i);
    }
    return 0;
}
```

14.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    // 给 maxv 赋值一个很小的数, 给 minv 赋值一个很大的数
```

```
    int score,sum=0,maxv=-0x4ffffff,minv=0x4ffffff;
```

```
    printf("请输入 10 位评委的评分:");
```

```
    for(int i=0;i<10;i++)
```

```
    {
```

```
        scanf("%d",&score);
```

```
        sum+=score;
```

```
        if(maxv<score)
```

```
            maxv=score;
```

```
        if(minv>score)
```

```
            minv=score;
```

```
    }
```

```
    printf("选手最后得分:%.1lf\n",(sum-maxv-minv)/8.0);
```

```
    return 0;
```



```
}
```

15.

```
#include <stdio.h>
```

```
#include <math.h>
```

```
int main(void)
```

```
{
```

```
    int ans;
```

```
    for(int a=1;a<=9;a++)
```

```
        for(int b=0;b<=9;b++)
```

```
            if(a!=b)
```

```
            {
```

```
                int num=a*1100+b*11;
```

```
                int root=(int)(sqrt(num)+0.1);
```

```
                if(num==root*root)
```

```
                    printf("The number is %d\n",num);
```

```
            }
```

```
    return 0;
```

```
}
```

16.

```
int cnt=0,sum,score;
```

```
    while(1)
```

```
    {
```

```
scanf("%d",score);  
if(score<0)    // score <0 结束输入  
    break;  
sum+=score;  
cnt++;  
}  
printf("总分:%d, 平均分:%.1f\n",sum,(double)sum/cnt);
```

第 5 章：函数

一：填空题

- 1.库函数 用户定义函数
- 2.有返回值函数 无返回值函数
- 3.赋值传递
- 4.实参 形参
5. 1 3
6. max is 2
- 7.15
8. 1, 2, 3,

二：思考题

1.

```
int isPrime(int x)
```

```
{  
    int i;  
    if(x<=1)  
        return 0;  
    for(i=2;i*i<=x;i++)  
        if(x%i==0)  
            return 0;  
    return 1;  
}
```

2.

```
#include <stdio.h>  
  
int judge(int x)  
{  
    int sum=0,cnt=0,t=x;  
    while(t)  
    {  
        int r=t%10;  
        t/=10;  
        sum+=r*r*r;  
        cnt++;  
    }  
    if(cnt==3&&x==sum)
```

```
        return 1;
    return 0;
}
int main(void)
{
    for(int i=100;i<1000;i++)
        if(judge(i))
            printf("%d\n",i);
    return 0;
}
```

3.

```
int gcd(int a,int b)
{
    if(b==0)
        return a;
    return gcd(b,a%b);
}
```

4.

```
int fib(int n)
{
    if(n<=1)
        return n;
```

```
    return fib(n-1)+fib(n-2);  
}
```

5.

```
int sum(int day)  
{  
    if(day==10)  
        return 1;  
    return 2*(1+sum(day+1));  
}
```

6.

```
#include <stdio.h>  
  
int g;  
  
void fun(int n,int m)  
{  
    int tn=n,tm=m,r;  
    while((r=tn%tm))  
    {  
        tn=tm;  
        tm=r;  
    }  
    r=tm;  
    g=n*m/r;
```

```
}  
  
int main(void)  
{  
    int n,m;  
    scanf("%d %d",&n,&m);  
    fun(n,m);  
    printf("%d 和 %d 的最小公倍数是:%d\n",n,m,g);  
    return 0;  
}
```

7.

```
#include <stdio.h>
```

```
#include "fun.h"
```

```
//#define max(a,b) (a)>(b)?(a):(b)
```

```
int main(void)  
{  
    int a,b,c;  
    printf("please enter a,b,c:");  
    scanf("%d%d%d",&a,&b,&c);  
    printf("max number is %d\n",max(a,max(b,c)));  
    return 0;
```

```
}
```

Fun.h 头文件

```
int max(int a,int b)
```

```
{
```

```
    return a>b?a:b;
```

```
}
```

8.

```
#include <stdio.h>
```

```
#define PI 3.1415926
```

```
#define length(r) 2*PI*(r)
```

```
#define area(r) PI*(r)*(r)
```

```
int main(void)
```

```
{
```

```
    int r;
```

```
    scanf("%d",&r);
```

```
    printf("周长:%.2lf\t 面积:%.2lf\n",length(r),area(r));
```

```
    return 0;
```

```
}
```

第 6 章：数据类型、常量、变量与表达式

一：填空题

1. 整型、实型、字符型和枚举
2. 1
3. 9
4. 12353514
5. 2,1
6. 2,2
7. 10,20,0
8. 14
9. 2 3 1
10. double

二：选择题

1-5 CBABB 6-10 CDDDD 11-15 CADBC 16-20 BDAAD

第 7 章：数组

一：填空题

1. 字符串 1
2. 2
3. C:\win98\cmd.exe

4. 1,2,3,4,5,6,7,8,9,0,

5. 325678,

6. 1,0,7,0,

7. 4332,

8. $j=2$ $j \geq 0$

二：思考题

1.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int a[10];
```

```
    printf("please enter 5 number :");
```

```
    for(int i=0;i<5;i++)
```

```
        scanf("%d",&a[i]);
```

```
    for(int i=0;i<5;i++)
```

```
        if(a[i]>0)
```

```
            printf("%d\t",a[i]);
```

```
    return 0;
```

```
}
```

2.

```
int a[10],t,i,j,k;
```

```
    for(i=0;i<10;i++)
```

```
{  
    k=i;  
    for(j=i+1;j<10;j++)  
        if(a[k]<a[j])  
            k=j;  
    int t=a[i];  
    a[i]=a[k];  
    a[k]=t;  
}
```

3.

```
#include <stdio.h>
```

```
int main(void)
```

```
{
```

```
    int a[10];
```

```
    int maxv,minv,index1,index2;
```

```
    maxv=-0x4ffffff;minv=0x4ffffff;
```

```
    printf("please enter 5 number :");
```

```
    for(int i=0;i<5;i++)
```

```
    {
```

```
        scanf("%d",&a[i]);
```

```
        if(maxv<a[i])
```

```
        {
```

```
        maxv=a[i];
        index1=i;
    }
    if(minv>a[i])
    {
        minv=a[i];
        index2=i;
    }
}
```

```
printf("max=%d\tmin=%d\tmax_index=%d\tmin_index=%d\n",maxv,minv,index1,index2);
```

```
    return 0;
```

```
}
```

4.

```
#include <stdio.h>
```

```
#define MS 10
```

```
int main(void)
```

```
{
```

```
    int a[MS][MS],b[MS][MS];
```

```
    int i,j;
```

```
    for(i=0;i<MS;i++)
```

```

        for(j=0;j<MS;j++)
        {
            scanf("%d",&a[i][j]);
            b[j][i]=a[i][j];
        }
    for(i=0;i<MS;i++)
        for(j=0;j<MS;j++)
        {
            printf("%d\t",b[i][j]);
            if(j==MS-1)
                printf("\n");
        }
    return 0;
}

```

5.

```
#include <stdio.h>
```

```
#define MS 4
```

```
int main(void)
```

```
{
```

```
    int a[MS][MS];
```

```
    int i,j;
```

```
    for(i=0;i<MS;i++)
```

```

        for(j=0;j<MS;j++)
            scanf("%d",&a[i][j]);
    for(i=0;i<MS;i++)
    {
        for(j=0;j<MS;j++)
            if(i%2==1&&j%2==1)
                printf("%d\t",a[i][j]);

        printf("\n");
    }
    return 0;
}

```

6.

```

for(i=0;i<MS;i++)
{
    for(j=0;j<MS;j++)
        if(i==j||i+j==MS-1)
            sum+=a[i][j];
}

```

7.

```
#include <stdio.h>
```

```
#define MS 4
```

```
int main(void)
```

```

{
    int a[MS][MS];

    int i,j,t;

    for(i=0;i<MS;i++)
        for(j=0;j<MS;j++)
            a[i][j]=i*MS+j+1;

    for(i=0;i<MS;i++)
        for(j=0;j<i;j++)
        {
            t=a[i][j];
            a[i][j]=a[j][i];
            a[j][i]=t;
        }

    for(i=0;i<MS;i++)
    {
        for(j=0;j<MS;j++)
            printf("%d\t",a[i][j]);

        printf("\n");
    }

    return 0;
}

```

8.

```

#include <stdio.h>

#define MS 20

int main(void)
{
    int fib[MS],i;

    fib[0]=0;fib[1]=1;

    for(i=2;i<MS;i++)

        fib[i]=fib[i-1]+fib[i-2];

    for(int i=0;i<MS;i++)

        printf("%d  ",fib[i]);

    return 0;
}

```

9.

```

#include <stdio.h>

#define MS 20000

int main(void)
{
    char str[MS];

    fgets(str,MS,stdin); // gets(str);

    int cnt=0,i;

    for(i=0;str[i]!='\n';i++)

        if(str[i]==' ')

```

```
        cnt++;  
        printf("%d\n",cnt+1);  
        return 0;  
    }  
}
```

10.

```
#include <stdio.h>  
#include <string.h>  
#define MS 20000  
int main(void)  
{  
    char str1[MS],str2[MS];  
    gets(str1);  
    gets(str2);  
    int len1=strlen(str1);  
    int len2=strlen(str2);  
    int i;  
    for(i=0;i<len2;i++)  
        str1[len1++]=str2[i];  
    str1[len1]='\0';  
    printf("%s\n",str1);  
    return 0;  
}
```


11.

```
#include <stdio.h>

#include <string.h>

#define MS 20

int main(void)
{
    char str[MS];

    scanf("%s",str);

    int len=strlen(str),num=0,i;

    for(i=0;i<len;i++)
        num=num*10+(str[i]-'0');

    printf("%d\n",num);

    return 0;
}
```

12.

```
#include <stdio.h>

#include <string.h>

#define MS 100

int main(void)
{
    char str[MS];

    int i,j,len,upper=0,lower=0,space=0,other=0;
```

```

for(i=0;i<3;i++)
{
    gets(str);
    len=strlen(str);
    for(j=0;j<len;j++)
    {
        if(str[j]>='A'&&str[j]<='Z')
            upper++;
        else if(str[j]>='a'&&str[j]<='z')
            lower++;
        else if(str[j]==' ')
            space++;
        else
            other++;
    }
}

printf("uppercase:%d\tlowercase:%d\tspace:%d\tother:%d\n",upper,lower,space,other);

return 0;
}

```

13.

```
#include <stdio.h>

#include <string.h>

#define MS 10000

int main(void)

{

    char s1[MS],s2[MS];

    gets(s2);

    int len=strlen(s2),i;

    for(i=0;i<=len;i++)

        s1[i]=s2[i];

    printf("%s\n",s1);

    return 0;

}
```

14.

```
1.void add(char no[][20],double *score,int n)
```

```
{

    printf("请输入每个学生的学号和成绩\n");

    int i;

    for(i=0;i<n;i++)

    {

        printf("请输入第%d 个学生的学号和成绩:",i+1);

        scanf("%s%lf",&no[i],&score[i]);

    }

}
```

```

        printf("\n");
    }
}
2.void maxv(double *score,int n)
{
    double max=score[0];
    int index=0,i;
    for(i=1;i<n;i++)
        if(max<score[i])
        {
            max=score[i];
            index=i;
        }
    printf("最高分:%.1lf,相应的学号为:%s\n",max,no[index]);
}

```

3.

```

void sort_no(char s[][20],double *score,int n)
{
    int i,j;
    for(i=0;i<n;i++)
    {
        for(j=0;j<n-1-i;j++)

```

```

    {
        if(strcmp(s[j],s[j+1]))
        {
            char str[20];
            strcpy(str,s[j]);
            strcpy(s[j],s[j+1]);
            strcpy(s[j+1],str);
        }
    }
}
for(i=0;i<n;i++)
    printf("学号:%s\t\t 成绩:%.1f\n",s[i],score[i]);
}

```

4.

```

void search(char *id,char no[][20],char *score,int n)
{
    int i;
    for(i=0;i<n;i++)
    {
        if(strcmp(id,no[i])==0)
        {
            printf("排名: %d \t\t 考试成绩:%.1f\n",i+1,score[i]);
        }
    }
}

```

```

        break;
    }
}
}
5.
void output(char no[][20],double *score,int n)
{
    double sum=0;
    int i;
    for(i=0;i<n;i++)
    {
        printf("学号:%s\t\t 成绩:%.1lf\n",no[i],score[i]);
        sum+=score[i];
    }
    for("课程总分: %.1lf \t\t 平均分:%.1lf\n",sum,sum/n);
}

```

第 8 章：指针

一、选择题

1-5: ABCBD 6-10: CBDAC 11:C

二、填空题

1. * &
2. *p a[0][0] 2
3. 10
4. *s<*p 或者 *p>*s
5. *(++p)
6. 5
7. Ab
8. 0
9. w,one
- 10.0

三、编程题

1. 编程实现从键盘输入一个字符串，将其字符顺序颠倒后重新存放，并输出这个字符串。

```
#include <stdio.h>
#define MS 1000
void invert(char *s)
{
    char *p=s, c;
    while(*p) p++;
    p--; /* 使 p 指向最后一个非空字符 */
    while(s<p)
    {
        c=*s, *s=*p, *p=c; /* 前后字符互换 */
        s++, p--; /* 前后指针都向中间移动 */
    }
}
int main(void)
{
    char str[MS];
    gets(str);
    invert(str);
    puts(str);
}
```

```
    return 0;
}
```

2. 从键盘任意输入 10 个整数，用函数编程实现计算最大值和最小值，并返回它们所在数组中的位置。

```
#include <stdio.h>
#define N 10
int fmax(int *a,int n)
{
    int max=a[0],index=0,i;
    for(i=1;i<n;i++)
        if(max<a[i])
            {
                max=a[i];
                index=i;
            }
    return index;
}
int fmin(int *a,int n)
{
    int min=a[0],index=0,i;
    for(i=1;i<n;i++)
        if(min>a[i])
            {
                min=a[i];
                index=i;
            }
    return index;
}
int main(void)
{
    int a[N],n,i,imax,imin;
    printf("Please enter %d numbers:",N);
    for(i=0;i<N;i++)
```



```

        scanf("%d",a+i);
    imax=fmax(a,N);
    imin=fmin(a,N);
    printf("max=%d,max_index=%d\nmin=%d,min_index=%d\n", a[imax],
imax, a[imin], imin);
    return 0;
}

```

3. 将 5 个字符串从小到大排序后输出。

```

#include <stdio.h>
#include <string.h>
#define MS 100
#define N 5
void sort(char (*s)[MS], int n)
{
    int i, j;
    char t[MS];
    for(i=0;i<n;i++) /* 冒泡排序 */
        for(j=0;j<n-i-1;j++)
            if(strcmp(s[j],s[j+1])>0)
                {
                    strcpy(t,s[j]);
                    strcpy(s[j],s[j+1]);
                    strcpy(s[j+1],t);
                }
}
int main(void)
{
    char str[N][MS];
    int i;
    printf("Please enter %d strings:\n", N);
    for(i=0;i<N;i++)
        scanf("%s",str[i]);
    sort(str, N);
}

```

```

for(i=0;i<N;i++)
    printf("%s\n",str[i]);
return 0;
}

```

4. 编写一个能对任意 $m \times n$ 阶矩阵进行转置运算的函数 `Transpose()`。

```

void Transpose(int a[][MS],int m,int n)
{
    int i,j,t;
    for(i=0;i<m;i++)
        for(j=0;j<n;j++)
        {
            t=a[i][j];
            a[i][j]=a[j][i];
            a[j][i]=t;
        }
}

```

第 9 章：结构体、共用体与枚举

一：填空题

1. `struct DATE data={2006,10,1};`
2. `sizeof(node)`
3. `person[i].sex`
4. 13431
5. `<stdlib.h>` `struct node *` `*s` `p`

二：思考题

1 略

2.模拟洗牌和发牌的过程。

```
#include "stdio.h"
```

```
#include "stdlib.h"
```

```
#include "time.h"
```

```
#include "string.h"
```

```
#include "conio.h"
```

```
int main(){
```

```
    char
```

```
poker1[54][10],poker2[13][3]={"A","2","3","4","5","6","7","8","9","10","J","K","Q"};
```

```
//poker1 是 54 张牌, poker2 用来合成 poker1
```

```
    int
```

```
poker3[54]={0};
```

```
//poker3 用来记录哪张牌被用过, 随机数时使用
```

```
    int i,j;
```

```
    strcpy(poker1[52],"小王");
```

```
    strcpy(poker1[53],"大王");
```

```
    for(i=0,j=0;i<52;i++){
```

```
        if(i%4==0){
```

```
            strcpy(poker1[i],"黑桃");
```

```
            strcat(poker1[i],poker2[j]);
```

```
        }
```

```

    if(i%4==1){
        strcpy(poker1[i],"红桃");
        strcat(poker1[i],poker2[j]);
    }
    if(i%4==2){
        strcpy(poker1[i],"梅花");
        strcat(poker1[i],poker2[j]);
    }
    if(i%4==3){
        strcpy(poker1[i],"方块");
        strcat(poker1[i],poker2[j]);
        j++;
    }
}

printf("\n\n\n\t\t\t----- 扑克牌随机生成器 -----");
printf("\n\n\n\t\t\t----- < 按任意键开始 > -----");
printf("\n\n\n\t\t\t----- < 按 ESC 键退出 > -----");

char ch;

int card;

ch = getch();

switch(ch){
    case 27 :

```

```
exit(0);
```

```
break;
```

```
default :
```

```
    srand((unsigned)time(NULL));
```

```
    printf("\n\n\n\t 玩家 A 的牌: |");
```

```
    for(i=0;i<17;i++){
```

```
        card = rand()%54;
```

```
        while(poker3[card]==1){
```

```
            card = rand()%54;
```

```
        }
```

```
        poker3[card]=1;
```

```
        printf(" %s |",poker1[card]);
```

```
    }
```

```
    printf("\n\n\t 玩家 B 的牌: |");
```

```
    for(i=0;i<17;i++){
```

```
        card = rand()%54;
```

```
        while(poker3[card]==1){
```

```
            card = rand()%54;
```

```
        }
```

```
        poker3[card]=1;
```

```
        printf(" %s |",poker1[card]);
```

```
    }
```

```

printf("\n\n\t 玩家 C 的牌: |");
for(i=0;i<17;i++){
    card = rand()%54;
    while(poker3[card]==1){
        card = rand()%54;
    }
    poker3[card]=1;
    printf(" %s |",poker1[card]);
}
printf("\n\n\t 地主牌:   |");
for(i=0;i<54;i++){
    if(poker3[i]==0){
        printf(" %s |",poker1[i]);
    }
}
main();
break;
}
return 0;
}

```

3.构建简单的手机通讯录，手机通讯录包括信息（姓名、年龄、联系电话），

要求实现新建、查询功能。假设通讯录最多容纳 50 名联系人信息。

```
#include<stdio.h>

#include<string.h>

/*手机通讯录结构定义*/
struct friends_list{

    char name[10];          /* 姓名 */

    int age;                /* 年龄 */

    char telephone[13];    /* 联系电话 */

};

int Count = 0;             /* 定义全局变量 Count,记录当前联系人总数 */

void new_friend(struct friends_list friends[ ] );

void search_friend(struct friends_list friends[ ], char *name);

int main(void)

{

    int choice;

    char name[10];

    struct friends_list friends[50];    /* 包含 50 个人的通讯录 */

    do{

        printf("手机通讯录功能选项： 1:新建 2:查询 0:退出\n");
```

```
    printf("请选择功能: ");
    scanf("%d", &choice);

    switch(choice){
case 1:

        new_friend(friends);

        break;

    case 2:

        printf("请输入要查找的联系人名:");
        scanf("%s", name);
        search_friend(friends, name);
        break;

    case 0: break;

    }

}while(choice != 0);

printf("谢谢使用通讯录功能!\n");

return 0;

}

/*新建联系人*/
void new_friend(struct friends_list friends[ ])
{
```



```
struct friends_list f;

if(Count == 50){
    printf("通讯录已满!\n");
    return;
}

printf("请输入新联系人的姓名:");
scanf("%s", f.name);

printf("请输入新联系人的年龄:");
scanf("%d", &f.age);

printf("请输入新联系人的联系电话:");
scanf("%s", f.telephone);

friends[Count] = f;

Count++;

}

/*查询联系人*/
void search_friend(struct friends_list friends[ ], char *name)
{
    int i, flag = 0;

    if(Count == 0){
```

```

    printf("通讯录是空的!\n");
    return;
}
for(i = 0; i < Count; i++)
    if(strcmp(name, friends[i].name) == 0){ /* 找到联系人*/
        flag=1;
        break;
    }
if(flag){
    printf("姓名: %s\t", friends[i].name);
    printf("年龄: %d\t", friends[i].age);
    printf("电话: %s\n", friends[i].telephone);
}
else
    printf("无此联系人!");
}

```

4. 建立一个教师链表, 每个结点包括学号(no), 姓名(name[8]), 工资(wage), 写出动态创建函数 creat 和输出函数 print。

```
#include<stdio.h>
```

```
#include<stdlib.h>
```

```
#define NULL 0
```

```
#define LEN sizeof(struct teacher)
```

```

struct teacher
{
int no;
char name[8];
float wage;
struct teacher * next;
};

int n;

struct teacher *creat(void)
{
struct teacher *head;
struct teacher *p1,*p2;
n=0;
p1=p2= (struct teacher *)malloc(LEN);
scanf("%d%s%f",&p1->no,p1->name, &p1->wage);
head=NULL;
while(p1->no!=0)
{
n=n+1;
if(n==1) head=p1;
else p2->next=p1;
p2=p1;
p1=(struct teacher *)malloc(LEN);
scanf("%d%s%f",&p1->no,p1->name, &p1->wage);
}
}

```

```

p2->next=NULL;

return(head);

}

void print(struct teacher *head)
{ struct teacher *p;

  p=head;

  if (head!=NULL)

  do{

      printf("%d\t%s\t%f\n", p->no, p->name, p->wage);

      p=p->next;

      } while(p!=NULL);

}

```

5.在上一题基础上，假如已经按学号升序排列，写出插入一个新教师的结点的函数 insert。

```

struct teacher insert(struct teacher *head,struct teacher *tea)
{ struct teacher *p0,*p1,*p2;

p1=head;

p0=tea;

if(head=NULL)

{head=p0; p0->next=NULL;}

else

while((p0->no>p1->no)&&(p1->next!=NULL))

```

```

    { p2=p1;
      p1=p1->next;}
if(p0->no<=p1->no)
  { if (head==p1)
    head=p0;
    else
    { p2->next=p0;
      p0->next=p1;
    }
  }
else
  { p1->next=p0;p0->next=NULL;}
n=n+1;
return(head);
}

```

第 10 章：文件

一：填空题

1.NULL

2. "r" if((*fp>='a'&&*fp<='z')||(*fp>='A'&&*fp<='Z')) count++

3. fseek(myf,0,SEEK_END)

4. "w" str[i]-32 "r"

5.*fp1,*fp2 rewind(fp1) fgetc(fp1),fp2

勘误:

第5题第8行 putchar(getc(fp1)); 更改为 putchar(fgetc(fp1));

第5题第11行 应该是 fputc

二：思考题

1.略

2.

```
#include<stdio.h>
```

```
#include <stdlib.h>
```

```
int main()
```

```
{
```

```
    char ch;
```

```
    int num1=0,num2=0,num3=0;
```

```
    FILE *fp;
```

```
    int i;
```

```
    if((fp=fopen("read.txt","r"))==NULL) /* 打开一个文件*/
```

```
    {
```

```
        printf("not open");
```

```
        exit(0);
```

```
    }
```

```
    while ((ch=fgetc(fp))!=EOF)
```

```
{
    if(ch>='a'&&ch<='z')
        num1++;
    else if(ch>='A'&&ch<='Z')
        num1++;
    else if(ch>='0'&&ch<='9')
        num2++;
    else
        num3++;
}
printf("字母: %d\n",num1);
printf("数字: %d\n",num2);
printf("其它: %d\n",num3);
fclose(fp);
}
```

3.

```
#include<stdio.h>
```

```
#include<math.h>
```

```
#include<string.h>
```

```
int main(){
```

```
    char a[1000],b[1000];
```

```
//a 为输
```

入的字符串数组 b 为查找时分的每一句话

```
int l=0,count=0,h=0,i,j,len;
```

//l 为查找

时每一句话的长度，查找结束清零，count 为句子数量

//i、j

用来进行循环，len 为输入的字符串数组长度

```
printf("请输入您要查找的单词:");
```

```
scanf("%s",a);
```

```
len = strlen(a);
```

```
FILE *fp;
```

```
if((fp = fopen("word.dat","r"))==NULL)
```

```
{
```

```
    printf("can not find hello.dat");
```

```
}
```

```
while(fscanf(fp,"%c",&b[l]) != EOF )
```

```
{
```

```
    if(b[l]=='!'||b[l]=='.'||b[l]=='?')
```

```
    {
```

```
        count++;
```

```
        //printf("第%d句 %s\n",count,b);
```

```
        for(i=0;i<l;i++)
```

```
        {
```



```
int x=0;
```

```
//x 为特
```

判值 判断是否有匹配项

```
    if(b[i]==a[0])
    {
        for(j=i;j<len+i;j++){
            if(b[j]!=a[j-i]){
                x=1;
            }
        }
        if(x==0)
        {
            printf("查找结果:%s\n 在第%d 句\n",b,count);
            break;
        }
    }
}
memset(b,0,sizeof(b));
l=0;
}
else{
    l++;
}
```

```
    }  
    return 0;  
}
```

4.

```
#include<stdio.h>
```

```
#include<stdlib.h>
```

```
#include<string.h>
```

```
#include<process.h>
```

```
int main()
```

```
{
```

```
    char ch1,ch2;
```

```
    FILE *f1,*f2;
```

```
    char read1[1000],read2[1000];
```

```
    f1 = fopen("read1.txt","r");
```

```
    f2 = fopen("read2.txt","r");
```

```
    if((f1=fopen("read1.txt","r"))==NULL) /* 打开一个文件*/
```

```
    {
```

```
        printf("not open read1.txt");
```

```
        exit(0);
```

```
    }
```

```
if((f2=fopen("read2.txt","r"))==NULL) /* 打开一个文件*/
{
    printf("not open read2.txt");
    exit(0);
}
int count1=0,count2=0;
while ((ch1=fgetc(f1))!=EOF)
{
    count1++;
}
while ((ch1=fgetc(f2))!=EOF)
{
    count2++;
}
if(count1==count2)
{
    int num=0;
    while ((ch1=fgetc(f1))!=EOF&&(ch2=fgetc(f2))!=EOF)
    {
        if(ch1!=ch2)
        {
            num++;
        }
    }
}
```

```
        printf("不相等!");  
    }  
}  
if(num==0)  
    printf("相等!");  
}  
else  
    printf("不相等!");  
}
```