2.
```c
/* This prog. finds sum of integers between 9 & 300 that
are divisible by 7 but not by 63*/
#include <stdio.h>

int main()
{
  int i,sum=0;

  for(i=9;i<=300;i++)
     {
      if(i%7==0 && i%63!=0)
         sum +=i;
     }
printf("Sum of integers between 9 & 300 that are ");
printf("divisible by 7 but not by 63 is %d\n",sum);


    return 0;
}
```

3.
```c
/* This prog. finds the sum of digits of an integer*/
#include <stdio.h>

int main()
{
  int n,q,sum=0;

  printf("Enter an integer: ");
  scanf("%d",&n);
  q=n;
  if(q<0)
       q=-q;

  while(q !=0)
    {
     sum +=q%10;
     q/=10;
    }

  printf("Sum of the digits of %d is %d\n",n,sum);


    return 0;
}
```

4.
```c
/* This prog. finds the sum 1^4+2^4+4^4+7^4+11^4+.......+m^4, m<=n*/
#include <stdio.h>

int main()
{
```

```c
    int i,j,n,sum=0;

    printf("Enter a +ve integer less than 50: ");
    scanf("%d",&n);

    if(n<1 || n >= 50)
    {
      printf("Invalid input\n");
      return 0;
    }

    j = 1;
    for(i=1;j<=n;i++)
    {
     sum +=j*j*j*j;
     j +=i;
     }


    printf("Sum of the series is %d\n",sum);


        return 0;
    }
```

5. ```c
   /* This prog. finds the sum of n terms of the series 1^4+2^4+4^4+7^4+11^4+...*/
   #include <stdio.h>

   int main()
   {
      int i,j,n,sum=0;

      printf("Enter a +ve integer less than 10: ");
      scanf("%d",&n);

      while(n<1 || n > 9)
      {
        printf("Invalid input, enter again: ");
        scanf("%d",&n);
      }

      j = 1;
      for(i=1;i<=n;i++)
      {
       sum +=j*j*j*j;
       j +=i;
       }


    printf("Sum of the %d terms of the series  is %d\n",n,sum);
   ```

```c
        return 0;
    }


6. #include <stdio.h>
   int main()
   {
   int a,ncount=0,nmin,nmax,s=0;
   double avg;

   printf("Enter a +ve integer:");
   scanf("%d",&a);
   if(a<=0){
       printf("No positive number entered\n");
       return 0;
           }

   nmin=a;
   nmax=a;

   while(a>0)
       {
         s += a;
         ncount++;
         nmax=a>nmax?a:nmax;
         nmin=a<nmin?a:nmin;

         printf("Enter next +ve integer:");
         scanf("%d",&a);
       }

   avg=s/(double) ncount;
   printf("Number of +ve values entered is %d\n",ncount);
   printf("Maximum value  entered is %d\n",nmax);
   printf("Minimum value entered is  %d\n",nmin);
   printf("Average value is %0.4lf\n",avg);



   return 0;
   }




7. #include <stdio.h>
   int main()
   {
   int i,fact=1,n;

   printf("Enter an integer:");
```

```c
    scanf("%d",&n);
    if(n<0){
        printf("n must be non-negative\n");
        return 0;
            }

    for(i=1;i<=n;i++)
        {
         fact *=i;
        }

    printf("Factorial of %d is %d\n",n,fact);

    return 0;
    }
```

8.
```c
   #include <stdio.h>
   #include <math.h>
   int main()
   {
   int i,n;
   double s=0,t,x,xold;

   printf("Enter the value of n & x:");
   scanf("%d%lf",&n,&x);
   if(n<1)
       {
        printf("Number of terms must be +ve\n");
        return 0;
       }

   xold=x;
   t=x;
   while(t>2*M_PI)
          {
           t -=2*M_PI;
          }

   while(t<-2*M_PI)
          {
           t +=2*M_PI;
          }

   x=t;

   for(i=1;i<=n;i++)
      {s +=t;
```

```c
        t *=-x*x/((2*i)*(2*i+1));
        }

    printf("Sum of the series at x=%0.2lf with %d terms is %0.5lf\n",xold,n,s);
    return 0;
    }
```

9.
```c
    #include <stdio.h>
    #include<math.h>
    int main()
    {
    int i;
    double s=0,t,x,xold,eps=1.e-6;

    printf("Enter the value of x:");
    scanf("%lf",&x);
    xold=x;
    t=x;
    t=x;
    while(t>2*M_PI)
        {
         t -=2*M_PI;
        }

    while(t<-2*M_PI)
        {
         t +=2*M_PI;
        }

    x=t;

    for(i=1;fabs(t)>eps;i++)
       {s +=t;
        t *=-x*x/((2*i)*(2*i+1));
        }

    printf("Sum of the series at %0.2lf is %0.5lf\n",xold,s);

    return 0;
    }
```

10.
```c
    #include <stdio.h>
```

```c
int main()
{
int i,n,q,flag=1,hb,ldig,rdig;

printf("Enter a non-negative integer:");
scanf("%d",&n);

if(n<0)
    {
     printf("Input must be non-negative integer\n");
     return 0;
    }

if(n/10==0)
    {
     printf("%d is a palindrome number\n",n);
     return 0;
    }

// hb = 10^(no of digit -1)
q=n;
hb=1;
while(q/10 !=0)
   {
    hb *=10;
    q /=10;
   }

q=n;
while(q/10 !=0 && flag==1)
 {
   ldig = q/hb;
   rdig = q%10;
   if(ldig != rdig)
     {
      flag=0;
     }
   q =(q-ldig*hb-rdig)/10;
   hb /=100;
 }

 if(flag==1)
    {
     printf("%d is a palindrome number\n",n);
    }
 else
    {
     printf("%d is NOT a palindrome number\n",n);
    }


return 0;
```

```
        }




10A. //Another way to check whether a number is a palindrome
     #include <stdio.h>
     int main()
     {
     int i,n,q,s;

     printf("Enter a non-negative integer:");
     scanf("%d",&n);

     if(n<0)
        {
         printf("Input must be non-negative integer\n");
         return 0;
        }

     q=n;

     s = q%10;
     q /=10;
     while(q !=0)
       {
         s = s*10 + q%10;
         q /=10;
       }

      if(s==n)
         {
          printf("%d is a palindrome number\n",n);
         }
      else
         {
          printf("%d is NOT a palindrome number\n",n);
         }



     return 0;
     }




 11. #include <stdio.h>
     int main()
     {
     int i,n,q,rdig,ndigit,s,sdig;
```

```c
printf("Enter a non-negative integer:");
scanf("%d",&n);

if(n<0)
   {
    printf("Input must be non-negative integer\n");
    return 0;
   }

if(n<10)
   {
    printf("%d is an Armstrong number\n",n);
    return 0;
   }

q=n;
ndigit=0;
while(q !=0)
  {
   ndigit++;
   q /=10;
  }

q=n;
s=0;
while(q !=0)
  {
    rdig=q%10;
    sdig=1;
    for(i=1;i<=ndigit;i++)
      {
        sdig *=rdig;
       }
     s +=sdig;
     q /=10;
 }

 if(s==n)
    {
     printf("%d is an Armstrong number\n",n);
    }
 else
    {
     printf("%d is NOT an Armstrong number\n",n);
    }



return 0;
}
```

12.
```c
#include <stdio.h>
int main()
{
int n,j,s=0;
printf("Enter a positive integer:");
scanf("%d",&n);
if(n<=0)
 {
  printf("Input must be positive\n");
  return 0;
 }

 for(j=1;j<=n/2;j++)
    {
       if(n%j==0)
          {
             s +=j;
           }
       }

  if(s==n)
     {
      printf("%d is a perfect number\n",n);
     }
  else
     {
      printf("%d is NOT a perfect number\n",n);
     }

      return 0;
 }
```

13.
```c
#include <stdio.h>
int main()
{
int i,j,flag,ip=0;
printf("The prime numbers between 1 and 99 are:\n");
for(i=2;i<99;i++)
  {
     flag=1;
     for(j=2;j<=i/2 && flag==1;j++)
        {
          if(i%j==0)
             {
               flag=0;
             }
        }
if(flag==1)
   {
     printf("%5d    ",i);
     ip++;
     if(ip%7==0)
```

```c
                {
                 printf("\n");
                 }
            }

         }
         printf("\n");


    return 0;
    }
```

14.
```c
#include <stdio.h>
#include<math.h>
int main()
{
int i,n=0;
double s=0,t,x,eps=1.e-8,res,xold;

printf("Enter the value of x:");
scanf("%lf",&x);

xold=x;

n=(int) fabs(x);

if(n>2)
    x=xold/n;

t=1;
for(i=1;fabs(t)>eps;i++)
    {s +=t;
     t *=x/i;
     }


if(n>2)
{   res = 1;
    for(i=1;i<=n;i++)
        res *=s;
}
else
  res=s;

printf("Sum of the series at %0.2lf is %0.5e\n",xold,res);
printf("Value from C math library=%0.5e\n",exp(xold));
return 0;
}
```