Exercise 1 *– Write a user defined function 'int reverse(int)' to reverse any given number. An example would be as follows:*

```
Enter any number: 197
Reverse of 197 is 791.
```

Program –

```
#include<stdio.h>
int reverse(int a)
{
     int temp=a,remainder=0,reverse=0;
     while(temp!=0)
     {
          remainder=temp%10;
          temp/=10;
          reverse=(reverse*10)+remainder;
     }
     printf("Reverse of %d is %d.",a,reverse);
}
int main()
{
     int a;
     printf("Enter any number: ");
     scanf("%d",&a);
     reverse(a);
     return 0;
}
```

Output –

```
Enter any number: 197
Reverse of 197 is 791.
```

Exercise 2 *– Write a user defined function 'float power(int, int)' to calculate* M^N*, where M & N will be given by the user. An example would be as follows:*

```
Enter base & power: 2 -3
Result: 0.125

Enter base & power: 2 3
Result: 8

Enter base & power: 2 0
Result: 1
```

Program –

```
#include<stdio.h>
#include<math.h>
float power(int M, int N)
{
     float result,deno;
     if(N<0)
     {
          deno=pow(M,(-N));
          result=(1/deno);
          printf("Result: %0.3f",result);
     }
     else if(N>0)
     {
          result=pow(M,N);
          printf("Result: %0.0f",result);
     }
     else
     {
          result=1;
          printf("Result: %0.0f",result);
     }
}
int main()
{
     int N,M;
     printf("Enter base & power: ");
     scanf("%d%d",&M,&N);
     power(M,N);
     return 0;
}
```

Output –

```
Enter base & power: 2 -3
Result: 0.125

Enter base & power: 2 3
Result: 8

Enter base & power: 2 0
Result: 1
```

Exercise 3– *Write two user defined function 'int gcd(int, int)' and 'int gcd(int, int)' to find the GCD and LCM of two number, respectively. An example would be as follows:*

```
Enter any number: 18 24
GCD of 18 & 24 is 6
LCM of 18 & 24 is 72
```

Program –

```
#include<stdio.h>
int gcd(int a,int b)
{
     int num,deno,remainder,gcd;
     if(a>b)
     {
          num=a; deno=b;
     }
     else
     {
          num=b; deno=a;
     }
     remainder = num%deno;
     while(remainder!=0)
     {
          num=deno;
          deno=remainder;
          remainder=num%deno;
     }
     gcd=deno;
     return gcd;
}
int lcm(int a,int b)
{
     int lcm;
     lcm = a*b / gcd(a,b);
     printf("GCD of %d & %d is %d\n",a,b,gcd(a,b));
     printf("LCM of %d & %d is %d\n",a,b,lcm);
}
int main()
{
     int a,b;
     printf("Enter any number: ");
     scanf("%d%d",&a,&b);
     lcm(a,b);
     return 0;
}
```

Output –

```
Enter any number: 18 24
GCD of 18 & 24 is 6
LCM of 18 & 24 is 72
```

Exercise 4– *Write a user defined function 'int convert(int)' to reverse any given number. An example would be as follows:*

```
Enter binary number: 1010
Equivalent decimal number is 10.
```

Program –

```
#include<stdio.h>
#include<math.h>
int convert(int binary)
{
     int temp=binary,remainder=0,decimal=0,i=0;
     while(temp!=0)
     {
          remainder=temp%10;
          temp/=10;
          decimal=decimal+remainder*pow(2,i);
          i++;
     }
     printf("Equivalent decimal number is %d.",decimal);
}
int main()
{
     int binary;
     printf("Enter binary number: ");
     scanf("%d",&binary);
     convert(binary);
     return 0;
}
```

Output –

```
Enter binary number: 1010
Equivalent decimal number is 10.
```