1) Write a program to check the given number is odd or even.

```
#include<stdio.h>
int main(){
	int a;
	printf("Enter any number:");
	scanf("%d",&a);
	if(a%2==0){
		printf("Entered number is even");
	}
	else{
		printf("Entered number is odd");
	}
	return 0;
}
```

2) Write a program to find maximum among two numbers.

```
#include<stdio.h>
int main(){
	int a,b;
	printf("Enter any number:");
	scanf("%d",&a);
	printf("Enter any number:");
	scanf("%d",&b);
	if(a>b){
		printf("%d is maximum",a);
	}
	else{
		printf("%d is maximum",b);
	}
	return 0;
}
```

3) Write a program to check the given number is exactly divisible by 5 but not 7.

```
#include<stdio.h>
int main(){
	int a;
	printf("Enter any number:");
	scanf("%d",&a);
	if(a%5==0&&a%7!=0){
		printf("Number is divisbled by 5");
	}
	else{
		printf("Number is not divisibled by 5");
	}
	return 0;
}
```

4) Write a program to check the given year is leap year or not.

```
#include<stdio.h>
int main(){
        int year;
        printf("Enter the year:");
        scanf("%d",&year);
        if(year%4==0&&year%100!=0||year%400==0){
                printf("Entered year is leap year");
        }
        else{
                printf("Entered year is not a leap year");
        }
        return 0;
}
```

5) Write a program to read a positive integer value and compute the following sequence. If the number is even half it, if it is odd multiply it by 3 and add 1 and print the result. If input value is less than 1 print the message containing the word “ERROR”.

```
#include<stdio.h>
int main(){
        int a;
        printf("Enter any number:");
        scanf("%d",&a);
        if(a<1){
                printf("ERROR");
        }
        else if(a%2==0){
                a=a/2;
                printf("Your value is:%d",a);

        }
        else{
                a=a*3+1;
                printf("Your value is:%d",a);
        }
        return 0;
}
```

6) Write a program to calculate the real roots of the quadratic equation ax2 + bx + c = 0. If the roots are imaginary display the message “Error”.

```
#include<stdio.h>
#include<math.h>
int main(){
        int a,b,c,d;
        float root1,root2;
        printf("Enter value of a:");
        scanf("%d",&a);
        printf("Enter value of b:");
        scanf("%d",&b);
        printf("Enter value of c:");
        scanf("%d",&c);
        d=b*b-4*a*c;
        if(d<0){
                printf("roots are imaginary");
        }
        else{
                root1=(-b+sqrt(d))/2*a;
                root2=(-b-sqrt(d))/2*a;

        printf("Roots one is %.2f",root1);
        printf("\nRoots two is %.2f",root2);}
        return 0;

        }
```

7) Write a program to read three sides of triangle and print area for valid data and to print “Invalid data” if either one side of the triangle is greater or equals to the sum of other two sides.

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
int main(){
        float a,b,c,s,A;
        printf("Enter First side:");
        scanf("%f",&a);
        printf("Enter Second side:");
        scanf("%f",&b);
        printf("Enter Third side:");
        scanf("%f",&c);
        if(a>=(b+c)||b>=(c+a)||c>=(a+b)){
                printf("invalid data");
        }
        else{
        s=(a+b+c)/2;
        A=sqrt((s*(s-a)*(s-b)*(s-c)));
        printf("Area of triangle is:%.2f",A);
        }
        return 0;
}
```

8) Write a program to find largest among three numbers. (use nested-if else)

```
#include<stdio.h>
int main(){
        int a,b,c;
        printf("Enter value of a:");
        scanf("%d",&a);
        printf("Enter value of b:");
        scanf("%d",&b);
        printf("Enter value of c:");
        scanf("%d",&c);
        if(a>b){
                if(a>c)
                        printf("%d is greatest among 3",a);

                else
                        printf("%d is greatest among 3",c);}
        else
        {
                if(b>c)
                        printf("%d is greatest among 3",b);
                else
                        printf("%d is greatest among 3",c);
                }

        return 0;
        }
```

9) Write a program to find largest among four numbers.

```
#include<stdio.h>
int main(){
        float a,b,c,d;
        printf("Enter any number:");
        scanf("%f",&a);
        printf("Enter any number:");
        scanf("%f",&b);
        printf("Enter any number:");
        scanf("%f",&c);
        printf("Enter any number:");
        scanf("%f",&d);
        if(a>b&&a>c&&a>d){
                printf("%.2f is greatest",a);
        }
        else if(b>c&&b>d){
                printf("%.2f is greatest",b);
        }
        else if(c>d){
                printf("%.2f is greatest",c);
                }
        else{
                printf("%.2f is greatest",d);}
        return 0;
        }
```

10) Write a program to read a temperature of a day in Fahrenheit and print “Nice day” if temperature is greater than 60 but less than 80. “Cold day” if temperature is 60 or lower. “Hot day” if temperature is 80 or higher.

```
#include<stdio.h>
int main(){
        float temp;
        printf("Enter the current temp:");
        scanf("%f",&temp);
         if(temp<=60)
        {
                printf("Cold day");
        }
        else if(temp>=80){
                printf("Hot day");
        }
        else{
                printf("Nice day");
        }
        return 0;
}
```

11) An electricity board charges according to following rates.

For the first 20 units ……..Rs.80

For the next 80 units……Rs.7.5 per unit

For the next 100 units ……Rs. 8.5 per unit

For the beyond 200 units……. . ..Rs.9.5 per unit And Tax 15% in total amount is charged to all users. Write a program to read number of units consumed and print out the total charge.

```
#include<stdio.h>
int main(){
        float units,vat,Total,charge;
        printf("Enter your electricity unit:");
        scanf("%f",&units);
        if(units<=20){
                charge=20*units;
        }
        else if(units<=100){
                charge=20*20+(units-20)*7.5;
                }
        else if(units<=200){
           charge=20*20+80*7.5+(units-100)*8.5;
        }
        else
                charge=20*20+80*7.5+100*8.5+(units-200)*9.5;

           vat=(charge*15)/100;
           Total=charge+vat;
           printf("The Total charges is %.2f",Total);
        return 0;
        }
```

12) Write a program to read to read length and breadth of a room and print area and print.
“Auditorium” if area >2500
“Hall” if 500 < = area <=2500
“Big room” if 150 < area < 500
“Small room” if area < = 150

```
#include<Stdio.h>
int main(){
        float l,b,Area;
        printf("Enter lentgh of your room:");
        scanf("%f",&l);
        printf("Enter Breath of your room:");
        scanf("%f",&b);
        Area=l*b;
        if(Area>2500){
                printf("Aditorium");
        }
        else if(Area>=500){
                printf("Hall");
        }
        else if(Area>150){
                printf("Big room");
        }
        else{
                printf("Small room");
        }
        return 0;

}
```

13) Let's consider the supermarket discount policy: the policy offers a 5% discount on the total bill to all customers, irrespective of their purchase amount. Additionally, female customers receive an 10% discount if their total bill exceeds Rs. 5000. Write a C program to implement this discount policy and calculate the final bill after applying these discounts.

```
#include <stdio.h>

int main() {
   float amount, bill;
   char gender;
   printf("Enter the total bill amount: Rs. ");
   scanf("%f", &amount);

   printf("Enter your gender (M & m for Male, F & f for Female): ");
   scanf(" %c", &gender);
   bill = amount - (amount * 0.05);

   if (gender == 'F' || gender == 'f') {
      if (amount > 5000) {
         bill = bill - (bill * 0.10);
      }
   }

   printf("The  bill after applying discounts is: Rs. %.2f\n", bill);

   return 0;
}
```