QUESTION:-1

```
#include <stdio.h>

int main()

{

  char ch;

  printf("Input a character\n");

  scanf("%c", &ch);

  if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' &&ch <= 'Z')) {

    if (ch=='a' || ch=='A' || ch=='e' || ch=='E' || ch=='i' || ch=='I' || ch=='o' || ch=='O' || ch== 'u' ||
ch=='U')

      printf("%c is a vowel.\n", ch);

    else

      printf("%c is a consonant.\n", ch);

  }

  else

    printf("%c is neither a vowel nor a consonant.\n", ch);

  return 0;

}
```

OUTPUT:

Input a character

J

J is a consonant.

QUESTION:2

```
#include <stdio.h>

#include<math.h>

int main() {

    double a, b, c, discriminant, root1, root2, realPart, imagPart;

    printf("Enter coefficients a, b and c: ");

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

```
 discriminant = b * b - 4 * a * c;
   if (discriminant > 0) {
      root1 = (-b + sqrt(discriminant)) / (2 * a);
      root2 = (-b - sqrt(discriminant)) / (2 * a);
      printf("root1 = %.2lf and root2 = %.2lf", root1, root2);
   }
   else if (discriminant == 0) {
      root1 = root2 = -b / (2 * a);
      printf("root1 = root2 = %.2lf;", root1);
   }

   else {
      realPart = -b / (2 * a);
      imagPart = sqrt(-discriminant) / (2 * a);
      printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart, realPart, imagPart);
   }
  return 0;}
```

OUTPUT:

```
        Enter coefficients a,b and c: 2 4 6
        Root1= -1.00+41i and root2= -1.00-1.41i
```

QUESTION:3

```
#include <stdio.h>
int main()
{
   int y;
 printf("Enter year: ");
   scanf("%d",&y);
  if(y % 4 == 0)
```

```
   {
      if( y % 100 == 0)
    {
         if ( y % 400 == 0)
            printf("%d is a Leap Year", y);
         else
            printf("%d is not a Leap Year", y);
      }
      else
         printf("%d is a Leap Year", y );
   }
   else
      printf("%d is not a Leap Year", y);
 return 0;
}
```

OUTPUT:

Enter year: 2001

is not a Leap Year

QUESTION:4

```
#include<stdio.h>
int main()
{
int a,b;
int x=90;
int y=50;
a=100-x;
printf("the value of a is %d\n",x);
b=100-y;
printf("the value of b is %d\n",y);
```

```
if(a>=b){
        if(a>b)
        {
                printf("%d is nearest value of 100\n",y);
        }
        else
        {
                printf("return o\n");
        }
}
else
{
printf("%d is nearest value of 100\n",x);
}
return 0;
}
```

OUTPUT:-

The value of a is 90

The value of b is 50

90 is nearest value of 100

QUESTION:5

```
#include<stdio.h>
int main()
{
        int a,b,c,largest,middle,smallest,dif1,dif2;
        printf("enter three numbers: ");
        scanf("%d%d%d",&a,&b,&c);
        if(a>=b && a>=c)
        {
```

```
        largest=a;
        if(b>c)
        {
        middle=b;
        smallest=c;
        }
        else
        {
                middle=c;
                smallest=b;
        }
}
if(b>=a && b>=c)
{
        largest=b;
        if(a>c)
        {
        middle=a;
        smallest=c;
        }
        else
        {
                middle=c;
                smallest=a;
        }
}
if(c>=b && c>=a)
{
        largest=c;
        if(a>b)
        {
```

```
                middle=a;
                smallest=b;
        }
        else
        {
                middle=b;
                smallest=a;
        }
    }
    printf("largest no=%d middle no=%d smallest number=%d\n",largest,middle,smallest);
    dif1=middle-smallest;
    dif2=largest-middle;
    if(dif1==dif2)
    {
        printf("true\n");
    }
    else{
        printf("false\n");
    }
    }
```

OUTPUT:-Enter three numbers: 10 20 30

Largest no=30 middle no=20 smallest no=10

True

QUESTION:6

```
#include<stdio.h>
void main()
{
   long cid;
   char name[50];
```

```
float amount,unit;
printf("Enter the name of the customer : ");
gets(name);
printf("Enter the customer ID : ");
scanf("%ld",&cid);
printf("Enter the number of units : ");
scanf("%f",&unit);
if(unit<=199)
   {
   amount=unit*1.2;
   }
else if(unit <400)
   {
   amount=unit*1.5;
   }
else if(unit <600)
   {
   amount=unit*1.8;
   }
else
   {
   amount=unit*2;
   }
if(amount<100){
amount=100;
}
if(amount>400){
amount+=0.15*amount;
}

printf("\n\nCUSTOMER ID : %ld\n",cid);
```

```
   printf("CUSTOMER NAME : %s\n",name );
   printf("UNITS : %0.2f\n",unit);
   printf("AMOUNT : %0.2f",amount);
}
```

OUTPUT:-

```
        Enter the name of the customer:dipika
        Eter the customer ID: 00546
        Enter the number of units:250

        CUSTOMER ID:546
        CUSTOMER NAME:dipika
        UNITS:250.00
        AMOUNT:375
```

QUESTION:7

```
#include<stdio.h>
void main()
{
int m1,m2,m3,avg;
printf("Enter the marks of 3 subjects : ");
scanf("%d %d %d",&m1,&m2,&m3);
avg=(m1+m2+m3)/3;
printf("Average : %d\n",avg);
if(avg>=90)
   printf("GRADE : A");
else if(avg>=80)
   printf("GRADE : B");
else if(avg>=70)
   printf("GRADE : C");
else if(avg>=60)
```

```
    printf("GRADE : D");
else
    printf("GRADE : F");

}
```

OUTPUT:-

```
Enter the marks of three subjects: 50 50 50
Average: 50
Grade: F
```

QUESTION:8

```
#include <stdio.h>
int main()
{
    int month;
    printf("Enter month number(1-12): ");
    scanf("%d", &month);

    switch(month)
    {
        case 1:
            printf("31 days");
            break;
        case 2:
            printf("28/29 days");
            break;
        case 3:
            printf("31 days");
            break;
```

```
    case 4:
        printf("30 days");
        break;
    case 5:
        printf("31 days");
        break;
    case 6:
        printf("30 days");
        break;
    case 7:
        printf("31 days");
        break;
    case 8:
        printf("31 days");
        break;
    case 9:
        printf("30 days");
        break;
    case 10:
        printf("31 days");
        break;
    case 11:
        printf("30 days");
        break;
    case 12:
        printf("31 days");
        break;
    default:
        printf("Invalid input!");
}
 return 0;
```

```
}
```

OUTPUT:

Enter month number(1-12):2

Enter month number(1-12): 28/29 days

QUESTION:9

```
#include<stdio.h>
int main()
{
   int a=4, b=7, result;
   char operator;

   printf("Enter an operator: ");
   scanf("%c", &operator);

   switch(operator)
   {
      case '+':
         result = a + b;
         break;
      case '-':
         result = a - b;
         break;
      case '*':
         result = a * b;
         break;
      case '/':
         result = a / b;
         break;
   }
    printf("Result = %d", result);
```

```
    return 0;
}
```

OUTPUT:

Enter an operator:*

Enter an operator: Result = 28

QUESTION:-10

```
#include<stdio.h>
void main()
{
   char Grade;
   printf("Enter the Grade");
   scanf("%c",& Grade);
   switch(Grade)
   {
      case 'A':
      printf("Excellent");
      break;
      case 'B':
      printf("Good");
      break;
      case 'C':
      printf("Average");
      break;
      case 'D':
      printf("Deficient");
      break;
      case 'F':
      printf("Failing");
      break;
      default:
```

```
        printf("INVALID");
          }
}
```

OUTPUT:

Enter the Grade C

C

Average

QUESTION:11

```
#include<stdio.h>
void main()
{
int s1,s2,s3;
printf("Enter three sides of the triangle : ");
scanf("%d %d %d",&s1,&s2,&s3);
if(s1==s2){
   if(s2==s3){
   printf("It is an equilateral triangle.");
   }
   else{
   printf("It is an isoceles triangle.");
   }
}
else if(s3==s2){

   printf("It is an isoceles triangle.");

}
else if(s3==s1){

   printf("It is an isoceles triangle.");
```

```
}
else{
printf("It is a scalene triangle.");
}
}
```

OUTPUT:-

Enter the three sides of the triangle: 4 7 4

It is an isoscale triangle.

QUESTION:12

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

OUTPUT:- enter a number :6

It is a even number

QUESTION:13

```
#include<stdio.h>
void main()
{
char ch;
printf("Enter a character : ");
scanf("%c",&ch);
if((ch>=65 && ch<=90) || (ch>=97 && ch<=122)){
printf("It is an alphabet.");
}
else{
printf("It is not an alphabet");
}
}
```

OUTPUT:-

Enter a character :e

It is an alphabet

QUESTION:14

PROGRAM:-

```
#include<stdio.h>
void main(){
int a,b,c,largest;
printf("Enter three numbers : ");
scanf("%d %d %d",&a,&b,&c);
largest=a>b?(a>c?a:c):(b>c?b:c);
printf("%d is the largest.",largest);
}
```

OUTPUT:-

Enter three numbers: 4 7 9

9 is the largest

QUESTION:15

```
#include<stdio.h>
void main(){
int a,b,large,small;
printf("Enter 2 numbers : ");
scanf("%d %d",&a,&b);
if(a>b){
large=a;
small=b;
}
else if(b>a){
large=b;
small=a;
}
else{
printf("0");
return 0;
}
printf("The larger number is %d\nThe smaller number is %d\n",large,small);
if((a%5)==(b%5)){
printf("%d",small);
}

}
```

OUTPUT:-

Enter two number: 4 8

The larger number is 8

The smaller number is 4

QUESTION:16

```
#include<stdio.h>
void main()
{
int math,phy,chem,ncall,amount;
printf("Enter the marks in Mathematics : ");
scanf("%d",&math);
printf("Enter the marks in Physics : ");
scanf("%d",&phy);
printf("Enter the marks in Chemistry : ");
scanf("%d",&chem);
if(math>=65 && phy>=55 && chem>=50 && ((math+phy+chem)>=190 ||(math+phy)>=140))
   printf("You are eligible");
else
   printf("You are not eligibile");
printf("\n\nEnter the number of calls : ");
scanf("%d",&ncall);
if(ncall<=100){
amount=200;
}
else if(ncall<=150){
amount=200+(0.6*(ncall-100));
}
else if(ncall<=200){
amount=200+30+(0.5*(ncall-150));
}
else{
amount=200+30+25+(0.4*(ncall-200));
}
printf("Your telephone bill amount is : %d",amount);
}
```

OUTPUT:-

Enter the marks in mathematics:89

Enter the marks in physics:85

Enter the marks in chemistry:66

Enter the number of calls:59

Your telephone bill amount is : 200