1. Write a program to check whether a given number is positive or non-positive.

Ans.

```
#include<stdio.h>
int main()
{
   int num;
   printf("Enter a number:");
   scanf("%d",&num);
   if(num > 0)
   {
      printf("Positive");
   }
   else
   {
      printf("Non-positive");
   }
   return 0;
}
```

2. Write a program to check whether a given number is divisible by 5 or not

Ans.

```
#include <stdio.h>
int main()
{
   int number;
   printf("Enter a number:");
   scanf("%d",&number);
   if (number % 5 == 0)
   {
      printf("%d is divisible by 5", number);
   }
   else
```

```
        {
            printf("%d is not divisible by 5", number);
        }
        return 0;
    }
```

3. Write a program to check whether a given number is an even number or an odd number.

Ans.

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

4. Write a program to check whether a given number is an even number or an odd number without using % operator.

Ans.

```
#include<stdio.h>
int main()
{
   int num;
   printf("Enter a number:");
```

```
    scanf("%d",&num);
    if(num&1)
    {
       printf("%d is an odd number",num);
    }
    else
    {
       printf("%d is an even number",num);
    }
    return 0;
}
```

5. Write a program to check whether a given number is a three-digit number or not.

Ans.

```
#include <stdio.h>
int main()
{
   int num;
   printf("Enter a number:");
   scanf("%d", &num);
   num /= 10;
   if (num == 0)
   {
      printf("Not a three digit number");
   }
   else
   {
      num /= 10;
      if (num == 0)
      {
         printf("Not a three digit number");
      }
```

```
        else
        {
            num /= 10;
            if (num == 0)
            {
                printf("Three digit number");
            }
            else
            {
                printf("Not a three digit number");
            }
        }
    }
    return 0;
}
```

6. **Write a program to print greater between two numbers. Print one number of both are the same.**

Ans.

```
#include <stdio.h>
int main()
{
   int a, b;
   printf("Enter two numbers:");
   scanf("%d%d", &a, &b);
   if (a > b)
   {
      printf("%d", a);
   }
   if (a < b)
   {
      printf("%d", b);
```

```
    }
    else
    {
        printf("%d", a);
    }
    return 0;
}
```

7. Write a program to check whether roots of a given quadratic equation are real & distinct, real & equal or imaginary roots

Ans.

```
#include <stdio.h>
int main()
{
    int a, b, c, D;
    printf("Enter the coefficients of x^2 x and constant term:");
    scanf("%d %d %d", &a, &b, &c);
    D = b * b - 4 * a * c;
    if (D > 0)
        printf("Roots are real and distinct");
    if (D == 0)
        printf("Both roots are equal");
    if (D < 0)
        printf("Both roots are imaginary");
    return 0;
}
```

8. Write a program to check whether a given year is a leap year or not.

Ans.

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

```
        printf("Enter year number:");
        scanf("%d", &year);
        if (year % 100 == 0)
        {
           if (year % 400 == 0)
              printf("Leap year");
           else
              printf("Not a leap year");
        }
        else
        {
           if (year % 4 == 0)
              printf("Leap year");
           else
              printf("Not a leap year");
        }
        return 0;
     }
```

9. Write a program to find the greatest among three given numbers. Print number once if the greatest number appears two or three times.

Ans.

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

```
    else
    {
        b > c ? printf("%d", b) : printf("%d", c);
    }
    return 0;
}
```

10. **Write a program which takes the cost price and selling price of a product from the user. Now calculate and print profit or loss percentage.**

Ans.

```
#include <stdio.h>
int main()
{
    float costPrice, sellingPrice;
    printf("Enter cost price and selling price of the product:");
    scanf("%f%f", &costPrice, &sellingPrice);
    if (costPrice > sellingPrice)
    {
        float loss = costPrice - sellingPrice;
        float lossPercentage = (loss / costPrice) * 100;
        printf("Loss percentage %f", lossPercentage);
    }
    else
    {
        float profit = sellingPrice - costPrice;
        float profitPercentage = (profit / costPrice) * 100;
        printf("Profit percentage %f", profitPercentage);
    }
    return 0;
}
```

11. **Write a program to take marks of 5 subjects from the user. Assume marks are given out of 100 and passing marks is 33. Now display whether the candidate passed the examination or failed.**

Ans.

```
#include <stdio.h>
int main()
{
   float marksInEnglish, marksInMaths, marksInScience, marksInHindi, marksInComputerScience;
   int marksOutOf = 100, passingMarks = 33;
   printf("Enter the marks obtained in english:");
   scanf("%f", &marksInEnglish);
   printf("Enter the marks obtained in maths:");
   scanf("%f", &marksInMaths);
   printf("Enter the marks obtained in science:");
   scanf("%f", &marksInScience);
   printf("Enter the marks obtained in hindi:");
   scanf("%f", &marksInHindi);
   printf("Enter the marks obtained in computer science:");
   scanf("%f", &marksInComputerScience);
   if (marksInEnglish > marksOutOf)
   {
      printf("Please enter valid marks for english\n");
   }
   else
   {
      marksInEnglish < passingMarks ? printf("You are fail in english\n") : printf("You are pass in
english\n");
   }
   if (marksInMaths > marksOutOf)
   {
      printf("Please enter valid marks for maths\n");
   }
   else
   {
```

```
    marksInMaths < passingMarks ? printf("You are fail in maths\n") : printf("You are pass in maths\n");
  }
  if (marksInScience > marksOutOf)
  {
    printf("Please enter valid marks for science\n");
  }
  else
  {
    marksInScience < passingMarks ? printf("You are fail in science\n") : printf("You are pass in science\n");
  }
  if (marksInHindi > marksOutOf)
  {
    printf("Please enter valid marks for hindi\n");
  }
  else
  {
    marksInHindi < passingMarks ? printf("You are fail in hindi\n") : printf("You are pass in hindi\n");
  }
  if (marksInComputerScience > marksOutOf)
  {
    printf("Please enter valid marks for computer science\n");
  }
  else
  {
    marksInComputerScience < passingMarks ? printf("You are fail in computer science\n") : printf("You are pass in computer science\n");
  }
  return 0;
}
```

12. Write a program to check whether a given alphabet is in uppercase or lowercase.

Ans.

```
#include <stdio.h>
int main()
{
   char ch;
   printf("Enter an alphabet:");
   scanf("%c", &ch);
   if (ch >= 'a' && ch <= 'z')
   {
      printf("Lowercase");
   }
   else
   {
      if (ch >= 'A' && ch <= 'Z')
      {
         printf("Uppercase");
      }
   }
   return 0;
}
```

13. Write a program to check whether a given number is divisible by 3 and divisible by 2.

Ans.

```
#include <stdio.h>
int main()
{
   int a;
   printf("Enter a number:");
   scanf("%d", &a);
   if (a % 2 == 0 && a % 3 == 0)
   {
      printf("%d is divisible by 2 and 3", a);
```

```
    }
    else
    {
        printf("%d is not divisible by 2 and 3", a);
    }
    return 0;
}
```

14. Write a program to check whether a given number is divisible by 7 or divisible by 3.

Ans.

```
#include <stdio.h>
int main()
{
    int a;
    printf("Enter a number:");
    scanf("%d", &a);
    if (a % 7 == 0 || a % 3 == 0)
    {
        printf("%d is divisible by 7 or 3", a);
    }
    else
    {
        printf("%d is not divisible by 7 or 3", a);
    }
    return 0;
}
```

15. Write a program to check whether a given number is positive, negative or zero.

Ans.

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

```
    printf("Enter a number:");
    scanf("%d", &a);
    if (a > 0)
    {
        printf("Positive");
    }
    else
    {
        if (a < 0)
        {
            printf("Negative");
        }
        else
        {
            printf("zero");
        }
    }
    return 0;
}
```

16. Write a program to check whether a given character is an alphabet (uppercase), an alphabet (lower case), a digit or a special character.

Ans.

```
#include <stdio.h>
int main()
{
    char ch;
    printf("Enter a character:");
    scanf("%c", &ch);
    if (ch >= 'a' && ch <= 'z')
    {
        printf("Alphabet lowercase");
```

```
    }
    else
    {
        if (ch >= 'A' && ch <= 'Z')
        {
            printf("Alphabet Uppercase");
        }
        else
        {
            if (ch >= 1 && ch <= 9)
            {
                printf("Digit");
            }
            else
            {
                printf("Special character");
            }
        }
    }
    return 0;
}
```

17. Write a program which takes the length of the sides of a triangle as an input. Display whether the triangle is valid or not.

Ans.

```
#include <stdio.h>
int main()
{
    int side1, side2, side3;
    printf("Enter the lengths of three sides:");
    scanf("%d%d%d", &side1, &side2, &side3);
    if (side1 + side2 > side3 && side1 + side3 > side2 && side2 + side3 > side2)
```

```
        {
            printf("It is a valid triangle");
        }
        else
        {
            printf("It is not a valid triangle");
        }
        return 0;
    }
```

18. **Write a program which takes the month number as an input and display number of days in that month**

Ans.

```
#include <stdio.h>
int main()
{
   int month;
   printf("Enter month number:");
   scanf("%d", &month);
   if (month == 1)
   {
      printf("Month january days 31");
   }
   if (month == 2)
   {
      printf("Month february days 28");
   }
   if (month == 3)
   {
      printf("Month March days 31");
   }
   if (month == 4)
```

```
{
   printf("Month April days 30");
}
if (month == 5)
{
   printf("Month May days 31");
}
if (month == 6)
{
   printf("Month june days 30");
}
if (month == 7)
{
   printf("Month july days 31");
}
if (month == 8)
{
   printf("Month August days 31");
}
if (month == 9)
{
   printf("Month September days 30");
}
if (month == 10)
{
   printf("Month October days 31");
}
if (month == 11)
{
   printf("Month November days 30");
}
```

```
    if (month == 12)
    {
        printf("Month December days 31");
    }
    return 0;
}
```