Assignment – 3

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

```c
#include<stdio.h>
int main()
{
    int a;
    printf("Enter the number :");
    scanf("%d",&a);
    if(a>=0)
    {
        printf("Given number is positive");
    }
    else
    {
        printf("Given number is negative");
    }
    return 0;
}
```

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

```c
#include<stdio.h>
int main()
{
    int a;
    printf("Enter the number :");
    scanf("%d",&a);
    if(a%5==0)
    {
        printf("Given number is divisible by 5");
    }
    else
    {
        printf("Given number is not divisible by 5");
    }
    return 0;
}
```

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

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

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

```c
#include<stdio.h>
int main()
{
    int a;
    printf("Enter the number :");
    scanf("%d",&a);
    if((a & 1)==0)
    {
        printf("Given number is even");
    }
    else
    {
        printf("Given number is odd");
    }
    return 0;
}
```

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

```c
#include<stdio.h>
int main()
{
    int a;
    printf("Enter the number :");
    scanf("%d",&a);
    a=a/1000;
    if(a==0)
    {
        printf("Given number is three digit number");
    }
    else
    {
        printf("Given number is not three digit number");
    }
    return 0;
}
```

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

```c
#include<stdio.h>
int main()
{
    int a,b;
    printf("Enter the number :");
    scanf("%d%d",&a,&b);
    if(a>b)
    {
        printf("%d number is greater number",a);
    }
    else if(a==b)
    {
        printf("Both number is same");
    }
    else
    {
        printf("%d number is greater number",b);
    }
```

```
    return 0;
}
```

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

```
#include <math.h>
#include <stdio.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;
}
```

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

```
#include<stdio.h>
int main()
{
    int year;
    printf("Enter any year :");
    scanf("%d",&year);
    if((year%4)==0 || (year/400)==0)
    {
        printf("Given year is leap year");
    }
    else
    {
        printf("Given year is non 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.

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

```
{
    int a,b,c;
    printf("Enter three numbers :");
    scanf("%d%d%d",&a,&b,&c);
    if (a>b)
    {
        if(a>c)
        {
            printf("%d is Greater",a);
        }
        else
        {
            printf("%d is Greater",c);
        }
    }
    else
    {
        if(b>c)
        {
            printf("%d is Greater",b);
        }
        else
        {
            printf("%d is Greater",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.

```
#include<stdio.h>
int main()
{
    float CP,SP;
    float profit,loss;
    printf("Enter cost price :");
    scanf("%d",&CP);
    printf("Enter selling price :");
    scanf("%d",&SP);
    if(SP>CP)
    {
        profit=(((SP-CP)/CP)*100);
        printf("Profit %% = %f",profit);
    }
    else
    {
        loss=(((CP-SP)/CP)*100);
        printf("Loss %% = %f",loss);
    }
    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.

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

```
{
    int a,b,c,d,e;
    printf("Enter marks of 5 subjects out of 100 marks :");
    scanf("%d%d%d%d%d",&a,&b,&c,&d,&e);
    if(a>33 && b>33 && c>33 && d>33 & e>33)
    {
        printf("Candidate is passed in examination");
    }
    else
    {
        printf("Candidate is failed in examination");
    }
    return 0;
}
```

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

```
#include<stdio.h>
int main()
{
    char a;
    printf("Enter any character :");
    scanf("%c",&a);
    if(a>=97 && a<=123)
    {
        printf("Given alphabet is Lowercase");
    }
    else if(a>=65 && a<=91)
    {
        printf("Given alphabet is Uppercase");
    }
    else
    {
        printf("Please enter valid character");
    }
    return 0;
}
```

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

```
#include<stdio.h>
int main()
{
    int a,b;
    printf("Enter a numbers :");
    scanf("%d",&a);
    if((a%2==0)&&(a%3==0))
    {
        printf("Given number is divisible by 2 & 3");
    }
    else
    {
        printf("Given number is not divisible by 2 & 3");
    }
    return 0;
}
```

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

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

```c
int main()
{
    int a,b;
    printf("Enter a numbers :");
    scanf("%d",&a);
    if((a%7==0)||(a%3==0))
    {
        printf("Given number is divisible by 7 & 3");
    }
    else
    {
        printf("Given number is not divisible by 7 & 3");
    }
    return 0;
}
```

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

```c
#include<stdio.h>
int main()
{
    int n;
    printf("Enter a number :");
    scanf("%d",&n);
    if(n>=1)
    {
        printf("Given number is positive");
    }
    else if (n==0)
    {
        printf("Given number is zero");
    }
    else
    {
        printf("Given number is negative");
    }

    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.

```c
#include<stdio.h>
int main()
{
    char n;
    printf("Enter a number :");
    scanf("%c",&n);
    if (n>=48 && n<=57)
    {
        printf("Given character is digit");
    }
    else if (n>=97 && n<=123)
    {
        printf("Given character is Lowercase");
    }
    else if (n>=65 && n<=91)
    {
```

```
        printf("Given character is Uppercase");
    }
    else
    {
        printf("Given character is special symbol");
    }


    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.

```
#include<stdio.h>
int main()
{
    int a,b,c;
    printf("Enter the sides of Triangle :");
    scanf("%d%d%d",&a,&b,&c);
    if(a+b<=c || a+c<=b || b+c<=a)
    {
        printf("Given Triangle is invalid");
    }
    else
    {
        printf("Given Triangle is valid");
    }
    return 0;
}
```

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

```
#include<stdio.h>
int main()
{
    int a;
    printf("Enter number of month :");
    scanf("%d",&a);
    if(a==1 || a==3 || a==5 || a==7 || a==8 || a==10 || a==12)
    {
        printf("Number of day in the given month is 31");
    }
    else if (a==2)
    {
        printf("Number of day in the given month is 28 or 29");
    }
    else
    {
        printf("Number of day in the given month is 30");
    }

    return 0;
}
```