Objective:

- The purpose of this quiz is to focus on the very basic fundamental concepts practiced so far in previous labs.

Question No 1: **(5)**

Write the function definition of 'clear()', which was given to you in lab-1 of polynomial class.

```
void clear ()
//Set the coefficient of all terms in the polynomial to zero.
```

```
void Polynomial::clear()
{
    noOfElements = 0;
}
```

Question No 2: **(5)**

Write a function **template**, which performs linear search on a given array of size N and returns the index at which the element reside otherwise returns -1.

```
template< typename T>
int linearSearch(T * array, int N, int key)
{
    int i=0;
    while(i<N && array[i]!=key)
        i++;
    return i < N ? i: -1;
}
```

Question No 3: **(8)**

Write a function, which receives an N-Order matrix and finds the given 'key' in the matrix.
The elements in the matrix are increasing from left to right and increasing from top to bottom.
The function return true if 'key' is found otherwise return false.
An example matrix of order 5 is as follows:
Also Calculate the time equation of the your code.
To get full marks you should code in O(N).

-6	12	35	56	70
20	25	100	150	200
22	30	120	200	250
300	321	323	412	525
600	601	654	671	690

```
template< typename T>
bool searchSortedMatrix(T (*mat)[5], int N, int key)
{
    int i=0, j=N-1;
    while(i>=0 && j>=0 && i<N && j<N)
    {
        if (mat[i][j]==key)
            return true;
        else if (mat[i][j]>key)
            j--;
        else
            i++;
    }
    return false;
}
int main ()
{
    int a[5][5] = {-11, -2,  3,  4,  5,
                    45, 50, 51, 70,100,
                   200,250,500,700,800,
                   201,300,550,570,850,
                   890,900,901,910,915 };
    cout<<searchSortedMatrix<int>(a, 5, -12);
    return 0;
}
```