(10) Insertion sort

```
#include <stdio.h>
void main(){
 int array[50], n, i, j, temp;
 Printf("enter the number of elements");
 Scanf("%d", &n);
 Printf("\nentered elements are %d", n);
 for(i=0; i<n; i++)
 Scanf("%d", &array[i]);
 for(i=0; i<n-1; i++)
   j=i;
 {
   while(j>0 && array[j-1]>array[j])
    {
       temp = array[j];
      array[j] = array[j-1];
      array[j-1] = temp;
    } d--;
 }
 Printf("elements are in ascending order");
  for(i=0; i<n-1; i++)
  Printf("%d \n", array[i]);
}
```

output:

```
enter the number of elements
5
The enter elements are 5
14 3 16 2 1
elements are in ascending order
1
2
3
14
16
```

(20) Selection Sort algorithm.

```
#include<stdio.h>
void main()
{
int array[50], n, i, j, temp, position;
printf("enter the number of elements");
scanf("%d", &n);
printf("the entered elements are %d", n);
for(i=0; i<n; i++)
scanf("%d", &array[i]);
{
  position=i;
  for(j=i+1; j<n; j++)
   {
     position=j;
     if(array[position] > array[j])
      { position = d;
      }
   }
  if(position != i)
     {
        temp = array[i];
        array[i]=array[position];
        array[position]= temp;
```

```
    }
  }
  printf("elements are in ascending order\n");
   for(i=0; i<n; i++)
    printf("%d", array[i])
}
```

output:

enter the number of elements

6

the entered elements are 6

100 34 12 1 45 2

elements are in ascending order

1
2
12
34
45
100

(12) Bubble sort algorithm

```
#include<stdio.h>
void main(){
  int array[50], n, i, j, temp;
  Printf("enter the number of elements");
  Scanf("%d", &n);
  Printf("enter the %d elements", n);
  for(i=0; i<n; i++)
    Scanf("%d", &array[i]);
  for(i=0; i<n-1; i++)
    {
      for(j=0; j<n-i-1; j++)
        {
          if(array[j] > array[j+1])
            {
              temp = array[j];
              array[j] = array[j+1];
              array[j+1] = temp;
            }
        }
    }
```

```
Printf(" elements are in ascending order ");
for(c=0; c<n ; c++)
Printf("%d \n", array[c]);
}
```

output

enter the number of element
6
the entered elements are 6
12, 34, 6, 78, 45, 1
elements are in ascending order
Eg ! 6 12 34 45 78

(4.) Merge sort algorithm.

```
#include <stdio.h>
void main
void mergesort(int array[], int i, int j);
void merge(int array[], int j1, int j2, int i2, int j2);
int main()
{
    int array[40], n, i;
    Printf("enter no of elements");
    scanf("%d", &n);
    Printf("enter elements:");
    for(i=0; i<n; i++)
    scanf("%d", &array[i]);
    mergesort(array, 0, n-1);
    Printf("sorted array is");
    for(i=0; i<n; i++)
        Printf("%d", array[i]);
    return 0;
}
void mergesort(int array[], int i, int j)
{
    int mid;
```

```
if (i<j)
{
    mid = (i+j)/2;
    mergesort (array, i, mid);
    mergesort (array, mid+1, j);
    merge (array, i, mid, mid+1, j);
}
}
void merge (int array[], int i1, int j1, int i2, int j2);
{
  int temp[50];
  int i, j, k;
   i = i1;
   j = i2;
   k = 0;
   while (i<=j1 && j<=j2)
   {
      if (array[i] < array[j])
          temp[k++] = array[i++];
      else
          temp[k++] = array[j++];
   }
  while (i<=j1)
      temp[k++] = array[i++];
  while (j<=j2)
      temp[k++] = array[j++];

  for (i=i1, j=0; i<=j2; i++, j++)
      array[i] = temp[j];
}
```