LAB PROGRAMMES

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CSE-H

1. Write a program for the Insertion sort algorithm.

```
#include <stdio.h>
void main()
{
  int n, array[1000], p, q, r;
  printf("Enter number of elements\n");
  scanf("%d", &n);
  printf("Enter %d integers\n", n);
  for (p = 0; p < n; p++)
        scanf("%d", &array[a]);
  for ( p= 1 ; p <= n - 1; p++) {
        q = p;
        while (q > 0 && array[q-1] > array[q]) {
        r = array[q];
        array[q] = array[q-1];
        array[q-1] = r;
        q--;
       }
 }
 printf("Sorted array in ascending order:\n");
 for (p = 0; p <= n - 1; p++) {
       printf("%d\n", array[p]);
      }
}
```

2. Write a program for the Selection sort algorithm.

```
#include <stdio.h>
void main()
{
  int array[100], k, p, q, pos, temp;
  printf("Enter number of elements\n");
  scanf("%d", &k);
  printf("Enter %d integers\n", k);
  for (p = 0; p < k; p++)
       scanf("%d", &array[a]);
  for (p = 0; p < (k - 1); p++)
 {
    pos = p;
    for (q = p + 1; q < k; p++)
   {
    if (array[pos] > array[q])
    pos = q;
   }
   if (pos != p)
  {
   temp = array[p];
   array[p] = array[pos];
   array[pos] = temp;
  }
  }
   printf("Sorted array in ascending order:\n");
   for (p = 0; p < k; p++)
   printf("%d\n", array[p]);
    }
```

3. Write a program for Bubble sort algorithm.

```
#include <stdio.h>
void main()
{
  int array[100], n, p, q, temp;
  printf("Enter number of elements\n");
    scanf("%d", &n);
       printf("Enter %d integers\n", n);
       for (p = 0; p < n; p++)
       scanf("%d", &array[p]);
       for (p = 0 ; p < n - 1; p++)
    {
     for (q = 0 ; q < n – p - 1; q++)
    {
     If (array[q] > array[q+1])
    {
        temp = array[q];
        array[q] = array[q+1];
        array[q+1] = temp;
    }
    }
    }
    Printf("Sorted list in ascending order:\n");
    for (p = 0; p < n; p++)
          printf("%d\n", array[p]);
    }
```

4. Write a program for the Merge sort algorithm.

```
void mergesort(int a[],int i , int j);
void merge(int a[], int i1, int j1, int i2, int j2);
int main()
{
   int a[30],n,i;
   printf(“Enter no.of elements:”);
   scanf(“%d”,&n);
   printf(“Enter array elements:”);
   for(i=0;i<n;i++)
   scanf(“%d”,&a[i]);
   mergesort(a,0,n-1);
   printf(“\n Sorted array is:”);
   for(i=0;i<n;i++)
   printf(“%d”,a[i]);
   return 0;
}
void mergesort(int a[], int i, int j)
{
   int mid;
   if(i<j)
  {
   mid= (i+j)/2;
   mergesort(a,i,mid);
   mergesort(a,mid+1,j);
   merge(a,i,mid+1,j);
    }
}
```

```
void merge(int a[],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(a[i]< a[j]
    temp[k++]=a[i++]
  else
     temp[k++]=a[j++]
  }
  while(i<=j1)
  temp[k++]=a[i++]
  while(j<=j2)
  temp[k++]=a[j++]
  for(i=i1,j=0;i<=j2,i++,j++)
      a[i]= temp[j];

}
```