Lab Session 11

Ex A (A.11.1):

CODE

```python
array = [10, 51, 18, 2, 3, 4, 6]
print("Before Sorting:", array)

def Insertion(array):

    n = len(array)

    for k in range(1, n):
        temp = array[k]
        ptr = k - 1

        while ptr >= 0 and array[ptr] > temp:
            array[ptr+1] = array[ptr]
            ptr -= 1

        array[ptr+1] = temp

array1 = Insertion(array)
print("After Sorting:", array)
```

OUTPUT

```
Before Sorting: [10, 51, 18, 2, 3, 4, 6]
After Sorting: [2, 3, 4, 6, 10, 18, 51]
```

Ex A (A.11.2):

CODE

```python
array = [23, 12, 1, 8, 34, 54, 2, 3]
n = len(array)
print("Before Sorting:", array)

def shell(num, n):
    k = int(n/2)

    while k > 0:
        for i in range(k, n):
            key = num[i]
            j = i
            while j >= k and num[j - k] > key:
                num[j] = num[j - k]
                j -= k
            num[j] = key
        k = int(k/2)

    return num

num = shell(array, n)
print("After Sorting:", num)
```

OUTPUT

```
Before Sorting: [23, 12, 1, 8, 34, 54, 2, 3]
After Sorting: [1, 2, 3, 8, 12, 23, 34, 54]
```