

Daniyal Alam "15385"

: Data - Structures:
& Algorithms

Mid - Semester Assignment:

Q1, Part "a"

Let the size of $A[]$ — bound.

Solution:

$$ub = ?$$

$$\text{Size of } A[] = ub - lb + 1$$

$$ub = \text{size of } A[] + lb - 1$$

$$ub = 15654 + 36767 - 1$$

$$ub = 52420 \quad \boxed{\text{Ans}}$$

Q1, Part "b"

Solutions:

$$\textcircled{i} \text{ As, no of passes} = n - 1 \\ = 350 - 1 = 349.$$

$$\textcircled{ii} \text{ As, no of steps} = \frac{n(n-1)}{2} \\ = \frac{350(350-1)}{2} = 61075.$$

$$\textcircled{iii} \text{ As, no of steps in } 137 = n - \text{pass no} \\ = 349 - 137 = 212.$$

$$\textcircled{iv} \text{ As, no of steps in } 193 = 349 - 193 \\ = 156.$$

Q9, Sort the given list using selection sort.

10, 15, 0, 7, 8, 6.

Sol:

Total $n = 6$.

steps = $n - 1 = 6 - 1 = 5$.

Step: 1

Element = 10

10, 15, 0, 7, 8, 6

Step: 2

0, 15, 10, 7, 8, 6

Step: 3

0, 6, 10, 7, 8, 15

Step: 4

0, 6, 7, 10, 8, 15

Step: 5

0, 6, 7, 8, 10, 15

10 is at proper position.
list is sorted.

Q3 Fill in the blanks:

- ① Physical
- ② Logical
- ③ data structure
- ④ non-linear
- ⑤ linear
- ⑥ linear
- ⑦ 8
- ⑧ file
- ⑨ degree of record
- ⑩ blocking factor.