Arfan basha shaik
1002260039.

## Chapter-17

1) a) To insert 'n' elements Using Aggregate method. Cost of $i^{th}$ operation.

Case: 1 If we don't take need to allocate new memory $= O(1)$

Case: 2 - If we allocate new memory
$$i = 2^k + 1 \qquad k = 1, 2 \dots$$
to include the capacity and double the size of array.

∴ We need to allocate new memory.

Copy over $2^k$ number's from old to new array and insert new number.

Running time $= 2^k + 1$    if $i = 2^k + 1$ case 1
$$\qquad\qquad\qquad 1 \qquad\qquad\qquad \text{otherwise. case 2.}$$

1 b) Accounting method

The operations which cause capacity to include are expensive

| i | 1 | 2 | 3 | 4 | 5 |
|------|---|---|---|---|---|
| t(i) | 1 | 2 | 3 | 1 | 5 |

When size is changed from 4 to 5; the size is doubled and number's are copied from old to new.

no of consecutive in $t(i) = 2^k + 1 - $

$$\left(2^{k-1} + 1\right) - 1$$

$$= \frac{2k+1}{2^{k-1}+1} = 2 \quad \text{if } k = \text{large.}$$