

## Mixture and Allegation

### 1. Allegation:

It is the rule that enables us to find the ratio in which two or more ingredients at the given price must be mixed to produce a mixture of desired price.

2. Mean Price: The cost of a unit quantity of the mixture is called the mean price.

### 3. Rule of Allegation:

If two ingredients are mixed, then

$$\left( \frac{\text{Quantity of cheaper}}{\text{Quantity of dearer}} \right) = \left( \frac{\text{C.P. of dearer} - \text{Mean Price}}{\text{Mean price} - \text{C.P. of cheaper}} \right)$$

or

Quantity of Cheaper / Quantity of Dearer = (C.P of Dearer - Mean Price) / (Mean Price - C.P of Cheaper).

C.P of a unit quantity of cheaper(c) C.P of unit quantity of dearer(d)

C.P of a unit quantity of cheaper(c) C.P of unit quantity of dearer(d) Mean Price(m) (d-m)

(m-c) Cheaper quantity: Dearer quantity = (d-m) : (m-c) 4. Suppose a container contains x

units of liquid from which y units

are taken out and replaced by water. After n operations the

quantity of pure liquid =  $x \left(1 - \frac{y}{x}\right)^n$  units.