**Allegation & Mixtures Theory**

1. **Alligation:**

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.

1. **Mean Price:**

The cost of a unit quantity of the mixture is called the mean price.

1. **Rule of Alligation:**

If two ingredients are mixed, then

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | https://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | Quantity of cheaper | https://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | = | https://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | C.P. of dearer - Mean Price | https://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif |
| Quantity of dearer | Mean price - C.P. of cheaper |

We present as under:

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

https://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif (Cheaper quantity) : (Dearer quantity) = (*d* - *m*) : (*m* - *c*).

1. Suppose a container contains *x* of liquid from which *y* units are taken out and replaced by water.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| After *n* operations, the quantity of pure liquid = | https://www.indiabix.com/_files/images/aptitude/1-sym-obracket-h2.gif | *x* | https://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 1 - | *y* | https://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | *n* | https://www.indiabix.com/_files/images/aptitude/1-sym-cbracket-h2.gif | units. |
| *x* |