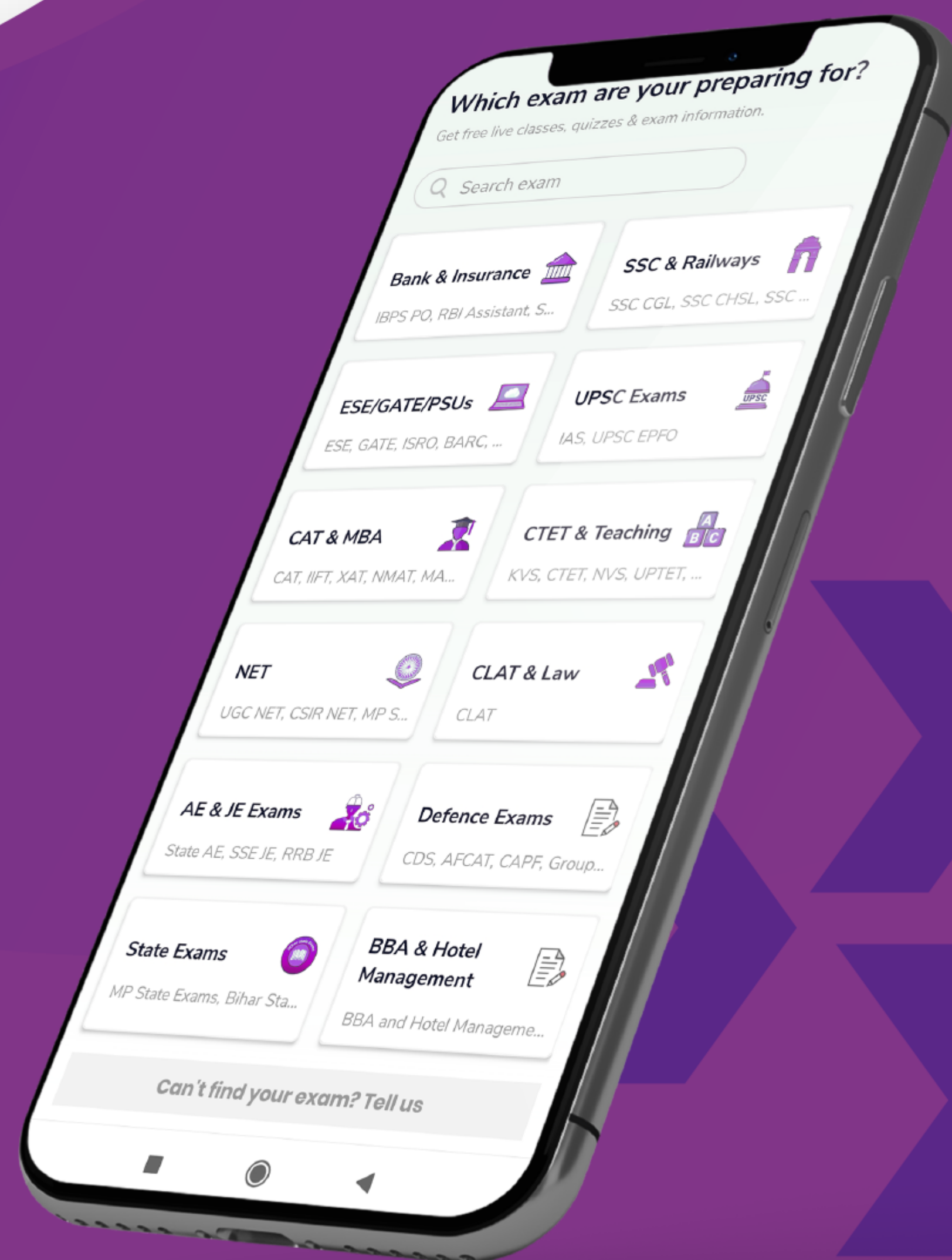


Formula Sheet On Mixture And Alligation



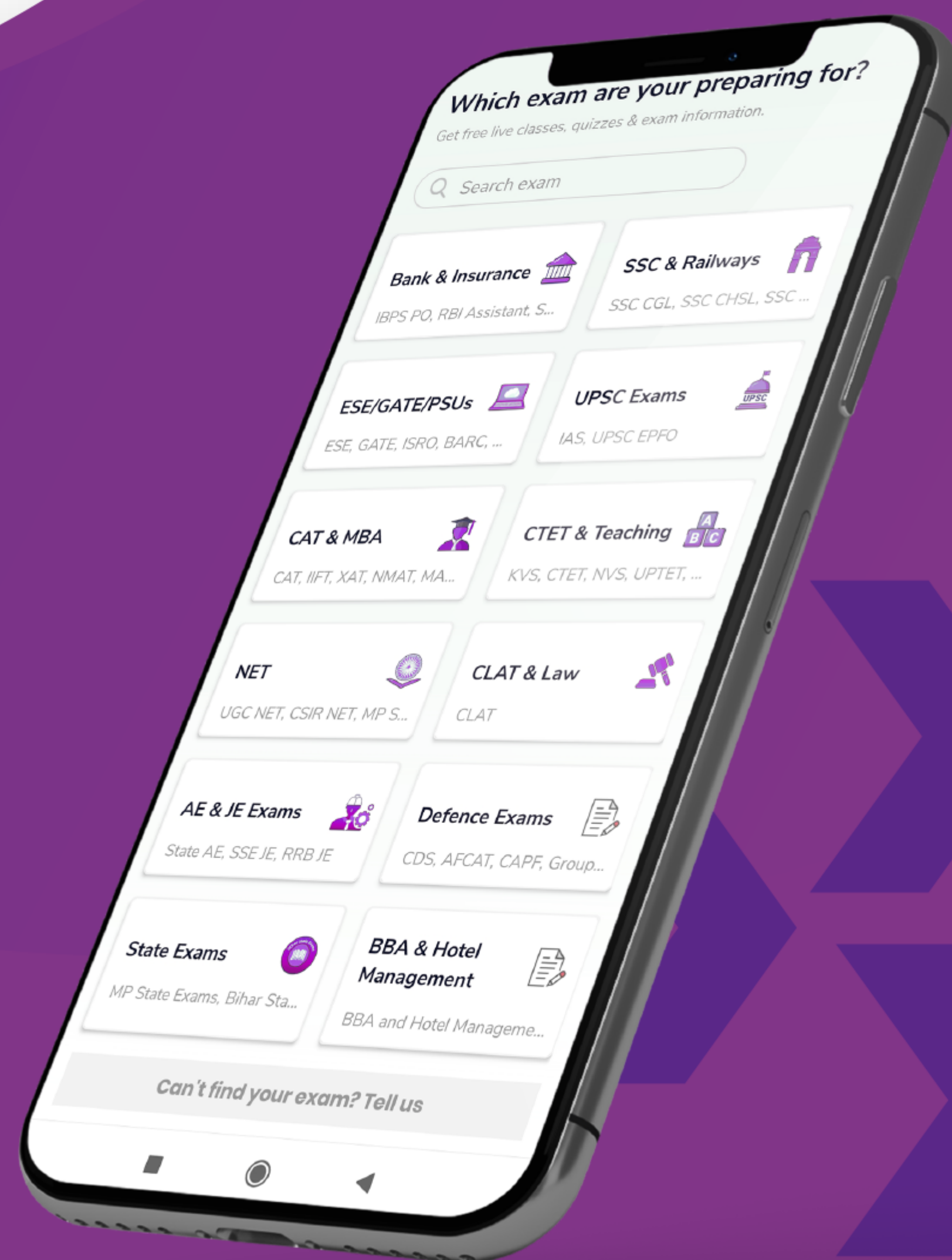
Concept

Note: The basic concept of Alligation lies in “weighted average”.

If we mix 2 things, and the average of both are A_1 and A_2 , and the quantities of both are n_1 and n_2 .

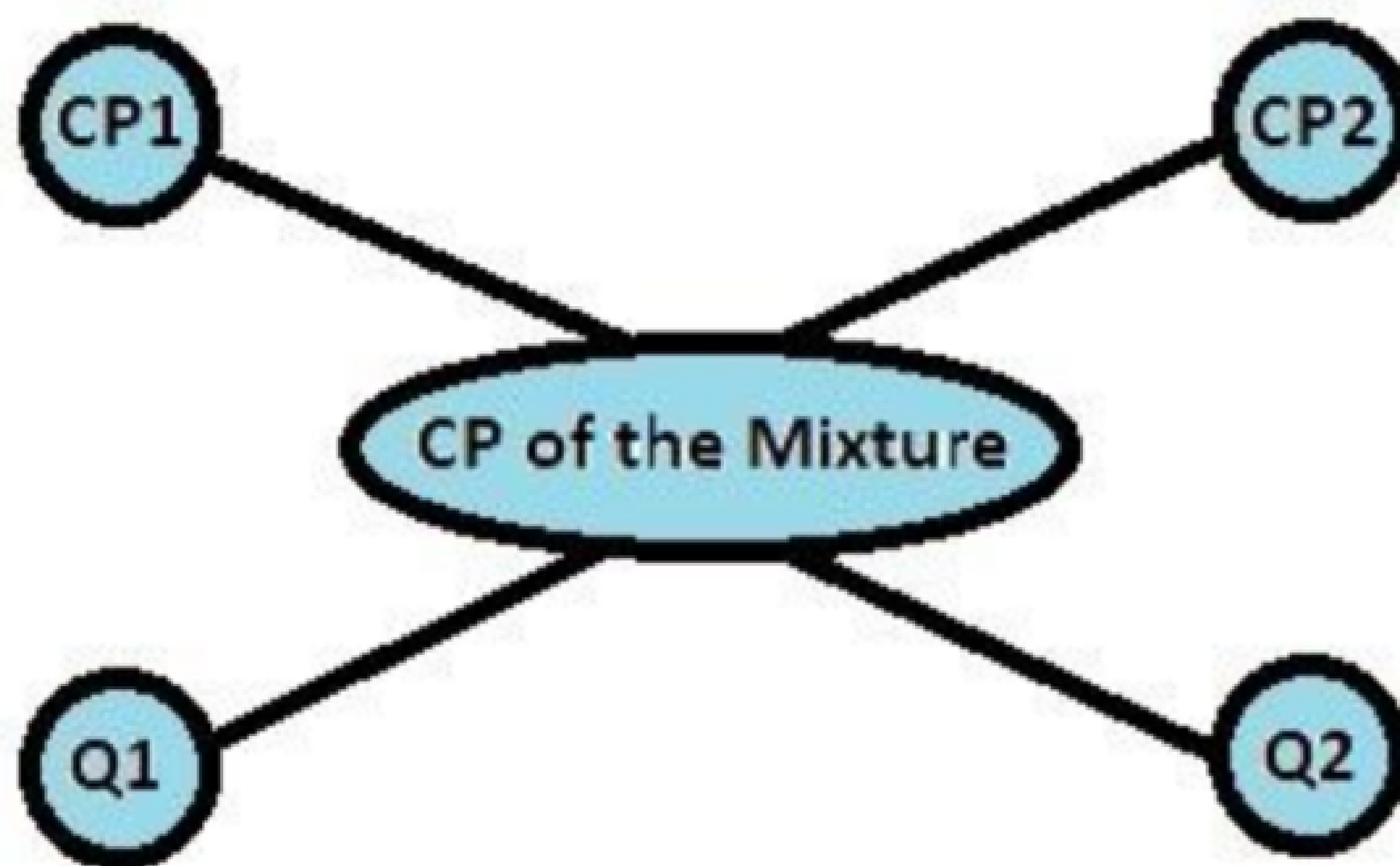
Then the average of the mixture is called as “weighted average”.

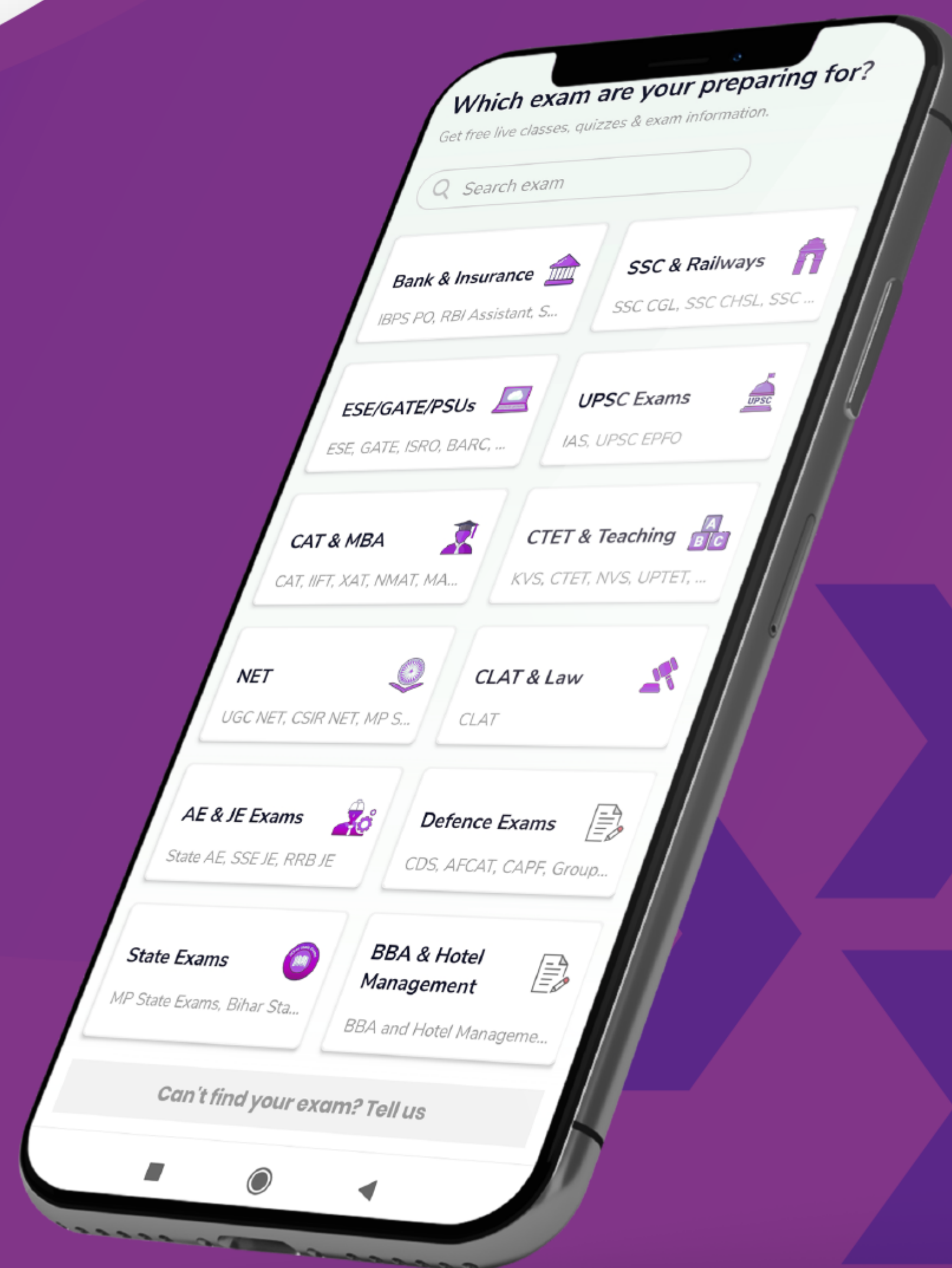
$$\text{Weighted Average} = \frac{n_1 A_1 + n_2 A_2}{n_1 + n_2}$$



Mixture & Alligation Formula

1. If two different articles priced at CP_1 and CP_2 with their quantities Q_1 , and Q_2 then the Cost Price of the Mixture is calculated by following Method:

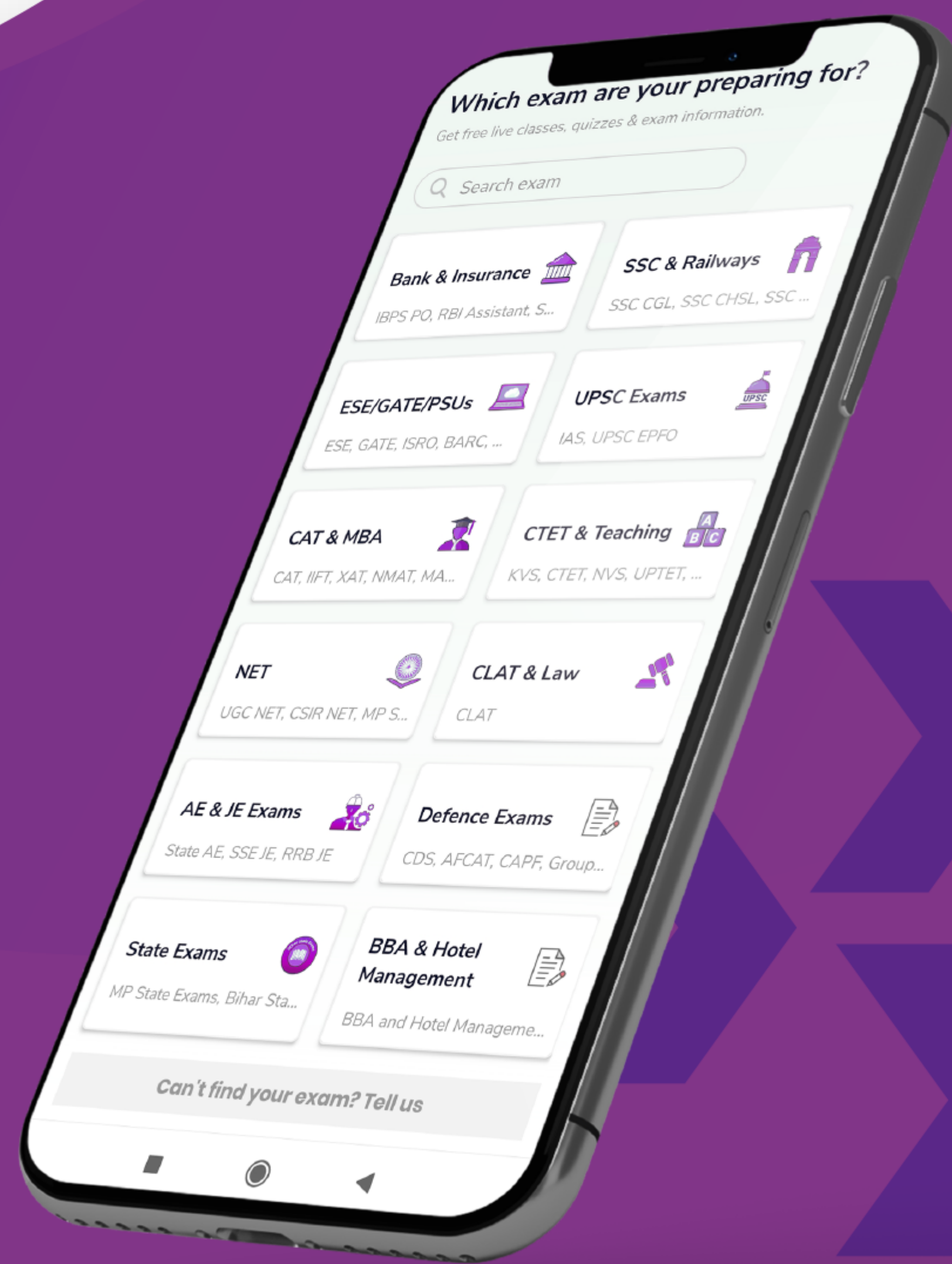




2. Let a container contains “x” units of liquid from which “m” units of liquid are taken out and replaced by water or any other liquid. And this operation is repeated for “n” times. Thus, the quantity of remaining pure liquid after “n” operations:

$$= \left[x \left(1 - \frac{m}{x} \right)^n \right]$$

3. Componendo Rule- If $\frac{a}{b} = \frac{c}{d}$ then $\frac{a+b}{b} = \frac{c+d}{d}$



4. Dividendo Rule- If $\frac{a}{b} = \frac{c}{d}$ then $\frac{a-b}{b} = \frac{c-d}{d}$

5. Componendo and Dividendo Rule- If $\frac{a}{b} = \frac{c}{d}$ then $\frac{a+b}{a-b} = \frac{c+d}{c-d}$

6. Invertendo Rule- If $\frac{a}{b} = \frac{c}{d}$ then $\frac{b}{a} = \frac{d}{c}$

7. Alternendo Rule- If $\frac{a}{b} = \frac{c}{d}$ then $\frac{a}{c} = \frac{b}{d}$

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