

## Step-1

Given that the entries of  $A$  are  $a_{ij}$  and we have to use the subscript notation.

## Step-2

(a) We have to use the subscript notation to write the first pivot.

Since the first pivot is the first row and first column element we can write it as

$$\boxed{a_{11}}.$$

## Step-3

(b) We have to use the subscript notation to write the multiplier  $l_{i1}$  of row 1 to be subtracted from row  $i$ .

For row  $i$  we use the notation  $a_{i1}$ .

Since the multiplier  $l_{i1}$  of  $a_{i1}$  is subtracted from  $i$ th row, we can write it as

$$\boxed{l_{i1} = a_{i1} / a_{11}}.$$

## Step-4

(c) We have to use the subscript notation to write the new entry that replaces  $a_{ij}$  after that subtraction.

For this we subtract  $\frac{a_{i1}}{a_{11}} a_{1j}$  from  $a_{ij}$  i.e.  $\boxed{a_{ij} - \frac{a_{i1}}{a_{11}} a_{1j}}$

## Step-5

(d) We have to use subscript notation to write second pivot.

Putting  $i = 2$  (for second row) in  $a_{ij} - \frac{a_{i1}}{a_{11}} a_{1j}$  we get  $a_{22} - \frac{a_{21}}{a_{11}} a_{12}$  which is the required second pivot.