

\* Basic Feasible Solution by North-West Corner Method

8. Four Factories A, B, C and D produce sugar and the capacity of each factory is given below: Factory A produces 10 tons of sugar and B produces 8 tons of sugar, C produces 5 tons of sugar and that of D is 6 tons of sugar. The sugar and B produces demands in three markets X, Y and Z. The demand of market X is 7 tons, that of market Y is 12 tons and the demand of market Z is 4 tons. The following matrix gives the transportation cost of 1 ton of sugar from each factory to the destinations. Find the Optimal Solution for least cost transportation cost

Factories	Cost in Rs. per ton ( $\times 100$ ) Markets			Availability in tons.
	X	Y	Z	
A	4	3	2	10
B	5	6	1	8
C	6	4	3	5
D	3	5	4	6
Requirement in tons	7	12	4 $\rightarrow 23$	29

→

Here  $\Sigma b$  is greater than  $\Sigma d$  hence we have to open a dummy column whose requirement constraint is 6 so that  $\Sigma b = \Sigma d$

	X	Y	Z	Dummy	Availability
A	<del>7</del> 4	<del>3</del> 3	<del>2</del>	0	<del>10</del> 3
B	5	<del>8</del> 6	<del>1</del>	0	<del>8</del>
C	6	<del>1</del> 4	<del>4</del> 3	0	<del>5</del> 4
D	3	5	4	<del>6</del> 0	<del>6</del>
Requirement	<del>7</del>	<del>12</del>	<del>8</del> 4	<del>6</del>	<del>29</del>

9

1

Total cost of transportation is :-

$$\begin{aligned}
 &= 7 \times 4 + 3 \times 3 + 8 \times 6 + 1 \times 4 + 4 \times 3 + 6 \times 0 \\
 &= 28 + 9 + 48 + 4 + 12 + 0 \\
 &= 101
 \end{aligned}$$

∴ Total cost of transportation is 101 //

Hence Basic Feasible Solution using North-West corner method is 101