

## Step-1

Let us consider the following compatibility matrix.

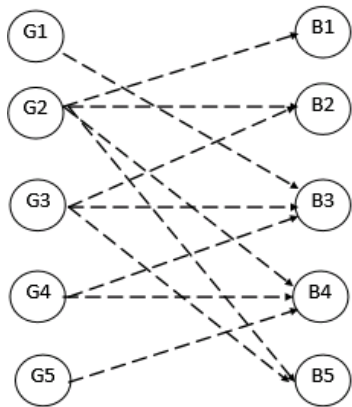
$$A = \begin{bmatrix} 0 & 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 \end{bmatrix}$$

Now in the above matrix, if  $a_{ij} = 0$ , the  $i^{\text{th}}$  woman and  $j^{\text{th}}$  man are not compatible.

And if  $a_{ij} = 1$ , the  $i^{\text{th}}$  woman and  $j^{\text{th}}$  man are willing to try.

## Step-2

The network diagram showing the compatibility information is shown below.



## Step-3

In order to find a maximal set of marriages, let us perform the matching performing the following steps.

Step	Matched pair according to compatibility
1	G1-B3
2	G5-B4
3	G2-B1 OR G2-B2
4	G3-B2 OR G3-B5

Thus, the maximum 4 marriages are possible in this case.

## Step-4

Let us consider the following compatibility matrix.

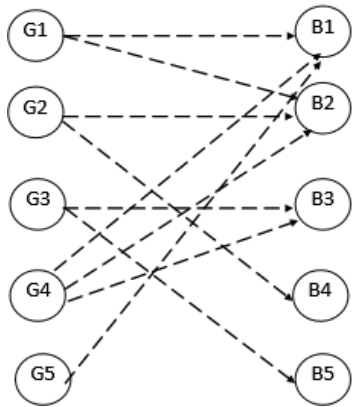
$$B = \begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 1 \\ 1 & 1 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 \end{bmatrix}$$

Now in the above matrix, if  $b_{ij} = 0$ , the  $i^{\text{th}}$  woman and  $j^{\text{th}}$  man are not compatible.

And if  $b_{ij} = 1$ , the  $i^{\text{th}}$  woman and  $j^{\text{th}}$  man are willing to try.

## Step-5

The network diagram showing the compatibility information is shown below.



## Step-6

In order to find a maximal set of marriages, let us perform the matching performing the following steps.

Step	Matched pair according to compatibility
1	G3-B5
2	G2-B4
3	G5-B1
4	G1-B2
5	G4-B3

Thus, the maximum 5 marriages (a complete matching) are possible in this case.

A network for  $B$  with heavier lines on matched pair is shown below

