

#### Question 4 [20 marks]:

We want to assign 4 people to 4 jobs so that the total cost of the assignment is as small as possible. The constraint to the problem is that each job is assigned to only one person, and each person is assigned with only one job. The table gives the cost of a person completing a particular job.

Person \ Job	1	2	3	4
A	9	5	4	5
B	4	3	5	6
C	3	1	3	2
D	2	4	2	6

Using branch-and-bound algorithm, assign the four jobs to the 4 people such that the total cost of the assignment is optimal. Your state-space tree must include node numbers to show the order that you draw the nodes.

A is assigned to Job 3, B is assigned to Job 2, C is assigned to Job 4, and D is assigned to Job 1 for an optimal cost of 11

Initial UB =  $9+3+3+6=21$

Initial LB =  $2+1+2+2=7$

