

Q2. ANSWER :

We have to find out the minimum cost of the given figure in this question.

Finding the adjacent matrix of fig-1 :

	1	2	3	4
1	0	10	15	20
2	10	0	35	25
3	15	35	0	30
4	20	25	30	0

Now calculating result :

$$\begin{aligned} \text{I. } T(1, \{2, 3, 4\}) &= \min \{ (1, 2) + T(2, \{3, 4\}) \quad 10 + 70 = 80 \text{ (Result)} \\ &\quad (1, 3) + T(3, \{2, 4\}) = 15 + 65 = 80 \text{ (Result)} \\ &\quad (1, 4) + T(4, \{2, 3\}) = 20 + 75 = 95 \end{aligned}$$

$$\begin{aligned} 2. T(2, \{3, 4\}) &= \min \{ (2, 3) + T(3, \{4\}) = 35 + 50 = 85 \\ &\quad (2, 4) + T(4, \{3\}) = 25 + 45 = 70 \end{aligned}$$

$$\begin{aligned} 3. T(3, \{2, 4\}) &= \min \{ (3, 2) + T(2, \{4\}) = 35 + 45 = 80 \\ &\quad (3, 4) + T(4, \{2\}) = 30 + 35 = 65 \end{aligned}$$

$$\begin{aligned} 4. T(4, \{2, 3\}) &= \min \{ (4, 2) + T(2, \{3\}) = 25 + 50 = 75 \\ &\quad (4, 3) + T(3, \{2\}) = 30 + 45 = 75 \end{aligned}$$

$$5. T(3, \{4\}) = \min \{ (3, 4) + (4, x) = 30 + 20 = 50$$

$$T(4, \{3\}) = \min \{ (4, 3) + (3, x) = 30 + 15 = 45$$

$$T(2, \{4\}) = \min \{ (2, 4) + (4, x) = 25 + 20 = 45$$

$$T(4, \{2\}) = \min \{ (4, 2) + (2, x) = 25 + 10 = 35$$

$$T_{2,\{3\}} = \min \{ (2,3) + (3,x) = 35 + 15 = 50$$

$$T_{3,\{2\}} = \min \{ (3,2) + (2,x) = 35 + 10 = 45$$

Q1. ANSWER :

We can find the item numbers after getting the maximum profit in the 0/1 Knapsack problem by flagging which items we taken.

Here , First we have to get the weight,value and capacity. Then we have to calculate maximum profit by using loop and when we use loop we set flag array there to get which items we taken. By this method We can find the item numbers after getting the maximum profit in the 0/1 Knapsack problem.

