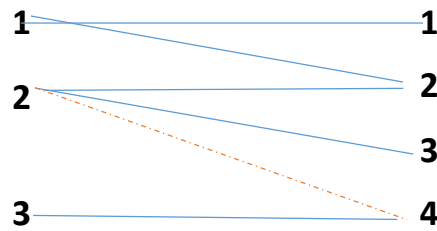


حل التمرين الثاني:

1- طريقة الركن الشمالي الغربي – الأحجار المتحركة

T1 \ To From	1	2	3	4	SUPPLY
1	- 7 45	+ 11 5	8	13	50
2	20	- 17 10	12 30	+ 10 0	40
3	+ 8	18	13	- 16 30	30
DEMAND	45	15	30	30	120

$$TC=45(7)+ 5(11)+ 10(17)+30(12)+ 0(10) + 30(16)=1380 \text{ DA}$$



$$C_{13} = 8 - 11 + 17 - 12 = 2$$

$$C_{14} = 13 - 11 + 17 - 10 = 9$$

$$C_{21} = 20 - 17 + 11 - 7 = 7$$

$$C_{31} = 8 - 16 + 10 - 17 + 11 - 7 = -11$$

$$C_{32} = 18 - 16 + 10 - 17 = -5$$

$$C_{33} = 13 - 16 + 10 - 12 = -5$$

T2 From \ To	1	2	3	4	SUPPLY
1	- 7 35	11 15	+ 8	13	50
2	20	17	- 12 30	+ 10 10	40
3	+ 8 10	18	13	- 16 20	30
DEMAND	45	15	30	30	120

$$TC=35(7)+ 15(11)+ 30(12)+10(10)+ 10(8) + 20(16)=1270 \text{ DA}$$

$$C_{13} = 8 - 7 + 8 - 16 + 10 - 12 = -9$$

$$C_{14} = 13 - 7 + 8 - 16 = -2$$

$$C_{21} = 20 - 8 + 16 - 10 = 18$$

$$C_{22} = 17 - 11 + 7 - 8 + 16 - 10 = 11$$

$$C_{32} = 18 - 11 + 7 - 8 = 6$$

$$C_{33} = 13 - 16 + 10 - 12 = -5$$

T3 To From	1	2	3	4	SUPPLY
1	7 15	11 15	8 20	13	50
2	20	17	12 10	10 30	40
3	8 30	18	13	16	30
DEMAND	45	15	30	30	120

$$TC=15(7)+ 15(11)+ 20(8)+10(12)+ 30(10) + 30(8)=1090 \text{ DA}$$

$$C_{14} = 13 - 8 + 12 - 10 = 7$$

$$C_{21} = 20 - 12 + 8 - 7 = 9$$

$$C_{22} = 17 - 12 + 8 - 11 = 2$$

$$C_{32} = 18 - 11 + 7 - 8 = 6$$

$$C_{33} = 13 - 8 + 7 - 8 = 4$$

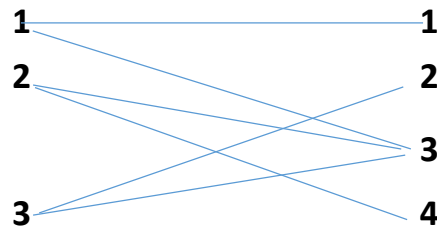
$$C_{34} = 16 - 10 + 12 - 8 + 7 - 8 = 9$$

ومنه الجدول T03 هو الحل الأمثل

1- طريقة الخلية الأقل تكلفة- طريقة الأحجار المتنقلة

T1 \ To From	1	2	3	4	SUPPLY
1	- 7 45	11	+ 8 5	13	50
2	20	17	12 10	10 30	40
3	+ 8	18 15	- 13 15	16	30
DEMAND	45	15	30	30	120

$$TC=45(7)+ 5(8)+ 10(12)+30(10)+ 15(18) + 15(13)=1240 \text{ DA}$$



$$C_{12} = 11 - 8 + 13 - 18 = -2$$

$$C_{14} = 13 - 8 + 12 - 10 = 7$$

$$C_{21} = 20 - 12 + 8 - 7 = 9$$

$$C_{22} = 17 - 18 + 13 - 12 = 0$$

$$C_{31} = 8 - 13 + 8 - 7 = -4$$

$$C_{34} = 16 - 10 + 12 - 13 = 5$$

T2 From \ To	1	2	3	4	SUPPLY
1	- 7 30	+ 11	8 20	13	50
2	20	17	12 10	10 30	40
3	+ 8 15	- 18 15	13	16	30
DEMAND	45	15	30	30	120

$$TC=30(7)+ 20(8)+ 10(12)+30(10)+ 15(8) + 15(18)=1180 \text{ DA}$$

$$C_{12} = 11 - 7 + 8 - 18 = -6$$

$$C_{14} = 13 - 8 + 12 - 10 = 7$$

$$C_{21} = 20 - 12 + 8 - 7 = 9$$

$$C_{22} = 17 - 18 + 8 - 7 + 8 - 12 = -4$$

$$C_{31} = 13 - 8 + 7 - 8 = 4$$

$$C_{34} = 16 - 10 + 12 - 8 + 7 - 8 = 9$$

T3 From \ To	1	2	3	4	SUPPLY
1	7 15	11 15	8 20	13	50
2	20	17	12 10	10 30	40
3	8 30	18	13	16	30
DEMAND	45	15	30	30	120

$$TC=15(7)+15(11)+ 20(8)+ 10(12)+30(10)+ 30(8)=1090 \text{ DA}$$

$$C_{14} = 13 - 8 + 12 - 10 = 7$$

$$C_{21} = 20 - 12 + 8 - 7 = 9$$

$$C_{22} = 17 - 12 + 8 - 11 = 2$$

$$C_{32} = 18 - 11 + 7 - 8 = 6$$

$$C_{33} = 13 - 8 + 7 - 8 = 4$$

$$C_{34} = 16 - 10 + 12 - 8 + 7 - 8 = 9$$

ومنه الجدول T03 هو الحل الأمثل