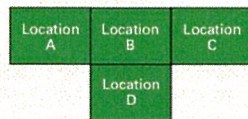


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Chapter Six Process Selection and Facility Layout

14. a. Determine the placement of departments for a newly designed facility that will minimize total transportation costs using the data in the following tables. Assume that reverse distances are the same. The locations are shown in the grid. Use a cost of \$1 per trip yard.



DISTANCE BETWEEN LOCATIONS (YARDS)					NUMBER OF TRIPS PER DAY BETWEEN DEPARTMENTS						
From	To	A	B	C	D	From	To	1	2	3	4
A	---	---	40	80	70	1	---	---	10	20	80
B	---		---	40	50	2	---		---	40	90
C	---			---	60	3	---			---	55
D	---				---	4	---				---

- b. Suppose the company has revised its plans for the processes described in part a to accommodate technological process changes. Determine the placement of departments that will now minimize total travel cost. Use the distances shown in part a, but use the following new matrix of daily trips between departments.

NUMBER OF TRIPS PER DAY BETWEEN DEPARTMENTS					
From	To	A	B	C	D
1	---	---	20	20	40
2	---		---	10	50
3	---			---	60
4	---				---

15. Eight work centers must be arranged in an L-shaped building. The locations of centers 1 and 3 are assigned as shown in the accompanying diagram. Assuming transportation costs are \$1 per load per meter, develop a suitable layout that minimizes transportation costs using the given information. Compute the total cost. (Assume the reverse distances are the same.)

DISTANCE (METERS)									
From	To	A	B	C	D	E	F	G	H
A	---	---	40	40	60	120	80	100	110
B	---		---	60	40	60	140	120	130
C	---			---	45	85	40	70	90
D	---				---	40	50	40	45
E	---					---	90	50	40
F	---						---	40	60
G	---							---	40
H	---								---

LOADS PER DAY									
From	To	1	2	3	4	5	6	7	8
1	---	---	10	5	90	370	135	125	0
2	---		---	360	120	40	115	45	120
3	---			---	350	110	40	20	200
4	---				---	190	70	50	190
5	---					---	10	40	10
6	---						---	50	20
7	---							---	20
8	---								---