

Answers to study questions on Layout

1.

Current layout

E	B	F
A	C	D

Trips between departments

Dept.	A	B	C	D	E	F
A	-	8	3	-	9	5
B	-	-	-	3	-	-
C			-	-	8	9
D				-	-	3
E					-	3
F						-

Current ld-score: 92

Proposed layout

E	C	F
A	B	D

Resulting ld-score: 67

The new layout has a 27% lower ld-score.

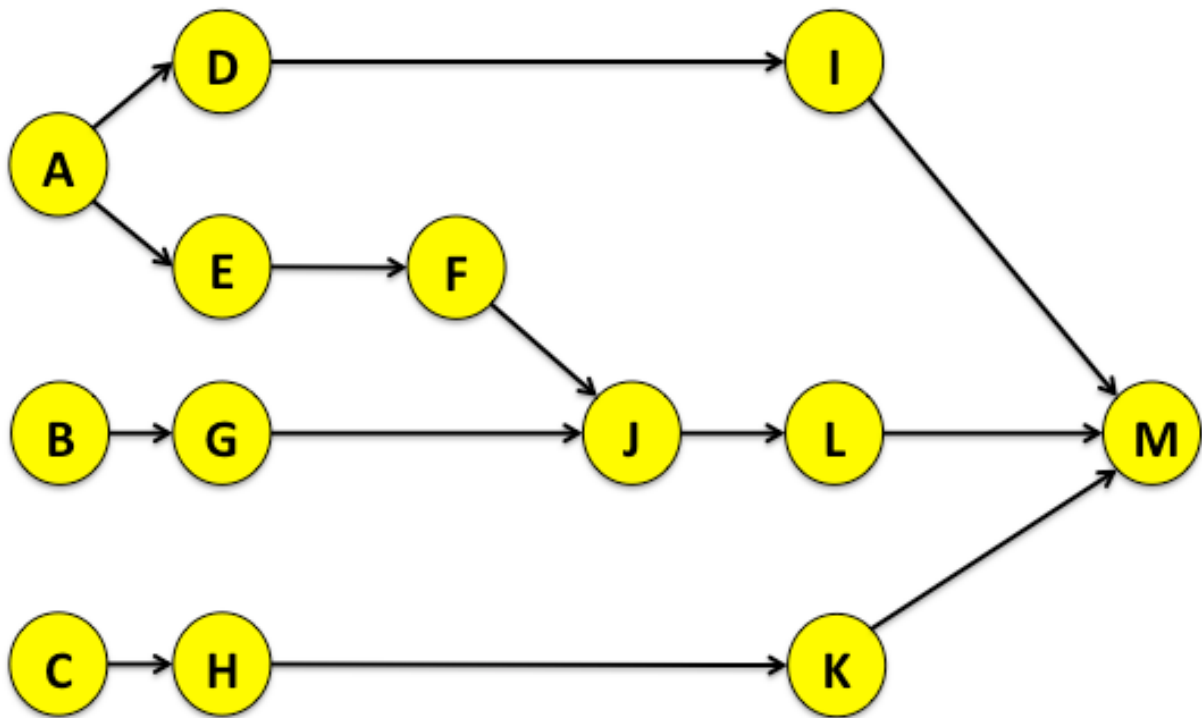
2.

Process layout:

- + General equipment makes the system less capital intensive
- + Less vulnerable to changes in product mix and/or market strategies
- + Equipment utilization is higher
- + Employees can be more specialized
- Processing tend to be slower
- Change over decrease the available productive time
- More WIP which ties both capital and factory space
- Longer time lags between job starts and end points
- More material handling which adds costs
- Diverse routings requires costlier path devices
- Production control and planning is more difficult

3.

a:



b: $CT = \frac{60}{20} = 3 \text{ minutes/car}$

c: $TM = \frac{13.8}{3} = 4.6 \rightarrow 5 \text{ stations required}$

d:

Station	Elements	Total time	Slack
S1	A,B,E	2.9	0.1
S2	C,F,G	2.9	0.1
S3	D,H	2.9	0.1
S4	I,J	2.8	0.2
S5	K,L,M	2.3	0.7

e: $efficiency = \frac{13.8}{5 \times 3} = 0.92 \rightarrow 92\%$