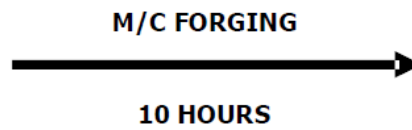


CRITICAL PATH ANALYSIS - C.P.A.

Activity

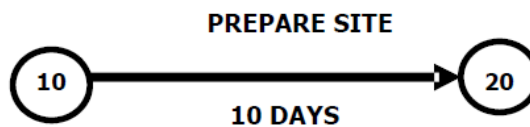
Represented by a solid line



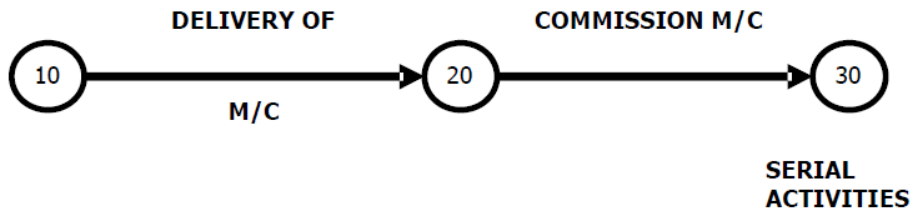
Most activities require manpower, materials, machines and money - 4 M's

An Event

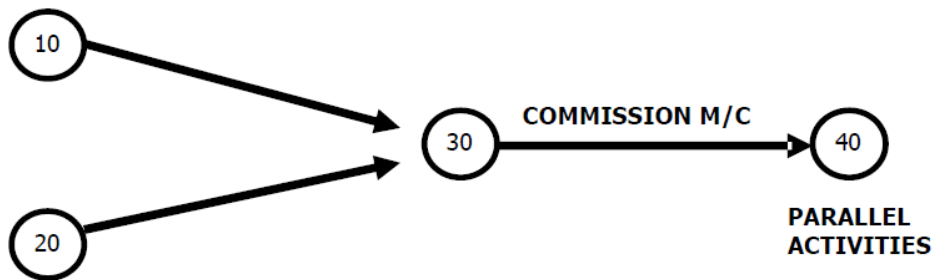
Is a point in time. An event is represented by a circle and links an activity. Events are given a number to identify them:



Activities can now be joined:

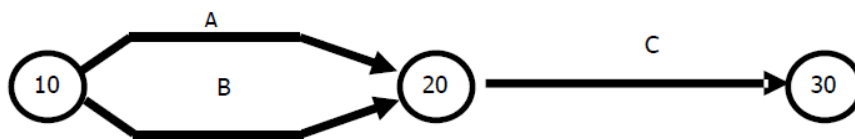


OR

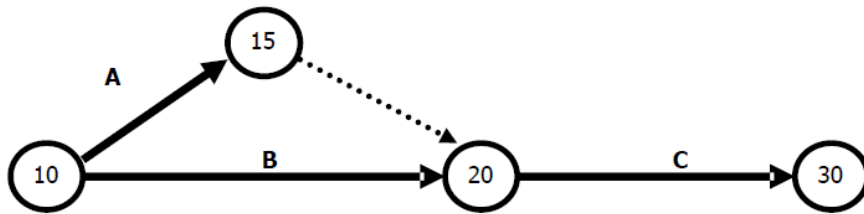


Identity Dummies

Cannot have:



Replace with:



Logic Dummies

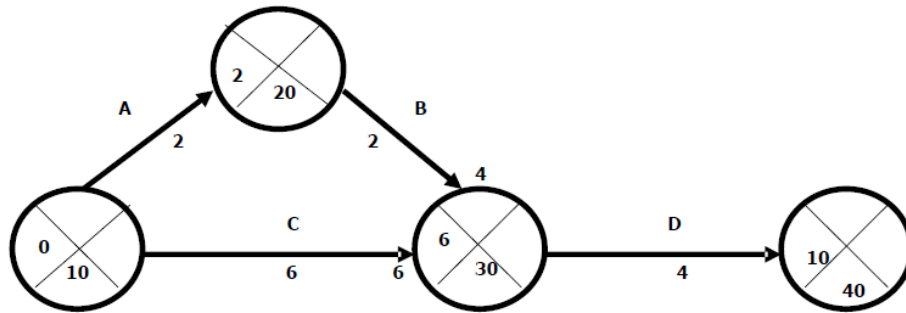
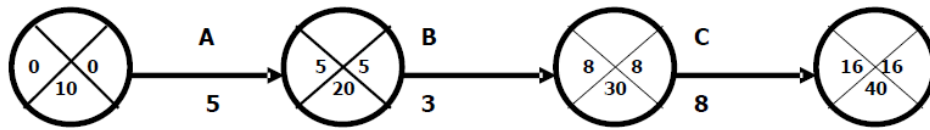
Represent the following:

The start of activity C depends on completion A & B and the start of activity D depends on the completion of B only.

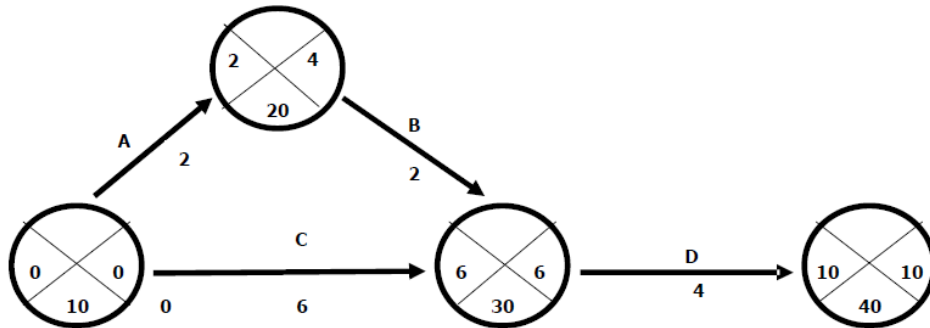
Network Rules

1. Try to draw all activities as straight lines or made up of a series of straight lines.
2. Try to avoid drawing activities that cross over each other (note: not always possible).
3. Allow sufficient space between activities to display all the necessary information.
4. Try to ensure that all activities are drawn from left to right.
5. Try to ensure that the identification numbers for all activities go from low to high, from tail event circle to head event circle.
6. Avoid inserting unnecessary dummy activities.
7. Don't attempt to draw activities to a time scale.
8. Always draw the diagram neatly. Remember it's the blueprint for a plan and will be used as a means of communication by other people.

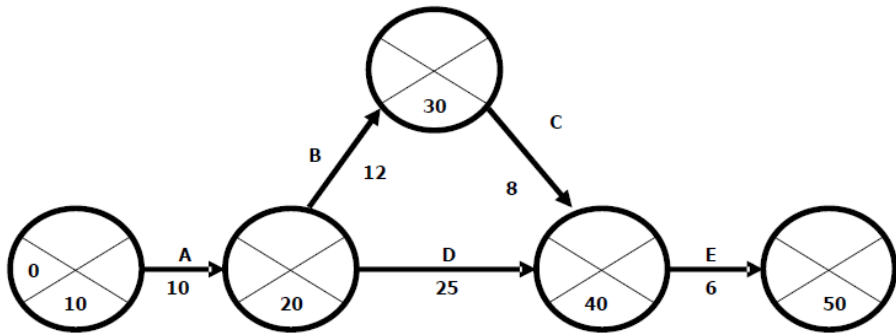
Time Analysis



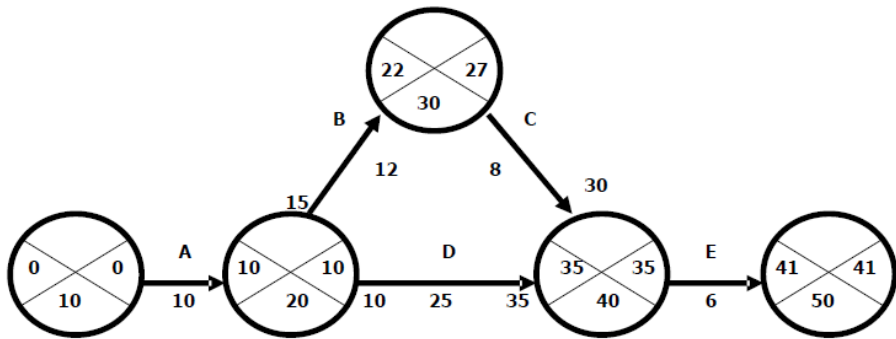
Reverse pass time schedule



Question



Solution



Tutorial Question

	Activity	Duration (Wks)
10 – 20	Recruit new staff	6
10 – 30	Choose new basic equipment	2
10 – 40	Choose new special equipment	4
10 – 50	Draw new layout	3
20 – 90	Train new staff	10
30 – 60	Order new basic equipment	2
40 – 60	Order new special equipment	8
50 – 70	Constructural alterations	8
60 – 80	Unpack and inspect equipment	2
70 – 80	Install services	4
80 – 90	Install and test equipment	6

Activity A O A	No. A O N	Description	Time (days)	Manpower	Material Cost £K
1 – 18	7	Construct lift shaft	5	1B 1L	
1 – 2	1	Set up cabins	5	3L	
1 – 3	2	Demolition	2	5L	
1 – 5	3	Lower ground level	3		.6
1 – 4	4	Internal hacking off	5	3L	
2 – 9	6	Order and manufacture windows	5		10
9 – 14	10	Fit windows	5	1C 1L	
14 – 16	11	Measure and fit fire escape	10		5
3 – 6	5	D.P.C	5		2
6 – 7		Dummy			
3 – 7	8	Erect Scaffolding	2		.9
7 – 13	9	Roof Work	10	4L 1C	4
13 – 15	12	R.W.G.	5	2L	.75
15 – 16	13	Fit External Doors	3	1C 1L	2
5 – 10	15	Construct Car Parks	20		5
10 – 16	20	Boundary Walls	20	1B 1L	1
16 – 17	14	External Rendering	15	1P 2L	4
17 – 18	21	1st Stage Plumbing & Wiring	10		
4 – 18	16	Int. Partition work ground floor	8	1B 1L	5
4 - 8	17	Fix first floors	8	2C	2

Activity	No.	Description	Time (days)	Manpower	Material Cost £K
8 – 18	18	Int. Partition first floor	10	1C 1L	1
8 – 11	19	Ceilings	15	1C 2L	6
11 – 18		Dummy			
18 – 19	22	Int. Rendering	15	2P 1L	3
19 – 20	23	Second fix electrical	15		16
19 – 21	24	C/H	15		30
20 – 21		Dummy			
21 – 22	25	Install lift	10		18
21 – 24	26	Fix kitchen fittings	10	2C	7
21 – 23	27	Second fix carpentry	15	2C	12
22 – 24		Dummy			
23 – 24		Dummy			
24 – 25	28	Decoration	10		5
25 – 26	29	Fit carpets	3	2L	12
26 – 27	30	Fit furniture	10	2L	12
27 – 28	31	Dismantle cabins & reclaim land	10	2L	
28 - 29	32	Snagging	10	2L	

MANPOWER KEY

RATE/HOUR

B = Bricklayer	15.00
C = Carpenter	15.00
L = Labourer	8.00
P = Plasterer	14.00