Ch 7 Homework Solutions: Scheduling II

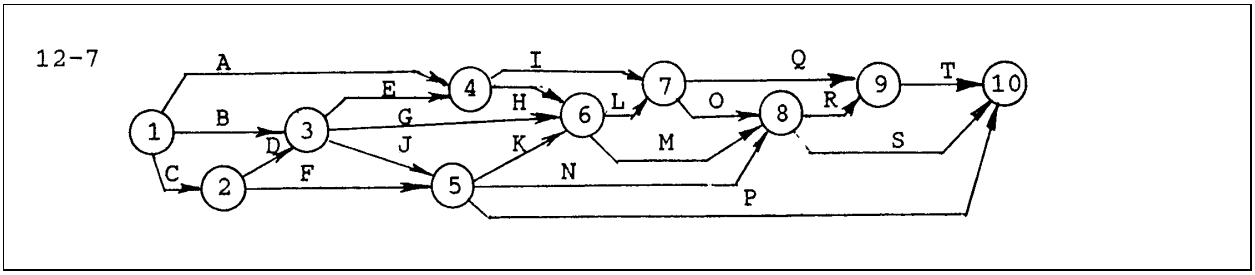
Problem 7-4

The remainder of the project with F, I, and J all starting at 12 is:

Activity	ES	EF	LS	LF	Slack
F	12	17	11	16	-1
I	12	15	14	17	2
J	12	17	12	17	0
K	17	19	17	19	0
L	17	20	16	19	-1

Either F or L must be crashed by one week depending upon which one can be crashed at least cost. If resources are taken from another activity, then this must be activity I, which is the only one having a slack greater than zero.

Problem 7-5

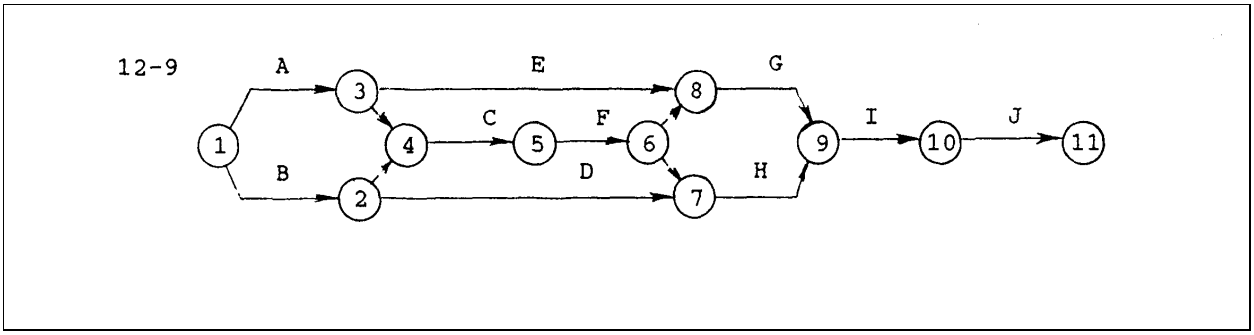


Activity	ES	EF	LS	LF	Slack
A	0	8	10	18	10
B	0	2	10	12	10
C	0	3	0	3	0
D	3	12	3	12	0
E	12	16	14	18	2
F	3	9	9	15	6
G	12	19	12	19	0
H	16	17	18	19	2
I	16	18	23	25	7
J	12	15	12	15	0
K	15	19	15	19	0
L	19	25	19	25	0
M	19	27	21	29	2
N	15	20	24	29	9
O	25	29	25	29	0
P	15	19	33	37	18
Q	25	28	28	31	3
R	29	31	29	31	0
S	29	30	36	37	7
T	31	37	31	37	0

There are two critical paths:

Path 1: C, D, G, L. O, R, and T
Path 2: C, D, J, K, L, O, R, and T

Problem 7-6



Activity	ES	EF	LS	LF	Slack
A	0	3	5	8	5
B	0	8	0	8	0
C	8	12	8	12	0
D	8	10	17	19	9
E	3	4	19	20	16
F	12	19	12	19	0
G	19	24	20	25	1
H	19	25	19	25	0
I	25	33	25	33	0
J	33	42	33	42	0

The critical path is: B, C, F, H, I, and J.

Problem 7-7

Activity C can now be started, but it is 2 weeks late. Since C is critical, the current slacks of the activities not started are:

Activity	Slack (weeks)
C	0 – 2 = -2
D	9 – 2 = +7
F	0 – 2 = -2
G	1 – 2 = -1
H	0 – 2 = -2
I	0 – 2 = -2
J	0 – 2 = -2

Possible courses of action:

1. Divert manpower from D to either C or F. Activity D is the only activity remaining in the project with positive slack.

2. Crash any of the critical path activities C or F. These should take the top priority over any of the other critical path activities which follow them.