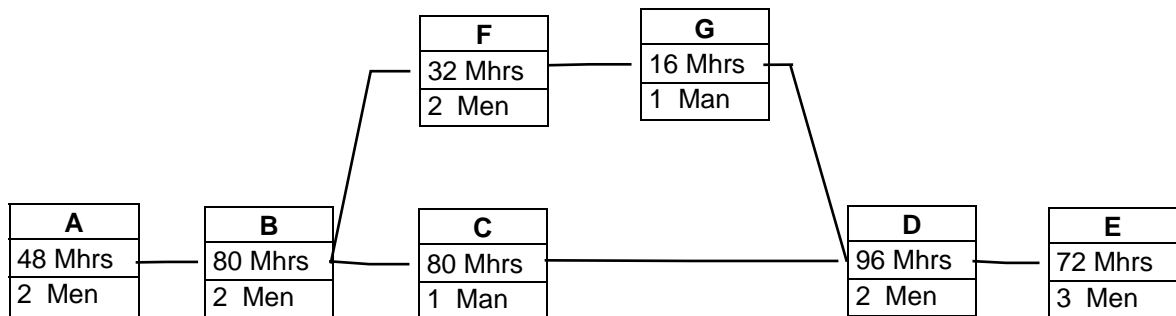


Three Exercises on BAL

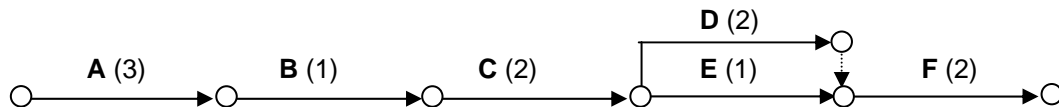
Question 1:

A typical subcontract involves the following small network. You are involved in constructing 6 of these units in 35 days. Manually calculate the number of crews that need to be involved in each activity. Draw the schedule of all activities but consider the following conditions: Unit 2 requires half the construction times in all activities. The crews for activity C are limited to 4 but the contractor will bring new machinery for this activity that will reduce its duration in units 3 to 6 to only 6 days. Do you meet the deadline? If not, write your comments.



Question 2:

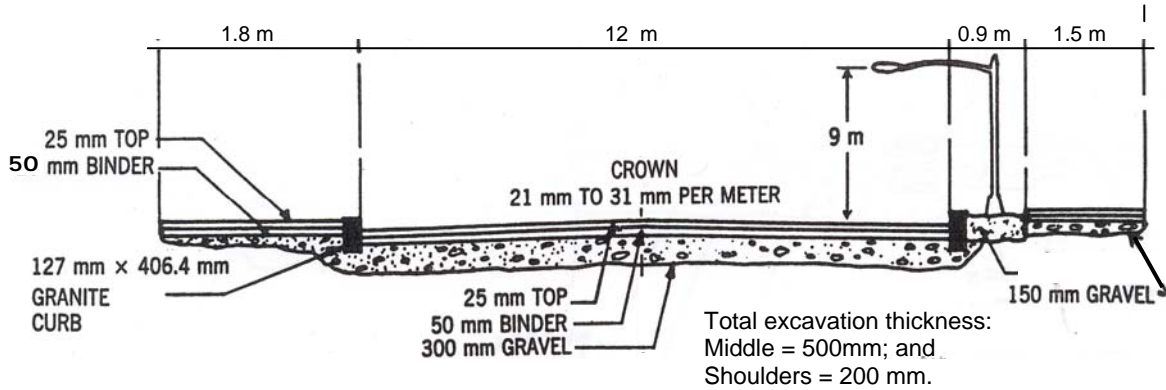
The plan for a typical installation is as follows, with durations in days:



Calculate the necessary crews to install 11 units in 20 days. Draw the schedule and consider the following conditions: Units 2 and 8 require half the installation times in all activities, while unit 5 requires double the times. Do you meet the deadline? If not, write your comments.

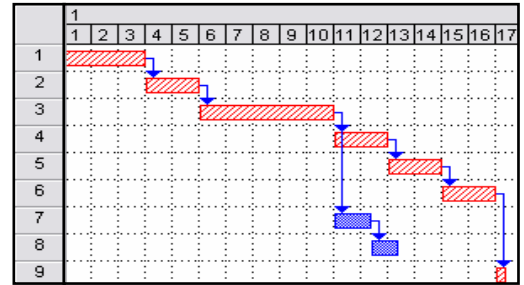
Question 3:

A three-kilometer highway stretch (two-lane one-way) is divided into ten sections for planning purposes. Each section is 300 meters. The cross section is shown below.



Optional estimates for a typical section.

Activity	Estimate 1		Estimate 2		Estimate 3	
	Cost (\$)	Time (days)	Cost (\$)	Time (days)	Cost (\$)	Time (days)
1. Excavation	21,000	3	30,000	2	----	----
2. Sub-base	7,800	2	----	----	----	----
3. Base	72,000	10	80,000	8	100,000	5
4. Binder	30,000	1.2	----	----	----	----
5. Asphalt	14,400	1	----	----	----	----
6. Curbs	31,200	2	38,000	1	----	----
7. Lighting	19,245	2	25,000	1	----	----
8. Sidewalks	10,950	2	----	----	----	----
9. Paint	198	0.2	----	----	----	----



Logical Relationships

Requirements:

- Use BAL program to develop an optimum schedule for the highway. Use the same three optional estimates per activity and consider the following available crews:

Activity	Available Crews
1. Excavation	4
2. Sub-base	4
3. Base for road	4
4. Binder	2
5. Road Asphalt	2
6. Curbs	2
7. Lighting	4
8. Sidewalks Asphalt	4
9. Paint	2

- If Deadline = 30 days, seasonal productivity factors as shown below, and other project data such as quantities, etc. are the same as before, determine the optimum work plan if the project starts Feb. 1, 2006.

Jan.:	60 %	April:	75 %	July:	95 %	Oct.:	85 %
Feb.:	60 %	May:	80 %	Aug.:	100 %	Nov.:	80 %
March:	70 %	June:	85 %	Sept.:	95 %	Dec.:	70 %