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Description:

In a small project, the project management team identified 11 work packages (activities): A ,B ,C ,D , E, F,G ,H ,I ,J ,and K. Civil activities are A, B, and C while architectural activities are D, E, and F. Electrical activities are: G and H. Mechanical activities are: I, J, and K. The three estimates for each activity is shown in the following table. Mark for Civil; John for Architectural, George for Electrical, and Adam for Mechanical.

	Estimate no. 1 Normal Work		Estimate no. 2 Overtime		Estimate no. 3 Weekends	
Activity	Dur. (d)	Cost ($)	Dur. (d)	Cost ($)	Dur. (d)	Cost ($)
A	4	2,000	-----	-----	-----	-----
B	6	10,000	4	12,000	3	16,600
C	2	4,000	-----	-----	-----	-----
D	8	18,000	-----	-----	-----	-----
E	4	20,000	-----	-----	-----	-----
F	10	15,000	-----	-----	-----	-----
G	16	12,000	14	12,400	12	12,800
H	8	16,000	6	16,200	2	17,000
I	6	6,000	-----	-----	-----	-----
J	6	6,000	-----	-----	-----	-----
K	10	10,000	-----	-----	9	9,000

Logical Relationships:

Activities G and F follow activity B; Activity D precedes activity E; Activity I follows the completion of activities E & H; The predecessors to activity K are activities G and J; Activity D follows activity A; Activity J is preceded by activity C; and F is a predecessor to H.

Project Constraints:

- Project deadline is 28 working days.
- Indirect cost = $500/day, penalty = $10,000/day, and incentive for early completion = $5000/day.
- Each activity uses 2 labors (L1) daily. Resource limits per day are: L1 = 6.
- A reporting period is 4 days, interest rate is 1% per period, markup is 10%, & owner retention is 5%.
- For all activities, Winter productivity = 0.7, Spring = 1.0, and Fall = 0.85.

Requirements:

Planning: Enter the data of this project into EasyPlan and print the network diagram.

Optimization:

a. Ignoring the deadline and using the first estimate of each activity, determine the planned project duration if the start date is either: Aug. 1, 2003, Oct. 1, 2003, or Jan. 1, 2004?

b. If project start date is May 1, 2004, determine the optimum schedule that meets both the deadline and resource limits at minimum cost. **Check your solution.**

Bid Unbalancing: View EasyPlan's Cash Flow report and record the interest charges. Print the balanced prices for the project activities. Then, use the optimization feature to see if we can reduce the interest charges without reducing the total bid value. Print the unbalanced prices for the activities. Experiment also with manual unbalancing. View and print the final bid proposal form.