Based on the material covered in class and using the following information about the activities of a project, please identify:

1. the shortest amount of time in which the project schedule can be crashed without exceeding $7K and

2. the project critical path that resulted from crashing the project

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  Activity ID  | Predecessor  | Estimated Optimistic Time  | Estimated Most Likely Time  | Estimated Pessimistic Time  | Reduction Time Goal  | Normal Costs  | Costs of Reduction  |
| a  | -  | 15  | 20  | 85  | 10  | $1,000  | $867  |
| b  | a  | 25  | 40  | 235  | 20  | $400  | $262  |
| c  | b  | 60  | 100  | 500  | 140  | $400  | $347  |
| d  | a, b  | 25  | 30  | 125  | 25  | $800  | $560  |
| e  | c  | 45  | 50  | 145  | 45  | $200  | $120  |
| f  | e  | 30  | 50  | 220  | 65  | $100  | $53  |
| g  | d, f  | 20  | 30  | 130  | 15  | $1,000  | $1,600  |

 Notes:

• An activity should not be crashed if there is not a reduction in the duration of the project. Remember that crashing is investing financial resources to speed up the project. So why invest if there is not a reduction in the duration?

• The term “Slope” creates some confusion with mathematical calculations of slope, which are different from what has been shown in the class. The “Slope” as discussed in class is really a “Ratio”. You should calculate it using the equations taught in class, not the mathematical slope equation.

• No partial crashing allowed

• No optimality analysis allowed

• The reduction is the amount of time we are seeking to gain from the originally estimated time.

• “Cost of reduction” is the amount of money required to reduce the duration of the activity by the amount defined in “reduction time”. In other words it is what we need to invest to reduce the duration of the activity.