

Name: _____

ID: _____

AEC 258 Spring 2019

Assignment 1 (50 points) -- Solutions

Due date: 2/17/2019

1. Explain the difference between planning and scheduling. (2.5 points)

Planning is essentially the determination of what tasks must be performed. Schedules provide a time frame in which the tasks or activities are to take place. Planning can be considered to be similar to a list of activities that must be performed, similar to a “to do” list. Scheduling would consist of putting those “to do” items on a calendar.

2. What is the difference between an activity and an event? (2.5 points)

An activity is a task or function that consumes time and perhaps other resources. An event consumes no resources, especially no time. An event can be considered to represent a point in time or the representation of the status of a project at a particular instant.

3. Explain why the use of bar charts is popular in the construction industry. (2.5 points)

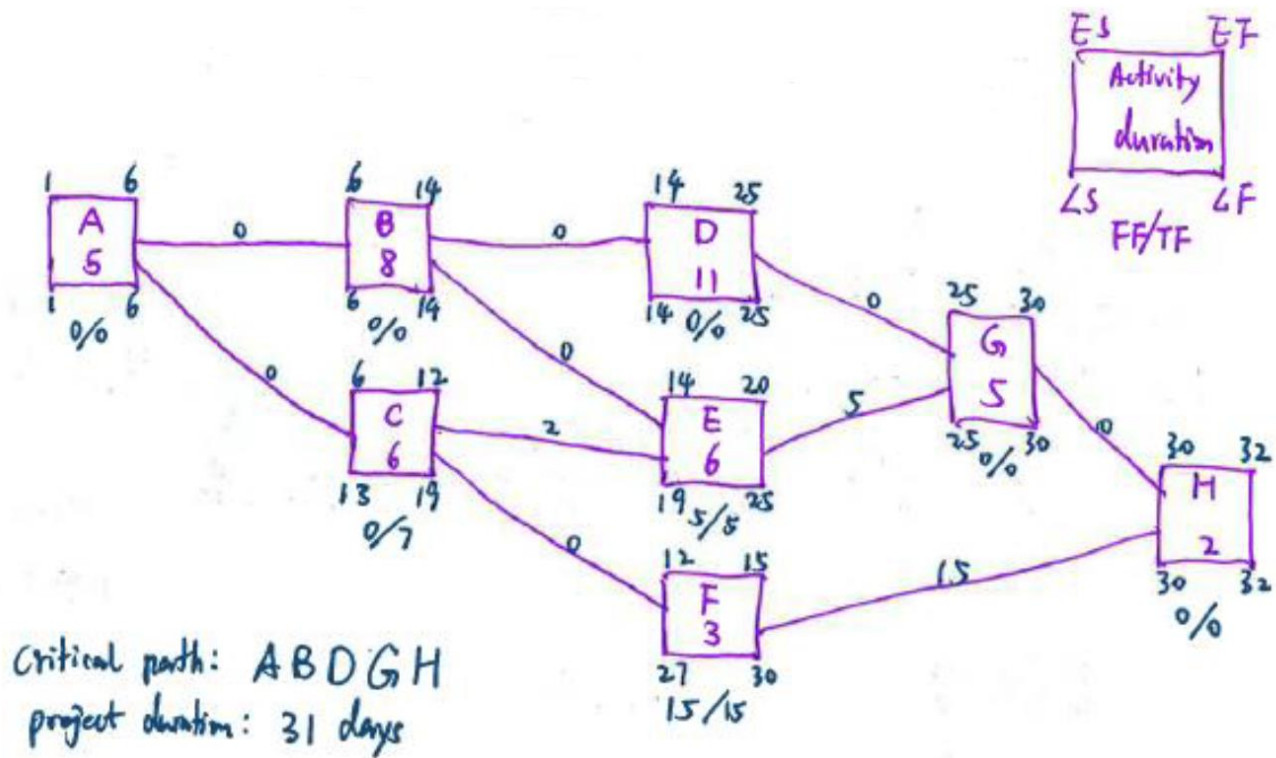
The popularity of bar charts lies in the ease of conveying scheduling information. While a schedule network requires considerable study to understand, the bar chart can generally be comprehended by anyone, including foremen, workers, architects, owners, etc. There is little confusion in the information that is conveyed.

4. Give examples of two different types of constraints that might have an adverse impact on a scheduling network. (2.5 points)

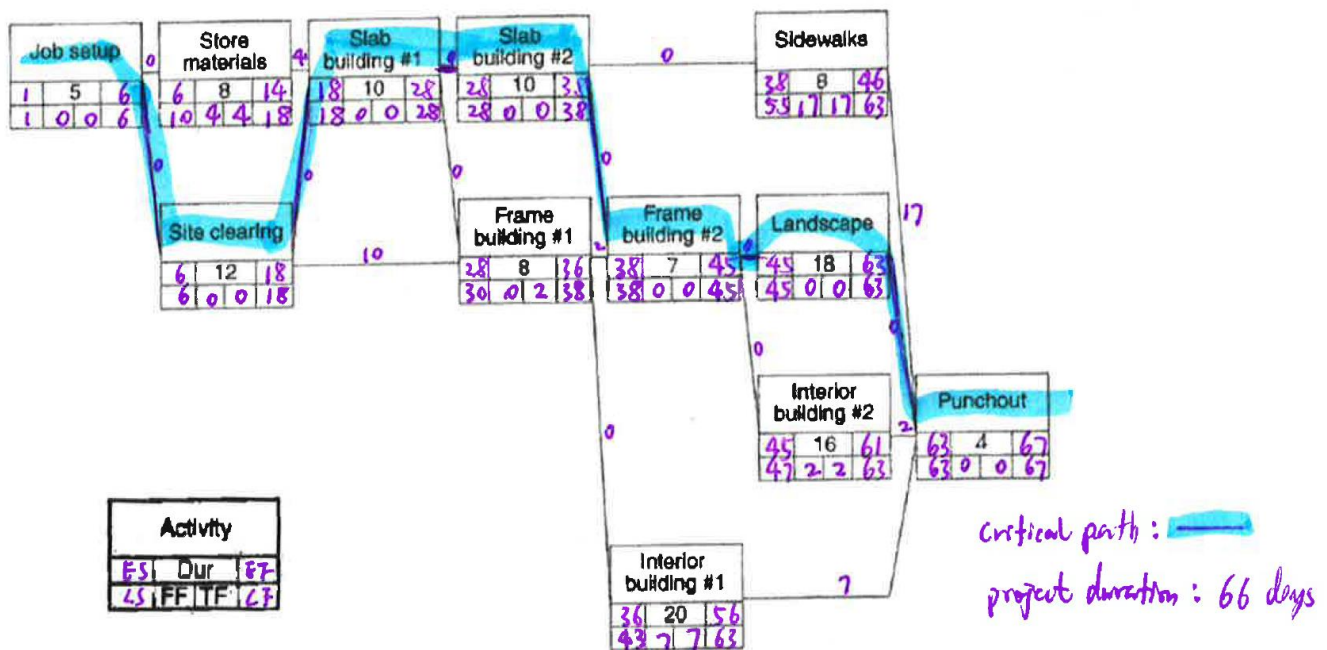
One serious resource constraint (labor constraint) that is hampering many construction projects today is the shortage of skilled workers. Various types of material constraints might also exist. For example, the total amount of ready-mix concrete that might be available for a project on a given day might be seriously impacted by the capacity of the ready-mix supplier. An equipment constraint may also exist, e.g., the firm might want to complete the project with the use of a single crane. A safety constraint might consist of unseasonably hot or cold weather.

5. Draw the network diagram based on the information in the table below. Calculate the schedule (for each activity, calculate ES, EF, LS, LF, TF, FF), state the critical path and the number of work days required to complete the project. (10 points)

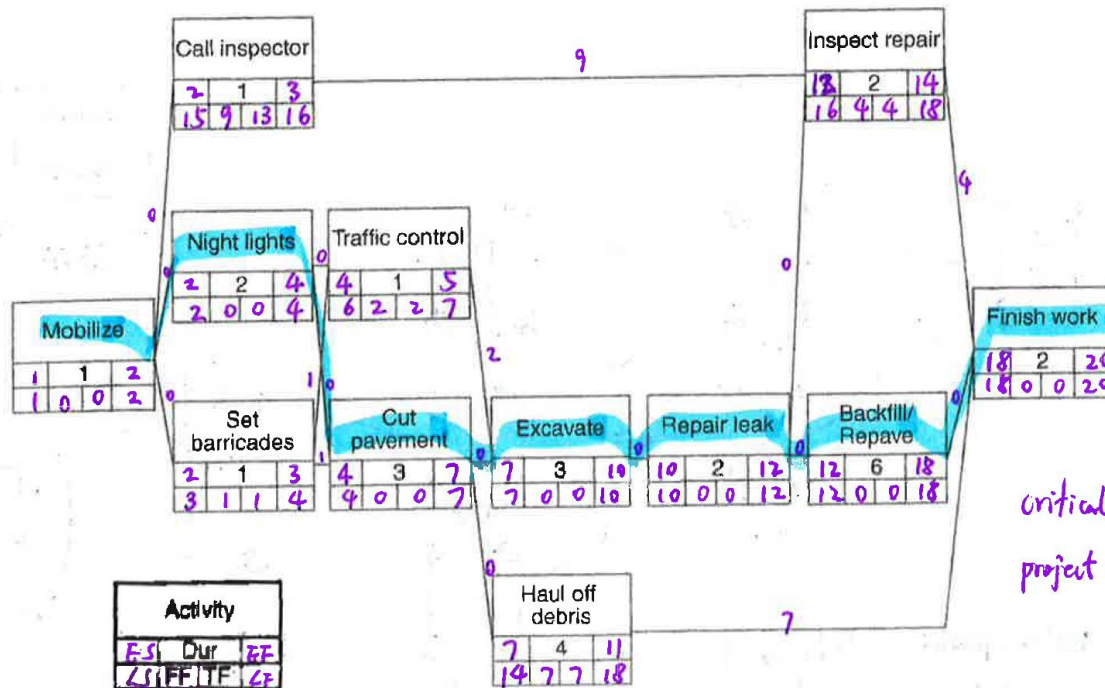
Activity	Duration (days)	IPAs
A	5	-
B	8	A
C	6	A
D	11	B
E	6	B, C
F	3	C
G	5	D, E
H	2	F, G



6. Calculate the schedule (for each activity, calculate ES, EF, LS, LF, TF, FF), state the critical path and the number of work days required to complete the project. (10 points) (if you can't see the durations clearly, check textbook Chapter 3, review question 7)



7. The time units in the following project are hours. Calculate the schedule (for each activity, calculate ES, EF, LS, LF, TF, FF), state the critical path and the number of hours required to complete the project. (10 points) (Textbook Chapter 3, review question 8)



8. Draw the precedence diagram (no calculation, just draw the diagram) for the following project. (10 points) (Textbook Chapter 3, review question 3)

Activity List for Reroofing Project

Activity Description	Duration Days	Predecessors*
A Move in	2	
B Set up scaffolds	3	A
C Tear off old shingles	3	B/1
D Inspect roof truss and deck	2	C SS/1
E Remove old shingles to recycling yard	3	C FF/2
F Purchase new shingles	1	G SF/2
G Install new shingles	5	C, D
H Clean up	3	G
I Move out	2	H

