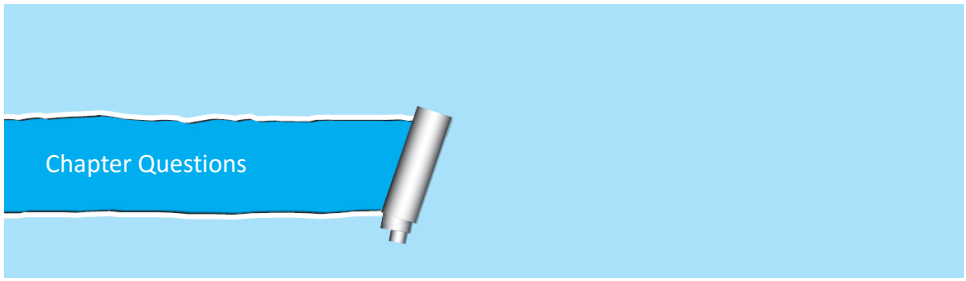


Question 1

- Why does the scheduling function depend on the planning function?
- Which one must be done first? Why?

- A schedule is a timetable for a plan
- The schedule cannot be established until the plan has been developed.

Question 2

- Describe what an activity estimated duration is.
- How is it determined?

- The duration estimate for each activity is the total elapsed time for the work to be done, plus any associated waiting time.
- An activity's duration estimate must be based on the quantity of resources expected to be used on the activity. The estimate should be aggressive, yet realistic.
- A Beta distribution using most likely, pessimistic, and optimistic times can be used.

Question 3

- Why might a contractor prefer to state a project completion time in terms of number of days after the project starts rather than a specific date?
- Give some examples of instances when this would be appropriate.

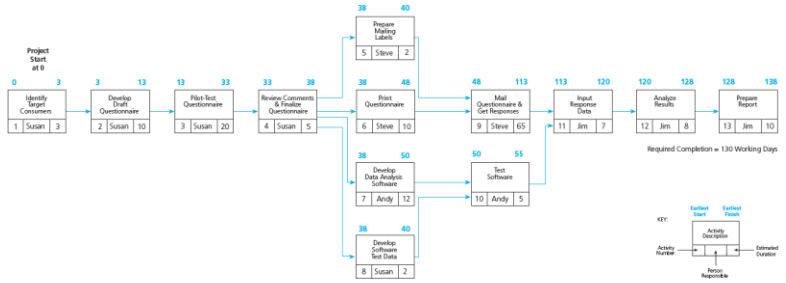
- This is helpful in case the start of the project is delayed for some reason, such as an unexpected snowstorm delaying the start of a construction project.
- Example:
  - A project that requires 100 days to complete with a finish date that is dependent upon the work being completed, rather than on a specific date

Question 4

- Refer to the figure below, Figure 5.4 from the text. Why is the earliest start time for "Review Comments & Finalize Questionnaire" day 33?
- Why is the earliest finish time day 38?

- The task cannot start until its predecessor is finished, which is day 33.
- It has a duration of 5, so it will finish on day 38.

FIGURE 5.4 Network Diagram for Consumer Market Study Project, Showing Earliest Start and Finish Times

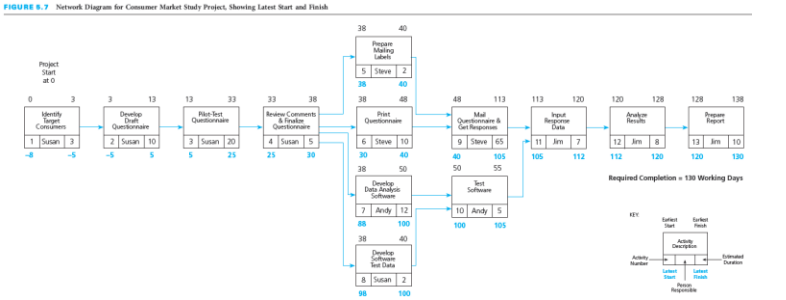


Question 5

- Refer to the figure below, Figure 5.7. Why is the latest start time for "Mail Questionnaires & Get Responses" day 40?
- Why is the latest finish time day 105?

- Because its predecessor's latest start time is day 105, it must finish by day 105.
- It has a duration of 65, so it must start by day 40

FIGURE 5.7 Network Diagram for Consumer Market Study Project, Showing Latest Start and Finish



Question 6

- Describe the different types of project slack.
- How is each calculated?

- Total Slack is the amount of time an activity's earliest finish time can be delayed without delaying succeeding tasks beyond their latest finish times.
  - If it is positive, you have extra time that can be used if needed.
  - If it is negative, the activity needs to be completed by its latest finish time or the project completion will be delayed.
- Slack = LF – EF or Slack = LS – ES
- Free Slack is calculated by finding the lowest of the values of total slack for all the activities entering into a specific activity, and then subtracting it from the values of total slack for the other activities also entering into that same activity.

Question 7

- Why is it important to determine the critical path of a project?
- What happens if activities on this path are delayed?
- What happens if activities on this path are accelerated?

- If any activity on the critical path is delayed, the whole project will be delayed, so it is important to know what the critical path is.
- If any of these activities are accelerated, the project completion date will also be accelerated.

Question 8

- From your experience, describe how you have used a project control process.
- If you did not use continual monitoring of the progress, how would this have helped improve the project's success?

- Answers should include setting a baseline for the project plan and monitoring and controlling the actual project progress.

Question 9

- Why should a project have a regular reporting period? Should all projects have the same reporting period? Why or why not?
- What types of data should be collected during each reporting period?

- A regular reporting period should be established so that actual progress can be compared to planned progress and any discrepancies can be dealt with as early as possible. The period depends on the complexity or duration of the project.
  - It may be daily, weekly, bi-weekly, or monthly.
- Two kinds of data need to be collected:
  - Data on actual performance. This includes the actual time that activities were started and/or finished and the actual costs expended and committed.
  - Information on any changes to the project scope, schedule, and budget.

Question 10

- Who can initiate changes to a project schedule?
- Describe why and when changes would occur in a project.
- How are the network diagram and schedule updated to reflect the changes?

- Changes might be initiated by the customer or the project team, or they might be the result of an unanticipated occurrence.
- A change might be initiated in order to add an activity, eliminate an activity or modify some aspect of an activity.
- Changes can occur at any time throughout the project
  - If they are requested early in the project, they may have less impact on cost and schedule.
- Answers for how the network diagram and schedule are updated should include a recalculation of ES, EF, LS, and LF for the project.

Question 11

- Describe how you would apply the four steps of schedule control to a project.
- If the project needs to be accelerated, what kinds of activities would be the primary focus? Why?

- Schedule control involves four steps:
  - 1. Analyzing the schedule to determine which areas may need corrective action
  - 2. Deciding what specific corrective actions should be taken
  - 3. Revising the plan to incorporate the chosen corrective actions
  - 4. Recalculating the schedule to evaluate the effects of the planned corrective actions
- Specific examples will vary. Answers will depend upon the project example. Accelerate near-term and longer-duration activities that are on the critical path.

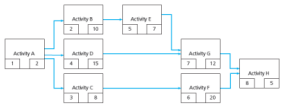
Question 12

- Why is the scheduling of IS projects so challenging?
- What are some of the common problems that push IS projects beyond their due dates?

- Scheduling for IS is often done in a haphazard manner, and thus a large percentage of IS projects are finished much later than originally promised— or never finished at all. One of the most important factors in effective scheduling is arriving at activity duration estimates that are as realistic as possible.
- Among the common problems that often push IS development projects beyond their required completion time are the following:
  - Failure to identify all user requirements
  - Failure to properly identify user requirements
  - Continuing growth of project scope
  - Underestimating learning curves for new software packages
  - Incompatible hardware
  - Logical design flaws
  - Poor selection of software
  - Failure to select the best design strategy
  - Data incompatibility issues
  - Failure to perform all phases of the SDLC

Question 13

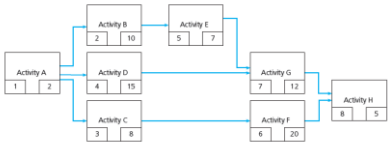
- Calculate the ES, EF, LS, and LF times and the slack for each activity in the figure below and identify the critical path for the project.
- Can the project be completed in 40 weeks?
- Assume that activity A actually finished at 3 weeks; activity B actually finished at 12 weeks; and activity C actually finished at 13 weeks. Recalculate the expected project completion time. Which activities would you focus on in order to get the project back on schedule?



- The longest path in the network is: A – B – E – G – H.
- Yes, the project can be completed within 40 weeks. With the current estimates, it will take 36 weeks.
- With the changes, the project can still be completed within 40 weeks.
  - The expected completion has slipped from 36 to 38 weeks. If there is a need to speed it back up, attention should be given to Activity F.

Question 13

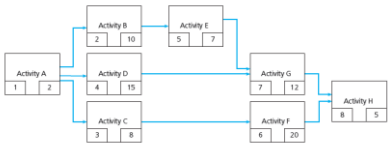
- Schedule table for Question 13



Activity	ED	ES	EF	LS	LF	TS
A	2	0	2	4	6	4
B	10	2	12	6	16	4
C	8	2	10	7	15	5
D	15	2	17	8	23	6
E	7	12	19	16	23	4
F	20	10	30	15	35	5
G	12	19	31	23	35	4
H	5	31	36	35	40	4

Question 13

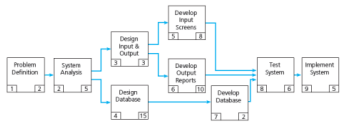
- Schedule table for Question 13



Activity	ED	ES	EF	LS	LF	TS	AF
A	2						3
B	10						12
C	8						13
D	15	3	18	8	23	5	
E	7	12	19	16	23	4	
F	20	13	33	15	35	2	
G	12	19	31	23	35	4	
H	5	33	38	35	40	2	

Question 14

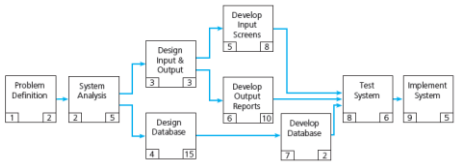
- Calculate the ES, EF, LS, and LF times and the slack for each activity in the figure below, and identify the critical path for the project.
- Can the project be completed in 30 weeks?
- Assume that "Systems Analysis" actually finished at 8 weeks, "Design Input & Output" actually finished at 15 weeks, and "Design Database" actually finished at 19 weeks. Recalculate the expected project completion time. Which activities would you focus on in order to get the project back on



- The critical path is:
  1 – 2 – 4 – 7 – 8 – 9.
- No, this project cannot be completed within 30 weeks. With the current estimates, it will take 35 weeks.
- The project has slipped even further. With the current estimates, it will take 36 weeks. Attention should be given to all activities since they all have negative slack. However, the path 6 – 8 – 9 is the most critical.

Question 14

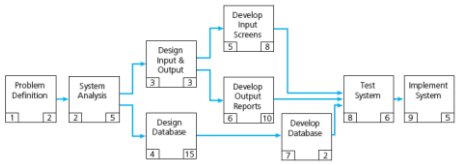
- Schedule table for Question 14



Activity	ED	ES	EF	LS	LF	TS
1. Prob. Def.	2	0	2	-5	-3	-5
2. Sys. Analysis	5	2	7	-3	2	-5
3. Design I/O	3	7	10	6	9	-1
4. Design DB	15	7	22	2	17	-5
5. Develop Input	8	10	18	11	19	1
6. Develop Output	10	10	20	9	19	-1
7. Develop DB	2	22	24	17	19	-5
8. Test System	6	24	30	19	25	-5
9. Implement	5	30	35	25	30	-5

Question 14

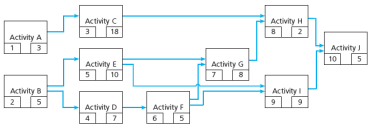
- Schedule table for Question 14



Activity	ED	ES	EF	LS	LF	TS	AF
1. Prob. Def.	2						
2. Sys. Analysis	5						8
3. Design I/O	3						15
4. Design DB	15						19
5. Dev. Input	8	15	23	11	19	-4	
6. Dev. Output	10	15	25	9	19	-6	
7. Dev. DB	2	19	21	17	19	-2	
8. Test System	6	25	31	19	25	-6	
9. Implement	5	31	36	25	30	-6	

Question 15

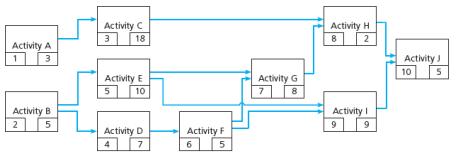
- Calculate the ES, EF, LS, and LF times and the slack for each activity in the figure below, and identify the critical path for the project.
- Can the project be completed in 30 weeks?
- Assume that activity A actually finished at 5 weeks and activity B actually finished at 5 weeks. Recalculate the expected project completion time. Which activities would you focus on in order to get the project back on schedule?



- The most critical path in the network is B – D – F – G – H – J.
- No, this project cannot be completed within 30 weeks. With the current estimates, it will take 32 weeks.
- The project is still 2 weeks behind the scheduled completion date. Attention should be given to activities D – F – G – H – J.

Question 15

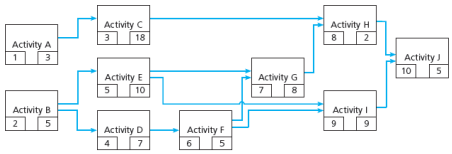
- Schedule table for Question 15



Activity	ED	ES	EF	LS	LF	TS
A	3	0	3	2	5	2
B	5	0	5	-2	3	-2
C	18	3	21	5	23	2
D	7	5	12	3	10	-2
E	10	5	15	5	15	0
F	5	12	17	10	15	-2
G	8	17	25	15	23	-2
H	2	25	27	23	25	-2
I	9	17	26	16	25	-1
J	5	27	32	25	30	-2

Question 15

- Schedule table for Question 15



Activity	ED	ES	EF	LS	LF	TS	AF
A	3						5
B	5						5
C	18	5	23	5	23	0	
D	7	5	12	3	10	-2	
E	10	5	15	5	15	0	
F	5	12	17	10	15	-2	
G	8	17	25	15	23	-2	
H	2	25	27	23	25	-2	
I	9	17	26	16	25	-1	
J	5	27	32	25	30	-2	