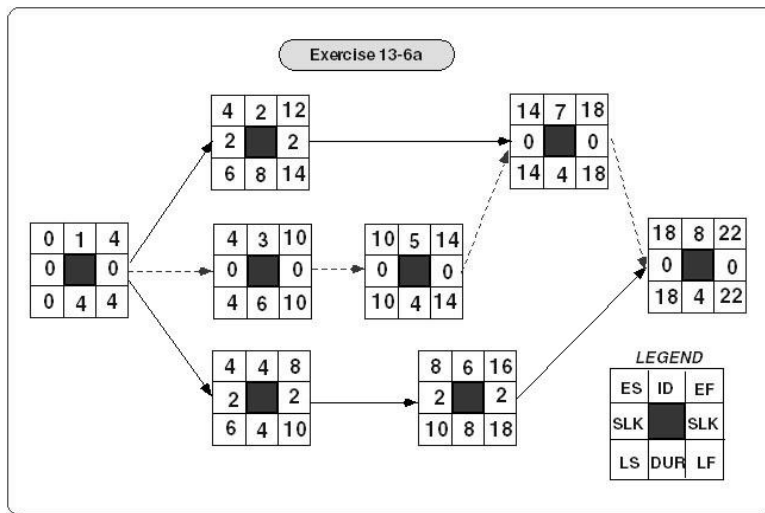


Birla Institute of Technology and Science, Pilani
Project Management (MBA G523)
Comprehensive Examination (2016-17) I semester
(Close Book)

Marks: 40 Marks

Time: 2 Hours 30 Minutes

Q: 1 The following data have been collected for a British health care IT project for two-week reporting periods 10 through 12. Compute the SV, CV, SPI, and CPI for each period. What is your assessment of the project at the end of period 12? (3+3+1=7 M)



Exercise 13-6b

Baseline (PV)
(00\$)

Task	Dur.	ES	LF	Slack	PV (00\$)	Period															
						0	2	4	6	8	10	12	14	16	18	20	22				
1	4	0	4	0	8	4	4														
2	8	4	14	2	40			10	10	10	10										
3	6	4	10	0	30			10	15	5											
4	4	4	10	2	20			10	10												
5	4	10	14	0	40						20	20									
6	8	8	18	2	60					20	20	10	10								
7	4	14	18	0	20								10	10							
8	4	18	22	0	30												20	10			
Period PV Total						4	4	30	35	35	50	30	20	10	20	10					
Cumulative PV Total						4	8	38	73	108	158	188	208	218	238	248					

STATUS REPORT: ENDING PERIOD 10

Task	%Complete	EV	AC	PV	CV	SV
1	Finished		10			
2	60 %		30			
3	Finished		40			
4	50 %		20			
5	0 %		0			
6	30%		24			
Cumulative Totals						

STATUS REPORT: ENDING PERIOD 12

Task	%Complete	EV	AC	PV	CV	SV
1	Finished		10			
2	Finished		50			
3	Finished		40			
4	Finished		40			
5	50 %		30			
6	50%		40			
Cumulative Totals						

Q: 2 A company has two project investment alternatives. The required rate of return on projects is 20%, and inflation is projected to remain at 3% into the foreseeable future. The pertinent information about each alternative is listed as follows:

Project Thomas	Year	Investment	Revenue Streams
	0	\$1,000,000	0
	1		200,000
	2		200,000
	3		200,000
	4		200,000
	5		200,000
	6		200,000

Project Anna	Year	Investment	Revenue Streams
	0	\$75,000	0
	1		15,000
	2		25,000
	3		50,000
	4		50,000
	5		150,000

Which project should the firm's first priority? Why? (2+2+1=5 M)

3. Draw a network diagram that represents the following IS development task list. Use both the activity on node (AON) and the activity-on-the-arrow (AOA) formats. (2+2=4 M)

Activity	Immediate Predecessor
1. Problem Definition	—
2. Study Current System	1
3. Define User Requirements	1
4. Logical System Design	3
5. Physical System Design	2
6. System Development	4, 5
7. System Testing	6
8. Convert Database	4, 5
9. System Conversion	7, 8

4. Given the network plan that follows, compute the early, late, and slack times. What is the project duration? Using any approach you wish (e.g., trial and error), develop a loading chart for resources Electrical Engineers (EE), and resource, Mechanical Engineers (ME). Assume only one of each resource exists. Given your resource schedule, compute the early, late, and slack times for your project. Which activities are now critical? What is the project duration now? (2+2+1=5M)

Develop a loading schedule for each resource below. (cf: Figures 8.2 and 8.7b)

EE													
ME													
	0	1	2	3	4	5	6	7	8	9	10	11	12

FILL IN THE TIMES BELOW FOR A RESOURCE ACTIVITY SCHEDULE

	ES	LS	EF	LF	SLK
1-EE					
2-EE					
3-ME					
4-EE					
5-ME					
6-ME					
7-EE					

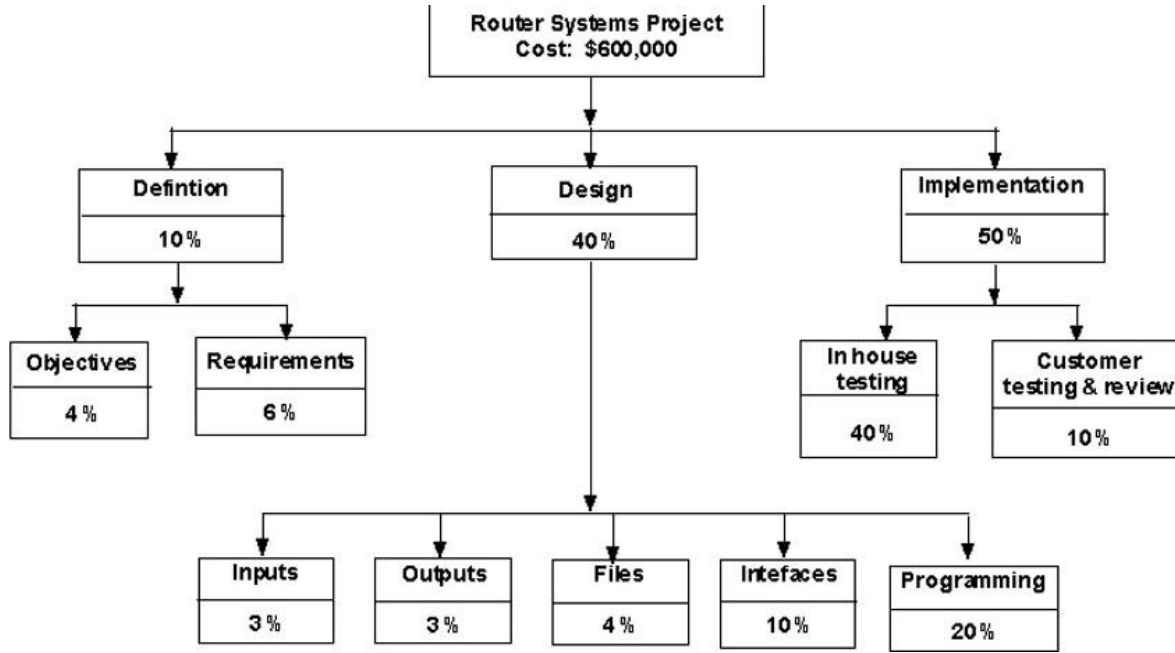
LEGEND

ES	ID	EF
SLK	DUR	LF

RESOURCE

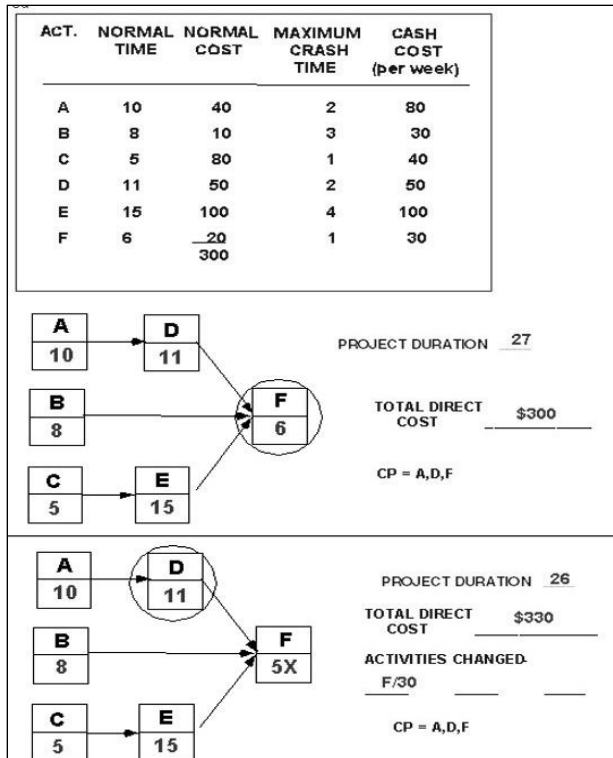
5. Below is a project WBS with cost apportioned by percents. If the total project cost is estimated to be \$600,000, what are the estimated costs for the following deliverables (3 M)

Figure 1



- 1) a Design? b. Programming? c. In-house testing?

6. If the indirect costs for each duration are \$300 for 27 weeks, \$240 for 26 weeks, \$180 for 25 weeks, \$120 for 24 weeks, \$60 for 23 weeks, and \$50 for 22 weeks, compute the direct, indirect and total costs for each duration. What is the optimum cost-time schedule? The customer offers you \$10 dollars for every week you shorten the project from your original planning network. Would you take it? If so for how many weeks? (4+1+1=6 M)



7. Compute the early, late, and slack times for the activities in the network that follows, assuming a time constrained network. Which activities are critical? What is the time constrained project duration? Note: Recall in the schedule resource load chart the time constrained "schedule interval (ES through LF) has been shaded. Any resource schedule beyond the shaded area will delay the project.

Assume you are a computer using a software that schedules projects by the parallel method and following heuristics. Schedule only one period at a time!

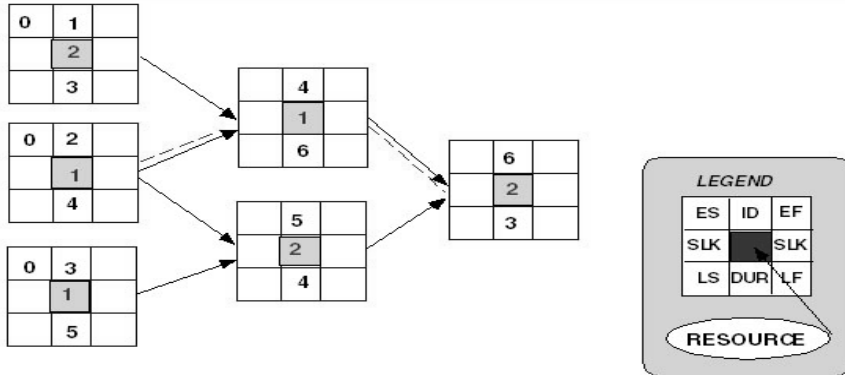
Minimum slack

Smallest duration

Lowest identification number

Keep a log of each activity change and update you make each period—e.g., period 0-1, 1-2, 2-3, etc. The log should include any changes or updates in ES and slack times each period, activities scheduled, activities delayed. (Hint: Remember to maintain the technical dependencies of the network.) Use the resource load chart to assist you in scheduling.

- (i) List the order in which you scheduled the activities of the project. Which activities of your schedule are now critical? (4+3=7 M)
- (ii) Recompute your slack for each activity given your new schedule. What is the slack for activity 1? 4? 5? (3M)



SCHEDULED RESOURCE LOAD CHART WITH ES AND SLACK UPDATES

ID	RES	DUR	ES	LF	SLK	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	2	3	0	4	1		█	█	█	█												
2	1	4	0	4	0		█	█	█	█												
3	1	5	0	6	1		█	█	█	█	█											
4	1	6	4	10	0					█	█	█	█	█	█							
5	2	4	5	10	1						█	█	█	█	█							
6	2	3	10	13	0												█	█	█			
RESOURCES SCHEDULED																						
RESOURCES AVAILABLE						3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3