

QUESTION 2**1 points**

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Problem 2

Consider the following project.

Activity	Immediate Predecessors	Normal Duration (months)	Normal cost (\$)
A	-	3	700
B	-	4	900
C	A	2	1,100
D	B	6	600
E	C, D	8	800
F	D	7	1,300
G	E	4	500
H	E, F	9	800

A) Draw a network diagram for this project.

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QUESTION 3

89 points

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Problem 2 - continued

Consider the following project.

Activity	Immediate Predecessors	Normal Duration (months)	Normal cost (\$)
A	-	3	700
B	-	4	900
C	A	2	1,100
D	B	6	600
E	C, D	8	800
F	D	7	1,300
G	E	4	500
H	E, F	9	800

B) For each activity compute ES, EF, LS, LF. Then, say which activities are critical.

Activity	ES	EF	LS	LF
A				
B				
C				
D				
E				
F				
G				
H				

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B) For each activity compute ES, EF, LS, LF. Then, say which activities are critical.

A c t i v i t y	ES	EF	LS	LF
A				
B				
C				
D				
E				
F				
G				
H				

Slacks

Slacks

Activi ty	Slack
A	
B	
C	
D	
E	
F	
G	
H	

 are the critical activities.

*Please list activities by writing only their names, without including spaces, commas, or dashes in between. For example, **ACEG**.

C) List all the paths in the network diagram. Say which one(s) is(are) the critical path(s) and what the minimum project duration is.

 is the critical path.

*To identify the critical path list only the name of the activities along the path without including spaces, commas, or dashes in between. For example, **ACEG**.

C) List all the paths in the network diagram. Say which one(s) is(are) the critical path(s) and what the minimum project duration is.

 is the **critical path**.

*To identify the critical path list only the name of the activities along the path without including spaces, commas, or dashes in between. For example, **ACEG**.

The **minimum project duration** is months.

Path		Duration (month)	

*To identify the path list only the name of the activities along the path without including spaces, commas, or dashes in between. For example, **ACEG**.

D) You are told that the project needs to be completed in 3 months earlier. Compute the crash cost per month for each activity and the maximum number of times each activity can be crashed, then determine which activities need to be crashed and what will be the incremental cost, given the following data:

Activity	Immediate Predecessors	Normal Duration (months)	Normal cost (\$)	Crash duration (months)	Crash cost (\$)
A	-	3	700	1	750
B	-	4	900	4	900
C	A	2	1,100	1	1,150
D	B	6	600	5	700
E	C, D	8	800	6	1,100
F	D	7	1,300	5	1,700
G	E	4	500	4	500
H	E, F	9	800	6	2,300

The crash duration is the minimum duration of each activity. Any duration value between the crash duration and normal duration can achieved and the corresponding cost is proportional. (Note this is the same assumption we made in class).

Activity	Crash cost per month (\$)	Maximum # crashes
A		
B		

The crash duration is the minimum duration of each activity. Any duration value between the crash duration and normal duration can be achieved and the corresponding cost is proportional. (Note this is the same assumption we made in class).

Activity	Crash cost per month (\$)	Maximum # crashes
A		
B		
C		
D		
E		
F		
G		
H		

*If not applicable, write NA.

Initial setting

*If not applicable, write **NA**.

Initial setting

	Initial setting	After 1 st crashing	After 2 nd crashing	3 rd crashing
Total cost (\$)				
Min. project duration				
Critical paths				
Activities crashed				
Incremental cost (\$)				

*To identify the critical path list only the name of the activities along the path without including spaces, commas, or dashes in between. For example, **ACEG**.

After 1st crashing:

After 1 st crashing	
Total cost (\$)	
Min. project duration	
Critical paths	
Activities crashed	
Incremental cost (\$)	

*To identify the critical path list only the name of the activities along the path without including spaces, commas, or dashes in between. For example, **ACEG**.

After 2nd crashing:

After 2 nd crashing	
Total cost (\$)	
Min. project duration	
Critical paths	
Activities crashed	
Incremental cost (\$)	

*To identify the critical path list only the name of the activities along the path without including spaces, commas,

After 2nd crashing:

After 2 nd crashing	
Total cost (\$)	
Min. project duration	
Critical paths	
Activities crashed	
Incremental cost (\$)	

*To identify the critical path list only the name of the activities along the path without including spaces, commas, or dashes in between. For example, **ACEG**.

3rd crashing:

3 rd crashing	
Total cost (\$)	
Min. project duration	