

SYSC 4106 – Winter 2021 - Case Study Assignment #2 → 30 marks

→ Posted = Feb. 03, 2021 Due = Feb. 22, 2021 @ 11:55 pm on cuLearn

This assignment must be done individually – No group work

Question 1 [10 marks] – Activities are in days

Activity	Depends on	Duration	ES	EF	LS	LF	Float
A	None	10					
B	A	5					
C	B	15					
D	A	3					
E	A	8					
F	E	20					
G	D	6					
H	C, F, G	10					

- Complete the table with the values of ES, EF, LS, LF, and Float. Use “End of day” (for ES, EF, LS, and LF) which means the earliest start time for activity A is end of day “0” [4 marks]
- Draw the activity network [4 marks]
- What is the critical path and duration? [2 marks]

Question 2 [20 marks]

Note that all activities are in weeks and all calculations to two decimal places.

Activities	Predecessors	Optimum	Normal	Pessimistic	Expected Time	Variance-1	Variance-2
a	none	6	7	9			
b	none	4	5	7			
c	none	7	9	15			
d	a	6	7	7			
e	b	4	7	8			
f	b	12	16	17			
g	c	8	12	20			
h	c	8	9	18			
i	d,e	10	16	18			
j	f,g	8	14	20			
k	h	9	9	14			

- Calculate the expected time for each activity [1 mark]
- Draw the network [3 marks]
- Find the critical path and the project duration [1 mark]
- Assume that the values in the table were made at 95% level [2 + 5 = 7 marks]
 - Using the table, calculate Variance-1 for each activity
 - Find the probability that the critical path will be completed in 38 weeks or less
- Assume that the values in the table were made on the 99% level. [2 + 4 = 6 marks]
 - Using the table, calculate Variance-2) for each activity
 - Find the probability that the critical path will be completed in 38 weeks or less.
- Briefly explain the differences between the two results above (i.e. d(i) and e(i) above). [2 mark]