Case Study 2
SYSC 4106
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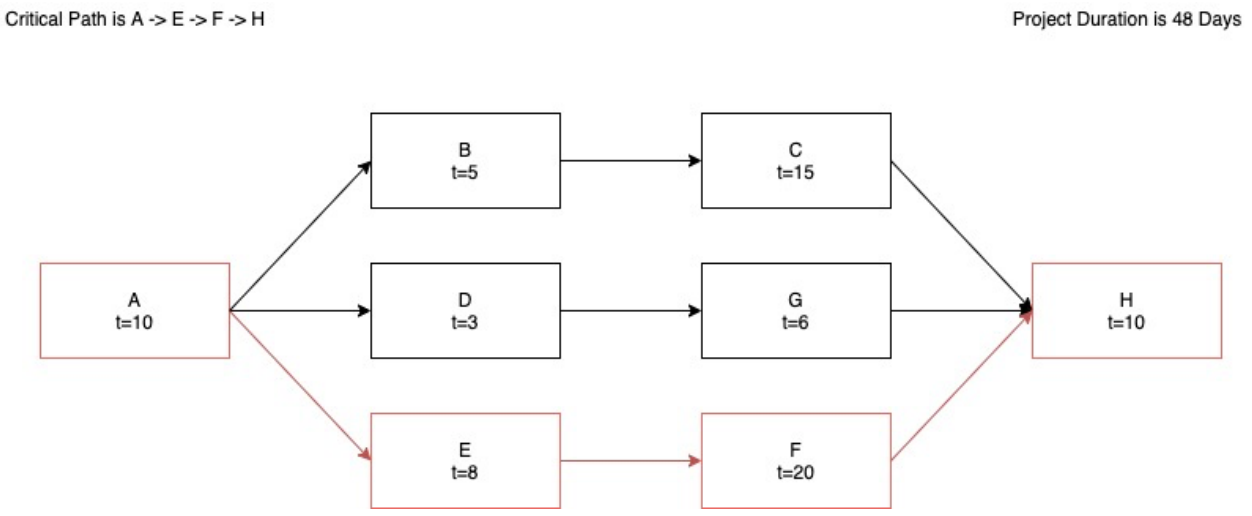
Question 1

a)

Activity	Depends on	Duration	ES	EF	LS	LF	Float
A	None	10	0	10	0	10	10 – 0 – 10 = 0
B	A	5	10	15	18	23	23 – 10 – 5 = 8
C	B	15	15	30	23	38	38 – 15 – 15 = 8
D	A	3	10	13	32	35	35 – 10 – 3 = 22
E	A	8	10	18	10	18	18 – 10 – 8 = 0
F	E	20	18	38	18	38	38 – 18 – 20 = 0
G	D	6	13	19	32	38	38 – 13 – 6 = 19
H	C, F, G	10	38	48	38	48	48 – 38 – 10 = 0

b)



c)

- Critical Path = A → E → F → H
- Project Duration = 10 + 8 + 20 + 10 = 48 days

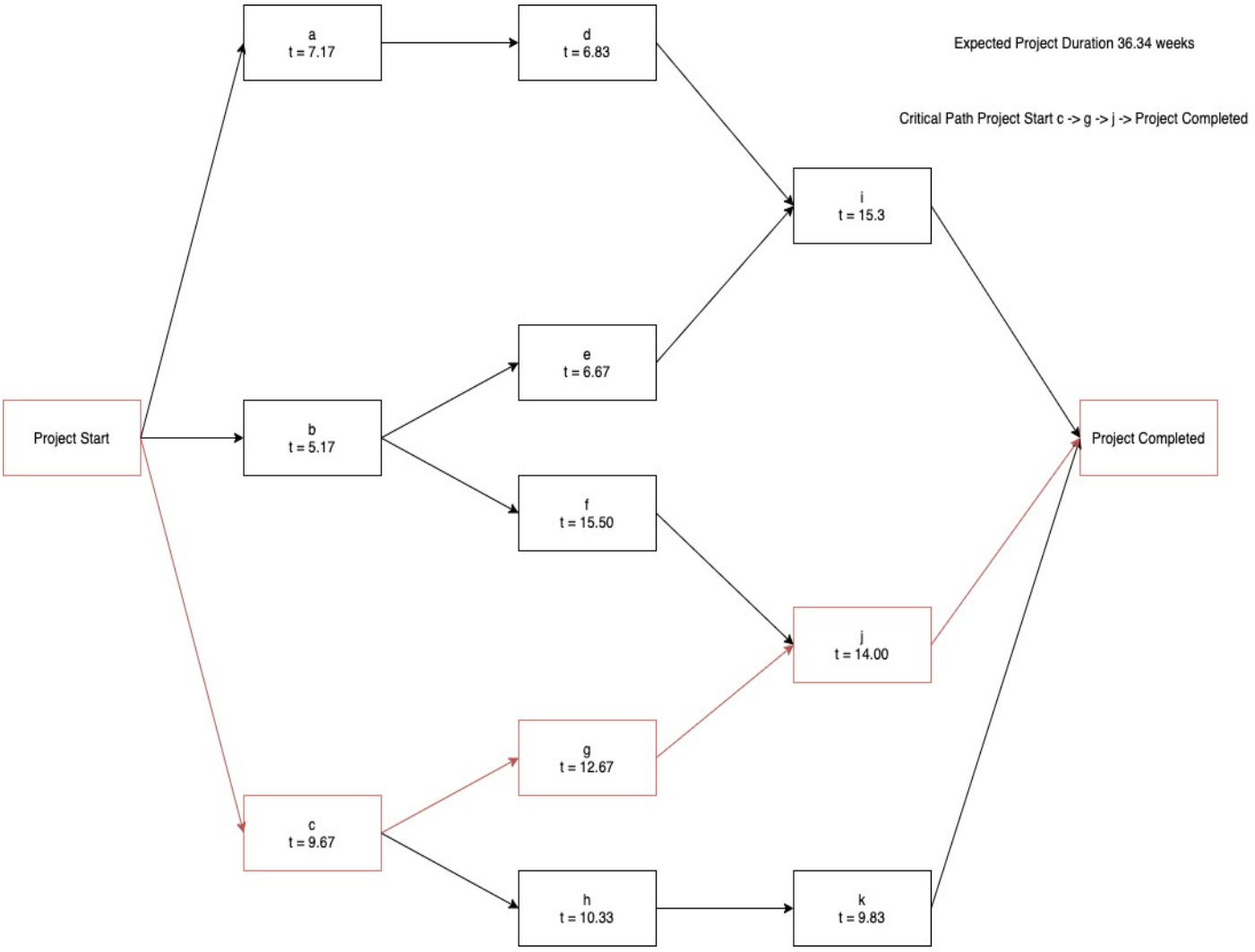
Question 2:

a)

Activities	Optimum	Normal	Pessimistic	Expected Time	Variance 1	Variance 2
a	6	7	9	7.17	0.83	0.25
b	4	5	7	5.17	0.83	0.25
c	7	9	15	9.67	5.88	1.78
d	6	7	7	6.83	0.09	0.03
e	4	7	8	6.67	1.47	0.44
f	12	16	17	15.50	2.30	0.69
g	8	12	20	12.67	13.22	4.00
h	8	9	18	10.33	9.18	2.78
i	10	16	18	15.33	5.88	1.78
j	8	14	20	14.00	13.22	4.00
k	9	9	14	9.83	2.30	0.69

Expected Time Calculated as (Optimum + (4 * Normal) + Pessimistic) / 6

b)



c)

- Critical Path is Project Start → c → g → j → Project Completed
- Expected Project Duration = 36.34 Weeks

d)

i

- Variance 1 on table, Calculated as (Standard Deviation^2)
- Standard Deviation = (Pessimistic – Optimum) / 3.3

ii Z = (38 – 36.34)/32.30 = 0.05 → 0.5199 = %51.99 that the project will be completed in 38 weeks or less

e)

i

- Variance 2 on table, Calculated as (Standard Deviation^2)
- Standard Deviation = (Pessimistic – Optimum) / 6

ii Z = (38 – 36.34)/9.77 = 0.17 → 0.5675 = %56.75 that the project will be completed in 38 weeks or less

d) The difference between the variances calculated in d(i) and e(i) is that in e(i) it is assumed that 95% of all cases were greater than the optimistic time and less than the pessimistic time. In this case around 5% of the cases lay outside these estimates. In d(i) it is assumed that 99% of all cases of all cases were greater than the optimistic time and less than the pessimistic time, meaning only 1% of the cases lay outside these estimates. Although the 99% assumption gives us a more ideal outcome, it is much more realistic to assume a 95% confidence instead of the 99% confidence.