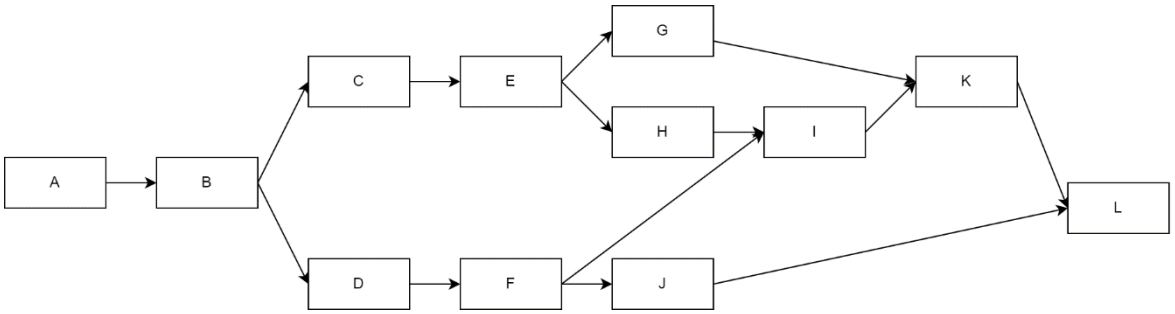
Question 1



Question 2

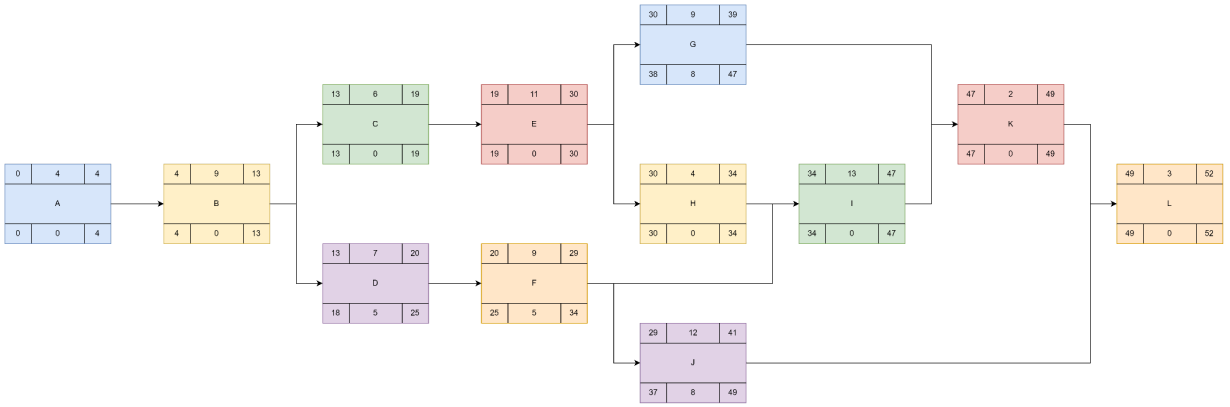
$$Expected\ Time\ =\ \frac{1}{6}[Optimistic\ Time\ (a)\ +\ 4\ \times\ Most\ Likely\ Time\ (m)\ +\ Pessimistic\ Time\ (b)]$$

$$Std.\ Deviation\ =\ \frac{1}{6}[Pessimistic\ Time\ (b)\ -\ Optimistic\ Time\ (a)]$$

$$Total\ Std.\ Dev.\ =\ \sqrt{sd_1^{\ 2}\ +\ sd_2^{\ 2}\ +\ldots+\ sd_n^{\ 2}}\ =\sqrt{\sum_{i=1}^{n} sd_i^{\ 2}}$$

TASK	Most Likely Time	Optimistic Time	Pessimistic Time	Expected Time	Standard Deviation
	m	**a**	**b**	**Exp Dur**	**Std Dev**
A	4	3	5	4	0.333333
B	8	8	14	9	1
C	6	4	8	6	0.666667
D	7	4	10	7	1
E	10	9	17	11	1.333333
F	9	8	10	9	0.333333
G	9	7	11	9	0.666667
H	4	2	6	4	0.666667
I	12	12	18	13	1
J	12	11	13	12	0.333333
K	2	2	2	2	0
L	3	2	4	3	0.333333
Total Standard Deviation					2.21108

Question 3



Critical Path: A-B-C-E-H-I-K-L

TASKS	Earliest Start	Duration	Earliest Finish	Latest Start	Float	Latest Finish
	ES	**DUR**	**EF**	**LS**	**FLT**	**LF**
A	0	4	4	0	0	4
B	4	9	13	4	0	13
C	13	6	19	13	0	19
D	13	7	20	18	5	25
E	19	11	30	19	0	30
F	20	9	29	25	5	34
G	30	9	39	38	8	47
H	30	4	34	30	0	34
I	34	13	47	34	0	47
J	29	12	41	37	8	49
K	47	2	49	47	0	49
L	49	3	52	49	0	52

Question 4

$$z = \frac{(Target\ Completion\ Time - Expected\ Completion\ Time)}{Std.\ Dev.} = \frac{(T - t_e)}{s} = \frac{(55-52)}{2.21108} = 1.3568$$

According to the Z-Score table, the rough probability of z-value 1.3568 is 0.9115, which yields a probability of 91.15% of finishing the project on time.

Question 5

Number of specialists of each type needed on each day of the project.

Type\Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
SA	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
SD	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	3	3	3	3	3	3	3	2	2	1	1	1	1	1	1	1	1	0	0	0	0

Question 6

Number of specialist of each type needed on each day of the project (constrainted).

Type\Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
SA	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
SD	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	0	0	0	1	1	0	0	0

Question 7

The delay caused by the constraint is 5 days.