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Time Estimate Type	Description
Optimistic Estimate(t_0)	Best-case scenario estimate assuming no delays or obstacles
Most Likely Estimate(t_m)	Realistic estimate based on normal conditions and potential risks
Pessimistic Estimate(t_p)	Worst-case scenario estimate considering all possible delays

For the three estimate we have to calculate the expected time of an activity	$t_e = \frac{t_0 + 4t_m + t_p}{6}$
Variance of an activities given by	$V = \sigma^2 = \left(\frac{t_p - t_0}{6}\right)^2$
Standard Deviation of project (σ):	$V = \sigma^2 = \left(\frac{t_p - t_0}{6}\right)^2$ $\sigma = \sqrt{\left(\frac{t_p - t_0}{6}\right)^2}$

Time estimate with Network Diagram

MARCH 22

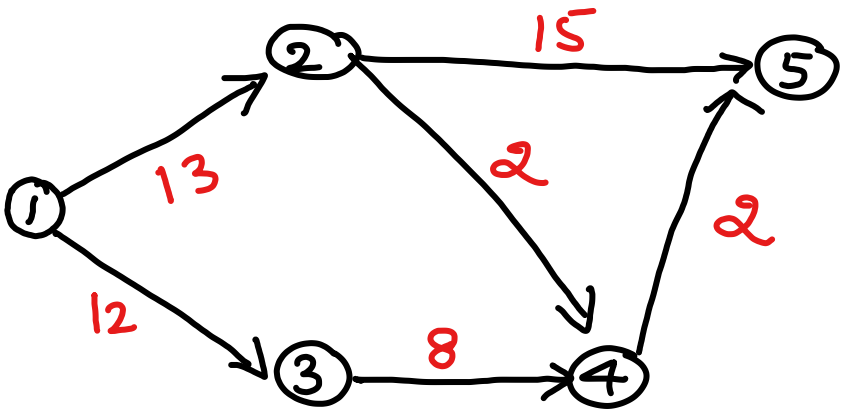
Develop the network diagram for the following activities with corresponding time estimate.

Activity	Time Estimate		
	t_0	t_m	t_p
1-2	9	12	21
1-3	6	12	18
2-4	1	1.5	5
3-4	4	8.5	10
2-5	10	14	24
4-5	1	2	3

Activity	Time Estimate		
	t_0	t_m	t_p
1-2	9	12	21
1-3	6	12	18
2-4	1	1.5	5
3-4	4	8.5	10
2-5	10	14	24
4-5	1	2	3

$$\frac{9 + 4(12) + 21}{6}$$

Activity	Time Estimate			Expected time for each activity $t_e = \frac{t_0 + 4t_m + t_p}{6}$
	t_0	t_m	t_p	
1-2 ✓	9	12	21	13 ✓
1-3 ✓	6	12	18	12
2-4	1	1.5	5	2
3-4	4	8.5	10	8
2-5	10	14	24	15
4-5	1	2	3	2



1-2-5

1-2-4-5

1-3-4-5

Feb -2023

8 (c). The three time estimates (to), (tm), (tp) for each activity in a project are given below. Determine the expected time for each activity and also calculate the standard deviation of the project. – 10 Marks

Activity	Time Estimate		
	t_0	t_m	t_p
1-2	9	12	21
1-3	6	12	18
2-4	1	1.5	5
3-4	4	8.5	10
2-5	10	14	24

Activity	Time Estimate			Expected time for each activity $t_e = \frac{t_0 + 4t_m + t_p}{6}$	Variance for each activity $V = \sigma^2 = \left(\frac{t_p - t_0}{6}\right)^2$
	t_0	t_m	t_p		
1-2	9	12	21	13	4
1-3	6	12	18	12	4
2-4	1	1.5	5	2	0.444
3-4	4	8.5	10	8	1
2-5	10	14	24	15	5.444

Standard Deviation of project (σ):

$$V = \sigma^2 = \left(\frac{t_p - t_0}{6}\right)^2$$

$\sigma = \sqrt{\quad}$

$\sigma =$ 3.858

$$\sigma = \sqrt{4 + 4 + 0.444 + 1 + 5.444}$$

$$= \sqrt{14.888}$$

$$= 3.858$$

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