



# Assignment No 3

Course Name: Business Process Engineering SWE (633)

Course Structure: Lectures: 3

Credit Hours: 3

Due Date: 07/11/2025

Total Marks 15

## Solution of the Assignment

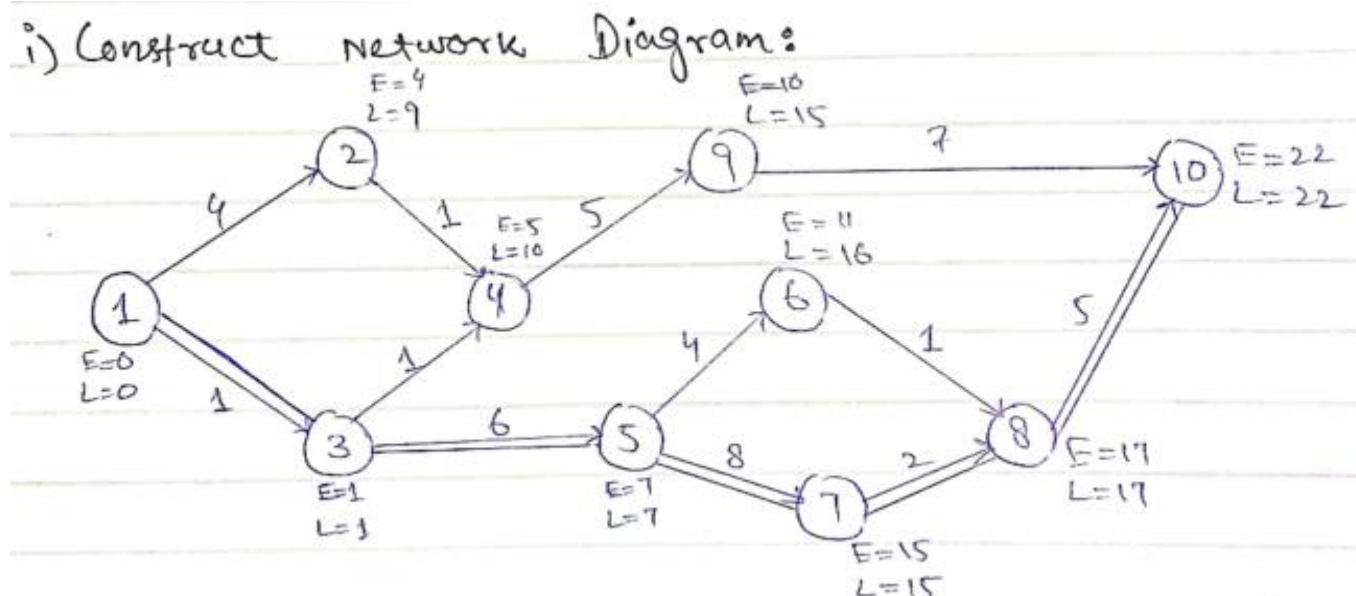
**Q1:**

The characteristics of a project schedule are as follows:

Activity:	1-2	1-3	2-4	3-4	3-5	4-9	5-6	5-7	6-8	7-8	8-10	9-10
Time (Weeks)	4	1	1	1	6	5	4	8	1	2	5	7

I. Construct the Network Diagram

Ans:



II. Compute Start and Finish (Earliest and Latest for Both) for Each Event.

III. Calculate all types of floats.

Ans of ii and iii:

Activity	Time / Duration	Start		Finish		Floats		
		E <sub>i</sub>	L <sub>i</sub>	E <sub>f</sub>	L <sub>f</sub>	I	F	T
1-2	4	0	5	4	9	0	0	5
1-3	1	0	0	1	1	0	0	0
2-4	1	4	9	5	10	0	0	5
3-4	1	1	9	2	10	0	0	8
3-5	6	1	1	7	7	0	0	0
4-9	5	5	10	10	15	0	0	5
5-6	4	7	12	11	16	0	0	5
5-7	8	7	7	15	15	0	0	0
6-8	1	11	16	12	17	0	0	5
7-8	2	15	15	17	17	0	0	0
8-10	5	17	17	22	22	0	0	0
9-10	7	10	15	17	22	0	0	5

#### IV. Find the Critical Path

Ans:

Formulas:

- $T = j_L - i_E - D$ ,  $F = j_E - i_E - D$ ,  $I = j_E - i_L - D$
- 1-3-5-7-8-10, It is a critical path.
- Total time is 22 weeks.

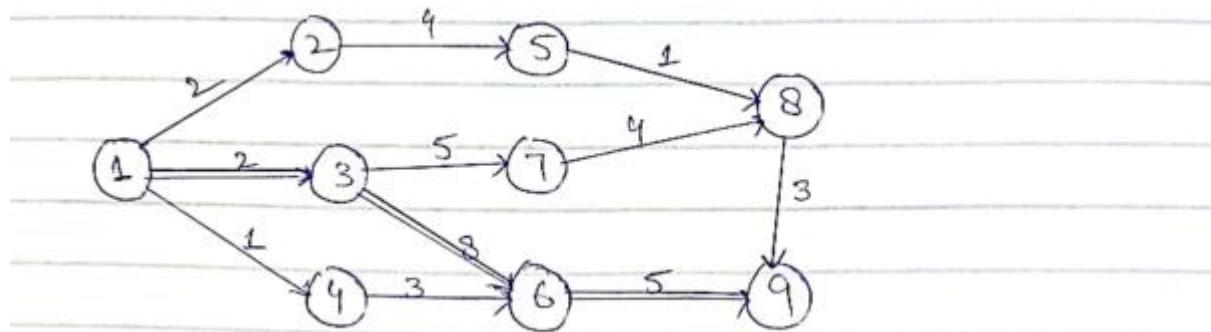
#### Q2:

A small assembly plant assembles PC's through 9 interlinked Activities. The time duration for which is given below:

Activity	1-2	1-3	1-4	2-5	3-6	3-7	4-6	5-8	6-9	7-8	8-9
Duration	2	2	1	4	8	5	3	1	5	4	3

**I. Draw a Network Diagram**

Ans:



**II. Calculate EST, EFT, LST, LFT where EST is Earliest Start Time: EFT is Earliest Finish Time: LST is Latest Start Time: and LFT is Latest Finish Time:**

**III. Calculate all types of floats.**

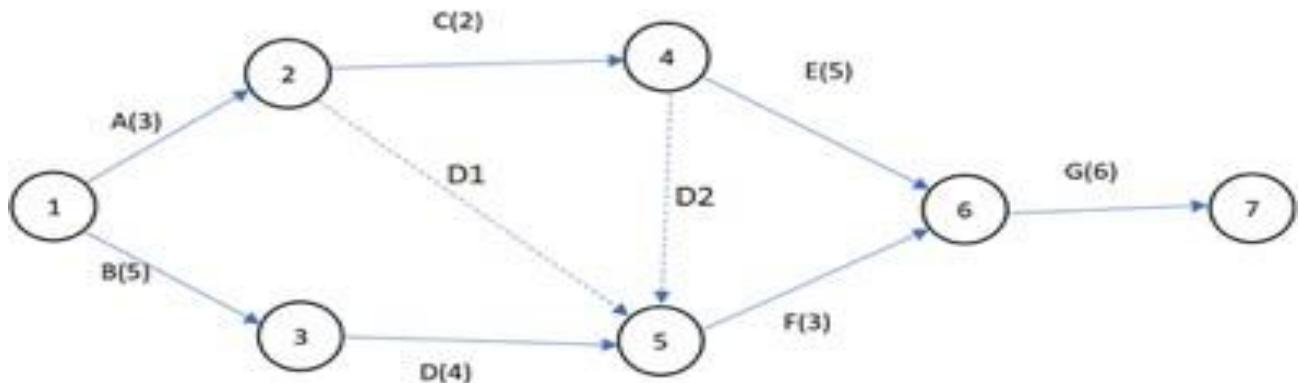
Above two Questions (Answers):

Activity	Duration	Start		Finish		Floats		
		EST	L <sub>SL</sub>	E <sub>EF</sub>	L <sub>FL</sub>	I	F	T
1-2	2	0	5	2	7	0	0	5
<u>1-3</u>	2	0	0	2	2	0	0	0
1-4	1	0	6	1	7	0	0	6
2-5	4	2	7	6	11	0	0	5
<u>3-6</u>	8	2	2	10	10	0	0	0
3-7	5	2	3	7	8	0	0	1
4-6	3	1	7	4	10	0	0	6
5-8	1	6	11	7	12	0	0	5
<u>6-9</u>	5	10	10	15	15	0	0	0
7-8	4	7	8	11	12	0	0	1
8-9	3	11	12	14	15	0	0	1

**IV. Find the critical Path.**

Ans:

1-3-6-9, it is a critical path.



**Q3:**

- I. Construct a table which shows the relationship between the activities and their predecessors.
- II. Calculate the following time estimates for each activity.
- III. Earliest Start Time (EST)
- IV. Earliest Finish Time (EFT)
- V. Latest Start Time (LST)
- VI. Latest Finish Time (LFT)
- VII. Calculate the total float for each activity.

All Above Questions (Answers):

Activity	Duration	Start		Finish		$I = F_E - L_E - D$	$F = F_E + D$	$T = F_L - F_E + D$
		$E_E$	$L_E$	$E_L$	$L_L$			
1-2	3	0	2	3	5	3-2-3	3-0-3	5-0-3
1-3	5	0	0	5	5	5-0-5	5-0-5	5-0-5
2-4	2	3	5	5	7	5-5-2	5-3-2	7-3-2
2-5	0	3	9	3	9	3-9-0	3-3-0	7-3-0
3-5	4	5	5	9	9	9-5-4	9-5-4	9-5-4
4-5	0	5	7	5	7	5-7-0	5-5-0	7-5-0
4-6	5	6	7	10	12	10-7-5	10-5-5	12-5-5
5-6	3	9	9	12	12	12-9-3	12-9-3	12-9-3
6-7	6	12	12	18	18	10-12-6	18-12-6	18-12-6

VIII. Identify the critical path.

Ans:

Critical path is 1-3-5-6-7

IX. Find the project completion time.

Ans:

Total time is 18 days..