Subject: _____ Date: _____

Solving all Examples in Lecture 2.

* PERT weighted average =

$$\frac{\text{optimistic time} + 4 * \text{most likely time} + \text{pessimistic time}}{6}$$

Example:-

optimistic time = 8 days

most likely time = 10 days

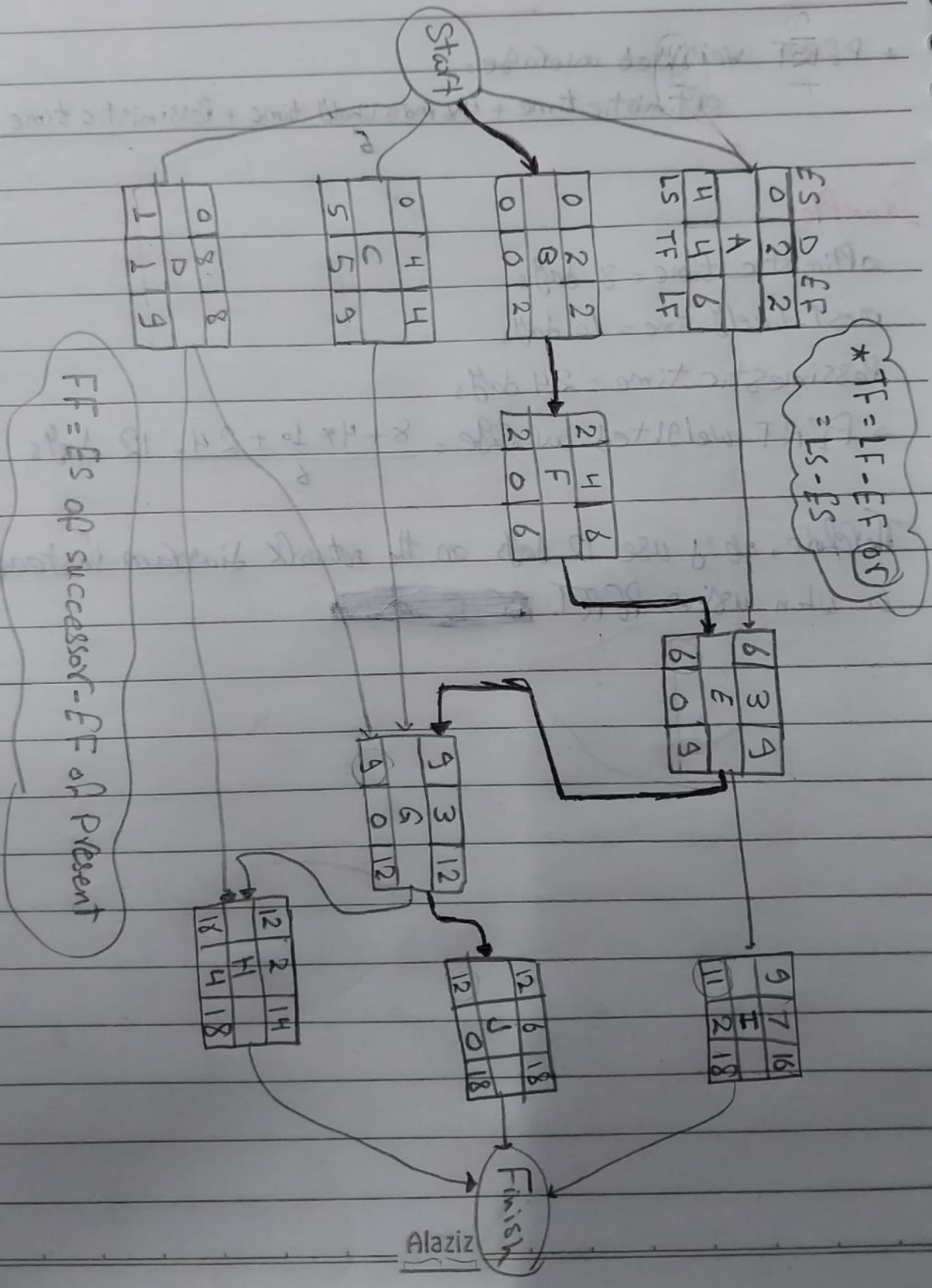
Pessimestic time = 24 days

∴ PERT weighted average = $\frac{8 + 4 * 10 + 24}{6} = 12$ days

Therefore, we'd use 12 days on the network diagram instead of 10 when using PERT. [redacted]

Subject : Date:

2) Critical Path Method (CPM) Problem - Question



Alaziz

Subject : Date:

Answering the following Questions:-

1) what is the minimum time required to complete the Project?
→ minimum time = 18 days.

2) what is the critical Path for this Project?
→ The critical Path is: B F E G J

3) what is the Early start (ES) date for activity E?
(ES) for E is = 6

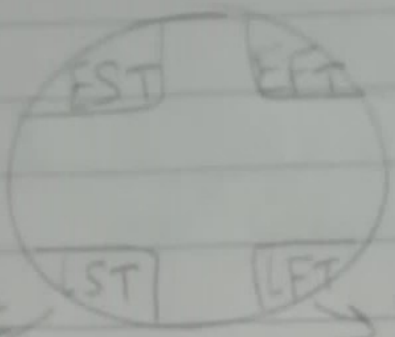
4) what is the late start (LS) date for activity A?
(LS) for A is = 4

5) what is the Late finish (LF) date for activity F?
(LF) for F is = 6

6) what is the total Float / Slack for activity H?
∴ total float (tf) for H = 4

7) what is the free float / Slack between activities D & G?
Free float (FF) = 9 - 8 = 1

Alaziz

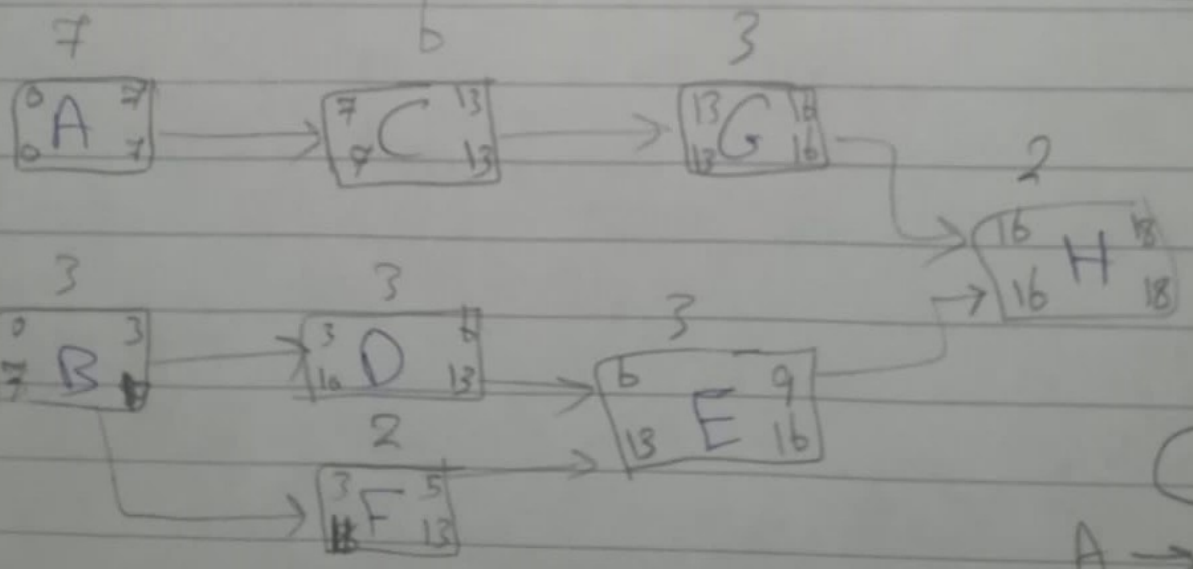


LS - ES = LF - EF

Last Start Time

Last Finish Time

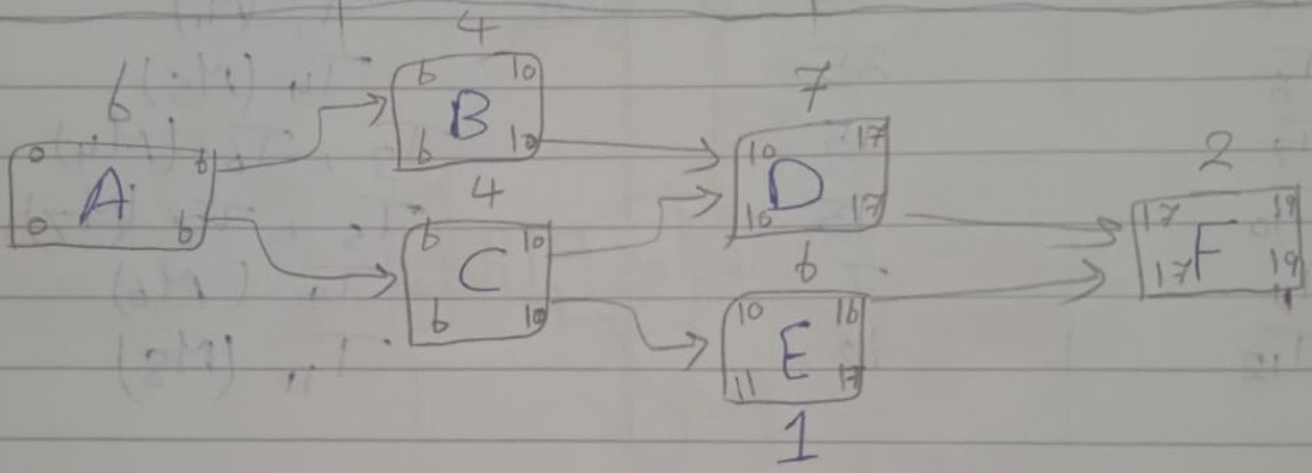
TaskID	Duration	Dependency
A	7	
B	3	
C	6	A
D	3	B
E	3	D, F
F	2	B
G	3	C
H	2	E, G



CPM

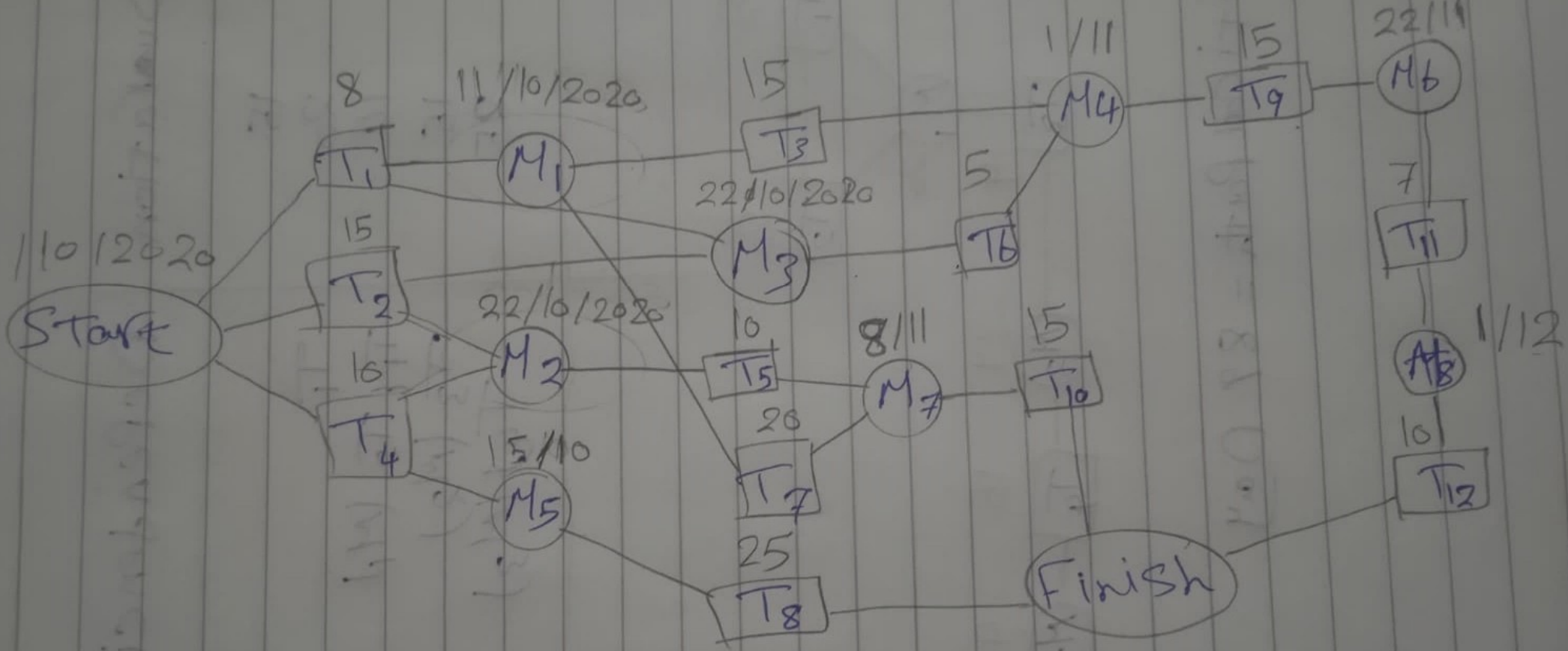
A → C → G

Activity	Immediate process	Normal Duration
A	None	6 weeks
B	A	4 ~
C	A	4 ~
D	B, C	7 ~
E	C	6 ~
F	D, E	2 ~



Critical Path = A → B → D → F
A → C → D → F

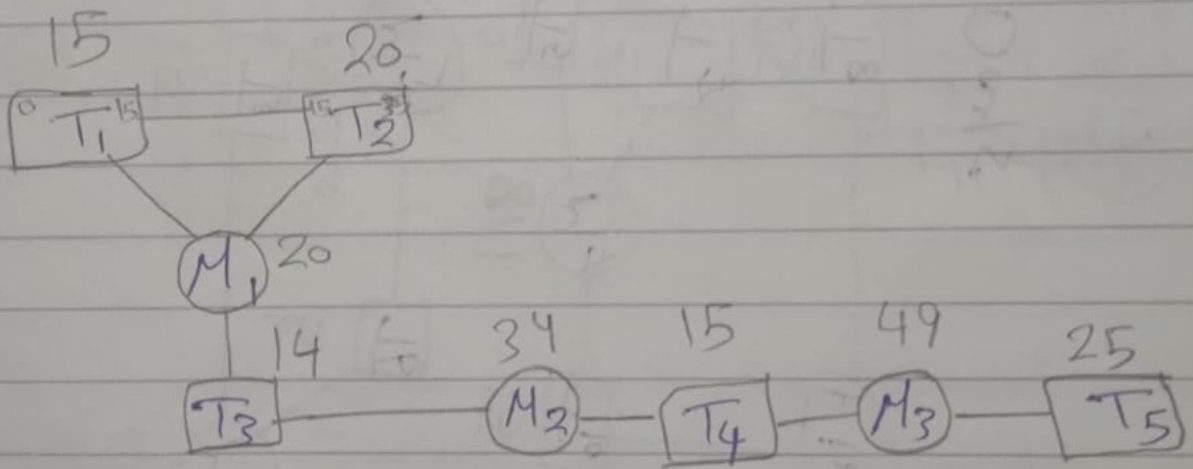
Activity	Duration	Dependencies
T_1	8	
T_2	15	
T_3	15	T_1 (M_1)
T_4	10	
T_5	10	T_2, T_4 (M_2)
T_6	5	T_1, T_2 (M_3)
T_7	20	T_1 (M_1)
T_8	25	T_4 (M_5)
T_9	15	T_3, T_6 (M_4)
T_{10}	15	T_5, T_7 (M_7)
T_{11}	7	T_9 (M_6)
T_{12}	10	T_{11} (M_8)



- The Critical Path is 55 Days

$T_1 \rightarrow T_3 \rightarrow T_9 \rightarrow T_{11} \rightarrow T_{12}$

Task	Duration	Dependencies
T_1	15	
T_2	20	T_1
T_3	14	T_1, T_2 (M_1)
T_4	15	T_3 (M_2)
T_5	25	T_4 (M_3)



The Critical Path = 89 Day