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Section : A

Semester : 12 (Batch-14)

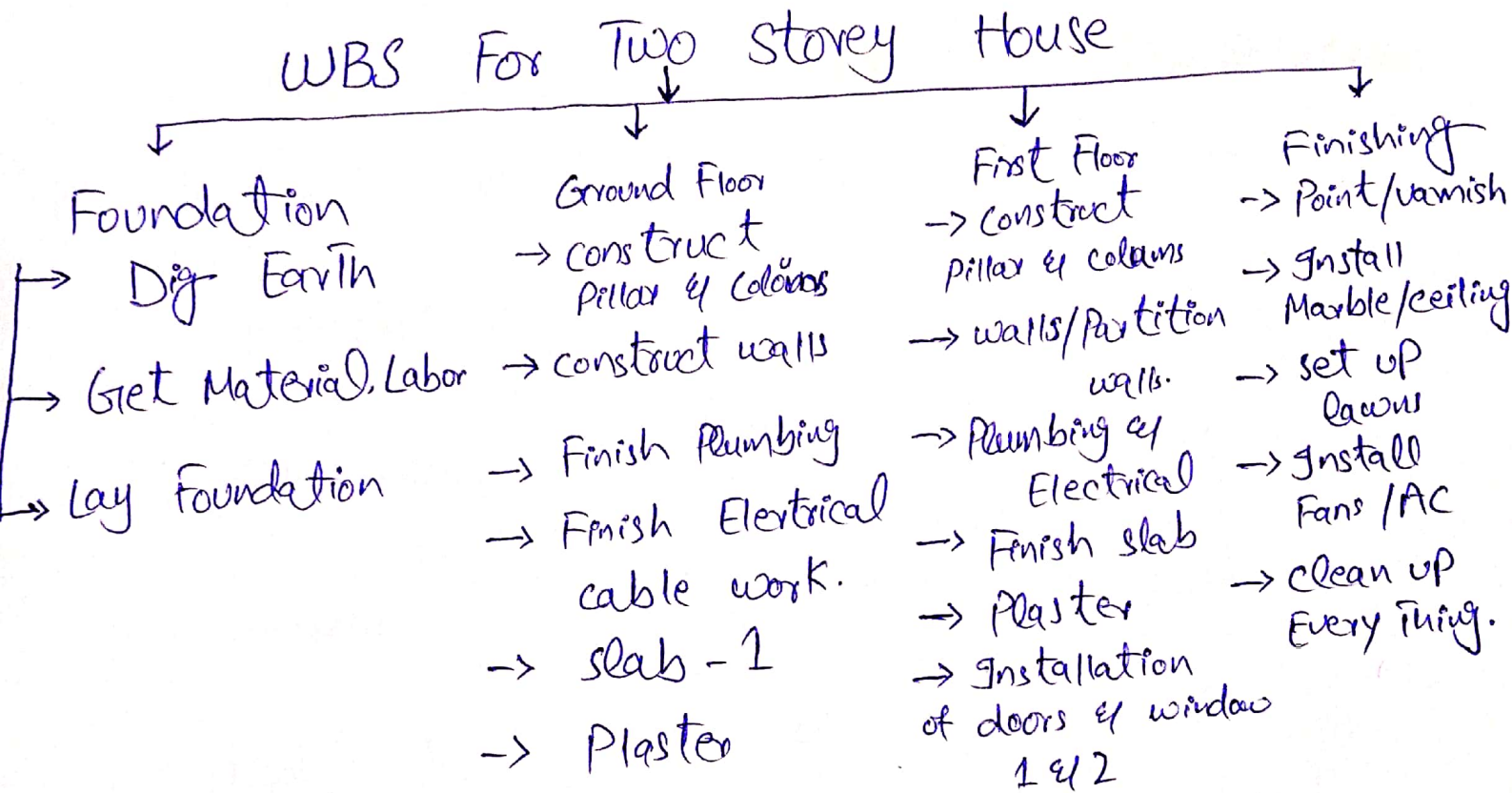
Paper : Construction Management

Submitted To : Engr. Dr M. Zeeshan Ahad

"Iqra National University"

Q1:-

Part (a) An Activity list of a two storied building and a work breakdown structure for The Project.

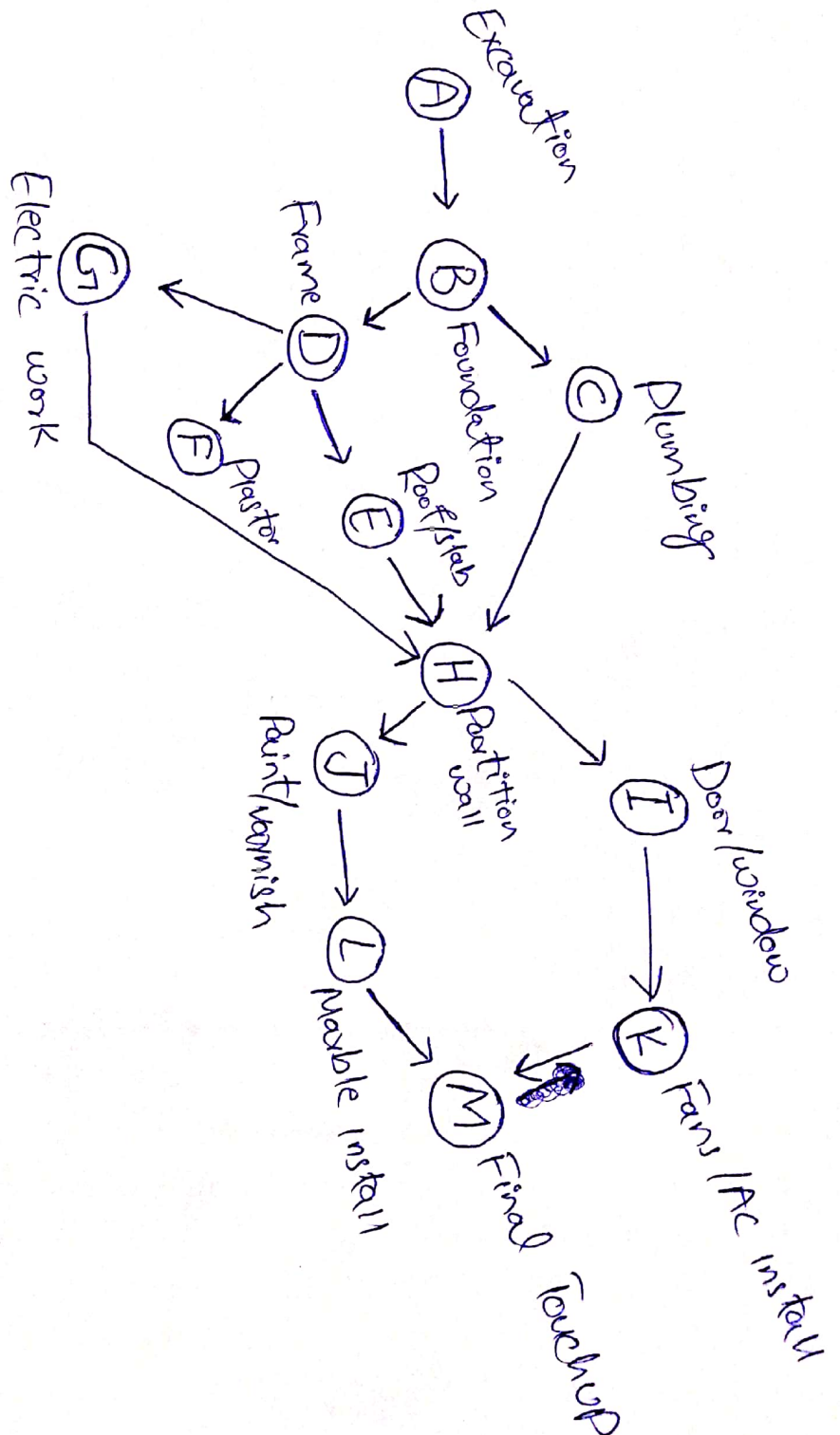


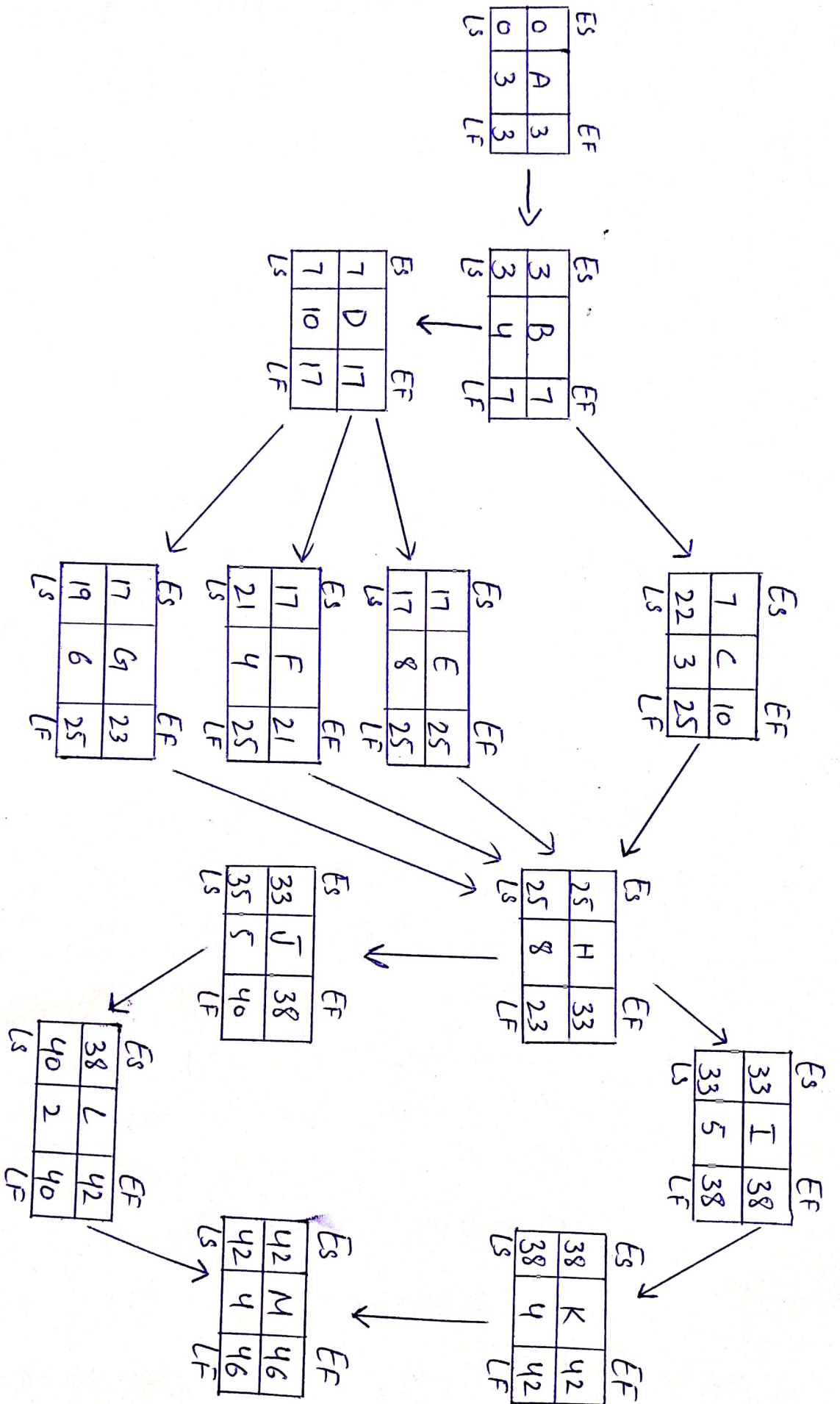
Part (b) Prepare a time line for The completion of each Activity (The time taken by each activity e.g; Foundation, Pcc, Rcc raft).

	Activities	Days	Predecessors
A	Excavation	3	—
B	Foundation	4	A
C	Plumbing	3	B
D	Frame	10	B
E	Roof/slab	8	D
F	Pales tor	4	D
G	Electric work	6	D
H	Partition walls	8	C, E, F, G.
I	Doors/window	5	H
J	Paint/varnish	5	H
K	Fans /Ae install	4	I
L	Marble install	2	J
	Final Touchup	4	K-L

Part (C)

Prepare a critical path (CPM) of the Project.
"Arrow Diagram"





Critical Path = ABDEHIKM

Forward Pass:

$$\text{Early Finish} = \text{Es} + \text{Duration}$$

$$\text{For Activity A} = 0 + 3 = 3$$

$$\text{" B} = 3 + 4 = 7$$

$$\text{" C} = 7 + 3 = 10$$

$$\text{" D} = 7 + 10 = 17$$

$$\text{" E} = 17 + 8 = 25$$

$$\text{" F} = 17 + 4 = 21$$

$$\text{" G} = 17 + 6 = 23$$

$$\text{" H} = 25 + 8 = 33$$

$$\text{" I} = 33 + 5 = 38$$

$$\text{" J} = 33 + 5 = 38$$

$$\text{" K} = 38 + 4 = 42$$

$$\text{" L} = 38 + 2 = 40$$

$$\text{" M} = 42 + 4 = 46$$

Backward Pass:

$$\text{Late start} = \text{Late Finish} - \text{Duration}$$

$$\text{M} = 46 - 4 = 42, \quad \text{G} = 25 - 6 = 19$$

$$\text{L} = 42 - 2 = 40, \quad \text{F} = 25 - 4 = 21$$

$$\text{K} = 42 - 4 = 38, \quad \text{E} = 25 - 8 = 17$$

$$\text{J} = 40 - 5 = 35, \quad \text{D} = 17 - 10 = 7$$

$$\text{I} = 38 - 5 = 33, \quad \text{C} = 25 - 3 = 22$$

$$\text{H} = 33 - 8 = 25, \quad \text{B} = 7 - 4 = 3$$

$$\text{, A} = 3 - 3 = 0$$

Part (d) Provide The maximum time taken by The Project.

$$= 3 + 4 + 10 + 8 + 8 + 5 + 4 + 4 \Rightarrow 46 \text{ Days.}$$

"So The Project will take 46 days To complete."

Part (e) Provide which activities would have slack time.

CFGJL

Slacked time = $LS - ES$ or $EF - LF$

$$\text{Activity C} = 25 - 10 = 15 \text{ days}$$

$$F = 25 - 21 = 4 \text{ days}$$

$$G = 25 - 23 = 2 \text{ days}$$

$$J = 40 - 38 = 2 \text{ days}$$

$$L = 42 - 40 = 2 \text{ days}$$

END PAPER