

CONSTRUCTION MANAGEMENT



Submitted by:

Mansoor Kamal

ID: 7715

Section : A

Submitted to:

Dr. Engr Muhammad Zeeshan Ahad

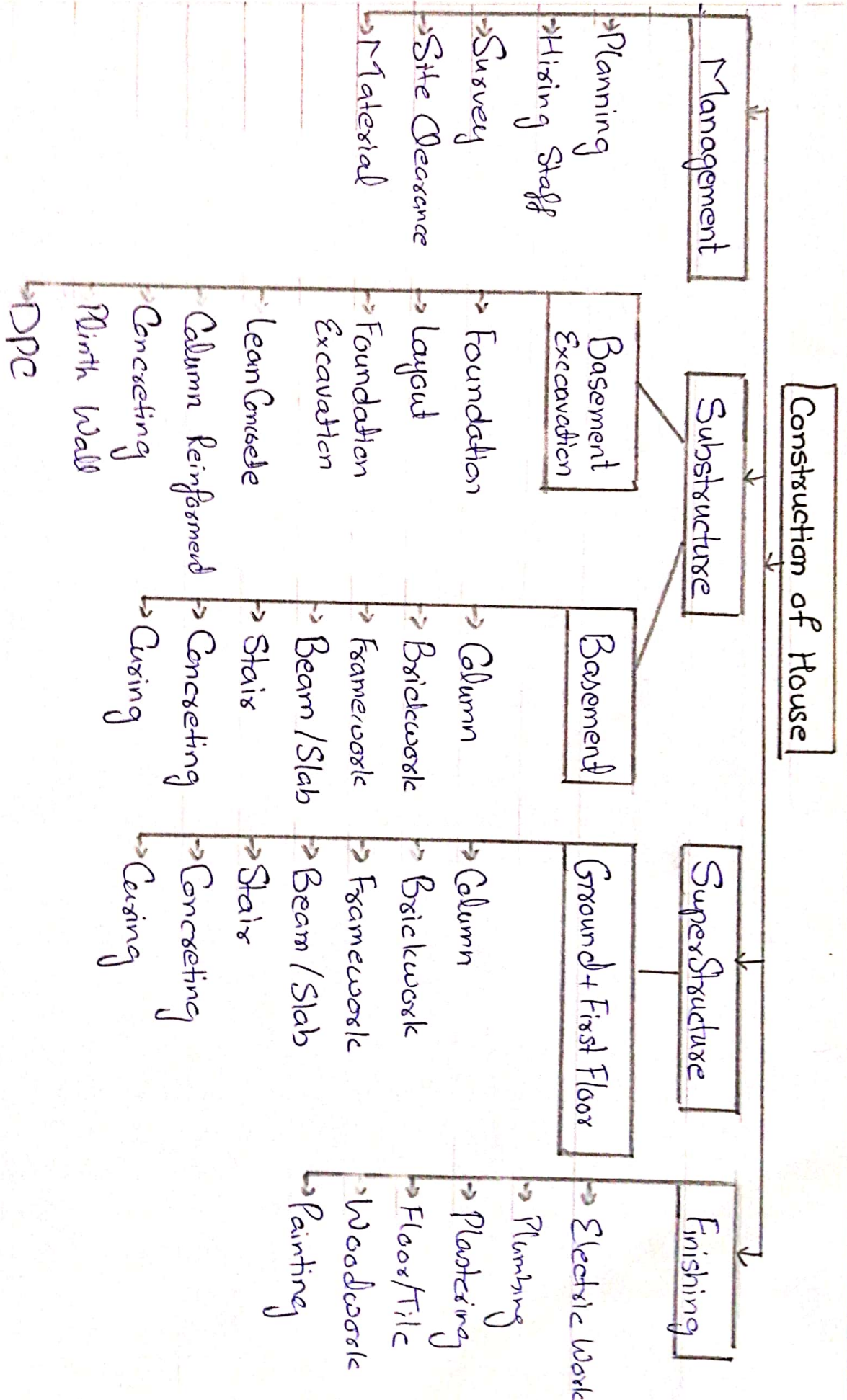
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a. Activity List of Two storied Building:

List of Activities	No	Predecessor	Days
Planning / Survey and Site preparation	A		7
Basement Excavation	B	A	12
Foundation			
Layout	C	B	2
Foundation Excavation	D	C	6
Lean Concrete	E	D	4
Reinforcement (Column)	F	E	5
Concreting	G	D, E, F	1
Plinth Wall	H	G	2
DPC	I	H	1
Basement			
Column (Shuttering, Reinforcement, concreting and curing)	J	G	10
Brick Work	K	I, J	12
Beam & Slab [Framework, Reinforcement Pipes (Electric and Plumbing)]	L	J, K	12
Stairs [Framework, Reinforcement, concreting and curing]	M	L, K	12
Beam [Concreting and curing]	N	L	8
Slab [Concreting and curing]	O	L	8
Ground Floor			
Column [Shuttering, Reinforcement concreting and curing]	P	O, N	10

List of Activities	No	Predecessor	Days
Brick Work	Q	O	12
Beam & Slab [Framework , Reinforcement , Pipes (Electric and plumbing)]	R	Q, P	15
Stair [Framework , Reinforcement , concreting and curing]	S	Q, R	17
Beam [concreting and curing]	T	R	8
Slab [concreting and curing]	U	R	8
First Floor			
Column [Shuttering , Reinforcement , concreting and curing]	V	T, U	10
Brick Work	W	U	12
Beam & Slab [Framework , Reinforcement , Pipes (electric and plumbing)]	X	V, W	15
Stair [Framework , Reinforcement , concreting and curing]	Y	X, W	17
Beam [concreting and curing]	Z	X	8
Slab [concreting and curing]	A ₁	X	8
Electric Work [Pipe fittings and wires]	A ₂	K, Q, W	6
Plumbing	A ₃	K, Q, W	6
Ceiling	A ₅	A ₄	7
Floor Plastering	A ₆	A ₄	12
Tile Fixing	A ₇	A ₆	12
Wood work (Door and windows etc)	A ₈	A ₆	10
Painting	A ₉	A ₄	16
Plastering	A ₄	A ₂ , A ₃	20

α. Work Breakdown Structure:

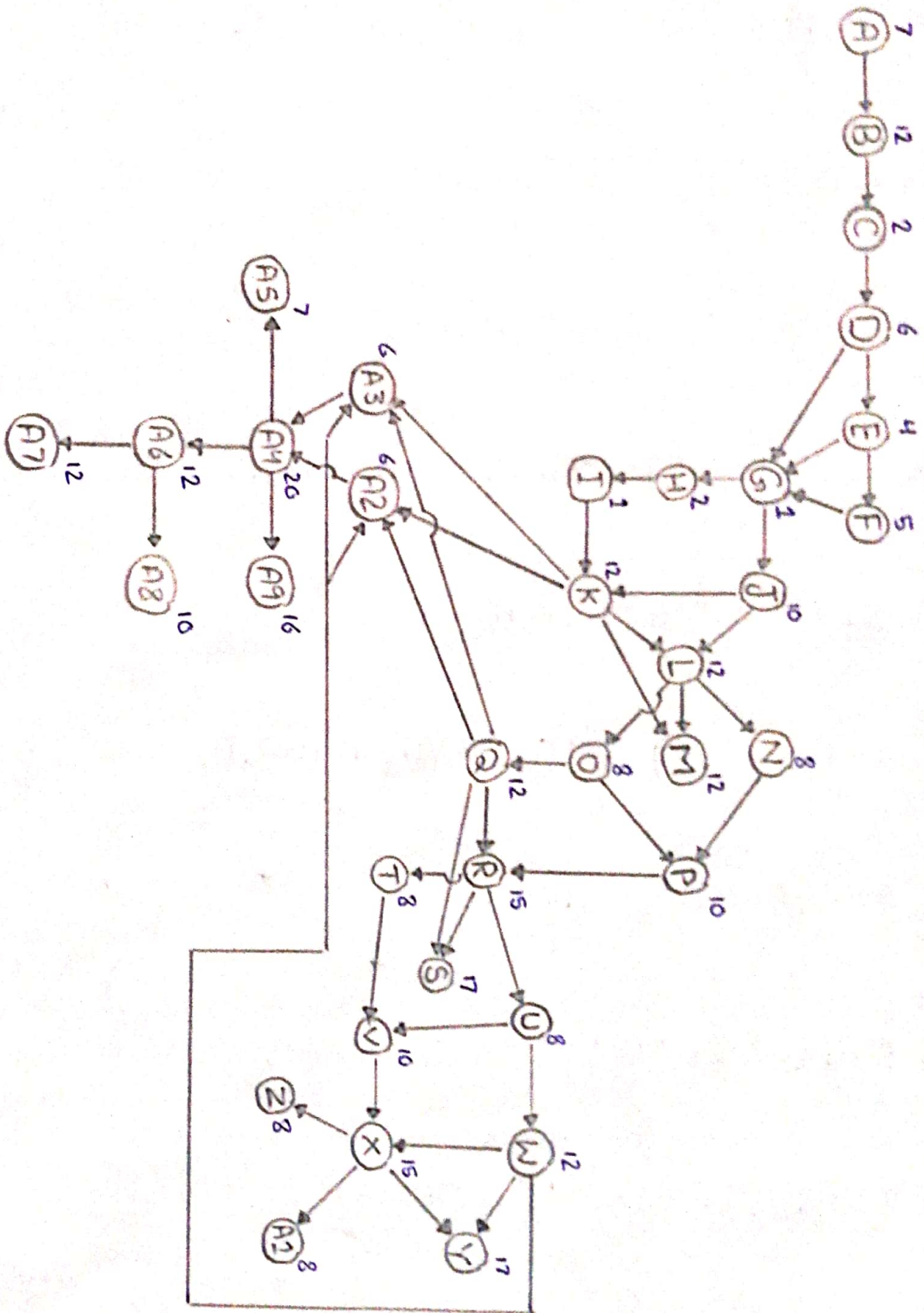


b. Timeline For completion of each activity:

Activities	Days	Starting Time	Finish Time
A	7	4-18-20	4-25-20
B	12	4-26-20	5-9-20
Foundation		5	
C	2	5-10-20	5-11-20
D	6	5-12-20	5-18-20
E	4	5-19-20	5-23-20
F	5	5-24-20	5-28-20
G	1	5-30-20	5-30-20
H	2	5-31-20	6-1-20
I	1	6-2-20	6-2-20
Basement			
J	10	6-3-20	6-14-20
K	12	6-15-20	6-28-20
L	12	6-29-20	7-12-20
M	12	7-13-20	7-26-20
N	8	7-27-20	8-4-20
O	8	8-5-20	8-13-20
Ground Floor			
P	10	8-15-20	8-25-20

Activities	Days	Starting Time	Finish Time
Q	12	8-26-20	9-8-20
R	15	9-9-20	9-26-20
S	17	9-27-20	10-15-20
T	8	10-17-20	10-25-20
U	8	10-26-20	11-3-20
First Floor			
V	10	11-4-20	11-15-20
W	12	11-16-20	11-29-20
X	15	11-30-20	12-16-20
Y	17	12-17-20	1-5-21
Z	8	1-6-21	1-14-21
A ₁	8	1-16-21	1-24-21
A ₂	8	1-25-21	1-31-21
A ₃	6	2-1-21	2-7-21
A ₄	20	2-8-21	3-2-21
A ₅	7	3-3-21	3-10-21
A ₆	12	3-11-21	3-24-21
A ₇	12	3-25-21	4-7-21
A ₈	10	4-8-21	4-19-21
A ₉	16	4-20-21	5-8-21

C. Critical Path of the Project:



Possible Paths:

Path 1: ABCDEFGJKLOQRUWA₂A₄A₆A₇

$$= 7+12+2+6+4+15+1+10+12+12+8+12+15+8+12+6+20+12+12$$

$$\text{Path 1} = 176$$

Path 2: ABCDEGJLNPRUWA₂A₄A₆A₇

$$= 7+12+2+6+4+1+10+12+8+10+15+8+12+6+20+12+12$$

$$\text{Path 2} = 157$$

Path 3: ABCDEFJHIKA₃A₄A₆A₈

$$= 7+12+2+8+4+5+1+2+1+12+6+20+12+10$$

$$\text{Path 3} = 100$$

Path 4: ABCDEFGHIKLNPRUWA₃A₄A₆A₇

$$= 7+12+2+6+4+5+1+2+1+12+12+8+10+15+8+12+6+20+12+12$$

$$\text{Path 4} = 167$$

Path 5: ABCDEGHIKLOQA₂A₄A₆A₇

$$= 7+12+2+6+4+1+2+1+12+12+8+12+6+20+12+12$$

$$\text{Path 5} = 129$$

Path 6: ABCDEFGJKA₂A₄A₉

$$= 7+12+2+6+4+5+1+10+12+6+20+16$$

$$\text{Path 6} = 106$$

Path 7: ABCDEFGJLNPRUWA₃A₄A₅

$$= 7+12+2+6+4+5+1+10+12+8+10+15+8+12+6+20+7$$

$$\text{Path 7} = 145$$

Path 8: ABCDEGJK A₃A₄A₉

$$= 7+12+2+6+4+1+10+12+6+20+16$$

$$\text{Path 8} = 96$$

Path 9: ABCDGH IKA₃A₄A₅

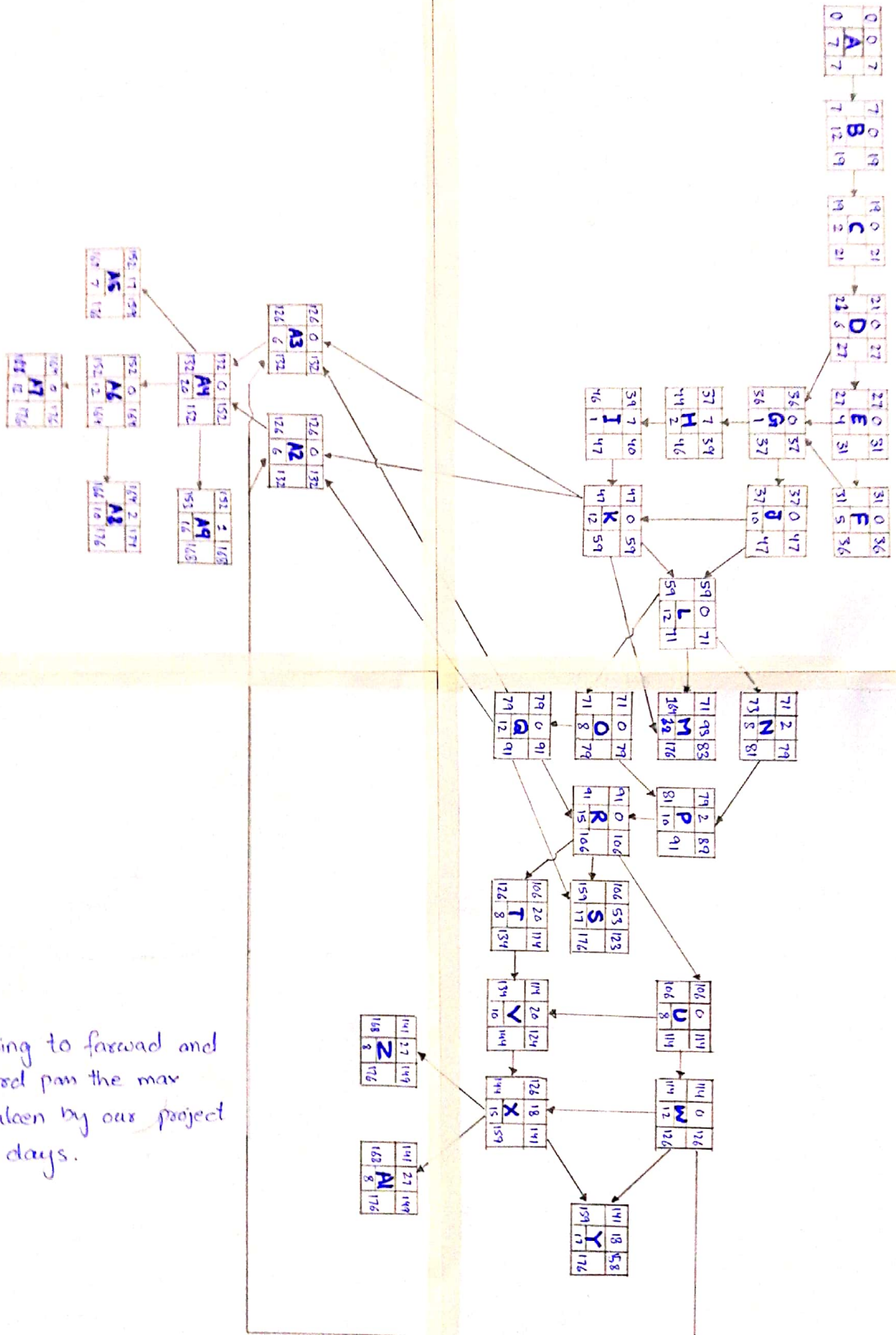
$$= 7+12+2+6+1+2+1+12+6+20+7$$

$$\text{Path 9} = 76$$

Critical Path:

"Path 1" is a critical path because it is the longest path and takes longest duration.

d. Maximum Time Taken By Project



According to forward and backward pass the max time taken by our project is 176 days.

e. Slack Time for Each Activity:

Activities	Late Start — Early Start	Slack Time
A	0 - 0	0
B	7 - 7	0
Foundation		
C	19 - 19	0
D	21 - 21	0
E	27 - 27	0
F	31 - 31	0
G	36 - 36	0
H	44 - 37	7
I	46 - 39	7
Basement		
J	37 - 37	0
K	47 - 47	0
L	59 - 59	0
M	164 - 71	93
N	73 - 71	2
O	71 - 71	0
Ground Floor		
P	81 - 79	2

Activities	Late Start - Early Start	Slack Time
Q	79 - 79	0
R	91 - 91	0
S	159 - 106	53
T	126 - 106	20
U	106 - 106	0
First Floor		
V	134 - 114	20
W	114 - 114	0
X	144 - 126	18
Y	159 - 141	18
Z	168 - 141	27
A ₁	168 - 141	27
A ₂	126 - 126	0
A ₃	126 - 126	0
A ₄	132 - 132	0
A ₅	169 - 152	17
A ₆	152 - 152	0
A ₇	164 - 164	0
A ₈	166 - 162	2
A ₉	153 - 152	1