

CONSTRUCTION MANAGEMENT



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Section : A

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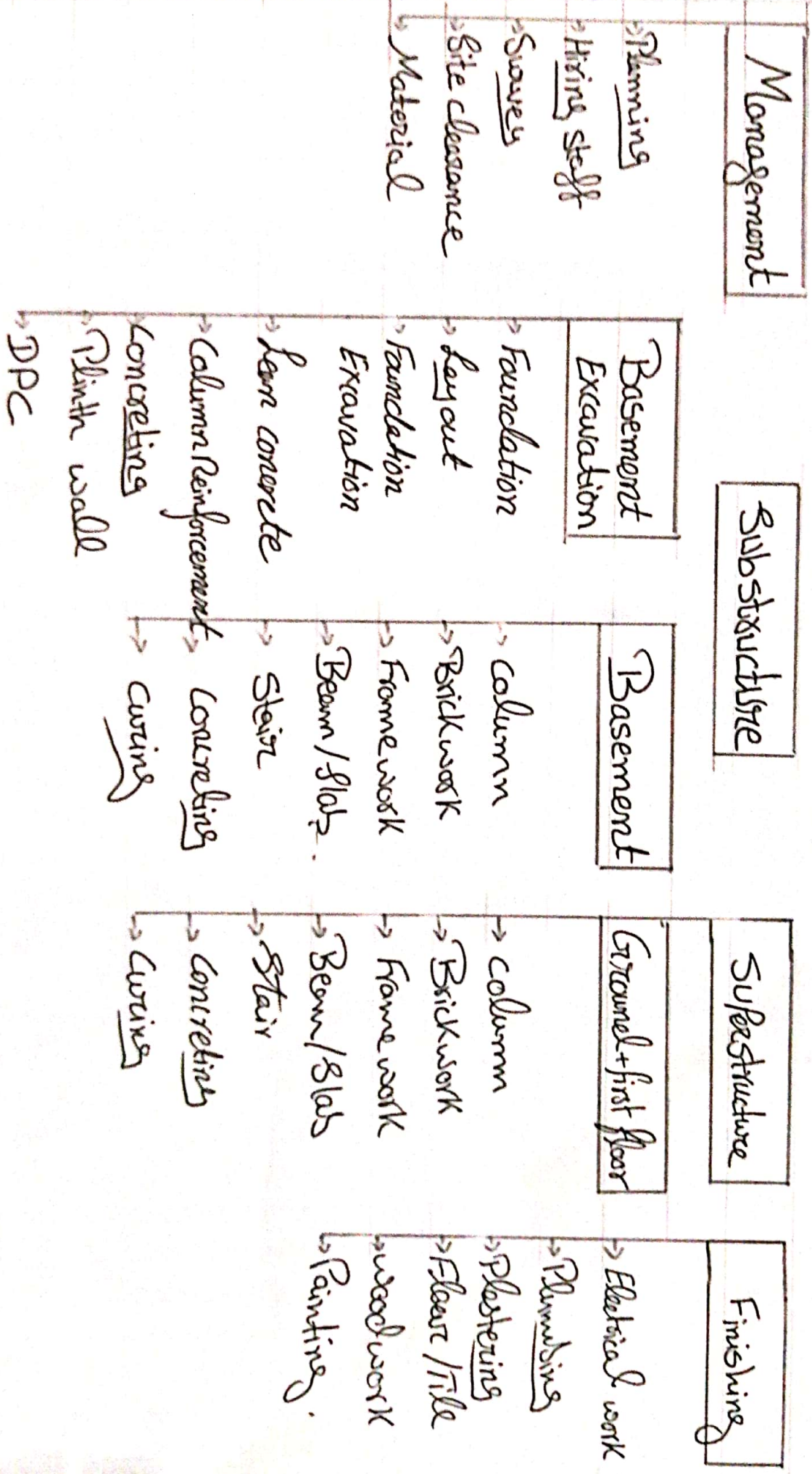
Activity List of Two storied Building

Activity List	No.	Predecessor	Days
Planning / Survey, site Preparation	A		7
Basement Excavation	B	A	12
Foundation			
Layout	C	B	2
Foundation Excavation	D	C	6
Low concrete	E	D	4
Reinforcement Mesh (column)	F	E	5
concreting	G	D, E, F	1
Plinth wall	H	G	2
DPC	I	H	1
Basement			
Column (shuttering, Reinforcement, concreting, curing)	J	G	10
Brick work	K	I, J	12
Beam & slab (Frame work, Reinforcement, Pipes (Electric & Plumbing))	L	J, K	12
Stair (Framework, Reinforcement, concreting & 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, curing)	P	O, N	10
Brickwork	Q	O	12

Activity List	No.	Precedes..	Days
Beam and slab (Framework, Reinforcement Pipes (Electric & 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, curing)	V	T, U	10
Brick work	W	U	12
Beam and slab (Framework, Reinforcement, concr Pipes (electric work))	X	V, W	15
Stair (Framework, Reinforcement, concreting & curing)	Y	X, W	17
Beam (concreting and curing)	Z	X	8
Slab (concreting and curing)	A ₁	X	8
Electric work (Pipes fitting, wires)	A ₂	K, Q, W	6
Plumbing	A ₃	K, Q, W	6
Plastering	A ₄	A ₂ , A ₃	20
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)	A ₈	A ₆	10
Painting	A ₉	A ₄	16

Construction of House

a. Work Breakdown Structure

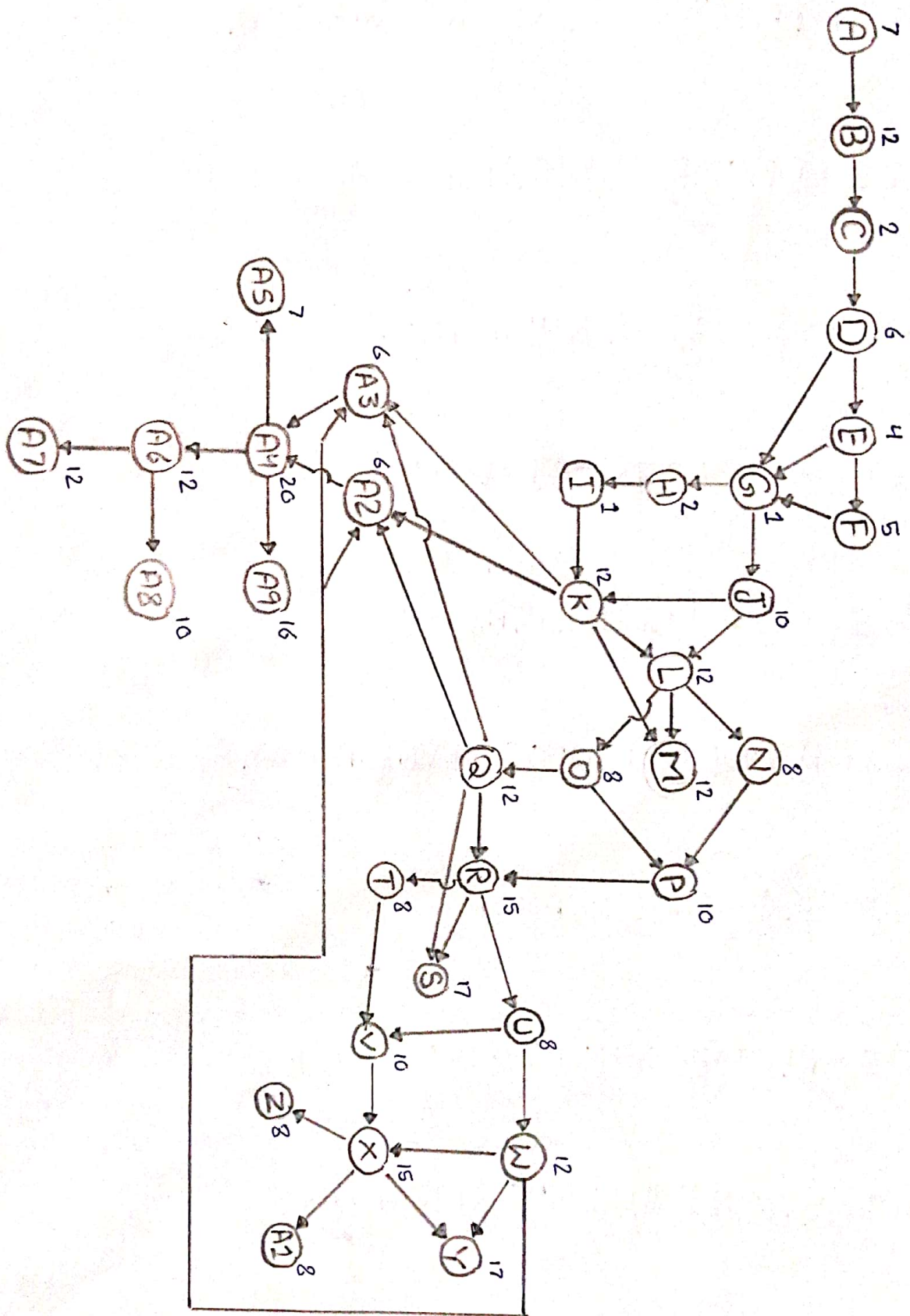


b. Timeline for completion of each activity.

Activities	Days	Starting time	Finish time
A	7	Sat 4/18/20	Sat 4/25 5/2/20
B	12	4/26/20	5/9/20
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
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
P	10	8/15/20	8/25/20
Q	12	8/26/20	9/8/20
R	15	9/19/20	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

Activities	Days	Starting Time	Finish Time
✓	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	6	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 Path

Path 1: ABCDEFGJKLQRLWA₂A₄A₆A₇

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

Path 1 = 176

Path-2: ABCDEGJLNPRUWA₂A₄A₆A₇

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

Path 2 = 157

Path-3: ABCDEFJHIKA₃A₄A₆A₈

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

Path 3 = 100

Path-4: ABCDEFGHILKNPRUWA₃A₄A₆A₇

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

Path 4 = 167

Path-5: ABCDEGHILKLOQA₂A₄A₆A₇

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

Path 5 = 129

Path = 6: ABCDEFGJLNPRUWA₃A₄A₅

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

Path 6 = 145

Path-7: ABCDEFGJLNPRUWA₃A₄A₅

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

Path-8:: ABCDEGJK A₃ A₄ A₅

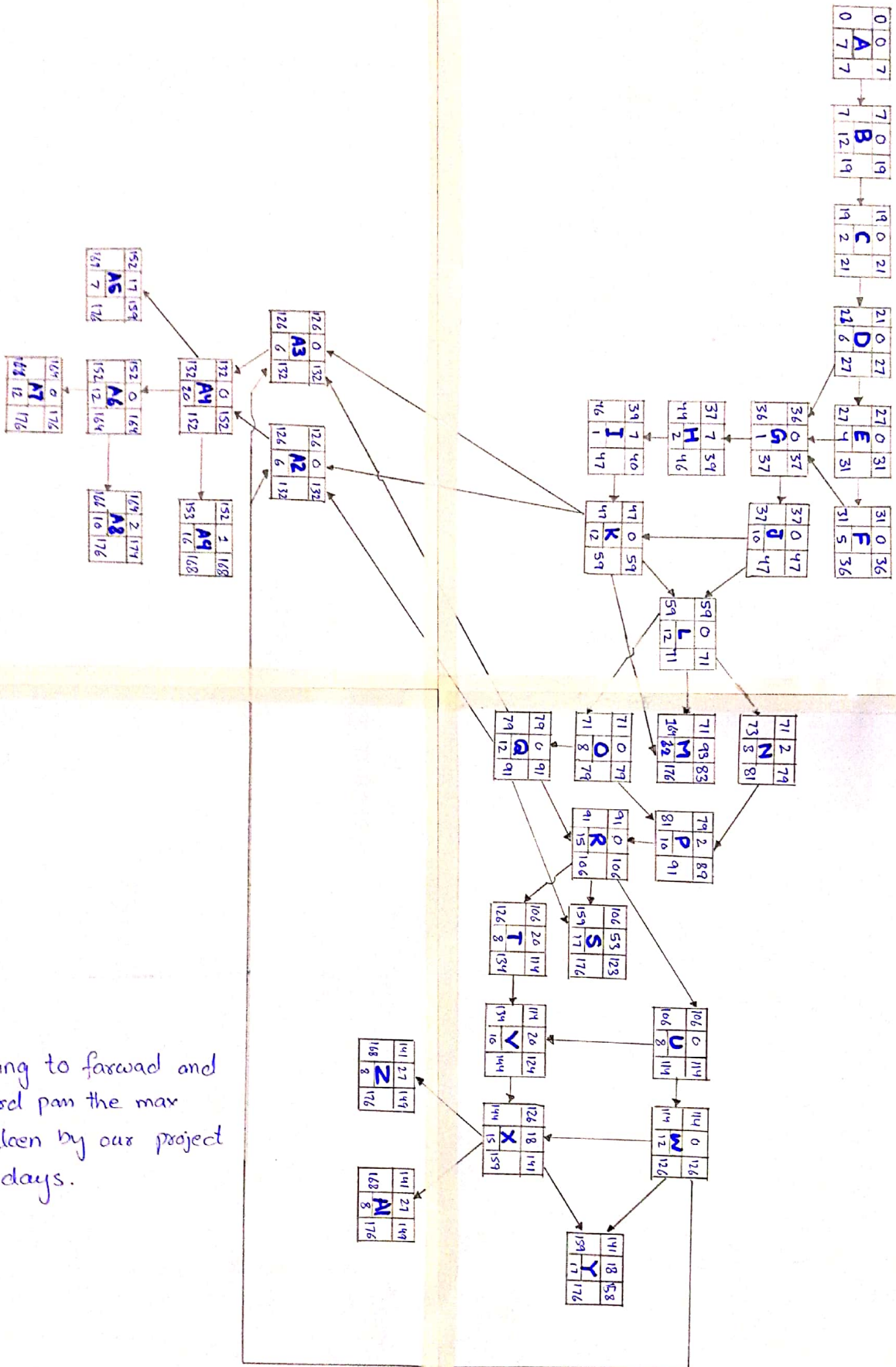
$$= 7 + 12 + 2 + 6 + 4 + 1 + 10 + 12 + 6 + 20 + 16$$

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

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.

Slack Time for Each Activity

Activities	Latest start - Early start	Slack Time
A	0 - 0	0
B	0 - 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	64 - 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 - 164	2
A ₉	153 - 152	1