

CONSTRUCTION MANAGEMENT



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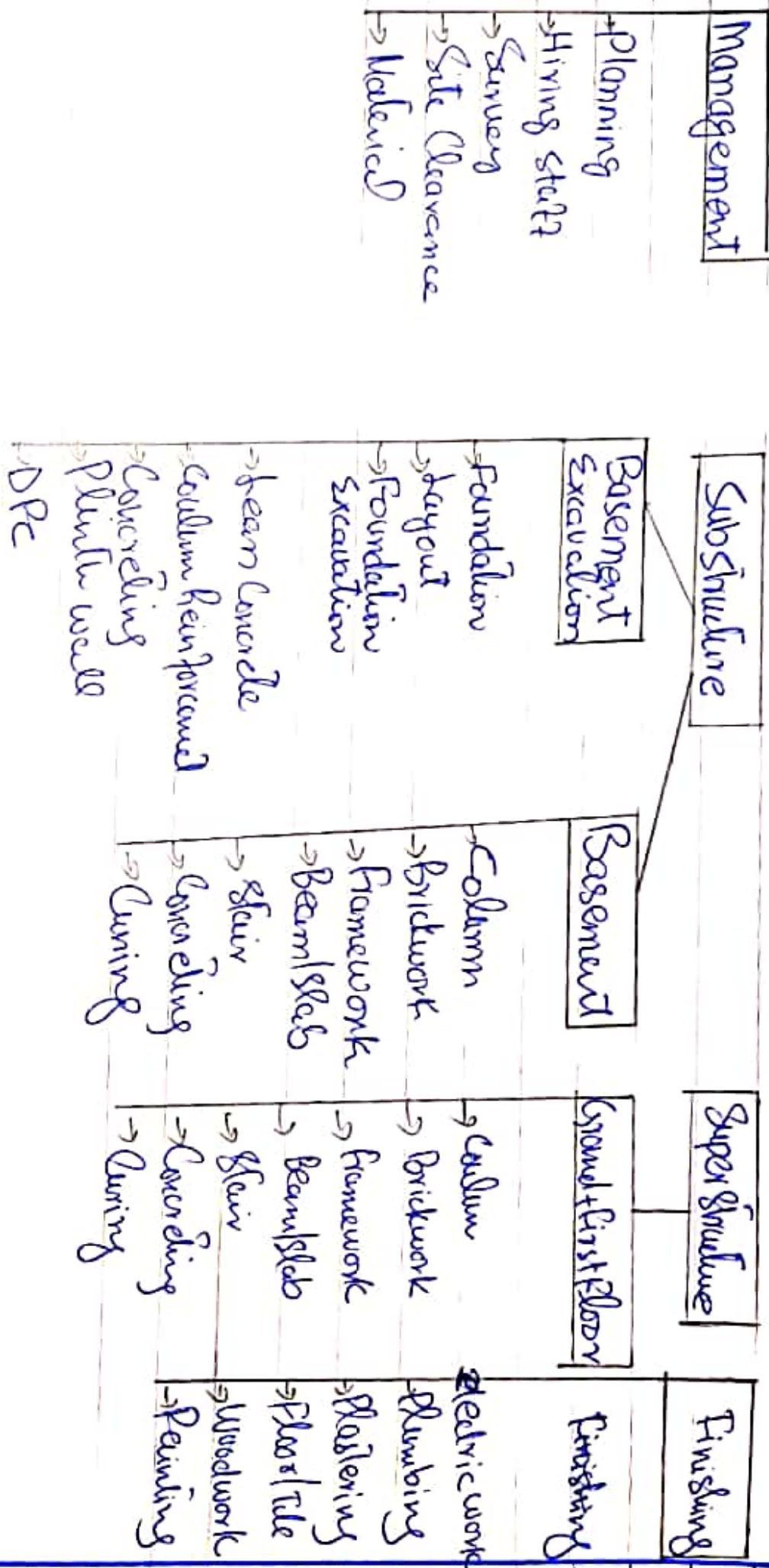
IQRA NATIONAL UNIVERSITY PESHAWAR

Activity list of two story building

Activity list	NO	Pre-decessor	Days
Planning / survey, 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 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 (Frame work, 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

Activity List	No	Predecessor	Days
Brick work	Q	O	12
Beam and (Frame work, Reinforcement) concreting and curing) Pipes (elect & plumbing)	R	Q, RP	15
Stairs (framework, Reinforcement, concreting & curing)	S	R, Q	17
Beam (concreting and curing)	T	R	8
Slab (concreting & curing)	U	R	8
First Floor			
column (shuttering, Reinforcement, concreting and curing)	V	T, U	10
Brick work	W	U	12
Beam & Slab (Frame work, Reinforcement) 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 (Cable 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	18

Construction of House

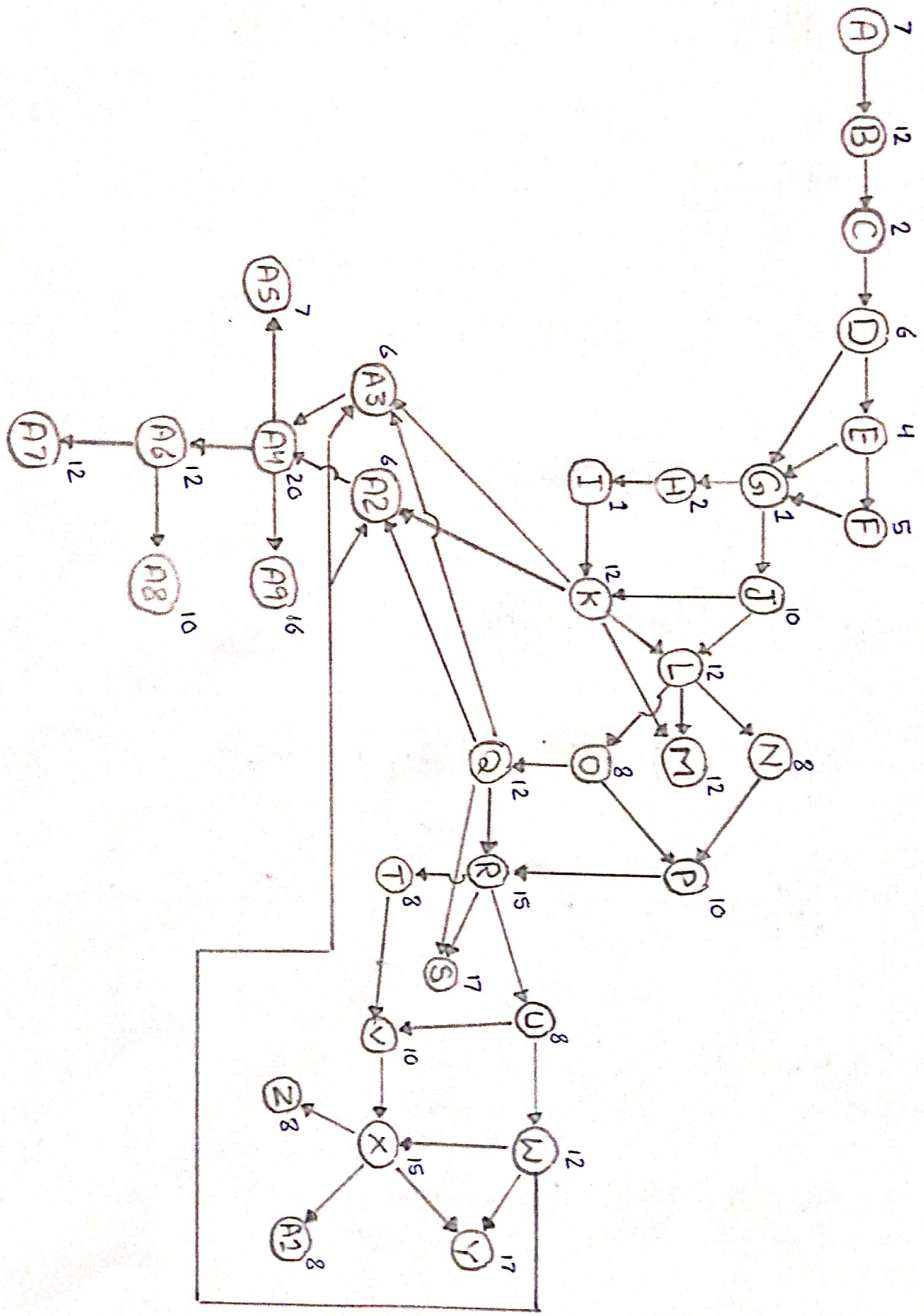


Time line for completion of each activity

Activities	Days	Starting Time	Finish Time
A	7	4/18/2020	25/4/2020
B	12	4/26/2020	5/9/2020
C	2	5/10/2020	5/11/2020
D	6	5/12/2020	5/18/2020
E	4	5/19/2020	5/23/2020
F	5	5/24/2020	5/28/2020
G	1	5/30/2020	5/30/2020
H	2	5/31/2020	6/1/2020
I	1	6/28/2020	6/2/2020
J	10	6/3/2020	6/14/2020
K	12	6/15/2020	6/28/2020
L	12	6/29/2020	7/12/2020
M	12	7/13/2020	7/26/2020
N	8	7/27/2020	8/4/2020
O	8	8/5/2020	8/13/2020
P	10	8/15/2020	8/25/2020
Q	12	8/26/2020	9/8/2020
R	15	9/9/2020	9/26/2020
S	17	9/27/2020	10/15/2020
T	8	10/17/2020	10/25/2020
U	8	10/26/2020	11/3/2020

Activities	Days	Starting Time	Finish Time
V	10	11/4/2020	11/15/2020
W	12	11/16/2020	11/29/2020
X	15	11/30/2020	12/16/2020
Y	17	12/17/2020	1/5/2021
Z	8	1/6/2021	1/14/2021
A ₁	8	1/16/2021	1/24/2021
A ₂	6	1/25/2021	1/31/2021
A ₃	6	2/1/2021	2/7/2021
A ₄	20	2/8/2021	3/2/2021
A ₅	7	3/3/2021	3/10/2021
A ₆	12	3/11/2021	3/24/2021
A ₇	12	3/25/2021	4/7/2021
A ₈	10	4/8/2021	4/19/2021
A ₉	16	4/20/2021	5/8/2021

C. Critical Path of the Project:



Possible Paths

Path 1:- ABCDEFGHJKLOQRUWA₂A₄A₆A₇

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

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

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

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

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

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:- ~~ABCDEFGHIJKLOQR~~

ABCDEFGHIJKLOQA₂A₄A₆A₇

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

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

Path 6: ABCDEFGJK A₂ A₄ A₉

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

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

Path 7:- ABCDEFGJLN PRUWA₃ A₄ A₅

$$= 7 + 12 + 2 + 6 + 4 + 5 + 1 + 10 + 12 + 8 + 10 + 18$$

$$+ 8 + 12 + 6 + 20 + 7$$

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

Path 8: ABCDEGJK A₃ A₄ A₄

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

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

Path 9:- ABCDGH IKA₃ A₄ A₅

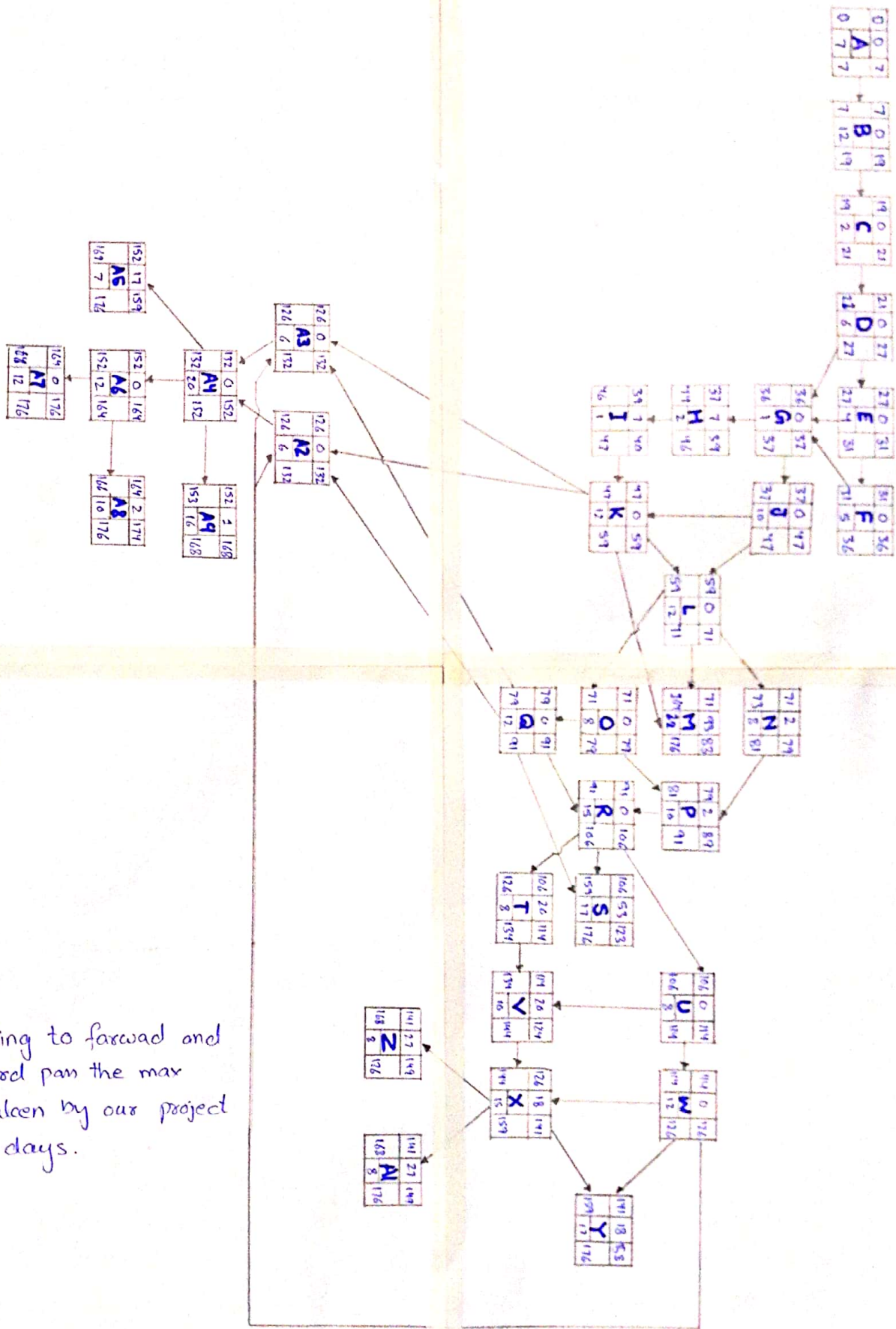
$$7 + 12 + 2 + 6 + 1 + 2 + 1 + 12 + 6 + 20 + 7$$

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

Critical Path:-

"Path 1" is the critical path because it is the largest 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	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
Q	79 - 79	0
R	91 - 91	0
S	159 - 106	53

Activities	late start - early start	slack time
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	126 - 126	27
A ₂	126 - 126	0
A ₃	132 - 132	0
A ₄	169 - 152	0
A ₅	152 - 152	17
A ₆	164 - 164	0
A ₇	166 - 164	0
A ₈	166 - 164	2
A ₉	153 - 152	1