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SECTION : A

Subject PPM

part (a)

Activity List

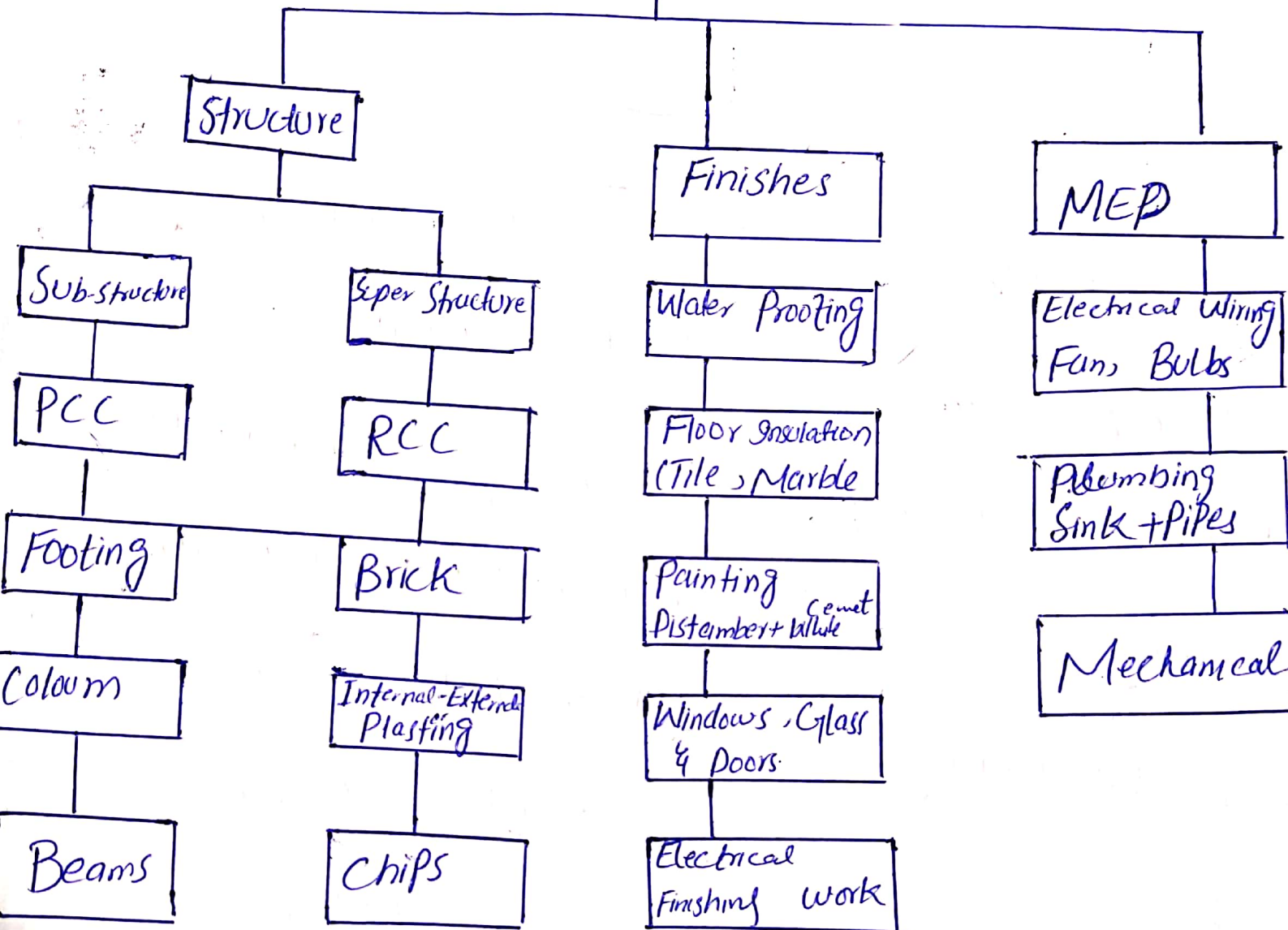
- 1) Excavation
- 2) Layout
- 3) Concrete (1:4:8)
- 4) Pour Foundation
- 5) outside plumbing
- 6) Frame house
- 7) Electric wiring
- 8) Lay Floor
- 9) Lay Roof
- 10) Inside plumbing
- 11) Shingling
- 12) outside Sheeting
- 13) Windows & Doors
- 14) Brick work
- 15) Ceiling & Cover wall
- 16) Insulate wall & ceiling
- 17) Insulate Roof
- 18) Finish interior
- 19) Finish Exterior
- 20) Land Scape

Part (a)

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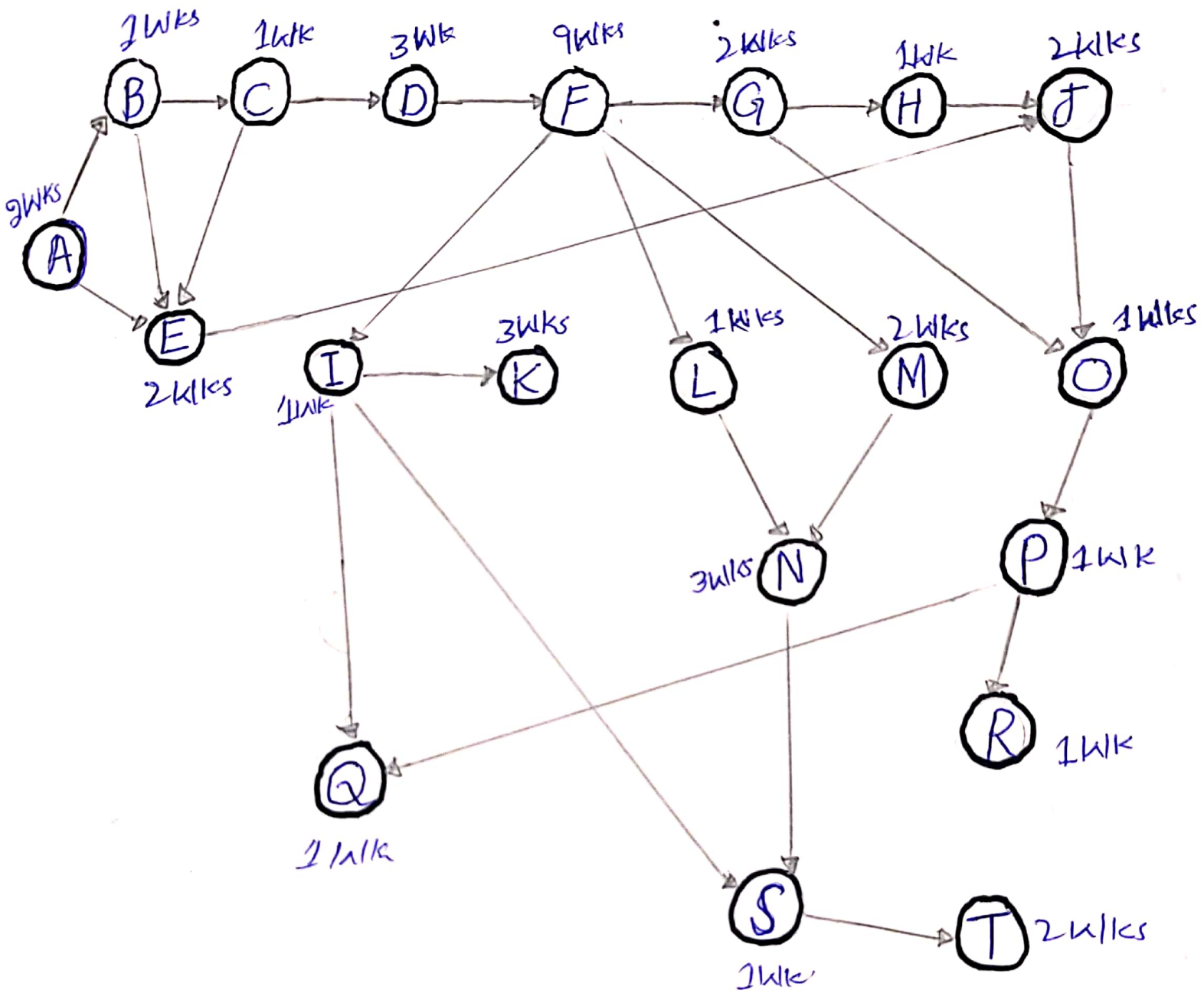
Work Breakdown Structure

Construction of Building



Name	Activity	Procedure	Duration (Wks)
A	Excavation (Basement)	02
B	Layout	A	01
C	Concret 1:4:8	B	01
D	Pour Foundation	C	03
E	outside plumbing	A, B, C	02
F	Fram House	D	09
G	Electric Wiring	F	02
H	Lay Floor	G	01
I	Lay Roof	F	01
J	Inside Plumbing	E, H	02
K	Shingling	I	03
L	outside Sheeting Insulation	F, J	01
M	Windows & doors	F	02
N	Brick works	L, M	03
O	Insulate wall & ceiling	G, J	01
P	Cover wall & ceiling	O	01
Q	Insulate Roof	I, P	01
R	Finish Interior	P	01
S	Finish Exterior	I, N	01
T	Landscape	S	02

PROCEDURE DIAGRAM



Activity box

ES	S	EF
	Activity	
LS	D	LF

Adding Activity time

- (1) ABCDFGOPR = 2+1+1+3+9+2+1+1+1 = 21 weeks
- (2) ABCDFGORQ = 2+1+1+3+9+2+1+1+1 = 21 weeks
- (3) ABCDFGHJOPR = 2+1+1+3+9+2+1+2+1+1+1 = 24 weeks
- (4) ABCDFGHJOPQ = 2+1+1+3+9+2+1+2+1+1+1 = 24 weeks
- (5) ABCDFMNST = 2+1+1+3+9+2+3+1+2 = 24 weeks
- (6) ABCDFIK = 2+1+1+3+9+1+3+~~1~~ = 17 weeks
- (7) ABCDFLNST = 2+1+1+3+9+1+3+1+2 = 22 weeks
- (8) ABCDFIQ = 2+1+1+3+9+1+1 = 16 weeks
- (9) ABCEJOPR = 2+1+1+2+2+1+1+1 = 11 weeks
- (10) ABCEJLNST = 2+1+1+2+2+1+3+1+2 = 15 weeks
- (11) ABCEJOPQ = 2+1+1+2+2+2+1+1+1 = 13 weeks
- (12) ABEJOPR = 2+1+2+2+1+1+1 = 10 weeks
- (13) ABEJOPQ = 2+1+2+2+1+1+1 = 10 weeks
- (14) AEJOPR = 2+2+2+1+1+1 = 9 weeks
- (15) AEJOPQ = 2+2+2+1+1+1 = 9 weeks
- (16) AEJLNST = 2+2+2+1+3+1+2 = 13 weeks

⇒ So here are Three longest path
so we have decided on Slack
time. When there are zero Slack
time and ending
the cost activity so we take

⇒ ABCPFMNST = 24 weeks

So. we check this on CPM.

Calculation Formulas

Forward pass

① Early Finish = $EF = ES + \text{Duration}$

$$\Rightarrow \boxed{EF = ES + D}$$

Lets. Activity A

$$\Rightarrow EF = 0 + 2 = 2$$

There fore same for other activity

For $E = A, B, C$ so we have a choice
to taken greater one

* For other activity like, J, L, N, O, Q, S

we are doing same procedure, $E = A, B, C$

* Backward Pass:-

Now for Backward pass we are going to
start with Late Finish (L.F)

⇒ Formula $LS = LF - \text{Duration}$

* When we see our boxes we have three
ending Activity R, Q, T

So we are going to use 24 to start Backward
pass

* Remember 24 wks = project duration.

* Let Check for Activity T

$$T = 24 - 2 = 22$$

$$\text{For: } S = 22 - 1 = 21$$

For activity F there are three arrows
to L, I, M

Remember this Backward pass so our rates
have Reversed. So we have choice, so look
for Late Started Lowest one are Taken

So in this case, so we take 16

from M activity

Some process of other activities

Part C
Forward Pass


2	O	3
	B	
2	1	3

3	O	4
	C	
3	1	4

4	O	7
	D	
4	3	7

7	O	16
	F	
7	9	16

16	O	18
	G	
16	2	18

18	O	
	H	
18	1	

19	O	21
	J	
19	2	21

O	D	2
	A	
O	2	2

4	3	6
	E	
4	2	3

16	4	17
	I	
26	1	21

17	1	20
	K	
18	3	21

16	1	17
	L	
17		18

16	O	18
	M	
16		18

21	O	22
	O	
21		22

18	O	21
	N	
18		21

22	O	23
	P	
22		23

23	O	24
	Q	
23		24

23	O	24
	R	
23		24

21	O	22
	S	
21		22

22	O	24
	T	
22		24

Backward Pass


After a CPM Method So we clearly
seen that critical Activity path are
A B C D F M N S T which have duration and
Zero Slack Time Remember this activity
path flow at end Activity



Part (D) Answer:

From the CPM calculation we
know that the maximum time taken
by this project is 24 wks

Because the critical path gives
us 24 weeks.

Part 1e

Activity	Slack Time	Total
ABCDFIK	$0+0+0+0+0+4+1$	5 wks
ABCDFLNST	$0+0+1+0+0+0$	1 wks
ABCDFIQ	$0+0+0+0+0+4+0$	4 wks
ABCEJOPR	$0+0+0+3+0+0+0+0$	3 wks
ABCEJOPQ	$0+0+0+3+0+0+0+0$	3 wks
ABEJOPR	$0+0+0+3+0+0+0+0$	3 wks
ABEJOPQ	$0+0+3+0+0+0+0$	3 weeks
AEJOPR	$0+3+0+0+0+0$	3 wks
AEJOPQ	$0+3+0+0+0+0$	3 wks
AEJLNST	$0+3+0+1+0+0+0$	4 wks
ABCEJLNST	$0+0+0+3+0+1+0+0+0$	4 wks

Q 2) Time Line of the building project

1	Project Name	Project Start date	Duration Project	Project End Date.
2	Construction 2 ^{Home} Canal	01/05/2020	187 days	
3	Activity	Start date	Duration ^{days}	END Date.
(4)	Planning	01/05/2020	02	03/05/2020
(5)	Initiation	03/05/2020	02	05/05/2020
(6)	Site Selection	05/05/2020	02	07/05/2020
(7)	Architecture	07/05/2020	03	10/05/2020
(8)	Site Preparation	10/05/2020	05	15/05/2020
* Basement			32	
(i)	Layout Before Excavation	15/05/2020	01	16/05/2020
(ii)	Excavation	16/05/2020	05	21/05/2020
(iii)	Layout After Excavation	21/05/2020	01	22/05/2020
(iv)	Concrete (1:4:8)	22/05/2020	02	24/05/2020
(v)	Installation of Steel	24/05/2020	04	28/05/2020
(vi)	Column Concrete	28/05/2020	02	30/05/2020
(vii)	Plinth	30/05/2020	02	02/06/2020
(viii)	Beam	02/06/2020	03	05/06/2020
(ix)	Brick Work	05/06/2020	06	11/06/2020
(x)	Formwork Slab.	11/06/2020	02	13/06/2020

XI	Installation of Steel	13/06/2020	03	16/06/2020
xii	Roof Slab Concrete	16/06/2020	01	17/06/2020
→	Ground Floor		20	
(i)	Installation of Steel (C)	17/06/2020	04	21/06/2020
(ii)	Coloum Concrete	21/06/2020	02	23/06/2020
(iii)	Brick Work	23/06/2020	05	28/06/2020
(iv)	Beam	28/06/2020	02	30/06/2020
(v)	Formwork Slab	30/06/2020	02	04/07/2020
(vi)	Installation of Steel	01/07/2020	04	05/07/2020
(vii)	Roof Slab Concrete	05/07/2020	01	06/07/2020
*	1st Floor		20	
(i)	Installation of Steel (columns)	06/07/2020	04	10/07/2020
(ii)	Coloum concrete	10/07/2020	02	12/07/2020
(iii)	Brick work	12/07/2020	05	17/07/2020
(iv)	Beam	17/07/2020	02	19/07/2020
(v)	Formwork Slab	19/07/2020	02	21/07/2020
(vi)	Installation of Steel	21/07/2020	04	25/07/2020
(vii)	Roof Slab Concrete	25/07/2020	01	26/07/2020
*	Electricity		20	

(i)	Pipe Fixing in wall	26/07/2020	07	02/08/2020
(ii)	Latrine Fixing in pipe	02/08/2020	03	05/08/2020
(iii)	Board Fitting	05/08/2020	06	11/08/2020
(iv)	Point fitting	11/08/2020	04	15/08/2020
*	Plumbing/Sanitary work		22	
i)	Pipe Fitting	15/08/2020	12	27/08/2020
ii)	Sanitary setting	27/08/2020	10	06/09/2020
*	Sewerage System	06/09/2020	15	21/09/2020
*	Gas Fitting	21/09/2020	10	01/10/2020
*	Finishing		34	
①	Plaster	01/10/2020	20	21/10/2020
(ii)	Paints	21/10/2020	14	04/11/2020