

L16-4101  
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①

Question: 1(a)

## User Types

External Input type:

Password, Activate/Deactivate

External Output type:

Messages, Alarm Alert, sensor status

External Inquiry type:

Zone Inquiry, sensor Inquiry

Logical interface file type:

Test sensor, Panic button

Logical Interface file type:

Zone setting.

(2)

## RAIN Data

	S	M	C	Function Points
Input multipliers	8	9	6	
Output "	4	6	7	
Inquiry "	8	4	6	
Data file "	10	5	3	
Interface "	11	15	4	
Input count	1		1	14
Output "		2	1	13
Inquiry "	1	1		19
Data file "		1		12
Interface "			2	5
Undjusted Total complexity Adjustment				8
Adjusted FPs				58
				1.23
				71.34

$$TCF = 0.65 + \frac{58}{100}$$

$$= 1.23$$

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## Question: 1 (b)

$$pm = A \times \text{size}^{sf} \times em_1 \times em_2 \times em_n$$

$$A = 2.94$$

$$\text{scale factor} = 0.91 + (0.01 \times (3+4+3+1+3))$$

$$= 0.91 + (0.01 \times 14)$$

$$= 0.91 + 0.14$$

$$sf = 1.05$$

So,

$$pm = 2.94 \times (50)^{1.05} \times 1.3 \times 1.0 \times 1.0 \times \\ 1.0 \times 1.1 \times 1.0 \times 1.2$$

$$= 2.94 \times 60.802 \times 1.716$$

$$pm = 306.7485$$

(3)

(4)

## Question: 2

Expected Duration:  $T_e = \frac{a + 4m + b}{6}$

ID	Optimistic Duration	Most Likely Duration	Pessimistic Duration	Expected Duration
1	6	8	10	8
2	5	7	9	7
3	9	11	13	11
4	7	9	11	9
5	11	13	15	13
6	14	16	18	16
7	10	12	14	12
8	6	8	10	8
9	4	6	8	6
10	8	10	12	10
11	4	6	8	6
12	5	7	9	7
13	2	4	6	4
14	12	14	16	14
15	13	15	17	15

Start

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0	1	8
0	Specify Overall System	8
8	0	0
8	0	0

2	7	
8	Specify Module A	15
14	A	21
13	6	

3	11	
8	Specify Module B	19
10	B	21
13	2	

4	9	
8	Specify Module C	17
12	C	21
13	4	

5	13	
8	Specify Module D	21
8	D	21
13	0	

6	16	
21	Check Specification	37
21	37	
21	37	

16	0	
16	0	
16	0	
16	0	

7	12	
37	Design Module A	49
43	A	55
18	6	

8	8	
37	Design Module B	45
46	B	54
17	9	

9	6	
37	Design Module C	43
51	C	57
20	14	

10	16	
37	Design Module D	47
37	D	47
10	0	

11	16	
44	Code/ test Module A	55
55	A	61
12	6	

12	7	
45	Code/ test Module B	52
54	B	61
16	9	

13	4	
43	Code/ test Module C	47
57	C	61
18	14	

14	14	
47	Code/ test Module D	61
47	D	61
14	0	

STOP

⑥

Free float = Earliest start of Next Activity  
 - Earliest finish of current Activity

Interfering float = Total float - free float

Activity ID	Total float	Free float	Interfering float
1	0	$8 - 8 = 0$	0
2	6	$21 - 15 = 6$	0
3	2	$21 - 19 = 2$	0
4	4	$21 - 17 = 4$	0
5	0	$21 - 21 = 0$	0
6	0	$37 - 37 = 0$	0
7	6	$49 - 49 = 0$	6
8	9	$45 - 45 = 0$	9
9	14	$43 - 43 = 0$	14
10	0	$47 - 47 = 0$	0
11	6	$61 - 55 = 6$	0
12	9	$61 - 52 = 9$	0
13	14	$61 - 47 = 14$	0
14	0	$61 - 61 = 0$	0

BS

(7)

## Question: 3

Given :

Number of people = 10 persons

Working Average = 5 hours/day  
cost = 5 dollars/person-hour

$$\text{ACWP} = \$10,000$$

Now

$$\text{for BCWS} = 50 \times 5 \times 5 \times 10 \\ = \$12,500$$

$$\text{Cost distributed per day} = \frac{\$12,500}{500} \\ = 250\text{ $}$$

$$\text{for BCWP} \quad \begin{matrix} \text{Slippage cost} = 250 \times 10 \\ \text{Slippage} \end{matrix} \quad \rightarrow \text{slippage of} \\ 10 \text{ days}$$

$$\text{So, slippage cost} = \$2500$$

Now,

$$\begin{aligned} \text{BCWP} &= \text{BCWS} - \text{slippage cost} \\ &= \$12,500 - \$2,500 \\ &= \$10,000 \end{aligned}$$

$$\begin{aligned} \text{CV} &= \text{BCWP} - \text{ACWP} \\ &= \$10,000 - \$10,000 \\ &= 0 \end{aligned}$$

$$\begin{aligned} \text{SPI} &= \text{BCWP} / \text{BCWS} \\ &= 10,000 / 12,500 \\ &= 0.8 \end{aligned}$$

$$\begin{aligned}
 SV &= BCWP - ACWP \\
 &= 10,000 - 12500 \\
 &= -2500
 \end{aligned}$$

(8)

$$CPI = BCWP / ACWP$$

$$= \frac{10,000}{10,000}$$

$$CPI = 1$$

### Question: 3 (b)

- 1) Reduce scope :- Remove some tasks from the project to complete the project on time - Remove those tasks which are not important or least important.
- 2) Adding staff :- Adding more people to get the project completed on time - Adding staff will also ~~not~~ increase productivity.
- 3) Adding or reallocating resources :- Providing resources to those activities which are core of the project and add more resources to complete project on time.
- 4) Work overtime :- Getting more work from people to get work done on time.

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5) Reconsider The precedence requirements:-  
Start Activities before precedent activities  
completion , So that most of The activities  
will complete earlier.

6) compromise on quality :- Reduce  
quality of the project , to complete  
The project .