

SUBMITTED TO

ENGR ZEESHAN AHAD

SUBMITTED BY:

M. AFAQ KHAN

STUDENT ID:

7700

SECTION :

B

SUBJECT :

"CONSTRUCTION MANAGEMENT"

①

# ANSWER TO QUESTION #1

## GIVEN DATA :

Number of communication channels  
 $= 6$

Additional stakeholders  
 $= 2$

## REQUIRED :

Identify the Number of communication channel = ?

## Sol :

$$\text{Number of communication} = \frac{n(n-1)}{2}$$

Putting values.

$$6 = \frac{n(n-1)}{2}$$

Multiplying "2" on both sides.

$$12 = n(n-1)$$

$$12 = n^2 - n$$

$$n^2 - n - 12 = 0$$

$$n^2 - 4n + 3n - 12 = 0$$

$$n(n-4) + 3(n-4) = 0$$

$$(n-4)(n+3) = 0$$

$$n = 4, \quad n = -3$$

Number of people are 4.

As there is two (2) additional.

So,

$$n = 4 + 2.$$

$$n = 6$$

$$\begin{aligned} \text{Combinations channel} &= \frac{n(n-1)}{2} \\ &= \frac{6(6-1)}{2} \\ &= 15 \end{aligned}$$

$$\begin{aligned} \text{Communication. Channel} &= 15 \\ & \text{Ans.} \end{aligned}$$

# ANSWER TO QUESTION # 02

WORK Package	BWWS	ACWPS	Progress	BWVP	CV	CPI	SPI	SV
	Planned value (PV) \$	ACTUAL COST (AC) \$	%	Saved value (EV) \$	EV-AC \$	$\Sigma v/AC$	$\Sigma v/PV$	EV-PV \$
1	100,000.00	120,000.00	100%	100,000.00	20,000.00	0.83	1.60	-
2	100,000.00	110,000.00	100%	100,000.00	10,000.00	0.91	1.00	-
3	100,000.00	80,000.00	90%	90,000.00	10,000.00	1.13	0.90	10,000.00
4	100,000.00	125,000.00	80%	80,000.00	45,000.00	0.64	0.80	20,000.00
5	100,000.00	75,000.00	50%	50,000.00	25,000.00	0.67	0.50	50,000.00
6	100,000.00	-	0%	-	-	0	0	100,000.00
7	100,000.00	-	"	-	-	0	0	100,000.00
8	100,000.00	-	"	-	-	0	0	100,000.00
9	100,000.00	-	"	-	-	0	0	100,000.00
10	100,000.00	-	"	-	-	0	0	100,000.00

SAC

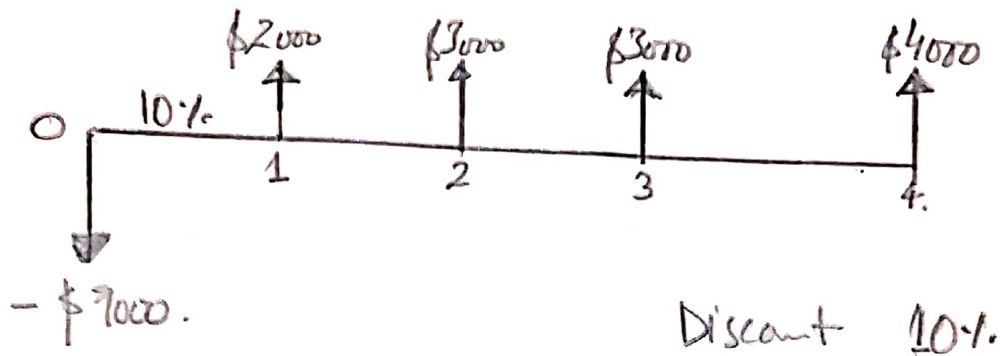
Comment:

Project is Over Budget and lag Behind.

Project # 10123456789

Item	Actual	Budget	Variance
1	100,000.00	100,000.00	0.00
2	150,000.00	100,000.00	50,000.00
3	200,000.00	150,000.00	50,000.00
4	250,000.00	200,000.00	50,000.00
5	300,000.00	250,000.00	50,000.00
6	350,000.00	300,000.00	50,000.00
7	400,000.00	350,000.00	50,000.00
8	450,000.00	400,000.00	50,000.00
9	500,000.00	450,000.00	50,000.00
10	550,000.00	500,000.00	50,000.00
11	600,000.00	550,000.00	50,000.00
12	650,000.00	600,000.00	50,000.00
13	700,000.00	650,000.00	50,000.00
14	750,000.00	700,000.00	50,000.00
15	800,000.00	750,000.00	50,000.00
16	850,000.00	800,000.00	50,000.00
17	900,000.00	850,000.00	50,000.00
18	950,000.00	900,000.00	50,000.00
19	1,000,000.00	950,000.00	50,000.00
20	1,050,000.00	1,000,000.00	50,000.00
21	1,100,000.00	1,050,000.00	50,000.00
22	1,150,000.00	1,100,000.00	50,000.00
23	1,200,000.00	1,150,000.00	50,000.00
24	1,250,000.00	1,200,000.00	50,000.00
25	1,300,000.00	1,250,000.00	50,000.00
26	1,350,000.00	1,300,000.00	50,000.00
27	1,400,000.00	1,350,000.00	50,000.00
28	1,450,000.00	1,400,000.00	50,000.00
29	1,500,000.00	1,450,000.00	50,000.00
30	1,550,000.00	1,500,000.00	50,000.00
31	1,600,000.00	1,550,000.00	50,000.00
32	1,650,000.00	1,600,000.00	50,000.00
33	1,700,000.00	1,650,000.00	50,000.00
34	1,750,000.00	1,700,000.00	50,000.00
35	1,800,000.00	1,750,000.00	50,000.00
36	1,850,000.00	1,800,000.00	50,000.00
37	1,900,000.00	1,850,000.00	50,000.00
38	1,950,000.00	1,900,000.00	50,000.00
39	2,000,000.00	1,950,000.00	50,000.00
40	2,050,000.00	2,000,000.00	50,000.00
41	2,100,000.00	2,050,000.00	50,000.00
42	2,150,000.00	2,100,000.00	50,000.00
43	2,200,000.00	2,150,000.00	50,000.00
44	2,250,000.00	2,200,000.00	50,000.00
45	2,300,000.00	2,250,000.00	50,000.00
46	2,350,000.00	2,300,000.00	50,000.00
47	2,400,000.00	2,350,000.00	50,000.00
48	2,450,000.00	2,400,000.00	50,000.00
49	2,500,000.00	2,450,000.00	50,000.00
50	2,550,000.00	2,500,000.00	50,000.00
51	2,600,000.00	2,550,000.00	50,000.00
52	2,650,000.00	2,600,000.00	50,000.00
53	2,700,000.00	2,650,000.00	50,000.00
54	2,750,000.00	2,700,000.00	50,000.00
55	2,800,000.00	2,750,000.00	50,000.00
56	2,850,000.00	2,800,000.00	50,000.00
57	2,900,000.00	2,850,000.00	50,000.00
58	2,950,000.00	2,900,000.00	50,000.00
59	3,000,000.00	2,950,000.00	50,000.00
60	3,050,000.00	3,000,000.00	50,000.00
61	3,100,000.00	3,050,000.00	50,000.00
62	3,150,000.00	3,100,000.00	50,000.00
63	3,200,000.00	3,150,000.00	50,000.00
64	3,250,000.00	3,200,000.00	50,000.00
65	3,300,000.00	3,250,000.00	50,000.00
66	3,350,000.00	3,300,000.00	50,000.00
67	3,400,000.00	3,350,000.00	50,000.00
68	3,450,000.00	3,400,000.00	50,000.00
69	3,500,000.00	3,450,000.00	50,000.00
70	3,550,000.00	3,500,000.00	50,000.00
71	3,600,000.00	3,550,000.00	50,000.00
72	3,650,000.00	3,600,000.00	50,000.00
73	3,700,000.00	3,650,000.00	50,000.00
74	3,750,000.00	3,700,000.00	50,000.00
75	3,800,000.00	3,750,000.00	50,000.00
76	3,850,000.00	3,800,000.00	50,000.00
77	3,900,000.00	3,850,000.00	50,000.00
78	3,950,000.00	3,900,000.00	50,000.00
79	4,000,000.00	3,950,000.00	50,000.00
80	4,050,000.00	4,000,000.00	50,000.00
81	4,100,000.00	4,050,000.00	50,000.00
82	4,150,000.00	4,100,000.00	50,000.00
83	4,200,000.00	4,150,000.00	50,000.00
84	4,250,000.00	4,200,000.00	50,000.00
85	4,300,000.00	4,250,000.00	50,000.00
86	4,350,000.00	4,300,000.00	50,000.00
87	4,400,000.00	4,350,000.00	50,000.00
88	4,450,000.00	4,400,000.00	50,000.00
89	4,500,000.00	4,450,000.00	50,000.00
90	4,550,000.00	4,500,000.00	50,000.00
91	4,600,000.00	4,550,000.00	50,000.00
92	4,650,000.00	4,600,000.00	50,000.00
93	4,700,000.00	4,650,000.00	50,000.00
94	4,750,000.00	4,700,000.00	50,000.00
95	4,800,000.00	4,750,000.00	50,000.00
96	4,850,000.00	4,800,000.00	50,000.00
97	4,900,000.00	4,850,000.00	50,000.00
98	4,950,000.00	4,900,000.00	50,000.00
99	5,000,000.00	4,950,000.00	50,000.00
100	5,050,000.00	5,000,000.00	50,000.00

# ANSWER TO QUESTION #03



## REQUIRED :

→ Calculate Net present value.  
(NPV)

→ Comment on the Result.

Sol:

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \dots + \frac{C_T}{(1+r)^T} \rightarrow A$$

$$P_{v0} = -C_0$$

$$P_{v0} = -7000$$

For first year;

$$P_{v1} = \frac{C_1}{1+r} = \left( \frac{2000}{1 + 10\%/100} \right)$$

$$P_{v_1} = 1818.18 \text{ \$}$$

For 2nd Year.

$$P_{v_2} = \frac{C_2}{(1+r)^2} = \frac{3000}{(1+10/100)^2}$$

$$P_{v_2} = 2479.34 \text{ \$}$$

For 3rd Year:

$$P_{v_3} = \frac{C_3}{(1+r)^3} = \frac{3000}{(1+10/100)^3}$$

$$P_{v_3} = 2253.94 \text{ \$}$$

For 4th Year:

$$P_{v_4} = \frac{C_4}{(1+r)^4} = \frac{4000}{(1+10/100)^4}$$

$$P_{v_4} = 2732.05 \text{ \$}$$

(2)

$-C_0$  = Initial Investment

$C$  = Cash flow.

$r$  = Discount Rate

$T$  = Time

$C_1$  = 2000

$C_2$  = 3000

$C_3$  = 3000

$C_4$  = 4000



Equation (A)  $\Rightarrow$

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \frac{C_4}{(1+r)^4}$$

$$= -9000 + 1818.18 + 2479.34 + 2253.94 + 2732.05$$

$$NPV = 283.51 \text{ \$}$$

COMMENT :

$\rightarrow$  The profit is 283.51\$ to the company, so the project is acceptable.

$\rightarrow$  A positive NPV means the combined PV of all cash inflows exceed the PV of each outflow.

$\rightarrow$  The NPV of 283.51 suggest that the combined PV of all cash inflows exceed the PV of cash out flows by 283.51.

# ANSWER TO QUESTION # 04

## POWER / Interest Matrix:

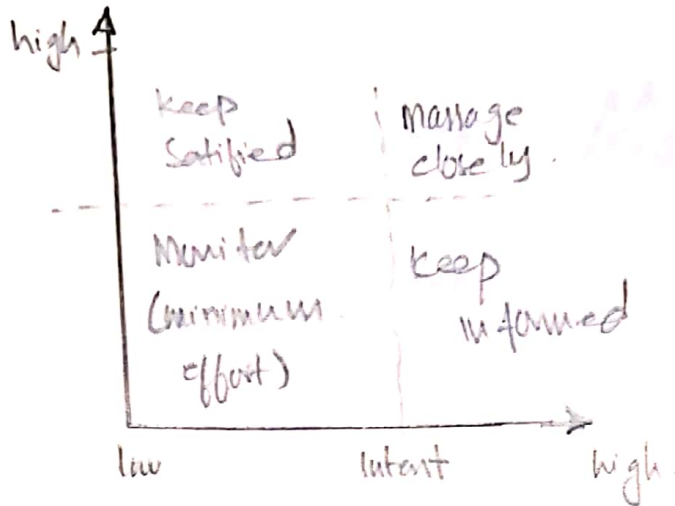
→ The power/interest matrix is a simple tool that helps to categorize project stakeholder with in project.

→ This matrix helps to focus on the key stakeholders who can make or break the project in taken. This power/interest matrix helps us in stakeholder prioritization.

## Layout of the Matrix:

The power interest matrix contain four quadrant each quadrant gives an indication of the level of stakeholder management the we will have to employ and may also

Influence the type of communication style. The four quadrants of power matrix are shown below.



### High power - High Interest:

These stakeholder are decision makers and have biggest impact on project success and hence we must closely manage their expectation.

### High power - Low Interest

These stakeholder needed to be kept in loop, These stakeholder need to keep satisfied even though they aren't interested because they yield power, This type of

Stakeholder should be dealt cautiously, because they make use their power in a not desired way in the project if they become unsatisfied.

### Low power - High Interest:

These people should be kept adequately informed and must talk to them to ensure that no major issues are arising. These people can often be very helpful with detail of project.

### Low power - low interest:

We should monitor these stakeholder but not bore them with excessive communication.

# ANSWER TO QUESTION #05

For a project of Residential house. different stages to be considered in the risk management are as under;

## STAGE 1:

### "INITIATION"

- Assemble Risk Management resources.
- Appoint the team leader and ensure a breadth of skills within the team.
- Assign Risk Management responsibilities appropriate to Task.

## "STAGE 2"

### "PROPOSAL FAMILIARIZATION"

- Specify Objectives and Criteria.

- Familiarise the team with the proposal, assemble documentation and define the key objective.
- Assess the proposal, ~~assemble~~ in ~~documentation~~ relation to the agency's Objective and strategies.
- Determine assessment Criteria for proposal.
- Define key Element to structure risk analysis.

## STAGE: 03 "RISK ANALYSIS"

### → IDENTIFY RISKS:

- prepare a comprehensive Schedule of Risks for each element.
- Describe each risk and list the main assumptions.

### → ASSES Risk Likelihood & Consequences:

- Assemble data on Risk and their

Consequences.

- Assess Risk like hood.
- Assess risk impact.

## IDENTIFY SIGNIFICANT RISKS.

→ Rankers to reflect impact and likehoods.

→ Where applicable, estimate risk factor.

→ Discard / accept minor risks.

IDENTIFY MAJOR RISKS FOR detailed risk action planning.

## STAGE 04:

Identify feasible responses.

→ For each risk, identify the moderate and major feasible responses.

→ Responses may include.

- a) risk prevention.
- b) Impact mitigation.
- c) risk Transfer and Insurance.
- d) risk acceptance.

→ Describe each feasible response and list main assumptions.

→ Select the best response.

→ Evaluate the benefit and costs for each response.

→ Select the preferred response.

→ Develop management measure and action schedules.

→ Specify risk management measure for moderate risks

→ develop risk action schedules for major risks.

- a) Actions required
- b) Resources.
- c) Responsibility
- d) Timing.



## STAGE 05

### REPORTING :

- For designated proposals, produce the Risk management plan.
- for other projects collate and summarize risk action schedules and measure.

## STAGE # 06

### "Risk Management Implementation"

- Implement measures and action strategies
- Monitor the implementation.
  - (a) Assign responsibilities.
  - (b) Timming.
- Undertaking periodic review and performance evaluation.