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Section A

Subject Construction Management

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Department BE (C)

Semester 8

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QNO 1:-

Given data:-

Number of Communication
channel = 6

Additional stakeholder = 2

Required data:

Identify the number of
Communication channel after
increasing the scope of work

Solution:

As we know that

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

The number of people involved
in six Communication channel \Rightarrow

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

By cross-multiplication

$$6 \times 2 = n(n-1)$$

$$12 = n^2 - n$$

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

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By Factorization

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

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

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

$$(n-4) = 0$$

$$n = 4$$

$$n+3 = 0$$

$$n = -3$$

So the number of people involved = 4

As;

There are additional stake holders so total number of people are;

$$n = 4 + 2$$

$$n = 6$$

Now, the required communication

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

$$= \frac{6(5)}{2}$$

$$= \frac{15 \cdot 2}{2}$$

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New Communication channel = 15 Ans

So, Ans is 15

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Q NO 2 :

Solution:

Terms

Formula

Earned value

$$EV = PV \text{ to date} \times RP$$

Cost Variance

$$CV = EV - AC$$

Schedule variance

$$SV = EV - PV$$

Schedule performance
index

$$SPI = EV / PV$$

Cost performance
Index

$$CPI = EV / AC$$

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Work package	BCWS Planned value (PV) \$	ACWP Actual Cost (AC) \$	Progress - %	BCWP Earned value (EV) \$	(CV) EV-EC \$	CP EV/AC	SP EV/PV	SV EV-PV \$
1	\$100,000	120,000	100%	100,000	20,000	0.83	1.00	-
2	100,000	110,000	100%	100,000	10,000	0.91	1.0	-
3	100,000	80,000	90%	90,000	10,000	1.13	0.90	10,000
4	100,000	125,000	80%	80,000	45,000	0.64	0.80	20,000
5	100,000	75,000	50%	50,000	25,000	0.67	0.50	50,000
6	100,000		0%			0	0	100,000
7	100,000		0%			0	0	100,000
8	100,000		0%			0	0	100,000
9	100,000		0%			0	0	100,000
10	100,000		0%			0	0	100,000

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Comments:

The project is
behind schedule and overbudget.

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QNO3

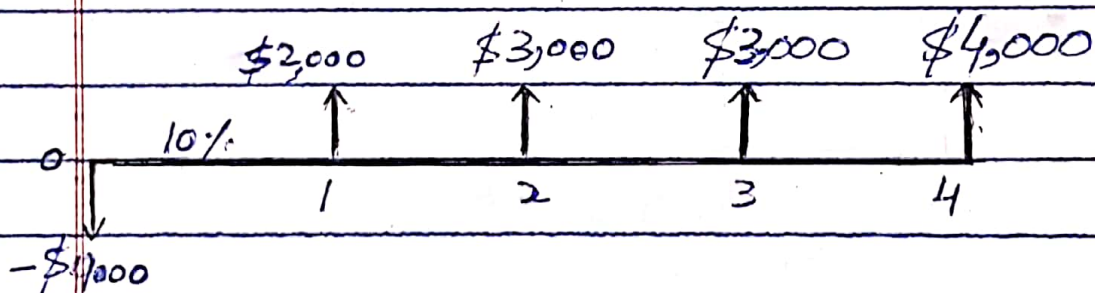
Given data:-

Cost planned to be invest = 9000\$

Expected life of project = 4 yrs

Discount rate = 10%

Expected cash flow for next



Required data

Calculate Net present value (NPV) and also comment on results.

Solution: As we know that

$$NPV = -C_0 + \frac{C_1}{1+Y} + \frac{C_2}{(1+Y)^2} + \dots + \frac{C_T}{(1+Y)^T}$$

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Asj

- C_0 = Initial investment

C = Cash flow

r = Discount Rate

T = Time

$C_1 = 2000$

$C_2 = 3000$

$C_3 = 3000$

$C_4 = 4000$

Soj

$$PV_0 = -C_0$$

$$PV_0 = -9000$$

$$PV_1 = \frac{C_1}{1+r}$$

$$PV_1 = \left(\frac{2000}{1 + \frac{10}{100}} \right)$$

$$PV_1 = 1818.18$$

Nowj

$$PV_2 = \frac{C_2}{(1+r)^2}$$

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$$PV_2 = \frac{3000}{\left(\frac{1+10}{100}\right)^2}$$

$$PV_2 = 2479.34$$

Thus,

$$PV_3 = \frac{C_3}{(1+r)^3}$$

$$PV_3 = \frac{3000}{\left(\frac{1+10}{100}\right)^3}$$

$$PV_3 = 2253.94$$

Also;

$$PV_4 = \frac{C_4}{(1+r)^4}$$

$$PV_4 = \frac{4000}{\left(\frac{1+10}{100}\right)^4}$$

$$PV_4 = 2732.05$$

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As we know that;

By formula

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

putting values

$$NPV = -9000 + 1818 + 2479.34 + 2253.94 + 2732.05$$

$$NPV = \$ 283.51$$

Comment on Results:

So the Net present value (NPV) of \$ 283.51 suggests that combined PV of all cash inflows exceeds the PV of cash outflows by \$ 283.51

QNO 4

Power and interest Matrix:

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

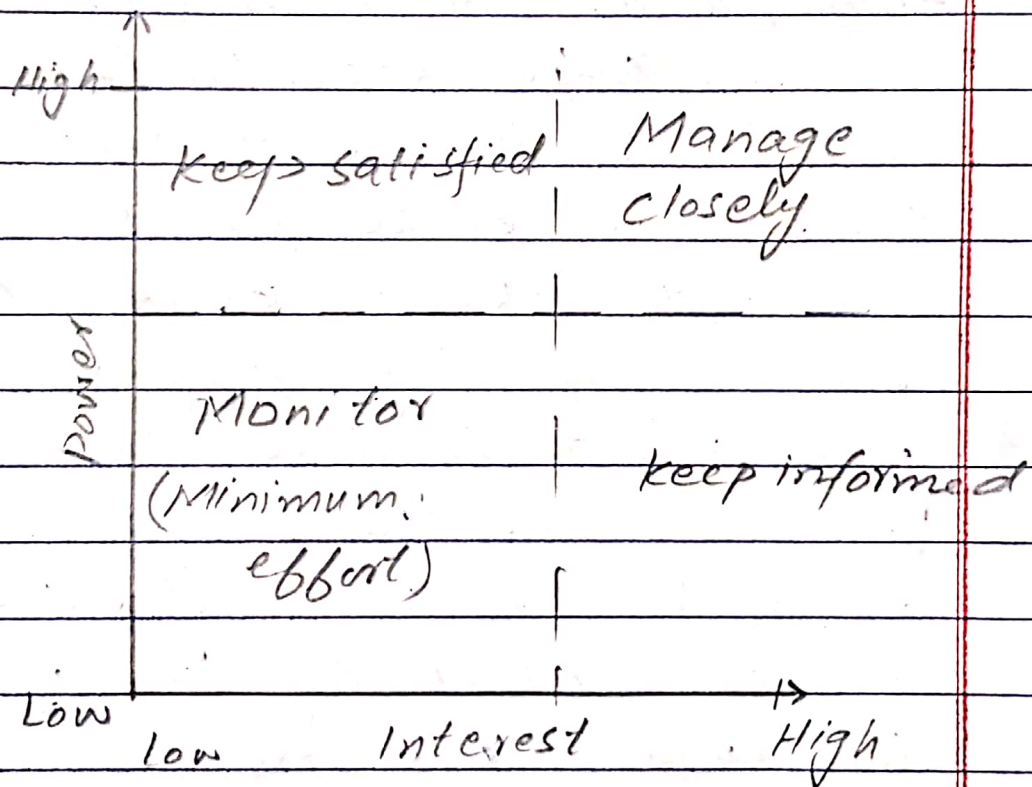
→ This matrix helps to ~~flow~~ focus on the key stakeholders who can make or break the project. In turn, this power/interest matrix helps us in stakeholder prioritization.

Layout of the Matrix:

The power interest matrix contain four quadrants. Each quadrant gives an indication of the level of stakeholder

management that we will have to employ and may also influence the type of communication style.

The four quadrants of power/interest matrix are shown below:



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High power - high interest:

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

High power - Low Interest.

These stakeholder needed to be kept in loop, these stakeholders need to keep satisfied even though they aren't interested because they yield power. These type of stakeholders should be dealt cautiously because they may use their power in a not desired way in the project if they become unsatisfied.

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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:
Monitor these stakeholders but we should not bore them with excessive communication.

QNO5

Risk Management checklist for a project of Resident house:

It has the following stages:

Stage:1 Initiation

- Assemble Risk Management resources.
- Appoint the team leader and ensure a breadth of skill / experience within the team
- Assign Risk Management responsibilities appropriate to task.

Stage:2 proposal Familiarization

- Specify objective and context.
- Familiarise the team with the proposal, assemble documentation and define the key objective.

- Assess the proposal in relation to the Agency's objective and strategies.
- Determine assessment criteria for proposal.
- Define key elements to structure risk analysis.

Stage: 3 Risk Analysis

Identify risks:

- prepare a comprehensive schedule of risk for each element.

- Describe each risk and list the main assumptions.

Assess risk likelihoods and consequences:

- Assemble data on risk & their consequences
- Assess risk likelihoods
- Assess risk impacts.

Identify significant risk:

- Rank risk to reflect impacts and likelihoods
- Where applicable, estimate risk factors.
- Discard/accept minor risk

Identify major risk for detailed risk action planning.

- Develop management measures and action schedule.
- Specify Risk Management measures for moderate risk.
- Develop risk action schedule for major risks.

- (a) Action required (what is to be done)
- (b) Resources
- (c) Responsibilities
- (d) Timing

Stage: ~~4~~ Reporting

- For designed proposal, products, produce the Risk Management plan.
- For other projects, collate and

and summarize risk action schedule and measure.

Stage 5 Risk response planning

Identify feasible responses:-

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

→ Responses may include.

(a) Risk prevention.

(b) Impact mitigation.

(c) Risk transfer & insurance.

(d) Risk acceptance.

Stage 6: Risk management Implementation

→ Implement measures and action strategies.

→ Monitor the Implementation

(a) Assign responsibilities.

(b) Timing.

→ Undertake periodic review and performance evaluation.