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Section B

Subject construction management

Teacher name

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Q NO: 1

Given Data:

Number of Communication Channels = 6

Additional Stake holders = 2

Required data:

Identify the number of Communication channels after increasing the scope of work = ?

Solution:

As we know that;

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

The number of people involved in Six Communication Channel.

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

$$12 = n(n-1) = n^2 - n$$

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

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

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

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

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

$\boxed{n = 4}$ | $\boxed{n = -3}$

So the number of people involed = 4

As, there are additional stake holders

So total number of people are;

$$n = 4 + 2$$

$$n = 6$$

Now, the required communication

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

$$= \frac{^{3}6(6-1)}{2} = 3(5)$$

New communication channel = $\boxed{15}$

Q NO: 02

Solution

	Terms	Formulas
1.	Earned value	EV = Planned value × rate of performance
2.	Cost variance	CV = EV - actual
3.	Schedule variance	SV = EV - planned value (PV)
4	cost performance Index	$CPI = \frac{EV}{AC}$
5.	Schedule performance Index	$SPI = \frac{EV}{PV}$

Work Package	BCWS Planned value (PV)	ACWP Actual cost (AC)	Progress %	BCWP Earned value (EV)	CV EV - AC	CPI EV/AC	SPI 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	1.00	$ -
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	0.00	$ 100,000
7	$ 100,000	$ -	0 %	$ -	-	0	0.00	$ 100,000
8	$ 100,000	$ -	0 %	$ -	-	0	0.00	$ 100,000
9	$ 100,000	$ -	0 %	$ -	-	0	0.00	$ 100,000
10	$ 100,000	$ -	0 %	$ -	-	0	0.00	$ 100,000

Comment:

The project is behind schedule and overbudget.

Q No:03

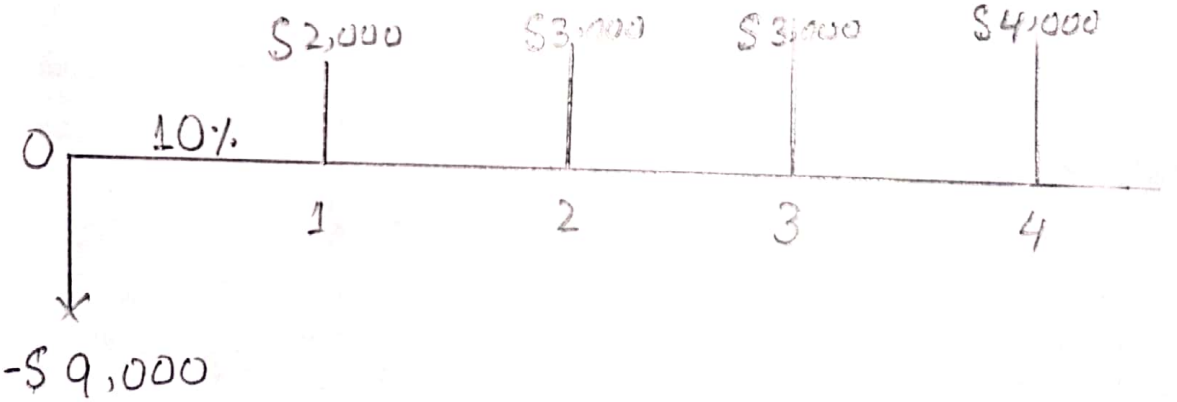
Given data

Cost planned to invest = 9000$

Expected life of project = 4 years

Discount rate = 10 %

Expected cash flow for next four year is,



Reqwird data:

Calculate Net present value (NPV)

Solution:-

As we know that

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

As;

$-C_0$ = Intial Investment

C = cash flow

γ = Discount Rate

T = Time

Here the values are

$C_1 = 2000$

$C_2 = 3000$

$C_3 = 3000$

$C_4 = 4000$

Also,

$$PV_0 = -C_0$$

$$\Rightarrow PV_0 = -9000$$

Now by formula

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

$$= \left[\frac{2000}{1+\frac{10}{100}}\right]$$

$$PV_1 = 1818.18$$

Also,

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

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

$$\boxed{PV_2 = 2479.34}$$

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

$$= \frac{3000}{(1+10\%_{100})^3}$$

$$PV_3 = 2253.94$$

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

$$= \frac{4000}{(1+10\%_{100})^4}$$

$$PV_4 = 2732.05$$

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

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

$$= 2732.05$$

$$NPV = \$\ 283.51$$

Comment on Result

So the net present value (NPV) of $283.51 suggests that the combined PV of all cash inflows exceed the PV of cash outflows by $283.51.

Q NO = 04

Ans:.

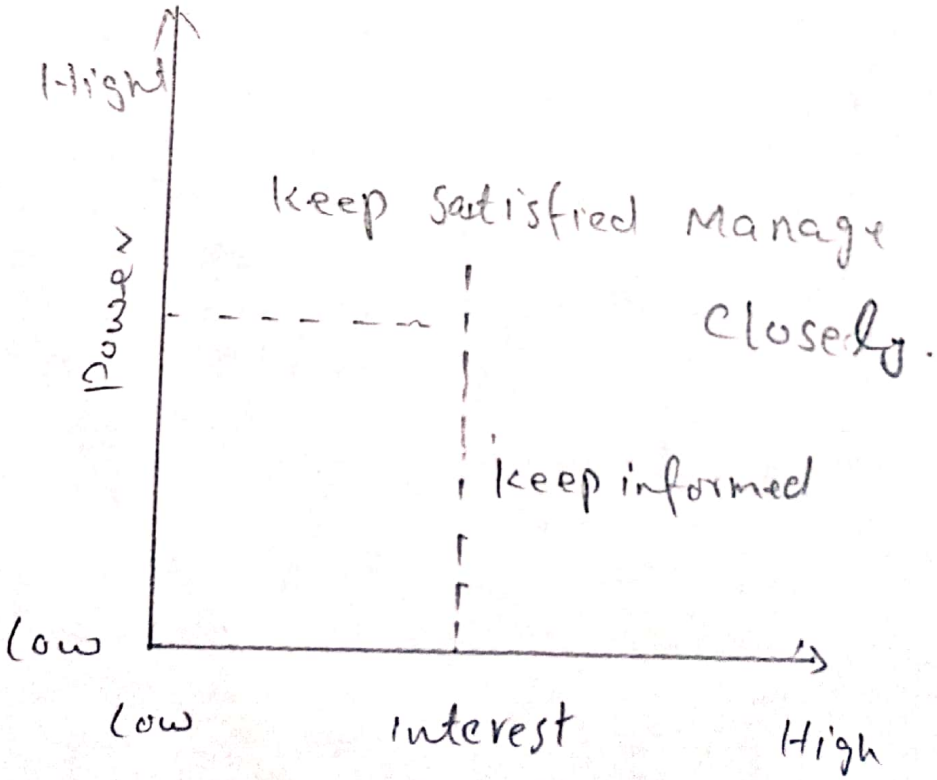
Power/Interest matrix

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

→ This matrix helps to focus on the key stakeholders who can make or break the project. In turn, this powered Interest matrix helps us in stakeholder prioritization.

Layout of the matrix:

The power interest matrix Contains four quadrents. Each quadrent gives an indication of the level of stakeholders management that we will have to employ and may also influence the tyep of communication style. The four quadrants of power interest matrix are shown below.



High Power - high Interest.

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

→ High Power - low Interest.

These stakeholders needed to be kept in loop, these Stake holder need to kept satisfied even though 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.

→ low power - High Interest

These people should be kept adequately informed

and must talk to them to ensure that no major issue are arising. These people can often be very helpful with detail of project.

- **Low power - low interest.**

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

Q NO = 05

Risk Management Checklist for a project of Residential house:

Stage: 1 Initiation:

=> Assemble Risk Management resource

=> Appoint the team and ensurea breadth of skill/experience with in the team.

=> Assign Risk Management responsibilities appropriate to task.

Statge#2 Proposal Familiarization

-> specify objectives and criteria.

-> Familiarise the team with the proposal, assemble documentation and define the key objectives

→ Assess the proposal in relation to the agency's objectives and strategies.

→ Determe the assement criteria for proposal.

→ Define key element target (20-50) elements items or activity) to structure risk analysis.

Stage#3 Risk Analysis

=> Identify Risk.

=> prepare a comprehensive schedule of risks for each element.

=> Describe each risk and list the main assumption.

=> Assess risk likelihoods and consequences.

=> Assemble data on risk and their consequences.

-> Asses risk likelihoods

-> Assess risk impacts

=> Identify significant risk.

-> Rank risk to reflect impact and likelihoods

-> Describe/accept minor risk

-> Identify moderate risk for mangement measure.

=> Identify major risk for detailed risk actim planning

Stage=5 Risk responce 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 tranfer and insurance

(d) risk acceptance

Stage :5 Reporting.

=> For designated proposal, produce the risk Managemat plan

-> For other projects, collate and summarize risk action schedules and

measure.

Stage # 06

Risk management implementation:

-> Implement measure and action strategies

-> monitor the implementation

(a) Assign responsibility

(b) Timing

-> Undertake periodic review and performance evaluation.