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Q-1.

Year	Project M	Project N
1	11000	38000
2	19000	22000
3	32000	18000
4	37000	10000

Project M's Investment → 70,000 Rs
Project N needs an investment → 60,000 Rs
Cost of Capital :- 8%

⇒ Project M

Year	Cash Inflow	CCF
1	11000	11000
2	38000	49000
3	19000	68000

PBP is 3 years.

Project N:-

years	Cash Inflow	CCF
1	22000	22000
2	32000	54000
3	18000	72000
4	37000	109000
5	10000	119000

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PBP is 5 years.

for DPBP :-

Project m :-

year	cash inflow	PV	CCF
1	11000	10185.19	10185.19
2	38000	32967.91	43153.10
3	19000	15565.61	58718.71

DPBP is 3 years.

For Project N :-

year	cash inflow	PV	CCF
1	22000	20370.37	20370.37
2	32000	27058.70	47429.07
3	18000	11328.47	58757.54
4	37000	32366.75	91224.29
5	10000	6363.05	97587.37
6			

DPBP is in 5th year.

For project m.

NPV = -70000 + 10185.19/(1.08)^1 + 32967.91 (1.08)^2 + 15565.61/(1.08)^3

3.

$= -70000 + 9076.11 + 28175.44 + 12045.38$

$= 5996.93$

For Project N.

NPV = 134822 Rs.

Since it is positive it is profitable.

Project N should be selected.

Q-2.

State of Nature	prob.	Return on Asset 1(%)	Return on Asset 2 (%)
1	0.20	5	0
2	0.30	10	8
3	0.50	15	18
4	0.10	20	26

a) Calculate the Standard deviation for Asset-1 & Asset-2 ?

Asset 1 :- Expected Return

$= (0.3) \times (10) + (0.5 \times 15) + (0.2 \times 15)$

$= 12.5\%$

Variance $= (0.3 \times (10 - 12.5)^2) + (0.5 \times (15 - 12.5)^2) + (0.2 \times (10 - 12.5)^2) = 4.375\%$

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Asset – 2

Expected Return = (0.3 × 18) + (0.5 × 15) (0.2 × 15)
= 15.3%

Variance = (0.3 × (18 − 15.3)²) + (0.5 × (15 − 15.3)²)
+ (0.2 × (15 − 15.3)²)
= 3.2575 %

Std. deviation for Asset 1 = $\sqrt{4.375\%}$
= 2.09 %

For Asset 2 = $\sqrt{3.2575\%}$
= 1.8 %

b) Co-variance between asset 1 & 2

Co-variance = $\sum [(R_i - E(R_i)) \times (R_j - E(R_j)) \times P(R_i, R_j)]$

= [(10 − 12.5) × (18 − 15.3) × 0.3] +
[(15 − 12.5) × (15 − 15.3) × 0.5] +
[(15 − 12.5) × (15 − 15.3) × 0.2]

= −1.3725

c) Co-efficient of correlation btw the return on assest 1 & 2 = $\frac{-1.3725}{2.09\% \times 1.8\%}$

= −0.423

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d> The negative co-efficient indicates that the returns on the asset 1 & 2 move in the opposite directions. The selection of asset 1 & 2 would depend on the investor's risk appetite and investment objectives.

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Q-1 Equity beta :- 1.1, Risk-free rate : 8 %
Market risk premium : 7 %, debt equity = 1:2
Pre tax cost of debt : 10 %, tax rate : 30 %

WACC ?

⇒ Cost of Equity = 0.08 + 1.1 x 0.07
= 15.5 %

After Tax Cost of debt = Pre tax cost of debt x (1 - tax rate)
= 0.1 x (1-0.3)
= 7 %

WACC = (Weight of equity x cost of equity) + (Weight of debt x After-Tax cost of debt)

= (2/3 x 0.155) + (2/3 x 0.07)
= 0.127
WACC = 12.7 %

ACME's weighted avg. cost of capital is 12.7 %

Q-2 Details for firm A & B

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Particulars	A Ltd.	B Ltd.
Sales	15000	24000
Variable cost	7500	14000
Contribution	7500	10000
Fixed cost	3500	3500
Earning before Int. & tax	4000	6500
Interest	1500	2500
Profit before tax	2500	4000

For firm A :-

Contribution = 15,000 , EBIT = 4000, PBT = 1500

Contribution margin = Contribution - Var. cost.

Var cost = 15000 - (0.6 * 15,000)
= 6000

Sales = Contribution / 0.6
= 25,000.

operating leverage = (Sales - Var. cost) / EBIT
= (25,000 - 6000) / 4000
= 4.75.

For firm B :-

Contribution = 15,000 , EBIT = 1,500, PBT = 1500

Var. cost = 50 % Sales = 7500

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Sales = contribution / 0.5
= 30,000

operating leverage = (30,000) - (7500) / 1500
= 15

For firm A:

Net income = PBT * (1 - tax rate) = 1050
EPS = Net income / no. of shares. = 1.05

Financial leverage = 0.048 / 0.1
= 0.48

For firm B:-

Net income = 1050, EPS = 0.525

EBIT changes by 10%, changes in EPS
= (1.1 * 0.525 - 0.525) / 0.525
= 0.048
= 10%

Financial leverage = 0.048 / 0.1
= 0.48

combined leverage (A) = 4.75 * 0.48 = 2.28
combined leverage (B) = 15 * 0.48 = 7.2

Firm B has higher op. leverage, financial leverage & combined leverage than firm A indicates high risk

Q-3. From the given information:

Current assets:-

1> Stock of raw materials = (1/12) * 9,00,000
= 75,000 Rs.

2> Stock of finished goods = (1/12) * (36,00,000 * 0.75)
= 7,50,000 Rs.

3> Debtors = (2/12) * 36,60,000
= 6,00,000 Rs.

4> Cash Balance = Rs 1,00,000

Total Current assets:- 75K + 750K + 600K + 100K
= 14,25,000

Current liabilities:-

1> Creditors = (2/12) * 9,00,000 = 1,50,000 Rs
2> Wages = Rs. 7,20,000/12 = Rs. 60,000
3> Manufacturing expenses outstanding = 6,667 Rs
4> Administrative expenses outstanding = 20,000 Rs
5> Sales promotion expenses paid quarterly = 30,000 Rs

Total current liabilities = 2,66,667 Rs

Working Capital Requirement = Total current Assets - Total Current liabilities
= 14,25,000 - 2,66,667
= 11,58,333 Rs

5.

Safety margin = 20% ↑, the final working capital requirement for the company will be:

working capital requirement with safety margin = working capital Requirement * (1 + Safety margin)

= 11,58,333 * (1 + 0.20)

= 13,90,000 Rs.

∴ the working capital requirement for the xyz co. with 20% safety margin is Rs. 13,90,000