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SUGGESTED SOLUTION

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FM

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ANSWER -1**Answer-A :**

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{\text{Rs.930 lacs}}{\text{Rs.540 lacs}} = 1.73$$

$$\text{Debt Equity Ratio} = \frac{\text{Debt}}{\text{Equity}} = \frac{\text{Rs.300 lacs}}{\text{Rs.560 lacs}} = 0.54$$

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest}} = \frac{\text{Rs.320 lacs}}{\text{Rs.120 lacs}} = 2.66$$

Working Notes:

Current Assets	Rs.	Debt	Equity	Rs.
Stock	460 Lacs	Term Loan Rs.300 lacs	Capital	250 lacs
Debtors	460 lacs		Reserve	280 lacs
Cash	10 lacs		P & L A/c.	30 lacs
	930 lacs			560 lacs
Current Liabilities	Rs.	EBIT		Rs.
Short term loan	360 lacs	Profit for the year (30 + 90)		120 lacs
Trade Credit	150 lacs	Interest		120 lacs
Other Liabilities	30 Lacs	Tax @ 40% $\frac{120 \times 40}{60}$		80 lacs
	540 lacs			320 lacs

Answer- B: Computation of Degree of Operating Leverage (DOL), Degree of Financial Leverage (DFL) and Degree of Combined Leverage (DCL)

	Firm N	Firm S	Firm D
Output (Units)	17,500	6,700	31,800
Selling Price/Unit	85	130	37
Sales Revenue (A)	14,87,500	8,71,000	11,76,600
Variable Cost/Unit	38.00	42.50	12.00
Less: Variable Cost (B)	6,65,000	2,84,750	3,81,600
Contribution (A-B)	8,22,500	5,86,250	7,95,000
Less: Fixed Cost	4,00,000	3,50,000	2,50,000
EBIT	4,22,500	2,36,250	5,45,000
Less: Interest on Loan	1,25,000	75,000	-
PBT	2,97,500	1,61,250	5,45,000
DOL = $\frac{C}{EBIT}$	$\frac{8,22,500}{4,22,500} = 1.95$	$\frac{5,86,250}{2,36,250} = 2.48$	$\frac{7,95,000}{5,45,000} = 1.46$

$EFL = \frac{EBIT}{PBT}$	$\frac{4,22,500}{2,95,500} = 1.42$	$\frac{2,36,250}{1,61,250} = 1.47$	$\frac{5,45,000}{5,45,000} = 1.00$
DCL = OL x FL	1.95 x 1.42	2.48 x 1.47	1.46 x 1
OR	= 2.77	= 3.65	= 1.46
$DCL = \frac{Contribution}{PBT}$	$\frac{8,22,500}{2,97,500} = 2.76$	$\frac{5,86,250}{1,61,250} = 3.64$	$\frac{7,95,000}{5,45,000} = 1.46$

Answer- C :

Pattern of raising Capital:

Portion of Debt = Rs. 20,00,000 × 25% = Rs. 5,00,000 and

Portion of Equity = Rs. 20,00,000 × 75% = Rs. 15,00,000, of this Rs. 4,00,000 is from retained earnings and Rs.11,00,000 by issuing fresh equity shares.

(i) Cost of Debt (K_d) = $\frac{\text{Total Interest (1-t)}}{\text{Debt}}$

$$= \frac{(10\% \text{ of Rs.}2,00,000 + 13\% \text{ of Rs.}3,00,000)(1-0.3)}{\text{Rs.}5,00,000}$$

$$= \frac{\text{Rs.}59,000(1-0.3)}{\text{Rs.}5,00,000} = 0.826 \text{ or } 8.26\%$$

(ii) Cost of Equity (K_e) = $\frac{\text{EPS x Payout ratio (1+g)}}{P_0} + g$

$$= \frac{\text{Rs.}12 \times 0.5 (1+0.1)}{\text{Rs.}60} + 0.01 = 0.11 + 0.10 = 0.21 \text{ or } 21\%$$

Cost of retained earnings (K_s) = $K_e (1 - t_p) = 0.21(1 - 0.2) = 0.168$ or 16.8%

(iii) Weighted average cost of capital (K_0)

Source of capital	Amount (Rs.)	Proportion of total Capital	Cost of Capital (%)	WACC (%)
Equity Capital	11,00,000	0.55	21.00	11.550
Retained earning	4,00,000	0.20	16.80	3.360
Debt	5,00,000	0.25	8.26	2.065
Total	20,00,000	1.00		16.975

ANSWER -2

Answer-A

Preparation of Financial Statements

Particulars	%	(Rs.)
Share capital	50%	1,00,000
Other shareholders funds	15%	30,000
5% Debentures	10%	20,000
Trade creditors	25%	50,000
Total	100%	2,00,000

Land and Buildings = Rs. 80,000

Total Liabilities = Total Assets

Rs. 2,00,000 = Total Assets

Fixed Assets = 60% of Total Gross Fixed Assets and Current Assets

= Rs. 2,00,000 Rs. 60/100

= Rs. 1,20,000

Calculation of Additions to Plant & Machinery

	Rs.
Total Fixed Assets	1,20,000
Less: Land and Building	80,000
Plant and Machinery (after providing depreciation)	40,000
Depreciation on Machinery up to 31-3-2013	15,000
Add: Further Depreciation	5,000
Total	20,000

Current Assets = Total Assets – Fixed Assets

= Rs. 2,00,000 – Rs. 1,20,000 = Rs. 80,000

Calculation of Stock

Quick Ratio = $\frac{\text{Current Assets} - \text{Stock}}{\text{Current Liabilities}} = 1$

= $\frac{\text{Rs. 80,000} - \text{Stock}}{\text{Rs. 50,000}} = 1$

Rs. 50,000 = Rs. 80,000 – Stock

Stock = Rs. 80,000 – Rs. 50,000

= Rs. 30,000

Debtors = 4/5th of Quick Assets

= (Rs. 80,000 – 30,000) Rs. 4/5

= Rs. 40,000

Debtors Turnover Ratio

= $\frac{40,000 \times 12}{\text{Credit Sales}} = 2 \text{ months}$

2 Credit Sales = 4,80,000

Credit Sales = 4,80,000/2

= 2,40,000

Gross Profit (15% of Sales)

Rs. 2,40,000 Rs. 15/100 = Rs. 36,000

Return on Networth (profit after tax)

Networth = Rs. 1,00,000 + Rs. 30,000
= Rs. 1,30,000

Net Profit = Rs. 1,30,000 Rs. 10/100 = Rs. 13,000

Debenture Interest = Rs. 20,000 Rs. 5/100 = Rs. 1,000

Projected Profit and Loss Account for the year ended 31-3-2014

To Cost of Goods Sold	2,04,000	By Sales	2,40,000
To Gross Profit	36,000		
	2,40,000		2,40,000
To Debenture Interest	1,000	By Gross Profit	36,000
To Administration and Other Expenses	22,000		
To Net Profit	13,000		
	36,000		36,000

Ganesha Limited

Projected Balance Sheet as on 31st March, 2014

Liabilities	Rs.	Assets		Rs.
Share Capital	1,00,000	Fixed Assets		
Profit and Loss A/c (17,000+13,000)	30,000	Land & Buildings		80,000
5% Debentures	20,000	Plant & Machinery	60,000	
Current Liabilities		Less: Depreciation	20,000	40,000
Trade Creditors	50,000	Current Assets:		
		Stock	30,000	
		Debtors	40,000	
		Bank	10,000	80,000
	2,00,000			2,00,000

Answer-B

Working Notes:

$$\text{Depreciation on Machine X} = \frac{1,50,000}{5} = \text{Rs. } 30,000$$

$$\text{Depreciation on Machine Y} = \frac{2,40,000}{6} = \text{Rs.}40,000$$

Particulars	Machine X (Rs.)	Machine Y (Rs.)
Annual Savings:		
Wages	90,000	1,20,000
Scrap	10,000	15,000
Total Savings (A)	1,00,000	1,35,000
Annual Estimated Cash Cost :		
Indirect Material	6,000	8,000
Supervision	12,000	16,000
Maintenance	7,000	11,000
Total Cash Cost (B)	25,000	35,000
Annual Cash Savings (A-B)	75,000	1,00,000
Less : Depreciation	30,000	40,000
Annual Savings Before Tax	45,000	60,000
Less : Tax @ 30%	13,500	18,000
Annual Savings/Profit (After Tax)	31,500	42,000
Add : Depreciation	30,000	40,000
Annual Cash Inflows	61,500	82,000

Evaluation of Alternatives

(i) Average Rate of Return Method (ARR)

$$\text{ARR} = \frac{\text{Average Annual Net Savings}}{\text{Average Investment}}$$

$$\text{Machine X} = \frac{31,500}{75,000} \times 100 = 42\%$$

$$\text{Machine Y} = \frac{42,000}{1,20,000} \times 100 = 35\%$$

Decision : Machine X is better.

[**Note:** ARR can be computed alternatively taking initial investment as the basis for computation (ARR = Average Annual Net Income/Initial Investment). The value of ARR for Machines X and Y would then change accordingly as 21% and 17.5% respectively]

(ii) Present Value Index Method

Present Value of Cash Inflow = Annual Cash Inflow x P.V. Factor @ 10%

$$\begin{aligned} \text{Machine X} &= 61,500 \times 3.79 \\ &= \text{Rs. } 2,33,085 \end{aligned}$$

$$\begin{aligned} \text{Machine Y} &= 82,000 \times 4.354 \\ &= \text{Rs. } 3,57,028 \end{aligned}$$

$$\text{P.V. Index} = \frac{\text{Present Value}}{\text{Investment}}$$

$$\text{Machine X} = \frac{2,33,085}{1,50,000} = 1.5539$$

$$\text{Machine Y} = \frac{3,57,028}{2,40,000} = 1.4876$$

Decision : Machine X is better.

ANSWER -3

Answer-A

(i) Financial leverage

Combined Leverage = Operating Leverage (OL) x Financial Leverage (FL)

$$2.5 = 2 \times \text{FL} \text{ Or, FL} = 1.25$$

Financial Leverage = 1.25

(ii) P/V Ratio and Earning per share (EPS)

$$\text{Operating leverage} = \frac{\text{Contribution (C)}}{\text{Contribution} - \text{Fixed Cost (FC)}} \times 100$$

$$2 = \frac{C}{C - 3,40,000} \text{ Or, } C = 2(C - 3,40,000)$$

$$\text{Or, } C = 2C - 6,80,000 \text{ Or, Contribution} = \text{Rs.}6,80,000$$

$$\text{Now, P/V ratio} = \frac{\text{Contribution (C)}}{\text{Sales(S)}} \times 100 = \frac{6,80,000}{50,00,000} \times 100 = 13.6\%$$

Therefore, R/V Ratio = 13.6%

$$\begin{aligned} \text{EBT} &= \text{Sales} - \text{Variable Cost} - \text{Fixed Cost} - \text{Interest} \\ &= \text{Rs.}50,00,000 - \text{Rs.}50,00,000 (1-0.136) - \text{Rs.}3,40,000 - (8\% \times \text{Rs.}30,25,000) \\ &= \text{Rs.}50,00,000 - \text{Rs.}43,20,000 - \text{Rs.}3,40,000 - \text{Rs.}2,42,000 \\ &= \text{Rs.}98,000 \end{aligned}$$

$$\begin{aligned} \text{PAT} &= \text{EBT} (1-T) \\ &= \text{Rs.}98,000 (1-0.3) = \text{Rs.}68,600 \end{aligned}$$

$$\text{EPS} = \frac{\text{Profit after tax}}{\text{No. of equity shares}}$$

$$\text{EPS} = \frac{\text{Rs.}68,600}{3,40,000 \text{ shares}} = \text{Rs.}0.202$$

(iii) Assets turnover

$$\text{Assets turnover} = \frac{\text{Sales}}{\text{Total Assets}^*} = \frac{\text{Rs.}50,00,000}{\text{Rs.}34,00,000 + \text{Rs.}30,25,000} = 0.78$$

0.78 < 1.5 means lower than industry turnover.

*Total Asset = Equity share capital + 8% Debentures

- (iv) EBT zero means 100% reduction in EBT. Since combined leverage is 2.5, sales have to be dropped by $100/2.5 = 40\%$. Hence new sales will be

$$\text{Rs. } 50,00,000 \times (100-40) \% = \text{Rs. } 30,00,000.$$

Therefore, at Rs. 30,00,000 level of sales, the Earnings before Tax (EBT) of the company will be zero.

Alternatively

Required sales when EBT is zero

$$= \frac{\text{Fixed Cost} + \text{Interest} + \text{desired Profit}}{\text{P/V Ratio}}$$

$$= \frac{\text{Rs. } 3,40,000 + \text{Rs. } 2,42,000 + \text{Zero}}{13.60\%}$$

$$= \frac{\text{Rs. } 5,82,000}{13.60\%}$$

$$= \text{Rs. } 42,79,412$$

[Note: The question can also be solved by first calculating EBIT with the help of Financial Leverage. Accordingly answer to the requirement (ii) and (iv) will also vary]

Answer-B

Computation of NPV

Particulars	Rs. Lakhs
Annual Sales	600.00
Less: Operating Costs per Annum	(400.00)
Net Cash Surplus per annum	200.00
Annuity Factor for 5 Years at 10% p.a.	3.791
Present Value of Cash Inflows [Annuity Factor 3.791 x Annual Cash Inflow Rs. 200]	758.20
Less: Initial Investment	(500.00)
Net Present Value	258.20

2. Sensitivity Analysis

(a) Variance in Project Cost (Initial Investment)

Required: To compute Initial Investment at which NPV is Zero

Measure of Sensitivity

Particulars	Value
-------------	-------

Present Initial Investment [Base]		500.00
Target Initial Investment [Value at which NPV is Zero] = PV of Inflows WN 1		758.20
Margin of Safety [Change]		258.20
Sensitivity	$\left[\frac{\text{Change}}{\text{Base}} \right] = \frac{258.20}{500.00}$	51.64

Observation: If the Initial Capital Investment increases by more than 51.64%, the Project may not be viable.

(b) Variance in Annual Sales

Required: To compute Target Annual Sales at which NPV is Zero

Let Required Annual Sales = 'X'

$$[(X - 400) \times 3.791] = \text{Initial Investment } 500.$$

On solving, X=531.89. So, Required Annual Sales = Rs.531.89Lakhs.

Measure of Sensitivity

Particulars	Value
Annul Cash Sales [Present] [Base]	600.00
Target Cash Sales [Value at which NPV is Zero]	531.89
Margin of Safety [Change]	68.11
Sensitivity $\left[\frac{\text{Change}}{\text{Base}} \right] = \frac{68.11}{600.00}$	11.35%

Observation: If the Annual Sales Value were to fall by around 11.35%, the Project may not be financially feasible.

(c) Variance in Variable Costs

Required: To compute Variable Costs at which NPV is Zero

Let Required Variable Costs = 'C'

$$[(600-V) \times 3.791] = \text{Initial Investment } 500$$

On solving, V = 468.11

Hence, required Variable Costs = Rs.468.11 Lakhs

Measure of Sensitivity

Particulars	Value
Annual Variable Costs [Present] [Base]	400.00
Target Variable Cost [Value at which NPV is Zero]	468.11
Margin of Safety [Change]	68.11
Sensitivity $\left[\frac{\text{Change}}{\text{Base}} \right] = \frac{68.11}{400.00}$	17.03%

Observation: If the Variable Costs increase by more than 17.03% of the estimated amount, then the project may not be viable.

ANSWER -4

Answer-A

Working Notes:

(i) Capital Employed

	Rs.
Equity Capital (5,00,000 shares of Rs. 10 each)	50,00,000
Debentures (Rs. 80,000×100/8)	10,00,000
Term Loan (Rs. 2,20,000×100/11)	20,00,000
Reserves and Surplus	20,00,000
Total Capital Employed	1,00,00,000

(ii) Rate of Return

Earnings before Interest and Tax = Rs. 23,00,000

$$\text{Rate of Return on Capital Employed} = \frac{\text{Rs. } 23,00,000}{\text{Rs. } 1,00,00,000} \times 100 = 23\%$$

(iii) Expected Rate of Return after Modernisation = 23% + 2% = 25%

Alternative 1: Raise Entire Amount as Term Loan

	Rs.
Original Capital Employed	1,00,00,000
Less: Debentures	10,00,000
	90,00,000
Add: Additional Term Loan	30,00,000
Revised Capital Employed	1,20,00,000

		Rs.
EBIT on Revised Capital Employed (@ 25% on Rs. 120 lakhs)		30,00,000
Less: Interest		
Existing Term Loan (@11%)	2,20,000	
New Term Loan (@12%)	3,60,000	5,80,000
		24,20,000
Less: Income Tax (@ 50%)		12,10,000
Earnings after Tax (EAT)		12,10,000

$$\text{Earnings per Share (EPS)} = \frac{\text{EAT}}{\text{No. of Equity Shares}} = \frac{\text{Rs.12,10,000}}{5,00,000 \text{ Shares}} = \text{Rs.2.42}$$

$$\text{P/E Ratio} = \frac{\text{Market Price Per Share}}{\text{EPS}} = 8$$

$$8 = \frac{\text{Market Price}}{\text{Rs.2.42}}$$

$$\text{Market Price} = \text{Rs. 19.36}$$

Alternative 2: Raising Part by Issue of Equity Shares and Rest by Term Loan

		Rs.
Earnings before interest and tax (@ 25% on Revised Capital Employed i.e. Rs.120 lakhs)		30,00,000
Less : Interest		
Existing Term Loan @ 11%	2,20,000	
New Term Loan @ 12%	1,20,000	3,40,000
		26,60,000
Less : Income Tax @ 50%		13,30,000
Earnings after Tax		13,30,000

$$\text{EPS} = \frac{\text{Rs.13,30,000}}{5,00,000 \text{ (existing)} + 1,00,000 \text{ (new)}} = \text{Rs.2.217}$$

$$\text{P/E Ratio} = 10$$

$$\text{Market Price} = \text{Rs. 22.17}$$

Advise:

- (i) From the above computations it is observed that the market price of Equity Shares is maximised under Alternative 2. Hence this alternative should be selected.
- (ii) If, under the two alternatives, the P/E ratio remains constant at 10, the market price under Alternative 1 would be Rs. 24.20. Then Alternative 1 would be better than Alternative 2.

Answer-B

Note: Discount Factor for Lessee based on After Tax Cost of Debt, i.e. $16\% \times 50\% = 8\%$.

1. Computation of Cash Flows under Lease Option

Year	Lease Rental	10% Gross s Revenue	Lump sum Payment	Total Cash flows	After Tax Cash flows	Disc factor @ 8%	Discounted Cash Flow
[1]	[2]	[3]	[4]	[5]	[6]= [5]x0.50	[7]	[8]
1	5,00,000	2,25,000	-	7,25,000	3,62,500	0.926	3,35,675
2	5,00,000	2,50,000	-	7,50,000	3,75,000	0.857	3,21,375
3	5,00,000	2,75,000	6,00,000	13,75,000	6,87,500	0.794	5,45,875
							12,02,925

Note: Operating and Training Costs are common in both alternatives, hence not considered in evaluation.

2. Computation of Cash Flows under Loan (Borrow & Buy) Option

Note:

(a) Annual Depreciation p.a, =

$$\frac{\text{Cost of Asset - Salvage Value}}{\text{Useful life}} = \frac{(22,00,000 - 10,00,000)}{3} = \text{Rs.}4,00,000$$

(b) Tax Savings on Depreciation = Depreciation x Tax Rate = Rs. 4,00,000 x 50% = Rs.2,00,000

(b) Present Value of Cash Outflows

End of Year	Interest Paid	Principal Repaid	After Tax Interest Payment	Tax Savings on Depreciation	Total Cash Flow for the year	PV Fat 8%	Discounted Cash Flow
(1)	(2)	(3)	(4) = (2) x 0.50	(5)	(6) = (3) + (4) - (5)	(7)	(8) = (6) x (7)
1	3,52,000	5,00,000	1,76,000	2,00,000	4,76,000	0.926	4,40,776
2	2,72,000	8,50,000	1,36,000	2,00,000	7,86,000	0.857	6,73,602
3	1,36,000	8,50,000	68,000	2,00,000	7,18,000	0.794	5,70,092
							16,84,470
Less: Salvage Value at the end of Year 3 10,00,000 x 0.794							7,94,000
Net Present Value							8,90,470

Conclusion: Borrow & Buy Option is preferable, since PV of Outflows is lower.

ANSWER -5**Answer-A****Computation of Current Weighted Average Cost of Capital**

(a) Cost of 12% Debentures (K_d) = $\frac{1(1-t)}{NP} = \frac{\text{Rs.}12(1-0.3)}{\text{Rs.}100} = 0.084$ or 8.4%

$$(b) \quad \text{Cost of Equity Share Capital (K}_e\text{)} = \frac{D_0(1+g)}{P_0} + g = \frac{\text{Rs.}100 \times 24\% (1+0.05)}{\text{Rs.}600} + 0.05$$

$$= \frac{\text{Rs.}25.2}{\text{Rs.}600} + 0.05 = 0.092 \text{ or } 9.2\%$$

Source of capital	Amount (Rs.)	Weight	After tax Cost of Capital (%)	WACC (%)
Equity share capital (including Reserve & Surplus)	7,20,00,000	0.80	9.20	7.36
12% Debentures	1,80,00,000	0.20	8.40	1.68
Weighted Average Cost of Capital				9.04

(ii) Computation of New Weighted Average Cost of Capital

(a) Cost of Existing 12% Debentures (K_d) = 8.4 % (as calculated above)

(b) Cost of Term Loan (K_l) = Rate of Interest (r) \times (1-tax rate)

$$= 0.18 (1-0.03) = 0.126 \text{ or } 12.6\%$$

(c) Cost of Equity Share Capital (K_e) = $\frac{\text{Rs.}24(1.05)}{\text{Rs.}500} + 0.05 = \frac{\text{Rs.}25.2}{\text{Rs.}500} + 0.05$
 $= 0.0504 + 0.05 = 0.1004 = 10.04\%$

Source of capital	Amount (Rs.)	Weight	After tax Cost of Capital (%)	WACC (%)
Equity share capital (including Reserve & Surplus)	7,20,00,000	0.60	10.04	6.02
12% Debentures	1,80,00,000	0.15	8.40	1.26
18% Term loan	3,00,00,000	0.25	12.60	3.15
Weighted Average Cost of Capital				10.43

[WACC for the company can also be calculated using market value weights]

Answer-B

Maximum Capital Expenditure

Particulars	Rs.
Paid up Equity Capital	Rs. 3 Crores
Par Value per Share	Rs.10
No. of Shares outstanding [Paid up Equity Rs. 3 Crores 4- Par Value Rs. 10]	30 Lakhs
Earnings per Share for the year	Rs. 20
Earnings for the year [No. of Shares outstanding 30 Lakhs x EPS Rs. 20]	Rs. 6 Crores

Therefore, maximum Capital Expenditure Brahmputra can incur without raising additional equity is equal to earnings for year i.e. Rs. 6 Crores.

2. Dividend Distribution for Capital Expenditure of Rs. 5.50 Crores

(a) Existing Capital Structure

Capital	Components	Value	Ratio
Equity	(Capital Rs. 3 Crores + Reserves Rs. 15 Crores)	Rs. 18 Crores	3/5
Debt	(12% Debt Rs. 10 Crores + 15% Debt Rs. 2 Crores)	Rs. 12 Crores	2/5
	Total	Rs. 30 Crores	

(b) Dividend Distribution when Capital Structure should remain intact

Particulars	Rs.
Capital Expenditure	Rs. 5.50 Cr.
To be funded by Equity (3 / 5 x Rs. 5.50 Crores)	Rs. 3.30 Cr.
To be funded by Debt (2 / 5 x Rs. 5.50 Crores) .	Rs. 2.20 Cr.
Earnings for the year [No. of Shares outstanding 30 Lakhs x EPS Rs. 20]	Rs. 6.00 Cr.
Less: Amount to be retained for funding Capital Expenditure	Rs. 3.30 Cr.
Amount distributed as Dividend	Rs. 2.70 Cr.
Dividend per Share (Rs. 2.70 Crores e No. of Shares 30 Lakhs)	Rs. 9

(c) Dividend Distribution when Capital Structure need not remain intact

Particulars	Rs.
Earnings for the year [No. of Shares outstanding 30 Lakhs x EPS Rs. 20] Less:	Rs. 6.00 Cr.
Amount to be retained for funding Capital Expenditure	Rs. 5.50 Cr.
Amount distributed as Dividend	Rs. 0.50 Cr.
Dividend per Share (Rs. 0.50 Crores -4- No. of Shares 30 Lakhs)	Rs. 1.67

3. Dividend Distribution for Capital Expenditure of Rs. 8 Crores

(a) Dividend Distribution when Capital Structure should remain intact

Particulars	Rs.
Capital Expenditure	Rs. 8.00 Cr.
To be funded by Equity (3 / 5 x Rs. 8.00 Crores)	Rs. 4.80 Cr.

To be funded by Debt (2 / 5 x Rs. 8.00 Crores)	Rs. 3.20 a.
Earnings for the year [No. of Shares outstanding 30 Lakhs x EPS Rs. 20]	Rs. 6.00 Cr.
Less: Amount to be retained for funding Capital Expenditure	Rs. 4.80 Cr.
Amount distributed as Dividend	Rs. 1.20 Cr.
Dividend per Share (Rs. 1.20 Crores e No. of Shares 30 Lakhs)	Rs. 4

(b) Dividend Distribution when Capital Structure need not remain intact

Particulars	Rs.
Earnings for the year [No, of Shares outstanding 30 Lakhs x EPS Rs. 20]	Rs. 6.00 Cr.
Amount to be required for funding Capital Expenditure	Rs. 8.00 Cr.

Since, the amount required for funding the Capital Expenditure is more than the Equity Earnings, no dividends can be distributed under Residual Approach.

ANSWER -6

Answer A

Particulars	Rs. (in crore)
Cost of machine	220
Salvage value after 10 years	20
Annual depreciation (220-20)/10	20
Calculation of cash flow and Net Present Value	Rs. (Crore)
Profit before taxes(PBT)	30
Less Taxes @ 35	10.5
Profit after tax(PBT-Tax)	19.5
Add: Depreciation	20
Cash flow per year	39.5
A. Present value of cash flows for 10 years	$39.5 \times PVAF (0.1,10)$
	$= 39.5 \times 5.6502 = 223.18$
B. Present value of the salvage value	$20 \times PVF (0.1,10)$
	$= 20 \times 0.3220 = 6.44$
C. Total present value of cash inflows (A+B)	229.62
D. Initial Investment	220
Net Present Value(NPV)	9.62

From the above calculation, it is clear that Net Present Value is positive and Hence, Rounak Ltd. should buy the lathe machine.

Answer B**1. Computation of Cost of Equity**

$$K_e = \frac{D_1}{P_0} + g = \frac{\text{Rs.}3.36}{\text{Rs.}146} + 7.5\% = 2.3\% + 7.5\% = 9.8\% = 10\%(\text{approx.})$$

Note: It is assumed that the dividend of Rs. 3.36 given in the question is the expected dividend one year later.

2. Computation of Cost of Equity and Growth Rate for Scenario 2

Growth Rate (g) = Return on Investment x Retention Ratio = b x r = 60% x 10% = 6%

$$K_e = \frac{D_0 \times (1+g)}{P_0} + g = \frac{\text{Rs.}3.36 \times 1.06}{\text{Rs.}146} + 6\% = 2.44\% + 6\% = 8.44\%$$

Answer C**Computation of Net Present Value**

Particulars	Years	Disc. Factor	Prob. = 0.1		Prob. = 0.7		Prob. = 0.2	
			CF	DCF	CF	DCF	CF	DCF
After Tax Inflows	1-5	2.991	20,000	59,820	30,000	89,730	40,000	1,19,640
Salvage Value	5	0.402	0	0	20,000	8,040	30,000	12,060
Present Value of Inflows				59,820		97,770		1,31,700
Less: Investment Cost				(1,00,000)		(1,00,000)		(1,00,000)
Net Present Value				(40,180)		(2,230)		31,700

Expected NPV = [0.10 x (Rs. 40,180)] + [0.70 x (Rs. 2,230)] + [0.20 x Rs. 31,700] = - 4,018 - 1,561 + 6,340 = Rs. 761

2. Best Case NPV =Rs. 31,700 Worst Case NPV= (Rs. 40,180)

3. Probability of Worst Case NPV, if Cash Flows are perfectly correlated over time = first year Probability = 0.1.

Note: The revenue streams are decided in the first year itself, i.e. such revenue streams will follow in the subsequent periods. Therefore, probability of first year's revenue stream is the probability of worst case NPV.