

PAPER – 4B : FINANCIAL MANAGEMENT

1. The expected cash flows of three projects are given below. The cost of capital is 10 per cent.
 - (a) Calculate the payback period, net present value, internal rate of return and accounting rate of return of each project.
 - (b) Show the rankings of the projects by each of the four methods.

<i>Period</i>	<i>Project A (Rs.)</i>	<i>Project B (Rs.)</i>	<i>Project C (Rs.)</i>
0	(5,000)	(5,000)	(5,000)
1	900	700	2,000
2	900	800	2,000
3	900	900	2,000
4	900	1,000	1,000
5	900	1,100	
6	900	1,200	
7	900	1,300	
8	900	1,400	
9	900	1,500	
10	900	1,600	

2. (a) Alpha Ltd. has in issue 5,00,000 Rs. 1 ordinary shares whose current ex-dividend market price is Rs. 1.50 per share. The company has just paid a dividend of 27paise per share, and dividends are expected to continue at this level for some time. If the company has no debt capital, what is the weighed average cost of capital?
- (b) Five years ago, Beta Ltd. issued 12 per cent irredeemable debentures at Rs. 103, a Rs. 3 premium to their par value of Rs. 100. The current market price of these debentures is Rs. 94. If the company pays corporate tax at a rate of 35 per cent what is its current cost of debenture capital?
3. One-third of the total market value of Gamma Ltd. consists of loan stock, which has a cost of 10 per cent. Another company, XYZ Ltd., is identical in every respect to Gamma Ltd., except that its capital structure is all-equity, and its cost of equity is 16 per cent. According to Modigliani and Miller, if we ignored taxation and tax relief on debt capital, what would be the cost of equity of Gamma Ltd.?
4. Mosaic Ltd. uses a large quantity of salt in its production process. Annual consumption is 60,000 tonnes over a 50-week working year. It costs Rs. 100 to initiate and process an order and delivery follows two weeks later. Storage costs for the salt are estimated at 10paise per tonne per annum. The current practice is to order twice a year when the stock falls to 10,000 tonnes. Recommend an appropriate ordering policy for Mosaic Ltd., and contrast it with the cost of the current policy.
5. Crosslings Ltd. has budgeted its sales to be Rs. 7,00,000 per annum. Its costs as a percentage of sales are as follows:

	%
Raw materials	20
Direct labour	35
Overheads	15

Raw materials are carried in stock for two weeks and finished goods are held in stock before sale for three weeks. Production takes four weeks. Crosslings Ltd. takes four weeks' credit from

suppliers and gives eight weeks' credit to its customers. If both overheads and production are incurred evenly throughout the year, what is Crosslings Ltd.'s total working capital requirement ?

6. Zeta Ltd. has current sales of Rs. 1.5 lakh per year. Cost of sales is 75 per cent of sales and bad debts are one per cent of sales. Cost of sales comprises 80 per cent variable costs and 20 per cent fixed costs, while the company's required rate of return is 12 per cent. Zeta Ltd. currently allows customers 30 days' credit, but is considering increasing this to 60 days' credit in order to increase sales.

It has been estimated that this change in policy will increase sales by 15 per cent, while bad debts will increase from one per cent to four per cent. It is not expected that the policy change will result in an increase in fixed costs and creditors and stock will be unchanged.

Should Zeta Ltd. introduce the proposed policy ?

7. Determine the cost of capital of Alloy Ltd. using the book value (BV) and market value (MV) weights from the following information:

Sources	Book Value (Rs.)	Market Value (Rs.)
Equity shares	1,20,00,000	2,00,00,000
Retained earnings	30,00,000	—
Preference shares	9,00,000	10,40,000
Debentures	36,00,000	33,75,000

Additional information :

- I. *Equity* : Equity shares are quoted at Rs.130 per share and a new issue priced at Rs.125 per share will be fully subscribed; flotation costs will be Rs. 5 per share.
 - II. *Dividend* : During the previous 5 years, dividends have steadily increased from Rs.10.60 to Rs.14.19 per share. Dividend at the end of the current year is expected to be Rs. 15 per share.
 - III. *Preference shares* : 15% Preference shares with face value of Rs.100 would realise Rs.105 per share.
 - IV. *Debentures* : The company proposes to issue 11-year 15% debentures but the yield on debentures of similar maturity and risk class is 16% ; flotation cost is 2%.
 - V. *Tax* : Corporate tax rate is 35%. Ignore dividend tax.
8. ABC Company has made plans for the next year. It is estimated that the company will employ total assets of Rs. 8,00,000; 50 per cent of the assets being financed by borrowed capital at an interest cost of 8 per cent per year. The direct costs for the year are estimated at Rs. 4,80,000 and all other operating expenses are estimated at Rs. 80,000. The goods will be sold to customers at 150 per cent of the direct costs. Tax rate is assumed to be 50 per cent.

You are required to calculate:

- (i) Net profit margin;
 - (ii) Return on assets;
 - (iii) Asset turnover; and
 - (iv) Return on owners' equity.
9. Motorola Ltd. needs Rs. 10,00,000 for expansion. The expansion is expected to yield an annual EBIT of Rs. 1,60,000. In choosing a financial plan, Motorola Ltd. has an objective of maximizing earnings per share. It is considering the possibility of issuing equity shares and raising debt of Rs. 1,00,000 or Rs. 4,00,000 or Rs. 6,00,000. The current market price per share is Rs. 25 and is expected to drop to Rs. 20 if the funds are borrowed in excess of Rs. 5,00,000. Funds can be borrowed at the rates indicated below: (a) upto Rs. 1,00,000 at 8%; (b) over Rs. 1,00,000 up to

Rs. 5,00,000 at 12%; (c) over Rs. 5,00,000 at 18%.

Assume a tax rate of 50 per cent. Determine the EPS for the three financing alternatives.

10. (a) Ramanuj has taken a 20 month car loan of Rs. 6,00,000. The rate of interest is 12 per cent per annum. What will be the amount of monthly loan amortization?
- (b) Calculate the operating leverage for each of the four firms. A, B, C and D from the following price and cost data.

	Firms			
	A	B	C	D
	Rs.	Rs.	Rs.	Rs.
Sale price per unit	20	32	50	70
Variable cost per unit	6	16	20	50
Fixed operating cost	80,000	40,000	2,00,000	Nil

What calculations can you draw with respect to levels of fixed cost and the degree of operating leverage result? Explain. Assume number of units sold is 5,000.

11. The following information is available in respect of APL trading company:
- On an average, debtors are collected after 45 days; inventories have an average holding period of 75 days and creditor's payment period on an average is 30 days.
 - The firm spends a total of Rs. 120 lakhs annually at a constant rate.
 - It can earn 10 per cent on investments.

From the above information, you are required to calculate:

- The cash cycle and cash turnover,
 - Minimum amounts of cash to be maintained to meet payments as they become due,
 - Savings by reducing the average inventory holding period by 30 days.
12. (a) Determine the present value of Rs. 700 each paid at the end of each of the next six years. Assume an 8 per cent of interest.

- (b) Theta Ltd.
Balance Sheets

	Rs.	
	31st March, 2006	31st March, 2005
Assets		
Cash	3,49,600	4,83,600
Trade investments	1,60,000	4,20,000
Debtors	3,05,400	3,08,600
Stock	2,35,200	1,84,600
Prepaid expenses	7,600	9,200
Investment in A Ltd.	3,00,000	—
Land	14,400	14,400
Buildings, net of depreciation	24,07,200	7,13,600
Machinery, net of depreciation	<u>4,43,400</u>	<u>4,28,200</u>
Total Assets	<u>42,22,800</u>	<u>25,62,200</u>

Liabilities		
Creditors	1,15,200	1,08,400
Bank overdraft	30,000	25,000
Accrued expenses	17,400	18,400
Income-tax payable	1,93,000	1,67,400
Current installment due on long-term loans	40,000	—
Long term loans	1,60,000	2,00,000
Debentures, net of discount	9,60,000	—
Share capital, Rs. 10 per value	6,70,000	6,00,000
Share premium	13,40,000	9,50,000
Reserves and Surplus	<u>6,97,200</u>	<u>4,93,000</u>
Total Liabilities	<u>42,22,800</u>	<u>25,62,200</u>

Theta Ltd.
 Income Statement
 for the year ended 31st March, 2006

	(Rs.)
Sales	16,92,400
Cost of goods sold and operating expenses including depreciation on buildings of Rs. 26,400 and depreciation on machinery of Rs. 45,600	<u>11,91,200</u>
Operating profit	5,01,200
Gain on sale of trade investments	25,600
Gain on sale of machinery	<u>7,400</u>
Profit before taxes	5,34,200
Income taxes	<u>2,09,400</u>
Net Profit	<u>3,24,800</u>

Additional information:

- (i) Machinery with a net book value of Rs. 36,600 was sold during the year.
- (ii) The shares of A Ltd. were acquired upon a payment of Rs. 1,20,000 in cash and the issuance of 3,000 shares of Theta Ltd. The share of Theta Ltd. was selling for Rs. 60 a share at that time.
- (iii) A new building was purchased at a cost of Rs. 17,20,000.
- (iv) Debentures having a face value of Rs. 100 each were issued in January 2006, at 96.
- (v) The cost of trade investments sold was Rs. 2,60,000.
- (vi) The company issued 4,000 shares for Rs. 2,80,000.
- (vii) Cash dividends of Rs. 1.80 a share were paid on 67,000 outstanding shares.

Prepare a statement of changes in financial position on working capital basis as well as cash basis of Theta Ltd. for the year ended 31st March, 2006.

13. (a) Which of the following statements concerning capital structure is incorrect?
 - (i) Bankruptcy risk is ignored in Miller and Modigliani's first model.
 - (ii) Debt holders are not subject to the effects of financial risk.
 - (iii) The traditional approach assumes that capital markets are perfect.
 - (iv) Miller and Modigliani's second paper takes into account the effects of corporate

- taxation.
- (v) Miller and Modigliani's first model argues that no optimal capital structure exists and supports this proposition with arbitrage theory.
 - (b) Short-term financing plans with high liquidity have:
 - (i) High return and high risk
 - (ii) Moderate return and moderate risk
 - (iii) Low profit and low risk
 - (iv) None of the above.
 - (c). Long-term financing plans with low liquidity have:
 - (i) High return and high risk
 - (ii) Moderate return and moderate risk
 - (iii) Low return and low risk
 - (iv) None of the above.
 - 14. (a) If a company finds that its cost of capital has changed does this affect the profitability of the company ?
 - (b) Is it worth offering discounts to debtors to encourage prompt payment?
 - (c) Suggest ways in which companies can exercise control over their levels of working capital.
 - 15. Write short notes on the following:
 - (a) Functions of a Finance Manager
 - (b) Types of Working Capital
 - (c) Types of Financial Analysis
 - (d) Merits of Payback Period
 - (e) Bridge Finance.

SUGGESTED ANSWERS / HINTS

1. (a) *Payback Period Method*

$$A = 5 + (500/900) = 5.5 \text{ years}$$

$$B = 5 + (500/1200) = 5.4 \text{ years}$$

$$C = 2 + (1000/2000) = 2.5 \text{ years}$$

Net Present Value

$$NPV_A = (-5000) + (900 \times 6.145) = (-5000) + 5530.5 = \text{Rs. } 530.5$$

NPV_B is calculated as follows:

Year	Cash flow (Rs.)	10% discount factor	Present value (Rs.)
0	(5000)	1.000	(5,000)
1	700	0.909	636
2	800	0.826	661
3	900	0.751	676
4	1000	0.683	683
5	1100	0.621	683
6	1200	0.564	677

7	1300	0.513	667
8	1400	0.467	654
9	1500	0.424	636
10	1600	0.386	<u>618</u>
			<u>1591</u>

$$NPV_C = (-5000) + (2000 \times 2.487) + (1000 \times 0.683) = \text{Rs. } 657$$

Internal Rate of Return

If $NPV_A = 0$, present value factor of IRR over 10 years = $5000/900 = 5.556$

From tables, $IRR_A = 12$ per cent.

IRR_B

Year	Cash flow (Rs.)	10% discount factor	Present value (Rs.)	20% discount factor	Present value (Rs.)
0	(5,000)	1.000	(5,000)	1.000	(5,000)
1	700	0.909	636	0.833	583
2	800	0.826	661	0.694	555
3	900	0.751	676	0.579	521
4	1,000	0.683	683	0.482	482
5	1,100	0.621	683	0.402	442
6	1,200	0.564	677	0.335	402
7	1,300	0.513	667	0.279	363
8	1,400	0.467	654	0.233	326
9	1,500	0.424	636	0.194	291
10	1,600	0.386	<u>618</u>	0.162	<u>259</u>
			<u>1,591</u>		<u>(776)</u>

$$\text{Interpolating: } IRR_B = 10 + \frac{1,591 \times 10}{(1,591 + 776)} = 10 + 6.72 = 16.72 \text{ per cent}$$

IRR_C

Year	Cash flow (Rs.)	15% discount factor	Present value (Rs.)	18% discount factor	Present value (Rs.)
0	(5,000)	1.000	(5,000)	1.000	(5,000)
1	2,000	0.870	1,740	0.847	1,694
2	2,000	0.756	1,512	0.718	1,436
3	2,000	0.658	1,316	0.609	1,218
4	1,000	0.572	<u>572</u>	0.516	<u>516</u>
			<u>140</u>		<u>(136)</u>

$$\text{Interpolating: } IRR_C = 15 + \frac{140 \times 3}{(140 + 136)} = 15 + 1.52 = 16.52 \text{ per cent}$$

Accounting Rate of Return

ARR_A:

$$\text{Average capital employed} = \frac{5,000}{2} = \text{Rs. } 2,500$$

$$\text{Average accounting profit} = \frac{(9,000 - 5,000)}{10} = \text{Rs. } 400$$

$$\text{ARR}_A = \frac{(400 \times 100)}{2,500} = 16 \text{ per cent}$$

ARR_B:

$$\text{Average accounting profit} = \frac{(11,500 - 5,000)}{10} = \text{Rs. } 650$$

$$\text{ARR}_B = \frac{(650 \times 100)}{2,500} = 26 \text{ per cent}$$

ARR_C:

$$\text{Average accounting profit} = \frac{(7,000 - 5,000)}{4} = \text{Rs. } 500$$

$$\text{ARR}_C = \frac{(500 \times 100)}{2,500} = 20 \text{ per cent}$$

(b)

Summary of Results

<i>Project</i>	<i>A</i>	<i>B</i>	<i>C</i>
Payback (years)	5.5	5.4	2.5
ARR (%)	16	26	20
IRR (%)	12.4	16.7	16.5
NPV (Rs.)	530.5	1,591	657

Comparison of Rankings

<i>Method</i>	<i>Payback</i>	<i>ARR</i>	<i>IRR</i>	<i>NPV</i>
1	C	B	B	B
2	B	C	C	C
3	A	A	A	A

2. (a) Market value of equity, $E = 5,00,000 \times 1.50 = \text{Rs. } 7,50,000$

Market value of debt, $D = \text{nil}$

Cost of equity capital, $K_e = \text{dividend} / \text{market value of share} = 27/150 = 0.18$

Since there is no debt capital, $\text{WACC} = K_e = 18 \text{ per cent.}$

- (b) $K_d = 12/94 = 12.8 \text{ per cent}$

$K_d (\text{after tax}) = 12.8 \times (1 - 0.35) = 8.3 \text{ per cent.}$

3. Here we are assuming that the world of Miller and Modigliani's first paper (Miller and Modigliani's first model argues that no optimal capital structure exists and supports this proposition with arbitrage theory) exists. Therefore the two companies should have similar WACCs. Because XYZ Ltd. is all-equity financed, its WACC is the same as its cost of equity finance, i.e. 16 per cent. It follows that Gamma Ltd. should have WACC equal to 16 per cent also.

Therefore: $(1/3 \times 10 \text{ per cent}) + (2/3 \times K_e) = 16 \text{ per cent}$

Hence: $K_e = 19$ per cent.

4. The recommended policy should be based on the EOQ model.

$F = \text{Rs. } 100$ per order

$S = 60,000$ tonnes per year

$H = \text{Rs. } 0.10$ per tonne per year

Substituting : $Q = (2 \times 100 \times 60,000 / 0.10)^{1/2} = 10,954$ tonnes per order

Number of orders per year = $60,000 / 10,954 = 5.5$ orders

Re-order level = $2 \times 60,000 / 50 = 2,400$ tonnes

Total cost of optima policy = holding costs + ordering costs

$$= (0.1 \times 10954) / 2 + (100 \times 60,000) / 10,954$$

$$= 547.70 + 547.74 = \text{Rs. } 1,095$$

To compare the optimum policy with the current policy, the average level of stock under the current policy must be found. An order is placed when stock falls to 10,000 tonnes, but the lead time is two weeks. The stock used in that time is $(60,000 \times 2) / 50 = 2,400$ tonnes. Before delivery, inventory has fallen to $(10,000 - 2,400) = 7,600$ tonnes. Orders are made twice per year, and so the order size = $60,000 / 2 = 30,000$ tonnes. The order will increase stock level to $30,000 + 7,600 = 37,600$ tonnes. Hence the average stock level = $7,600 + (30,000 / 2) = 22,600$ tonnes. Total costs of current policy = $(0.1 \times 22,600) + (100 \times 2) = \text{Rs. } 2,460$ per year.

The recommended policy, then, cost Rs. 1,365 per year less than the current policy.

5. Annual costs:

Raw materials: $7,00,000 \times 0.20 = \text{Rs. } 1,40,000$

Direct labour: $7,00,000 \times 0.35 = \text{Rs. } 2,45,000$

Overheads: $7,00,000 \times 0.15 = \text{Rs. } 1,05,000$

Working capital requirement:

	Rs.	Rs.
Stock of raw materials: $1,40,000 \times (2/52)$		5,385
Work-in-progress:		
Materials: $1,40,000 \times (4/52)$	10,769	
Labour: $2,45,000 \times (4/52) \times \frac{1}{2}$	9,423	
Overheads: $1,05,000 \times (4/52) \times \frac{1}{2}$	4,038	
		24,230
Finished goods: $4,90,000 \times (3/52)$		28,269
Debtors: $7,00,000 \times (8/52)$		1,07,692
Creditors: $1,40,000 \times (4/52)$		(10,769)
Working capital required		1,54,807

Note: Work-in-progress is assumed to be half complete as regards labour and overheads, but fully complete as regards raw materials, i.e. all raw materials are added at the start of production.

6. New level of sales will be $15,00,000 \times 1.15 = \text{Rs. } 17,25,000$

Variable costs are $80\% \times 75\% = 60\%$ of sales

Contribution from sales is therefore 40% of sales

	Rs.	Rs.
Proposed investment in debtors = $17,25,000 \times 60/365 =$		2,83,562
Current investment in debtors = $15,00,000 \times 30/365$		<u>1,23,288</u>
Increase in investment in debtors		<u>1,60,274</u>
Increase in contribution = $15\% \times 15,00,000 \times 40\% =$		90,000
New level of bad debts = $17,25,000 \times 4\% =$	69,000	
Current level of bad debts	<u>15,000</u>	
Increase in bad debts		(54,000)
Additional financing costs = $1,60,274 \times 12\% =$		<u>(19,233)</u>
Savings by introducing change in policy		<u>16,767</u>

The financing policy is financially acceptable, although the savings are not great.

7. $K_e = \{D_1 / P_0(1-f) + g, g = \text{Rs. } 10.6(1+r)^5 = \text{Rs. } 14.19 \text{ (or Re 1 compounds to Rs. 1.338)}$

Table (compound) suggests that Re 1 compounds to Rs. 1.338 in 5 years at the compound rate of 6 percent. Therefore, g is 6 per cent.

$$K_e = (\text{Rs. } 15 / \text{Rs. } 120) + 0.06 = 18.5 \text{ per cent}$$

$$K_r = (D_1 / P_0) + g = \text{Rs. } 15/125 + 0.06 = 18 \text{ per cent}$$

$$K_p = D_1 / P_0(1-f) = \text{Rs. } 15/105 = 14.3 \text{ per cent}$$

$$K_d = [I(1-t) + (RV - SV)/n] / (RV + SV)/2 = [\text{Rs. } 15(0.65) + \text{Rs. } 100 - 91.75^*/11] / (\text{Rs. } 100 + \text{Rs. } 91.75)/2 = 11 \text{ per cent}$$

*Since yield on similar type of debentures is 16 per cent, the company would be required to offer debentures at discount.

$$\text{Market price of debentures} = \text{Coupon rate} / \text{Market rate of interest} = \text{Rs. } 15/0.16 = \text{Rs. } 93.75.$$

$$\text{Sale proceeds from debentures} = \text{Rs. } 93.75 - \text{Rs. } 2, \text{ floatation cost} = \text{Rs. } 91.75$$

Cost of capital [BV weights and MV weights] (amount in lakh of rupees)

Source of capital	Weights		Specific Cost	Total cost	
	BV	MV		(BVxK)	(MVxK)
Equity	120	160*	0.185	22.2	29.6
Retained Earnings	30	40*	0.18	5.4	7.2
Preference Shares	9	10.4	0.143	1.29	1.49
Debentures	36	33.75	0.11	3.96	3.71
	195	244.15		32.85	42.00

*MV of equity has been apportioned in the ratio of BV of equity and retained earnings

$$K_o(\text{BV weights}) = (\text{Rs. } 32.85/195) \times 100 = 16.85 \text{ per cent}$$

$$K_o(\text{MV weights}) = (\text{Rs. } 42/244.15) \times 100 = 17.20 \text{ per cent.}$$

8. The net profit is calculated as follows:

	Rs.	Rs.
Sales (150% of Rs. 4,80,000)		7,20,000
Direct costs		<u>4,80,000</u>
Gross profit		2,40,000
Operating expenses	<u>80,000</u>	
Interest charges (8% of Rs. 4,00,000)	32,000	<u>1,12,000</u>
Profit before taxes		1,28,000
Taxes (@ 50%)		<u>64,000</u>
Net profit after taxes		<u>64,000</u>

(i) $\text{Net profit margin} = \frac{\text{Profit after taxes}}{\text{Sales}} = \frac{\text{Rs. 64,000}}{\text{Rs. 7,20,000}} = .089 \text{ or } 8.9\%$

$\text{Net profit margin} = \frac{\text{EBIT}(1 - T)}{\text{Sales}} = \frac{1,60,000(1 - .5)}{7,20,000} = .111 \text{ or } 11.1\%$

(ii) $\text{Return on assets} = \frac{\text{EBIT}(1 - T)}{\text{Assets}} = \frac{1,60,000(1 - .5)}{8,00,000} = .10 \text{ or } 10\%$

(iii) $\text{Assets turnover} = \frac{\text{Sales}}{\text{Assets}} = \frac{\text{Rs. 7,20,000}}{\text{Rs. 8,00,000}} = .9 \text{ times}$

(iv) $\text{Return on equity} = \frac{\text{Net profit after taxes}}{\text{Owners' equity}} = \frac{\text{Rs. 64,000}}{50\% \text{ of Rs. 8,00,000}} = \frac{\text{Rs. 64,000}}{\text{Rs. 4,00,000}} = .16 \text{ or } 16\%$

9. The EPS is determined as follows:

	Alternatives		
	I	II	III
	(Rs. 1,00,000 debt)	(Rs. 4,00,000 debt)	(Rs. 6,00,000 debt)
	Rs.	Rs.	Rs.
EBIT	1,60,000	1,60,000	1,60,000
Interest	<u>8,000</u>	<u>44,000</u>	<u>74,000</u>
PBT	1,52,000	1,16,000	86,000
Taxes at 50%	<u>76,000</u>	<u>58,000</u>	<u>43,000</u>
PAT	<u>76,000</u>	<u>58,000</u>	<u>43,000</u>
No. of shares	36,000	24,000	20,000
EPS	2.11	2.42	2.15

The second alternative maximizes EPS; therefore, it is the best financial alternative in the present case.

The interest charges for Alternative II and III are calculated as follows:

Interest calculation, Alternative II

Rs.	Rs.
1,00,000 @ 8%	8,000
3,00,000 @ 12%	<u>36,000</u>
Total	<u>44,000</u>

Interest calculation, Alternative III

Rs.	Rs.
1,00,000 @ 8%	8,000
4,00,000 @ 12%	48,000
1,00,000 @ 18%	<u>18,000</u>
Total	<u>74,000</u>

The number of shares is found out by dividing the amount to be raised through equity issue by the market price per share. The market price per share is Rs. 25 in case of first two alternatives and Rs. 20 in case of last alternative.

$$10. (a) A = \frac{\text{Rs. } 6,00,000}{\text{PVIFA}_{1,20}} = \frac{\text{Rs. } 6,00,000}{18.0456} = \text{Rs. } 33,249.1$$

Monthly interest = 12 per cent/12 = 1 per cent.

(b)

	Firms			
	A	B	C	D
Sales (units)	<u>5,000</u>	<u>5,000</u>	<u>5,000</u>	<u>5,000</u>
Sales revenue (Units × price) (Rs.)	1,00,000	1,60,000	2,50,000	3,50,000
Less: Variable cost	30,000	80,000	1,00,000	2,50,000
(Units × variable cost per unit) (Rs.)				
Less: Fixed operating costs (Rs.)	<u>80,000</u>	<u>40,000</u>	<u>2,00,000</u>	<u>Nil</u>
EBIT	<u>(10,000)</u>	<u>40,000</u>	<u>(50,000)</u>	<u>1,00,000</u>

$$\text{DOL} = \frac{\text{Current sales (S)} - \text{Variable costs (VC)}}{\text{Current EBIT}}$$

$$\text{DOL}_{(A)} = \frac{\text{Rs. } 1,00,000 - \text{Rs. } 30,000}{\text{Rs. } 10,000} = 7$$

$$\text{DOL}_{(B)} = \frac{\text{Rs. } 1,60,000 - \text{Rs. } 80,000}{\text{Rs. } 40,000} = 2$$

$$\text{DOL}_{(C)} = \frac{\text{Rs. } 2,50,000 - \text{Rs. } 1,00,000}{\text{Rs. } 50,000} = 3$$

$$\text{DOL}_{(D)} = \frac{\text{Rs. } 3,50,000 - \text{Rs. } 2,50,000}{\text{Rs. } 1,00,000} = 1$$

The operating leverage exists only when there are fixed costs. In the case of firm D, there is no magnified effect on the EBIT due to change in sales. A 20 per cent increase in sales has resulted in a 20 per cent increase in EBIT. In the case of other firms, operating leverage exists. It is maximum in firm A, followed by firm C and minimum in firm B. The interception of DOL of 7 is that 1 per cent change in sales results in 7 per cent change in EBIT level in the direction of the change of sales level of firm A.

11. (a) Cash cycle = 45 days + 75 days – 30 days = 90 days (3 months)
Cash turnover = 12 months (360 days)/3 months (90 days) = 4.
- (b) Minimum operating cash = Total operating annual outlay/cash turnover, that is, Rs. 120 lakhs/4 = Rs. 30 lakhs.
- (c) Cash cycle = 45 days + 45 days – 30 days = 60 days (2 months).
Cash turnover = 12 months (360 days)/2 months (60 days) = 6.
Minimum operating cash = Rs. 120 lakhs/6 = Rs. 20 lakhs.
Reduction in investments = Rs. 30 lakhs – Rs. 20 lakhs = Rs. 10 lakhs.
Savings = 0.10 × Rs. 10 lakhs = Rs. 1 lakh.
12. (a) As the present value of an annuity of Rs. 700 has to be computed. The present value factor of an annuity of Re. 1 at 8 per cent for 6 years is 4.623. Therefore, the present value of an annuity of Rs. 700 will be: 4.623 × Rs. 700 = Rs. 3,236.10.

- (b)

Theta Ltd.
Statement of Changes in Financial Position (Working Capital Basis)
for the year ended 31st March, 2006

	Rs.
Sources	
Working capital from operations:	
Net income after tax	3,24,800
Add: Depreciation	<u>72,000</u>
	3,96,800
Less: Gain on sale of machinery	<u>7,400</u>
	3,89,400
Sale of machinery (Rs. 36,600 + Rs. 7,400)	44,000
Debentures issued	9,60,000
Share capital issued for cash (including share premium)	2,80,000
<i>Financial transaction not affecting working capital</i>	
Shares issued in partial payment for investments in A Ltd.	<u>1,80,000</u>
Financial Resources Provided	<u>18,53,400</u>
Uses	
Purchase of buildings	17,20,000
Purchase of machinery	97,400
Instalment currently due on long-term loans	40,000
Payment of cash dividends	1,20,600
Purchase of investments in A Ltd. for cash	1,20,000
<i>Financial transaction not affecting working capital</i>	
Purchase of investments in A Ltd. in exchange of issue of 3,000 shares @ Rs. 60 each	<u>1,80,000</u>
Financial Resources Applied	<u>22,78,000</u>
Net decrease in working capital	<u>4,24,600</u>

The amount of machinery sold is found out as follows:

Machinery			
	Rs.		Rs.
Opening Balance (given)	4,28,200	Sale of machinery (given)	36,000
Purchases (plugs)	97,400	Depreciation (given)	45,600
	<u> </u>	Closing balance (given)	<u>4,43,400</u>
	<u>5,25,600</u>		<u>5,25,600</u>

Theta Ltd.
 Statement of Changes in Financial Position (Cash Basis)
 for the year ended 31st March, 2006

		Rs.
Sources		
Cash from operations:		
Net income after tax	3,24,800	
Add: Depreciation	72,000	
Decrease in debtors	3,200	
Decrease in prepaid expenses	1,600	
Increase in creditors	6,800	
Increase in income tax payable	<u>25,600</u>	4,34,000
Less: Gain on sale of machinery	7,400	
Increase in stock	50,600	
Decrease in accrued expenses	<u>1,000</u>	<u>59,000</u>
		3,75,000
Sale of trade investment		2,60,000
Increase in bank overdraft		5,000
Sale of machinery		44,000
Debentures issued		9,60,000
Shares issued		2,80,000
<i>Financial transaction not affecting cash</i>		
Share issued in partial payment for investment in A Ltd.		1,80,000
Instalment currently due on long-term loans		<u>40,000</u>
Financial Resources Provided		<u>21,44,000</u>
Uses		
Purchase of buildings		17,20,000
Purchase of machinery		97,400
Payment of cash dividend		1,20,600
Purchase of investments in A Ltd. for cash		1,20,000
<i>Financial transaction not affecting cash</i>		
Purchase of investments in A Ltd. in exchange of issue of 3,000 shares @ Rs. 60 each		1,80,000
Instalment currently due on long-term loans		<u>40,000</u>
		<u>22,78,000</u>
Net decrease in cash		<u>1,34,000</u>

Notes:

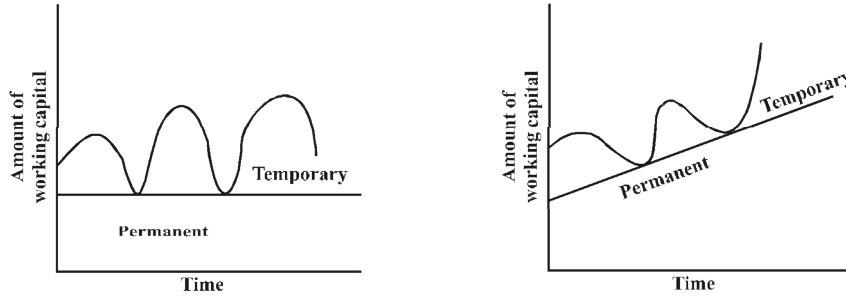
1. Funds from operations are shown net of taxes. Alternatively, payment of tax may be separately treated as use of funds. In that case, tax would be added to net profit.
2. If tax shown in Profit and Loss Account is assumed to be a provision, then the amount of cash paid for tax has to be calculated. In the present problem if this procedure is followed, then cash paid for tax is: Rs. 1,67,400 + Rs. 2,09,400 – Rs. 1,93,000 = Rs. 1,83,800.
13. (a) The correct answer is (iii). The traditional approach does not assume perfect markets and therefore recognises the existence of bankruptcy risk.
(b) The answer is part (ii).
(c) The answer is part (ii).
14. (a) The answer depends on how the company has been financed.
If the company is financed mainly from short-term sources, it cannot ignore an increase in interest rates and may choose to switch to long-term financing. This will be at a higher rate and profitability will be diminished.
If the company is financed mainly from long-term sources, an increase in interest rates will not affect its profits directly. However, higher interest rates may depress economic activity and its profits may fall accordingly.
If the company is financed mainly from retained earnings or equity, an increase in the required return of shareholders will lead to pressure for higher dividends. The company may have insufficient funds to meet such demands.
(b) Proposed changes to credit policy should be evaluated in the light of the additional costs and benefits that will result from their being undertaken. For example, the cost of the introduction of cash discounts can be compared with the benefits of faster settlement of accounts in terms of reduced interest charges, and possibly also the additional business that may result. The change should only be undertaken if the marginal benefits arising from the new policy exceed its marginal costs.
(c) Companies can exercise control over the levels of their working capital by formulating and implementing policies concerning inventory, debtors, cash and creditors. Such policies will take account of the factors that influence these components of working capital, as follows:
 - *Debtors*: Credit period allowed by a company and its competitors, speed of invoicing and other aspects of administrative efficiency, the use of discounts for early settlement, debtor collection methods, the forecast volume of sales.
 - *Stock*: The length of the production process, the rate of turnover of raw materials, the turnover period of finished goods, delivery lead time, the budgeted and actual volumes of output and sales.
 - *Creditors*: The extent to which a company can delay payments to suppliers, the volume of purchases, and the availability of cash discounts for early payment.
 - *Cash*: Interest rates and available short-term investments, the availability of credit, the ease with which a company can access funds.
15. (a) Functions of a Finance Manager: The twin aspects viz. procurement and effective utilisation of funds are the crucial tasks which the finance manager faces. The financial manager is required to look into the financial implications of any decision in the firm. Thus all decisions involving management of funds comes under the preview of the finance manager. A large number of decisions involve substantial or material changes in the value of funds procured or employed. The finance manager has to manage funds in such a way so as to make their optimum utilisation and to ensure that their procurement is in a manner so that the risk, cost and control considerations are properly balanced under a given situation. He may not however, be concerned with the decisions, which do not affect the basic financial management and structure.

- (b) Types of Working Capital: There are two types of working capital:

Permanent working capital: It also refers to the hard core working capital. It is that minimum level of investment in the current assets that is carried by the business at all times to carry out minimum level of its activities.

Temporary working capital: It refers to that part of total working capital which is required by a business over and above permanent working capital. It is also called variable working capital. Since the volume of temporary working capital keeps on fluctuating from time to time according to the business activities it may be financed from short term sources.

The following diagrams shows Permanent and Temporary or Fluctuating or variable working capital



- (c) Types of Financial Statement Analysis: The main objective of financial analysis is to determine the financial health of a business enterprise. The analysis may be of the following types:

- (i) External analysis : This analysis is performed by outside parties such as trade creditors, investors, suppliers of long term debt etc.
- (ii) Internal analysis : This analysis is performed by the corporate finance and accounting department and is more detailed than external analysis.
- (iii) Horizontal analysis : This analysis compares the financial statements viz., Profit and Loss Accounts and Balance Sheet of previous year along with the current year.
- (iv) Vertical analysis : This analysis converts each element of the information into a percentage of the total amount of statement so as to establish relationship with other components of the same statement.
- (v) Trend analysis : This analysis compares ratios of different components of the financial statements related to different period to those of a base year.
- (vi) Ratio analysis : This analysis establishes the numerical or quantitative relationship between two items/variables of financial statement so that the strengths and weaknesses of a firm as well as its historical performance and current financial position can be determined.
- (vii) Funds flow statement : This statement provides a comprehensive idea about the movement of finance in a business unit during a particular period of time.
- (viii) Break-even analysis : This type of analysis refers to the interpretation of financial data that represents operating activities.

- (d) Merits of Payback Period: Some of the merits of payback period are:

- (i) This method of evaluating proposals for capital budgeting is quite simple and easy to understand. It has the advantage of making it clear that there is no profit on any project unless the payback period is over. Further, when funds are limited, they may be made to do more by selecting projects having shorter payback periods. This method is particularly suitable in the case of industries where the risk of technological obsolescence is very high. In such industries, only those projects which have a shorter payback period should be financed since the change in technology would make the projects

totally obsolete before their costs are recovered.

- (ii) In the case of routine projects also use of payback period method favours projects which generate cash inflows in earlier years, thereby eliminating projects bringing cash inflows in later years which generally are conceived to be risky as risk tends to increase with futurity.
 - (iii) By stressing earlier cash inflows, liquidity dimension is also considered in the selection criterion. This is important in situations of liquidity crunch and high cost of capital.
 - (iv) The pay back period can be compared to a break-even point, the point at which the costs are fully recovered but profits are yet to commence.
 - (v) The risk associated with a project arises due to uncertainty associated with the cash inflows. A shorter payback period means that the uncertainty with respect to the project is resolved faster.
- (e) Bridge Finance: Bridge finance refers to loans taken by a company normally from commercial banks for a short period, pending disbursement of loans sanctioned by financial institutions. Normally, it takes time for financial institutions to disburse loans to companies. However, once the loans are approved by the term lending institutions, companies, in order not to lose further time in starting their projects, arrange short term loans from commercial banks. Bridge loans are also provided by financial institutions pending the signing of regular term loan agreement, which may be delayed due to non-compliance of conditions stipulated by the institutions while sanctioning the loan. The bridge loans are repaid/ adjusted out of the term loans as and when disbursed by the concerned institutions. Bridge loans are normally secured by hypothecating movable assets, personal guarantees and demand promissory notes. Generally, the rate of interest on bridge finance is higher as compared with that on term loans.