

STRATEGIC FINANCIAL MANAGEMENT – STAGE-6

Marks

Q.2 (a)

$$(a) \text{ Total asset turnover} = \frac{\text{Sales}}{\text{Average total assets}} = \frac{\text{Rs. 1,000,000}}{\text{Rs. 200,000}} = \mathbf{5 \text{ times}} \quad 1$$

$$(b) \text{ Profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\text{Rs. 50,000}}{\text{Rs. 1,000,000}} = \mathbf{5\%} \quad 1$$

$$(c) \text{ Return on total assets} = \frac{\text{Net income}}{\text{Average total assets}}$$

If we multiply both the numerator and denominator by sales, we get

$$\text{ROA} = \frac{\text{Net income}}{\text{sales}} \times \frac{\text{Sales}}{\text{Average total assets}}$$

$$= \text{profit margin} \times \text{total asset turnover}$$

$$= 5\% \text{ [from (b)]} \times 5 \text{ [from (a)]} = \mathbf{25\%} \quad 1$$

$$(d) \text{ Sales} = \frac{\text{Net income}}{\text{Profit margin}} = \frac{\text{Rs. 60,000}}{0.004} = \mathbf{\text{Rs. 15,000,000}} \quad 1$$

$$(e) \text{ Total assets} = \frac{\text{Net income}}{\text{ROA}} = \frac{\text{Rs. 60,000}}{0.02} = \mathbf{\text{Rs. 3,000,000}} \quad 1$$

$$(f) \text{ Total asset turnover} = \frac{\text{Sales}}{\text{Average total assets}}$$

$$= \frac{\text{Rs. 15,000,000 [from (d)]}}{\text{Rs. 3,000,000 [from (e)]}} = \mathbf{5 \text{ time}} \quad 1$$

$$(g) \text{ Sales} = \text{total asset turnover} \times \text{average total assets}$$

$$= 0.4 \times \text{Rs. 500,000} = \mathbf{\text{Rs. 200,000}} \quad 1$$

$$* \text{ Total asset turnover} = \frac{\text{Sales}}{\text{Average total assets}} = 0.4 \times \frac{x}{200,000}$$

$$(h) \text{ Net income} = \text{profit margin} \times \text{sales}$$

$$= 5\% \times \text{Rs. 200,000 [from (g)]} = \mathbf{\text{Rs. 10,000}} \quad 1$$

$$(i) \text{ Return on total assets (ROA)} = \text{total asset turnover} \times \text{profit margin}$$

$$= 0.4 \times 5\% = \mathbf{2\%} \quad 1$$

OR

$$\text{ROA} = \frac{\text{Net income}}{\text{Average total assets}}$$

$$= \frac{\text{Rs. 10,000 [from (h)]}}{\text{Rs. 500,000}} = \mathbf{2\%}$$

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Summarizing the results of (a) through (i) gives:

	Company Alpha	Company Beta	Company Gama
Total asset turnover	5 time	5 times	0.4 times
Profit margin	5%	0.4%	5%
ROA	25%	2%	2%

Company Alpha performed best. It appears that companies Beta and Gama are in trouble. Company Beta turns over its assets as often as company Alpha, but Beta's margin on sales is much lower.

Company Gama, on the other hand, does just as well as company Alpha in terms of profit margin but has a much lower turnover of capital than Alpha. Therefore, company **Gama** should take a close look at its **investments in assets**.

(b) Sales = (1.5)(Total assets) = (1.5)(Rs. 600,000) =	Rs. 900,000	1
Cost of goods sold = (Sales)(1 - 0.25) = (Rs. 900,000)(0.75) =	Rs. 675,000	1
Cash + Accounts receivable = (0.80)(Accounts payable)		
Cash + Rs. 90,000 = (0.80)(Rs. 180,000)		
Cash = Rs. 144,000 – Rs. 90,000 =	Rs. 54,000	1
Accounts receivable = (Sales/360)(DSO) = (Rs. 900,000/360)(36) =	Rs. 90,000	1
Inventory = Sales / 5 = Rs. 900,000/5 =	Rs. 180,000.	
	OR	
= Cost of sale / 5 = Rs. 675,000/5 =	Rs. 135,000	1
Fixed assets = Total assets - (Cash + Accts R/A + Inventories)		
= Rs. 600,000 - (Rs. 54,000 + Rs. 90,000 + Rs. 180,000) =	Rs. 276,000	
	OR	
= Rs. 600,000 - (Rs. 54,000 + Rs. 90,000 + Rs. 135,000) =	Rs. 321,000	1
Accounts payable = Total debt – Long-term debt		
= Rs. 300,000 * – Rs. 120,000 =	Rs. 180,000	0.5
* Debt (total) = (0.50)(Total assets) = (0.50)(Rs. 600,000) =	Rs. 300,000	0.5
Share capital = Total liabilities and equity – Debt – Retained earnings		
= Rs. 600,000 – Rs. 300,000 – Rs. 195,000 =	Rs. 105,000	1

Rs.⁰⁰⁰

Balance Sheet				
	Inventory on sales basis	Inventory on cost of sales basis		
Assets:			Liabilities & owner's equity:	
Cash	54,000	54,000	Accounts payable	180,000
Accounts receivable	90,000	90,000	Long-term debt	120,000
Inventories	180,000	135,000	Share capital	105,000
Fixed assets	276,000	321,000	Retained earnings	195,000
Total assets	600,000	600,000	Total liabilities and equity	600,000
Sales	900,000	900,000	Cost of goods sold	675,000

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Q. 3 (a) (i)

Current policy:

Bad debt losses of (0.02)(Rs. 20,000,000) =	Rs. 400,000	1
Average accounts receivable = (DSO)(Average sales per day) = (30)(Rs. 20,000,000/360) =	Rs. 1,666,666	1
Cost of carrying receivables = (Variable cost ratio)(A/R)(Cost of capital) = (0.80)(Rs. 1,666,666)(0.16) =	Rs. 213,334	1

It is necessary to multiply by the variable cost ratio because the actual investment in receivables is less than the Rupees amount of the receivables.

Proposal 1: Extending the credit period (Sales increase by Rs. 2 million).

Bad debt losses = (0.02)(Rs. 20,000,000) + (0.04)(Rs. 2,000,000) = Rs. 400,000 + Rs. 80,000 =	Rs. 480,000	1
New average receivables = (45)(Rs. 22,000,000/360) =	Rs. 2,750,000	1
Cost of carrying receivables = (v)(k)(Average accounts receivable) = (0.80)(0.16)(Rs. 2,750,000) =	Rs. 352,000	1

Proposal 2: Reducing the credit period to net 20 (Sales decrease by Rs. 2 million).

Bad debt losses = (0.01)(Rs. 18,000,000) =	Rs. 180,000	1
New average receivables = (22)(Rs. 18,000,000/360) =	Rs. 1,100,000	1
Cost of carrying receivables = (v)(k)(Average accounts receivable) = (0.80)(0.16)(Rs. 1,100,000) =	Rs. 140,800	1

Net income under each policy:

	Rs.			
	Current Policy	Proposal-1	Proposal-2	
Sales	20,000,000	22,000,000	18,000,000	
Variable costs (80%)	16,000,000	17,600,000	14,400,000	
Profit before credit costs and taxes	4,000,000	4,400,000	3,600,000	
Credit related costs:				
Cost of carrying receivables	213,334	352,000	140,800	
Collection charges	100,000	150,000	50,000	
Bad debt losses	400,000	480,000	180,000	
Total credit related cost	713,334	982,000	370,800	
Profit before taxes	3,286,666	3,418,000	3,229,200	
Tax (35%)	1,150,333	1,196,300	1,130,220	
Net income	2,136,333	2,221,700	2,098,980	
	2	+2	+2	= 6

(ii) The firm will increase profits of Rs. 85,367 by accepting Proposal-1 to extend the credit period from 25 days to 30 days, assuming all assumptions are correct.

(b)

	Rs.					
Cost of Sales	Turnover	Average Inventory	Opportunity Cost Associated with Additional Inventory *	Additional Profitability **	Net Savings	
980,000	16	61,250	-	-	-	1
1,092,000	14	78,000	2,848	48,000	45,152	1
1,190,000	11	108,182	5,131	42,000	36,869	1
1,316,000	7	188,000	13,569	54,000	40,431	1

* Incremental average inventory x 0.17 (rate of return)

** Incremental sales x 0.30 (contribution margin)

The best inventory level is **Rs. 78,000**, since the highest saving is resulted at this level.

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Q. 4 (a) (i) If issue price Rs. 20.

Number of new shares issued	= $\frac{\text{Rs. } 1,200,000}{\text{Rs. } 20} = 60,000$	
Thus total shares in issue	= 2.5 m + 60,000 =	2,560,000 1
After acceptance of project, total dividends = Rs. 6 m + Rs. 200,000=	Rs. 6.2 million	1
		per annum
Thus, new market price of company	= $\frac{\text{Rs. } 6.2 \text{ m}}{0.12} =$	Rs. 51.667 million 1
New value of original shares	= $\frac{\text{Rs. } 51.667}{2.56 \text{ m}} \times 2.5 \text{ m} =$	Rs. 50,456,055 0.5
New value of new shares	= $\frac{\text{Rs. } 51.667 \text{ m}}{2.56 \text{ m}} \times 0.06 \text{ m} =$	Rs. 1,210,945 0.5

	Rs.		
	Original Shareholders	New Shareholders	Total
Value of shares after product launched	50,456,055	1,210,945	51,667,000
Original value/ cash subscribed	50,000,000	1,200,000	51,200,000
Gain made	456,055	10,945	467,000

(ii) If issue price Rs. 19.20.

Number of new shares issued	= $\frac{\text{Rs. } 1,200,000}{\text{Rs. } 19.20} =$	62,500
Thus total shares in issue	= 2.5 m + 62,500 =	Rs. 2,562,500 1
After acceptance of project, New value of original shares	= $\frac{\text{Rs. } 51.667}{2,562,500} \times 2.5 \text{ m} =$	Rs. 50,406,829 0.5
New value of new shares	= $\frac{\text{Rs. } 51.667 \text{ m}}{2,562,500} \times 62,500 =$	Rs. 1,260,171 0.5

	Rs.		
	Original Shareholders	New Shareholders	Total
Value of shares after product launched	50,406,829	1,260,171	51,667,000
Original value/cash subscribed	50,000,000	1,200,000	51,200,000
Gain made	406,829	60,171	467,000

In both cases the total gain is Rs. 467,000 which is the NPV of the project. The lower the issue price the greater the proportion of the gain which is made by the new shareholders.

- (b) (i) If all the gain goes to the original shareholders new shares will be quoted at a total of Rs. 1,200,000 after the project is accepted, no gain being made on the cash subscribed:

	Rs. '000 ^a
New market price of company	51,667
Market price of new shares	1,200
New market price of original shares	50,467
Number of original shares	2,500,000
After issue, each share is quoted at	20.187

Thus, new share should be issued at Rs. 20.187 if they are to make no gain.

Gain made by original shareholders. = Rs. [20.187 – 20] x 2.5 m =	Rs. 467,500 1
[difference of Rs. 500 is due to rounding]	

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- (ii) If all the gain goes to the new shareholders, all shares will be quoted at Rs. 20 after the issue:

	Rs.	
New market price of company	51,666,667	
Market price of original shares	50,000,000	
Final market price of new shares	1,666,667	1

If shares are quoted at Rs. 20 each, number of new shares issued

$$= \frac{1,666,667}{20} = \mathbf{83,333} \quad 1$$

To raise Rs. 1,200,000 the shares should be issued at

$$= \frac{\text{Rs. } 1,200,000}{83,333} = \mathbf{\text{Rs. } 14.40 \text{ each}} \quad 1$$

Gain made by new shareholders

$$= \text{Rs. } 5.6 \times 83,333 = \mathbf{\text{Rs. } 466,665} \quad 1$$

Q. 5 (a) (i) Cost of Leasing:

	Year 0	Year 1	Year 2	Year 3	Year 4	
Lease payment	(50,000)	(50,000)	(50,000)	(50,000)	0	
Payment tax savings	17,500	17,500	17,500	17,500	0	
Net cash flow	(32,500)	(32,500)	(32,500)	(32,500)	0	2
PV factor 13%	1.0	0.885	0.783	0.693		

PV cost of leasing

Rs. 109,233 1

(ii) Cost of Buying:

	Year 0	Year 1	Year 2	Year 3	Year 4	
Net purchase price	(200,000)					
Maintenance cost		(5,000)	(5,000)	(5,000)	(5,000)	
Maintenance tax savings		1,750	1,750	1,750	1,750	1
Depreciation tax savings		17,500	13,125	9,844	12,031	
Residual value					50,000	
Residual value tax		-	-	-	(17,500)	
Net cash flow	(200,000)	14,250	9,875	6,594	41,281	2
PV factor @13%	1.0	0.885	0.783	0.693	0.613	
	(200,000)	12,611	7,732	4,570	25,305	

PV cost of buying

Rs. 149,782 1

Since the present value of the cost of leasing is less than the present value of the cost of buying, the Lathe should be leased as it would save the cost to company amounting to Rs. 149,782 – Rs. 109,233 = **Rs. 40,549.** 1

Depreciation Schedule

Year	Lathe Cost	Dep Exps @ 25%	Lathe Cost after Dep Exps	Dep Tax Savings (Dep Exps x 0.35)	
1	200,000	50,000	150,000	17,500	
2	150,000	37,500	112,500	13,125	
3	112,500	28,125	84,375	9,844	
4	84,375	34,375	50,000	12,031	
		1		+1	= 2

(b)

	Model-222	Model-666	
After tax operating cost	78,000	13,000	1+1 = 2
Depreciation tax shield (440,000 x 0.35)	154,000	166,250	1+1 = 2
Operating Cash Flow	76,000	153,250	
Economic life	5 years	8 years	
Annuity Factor (12%)	3.6048	4.9676	
PV of operating cash flow	273,965	761,285	1+1 = 2
Capital investment	2,200,000	3,800,000	
Total PV of costs	1,926,035	3,038,715	1

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To decide which model to purchase, we compute the **equivalent annual cost (EACs)** cost for both models using the relevant annuity factor.

Model-222

$$1,926,035 = \text{EAC} \times 3.6048$$

$$\text{EAC} = \frac{1,926,035}{3.6048} = \mathbf{534,297} \quad 1$$

Model-666

$$3,038,715 = \text{EAC} \times 4.9676$$

$$\text{EAC} = \frac{3,038,715}{4.9676} = \mathbf{611,707} \quad 1$$

Decision:- The machine model 222 is cheaper. 1

W. 1

Cost of equipment	2,200,000	3,800,000
Operating life	5 years	8 years
Depreciation expenses	Rs. 440,000	475,000
	$\left[\frac{\text{Rs. } 2,200,000 - 0}{5} \right]$	$\left[\frac{3,800,000 - 0}{8} \right]$
Tax rate	35%	35%
	154,000	166,250
Depreciation Tax Shield	(440,000 x 0.35)	(475,000 x 0.35)

W. 2

Operating cost before tax	120,000	20,000
Tax saving (operating cost x tax rate)	(120,000 x 0.35) 42,000	(20,000 x 0.35) 7,000
After tax operating cost	78,000	13,000

Q. 6 (a) In the case of a split, the firm simply increases the number of shares and simultaneously reduces the par or stated value per share. 1

And, in the case of a bonus share, there must be a transfer from retained earnings to capital share. So, the difference is largely one of accounting. 1

For most firms, a 100 percent bonus share and a 2-for-1 split accomplish exactly the same thing; hence, investors may choose either one. 1

(b) (i)

$$\square \text{ 2012 Dividends} = (1.10)(2011 \text{ Dividends})$$

$$= (1.10)(\text{Rs. } 7,200,000) = \mathbf{\text{Rs. } 7,920,000} \quad 1$$

$$\square \text{ 2011 Payout} = \text{Rs. } 7,200,000 / \text{Rs. } 21,600,000 = 0.3333 = \mathbf{33.33\%} \quad 1$$

$$\text{2012 Dividends} = (0.3333)(2012 \text{ Net income})$$

$$= (0.3333)(\text{Rs. } 28,800,000) = \mathbf{\text{Rs. } 9,599,040} \quad 1$$

(Note: If the payout ratio is rounded off to 33%, 2012 dividends are then calculated as Rs. 9,504,000.)

$$\square \text{ Equity financing} = \text{Rs. } 16,800,000(0.60) = \mathbf{\text{Rs. } 10,080,000}$$

$$\text{2012 Dividends} = \text{Net income} - \text{Equity financing}$$

$$= \text{Rs. } 28,800,000 - \text{Rs. } 10,080,000 = \mathbf{\text{Rs. } 18,720,000} \quad 1$$

(All of the equity financing is done with retained earnings as long as they are available).

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- The regular dividends would be 10% above the 2011 dividends:
- Regular dividends = (1.10)(Rs. 7,200,000) = **Rs. 7,920,000** 1
- The residual policy calls for dividends of Rs. 18,720,000. Therefore, the extra dividend, which would be stated as such, would be
- Extra dividend = Rs. 18,720,000 – Rs. 7,920,000 = **Rs. 10,800,000** 1
- (ii) Policy 4, based on the regular dividend with an extra, seems most logical. Implemented properly, it would lead to the correct capital budget and the correct financing of that budget, and it would give correct signals to investors. 1
- (iii) $k_s = \frac{D_1}{P_0} + g = \frac{\text{Rs. } 18,000,000}{\text{Rs. } 360,000,000} + 10\% = 15\%$. 2
- (c) Net Income = Rs. 4,000,000; Shares = 2,000,000; $P_0 = \text{Rs. } 32$
- Repurchase = 20%; New $P_0 = ?$
- Repurchase = $0.2 \times 2,000,000 =$ **400,000 shares** 0.5
- Repurchase amount = $400,000 \times \text{Rs. } 32 =$ **Rs. 12,800,000** 0.5
- P/E = $\frac{\text{Rs. } 32}{\text{Rs. } 2} =$ **16** 1
- Old EPS = $\frac{\text{NI}}{\text{Shares}} = \frac{\text{Rs. } 4,000,000}{2,000,000} =$ **Rs. 2.00** 1
- New EPS = $\frac{\text{Rs. } 4,000,000}{2,000,000 - 400,000} = \frac{\text{Rs. } 4,000,000}{1,600,000} =$ **Rs. 2.50** 1
- New market Price = New EPS \times P/E = $\text{Rs. } 2.50(16) =$ **Rs. 40 per share** 1

THE END