

STRATEGIC FINANCIAL MANAGEMENT – STAGE-6**Marks****Q.2 (a)** Break even point in units:

$$\text{B/E (Q)} = \frac{\text{Fixed Cost}}{P - VC} = \frac{\text{Rs.1,250,000}}{\text{Rs.37.50} - \text{Rs.15}} = \frac{\text{Rs.1,250,000}}{\text{Rs.22.5}} = \mathbf{55,556 \text{ units}}$$

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(b) Firm's earnings per share (EPS):

	+20%		
	100,000	120,000	
Sales (in units)	100,000	120,000	
Sales revenue (units x Rs.37.50/unit)	Rs. 3,750,000	Rs. 4,500,000	1
Less: Variable operating costs (units x Rs.15/unit)	1,500,000	1,800,000	
Fixed operating costs	1,250,000	1,250,000	
Earnings before interest and taxes (EBIT)	1,000,000	1,450,000	1+1
Less: Interest	400,000	400,000	+45%
Net profits before taxes	600,000	1,050,000	
Less: Taxes @ 35%	210,000	367,500	
Net profits after taxes	390,000	682,500	1+1
Less: Preferred dividends (40,000 shares x Rs.5 per share)	200,000	200,000	1
Earnings available for ordinary shares	190,000	482,500	1+1
÷ No. of shares	100,000	100,000	
Earning per share (EPS)	1.90/share	4.825/share	1+1
	+154%		
	5	+	5
			= 10

(c) Firm's degree of operating leverage (DOL):

$$\text{DOL} = \frac{\% \text{ change in EBIT}}{\% \text{ change in sales}} = \frac{+45\%}{+20\%} = \mathbf{2.25}$$

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(d) Firm's degree of financial leverage (DFL):

$$\text{DFL} = \frac{\% \text{ change in EPS}}{\% \text{ change in EBIT}} = \frac{+154\%}{+45\%} = \mathbf{3.42}$$

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(e) Firm's degree of total leverage (DTL):

$$\text{DTL} = \frac{\% \text{ change in EPS}}{\% \text{ change in sales}} = \frac{+154\%}{+20\%} = \mathbf{7.70}$$

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OR

$$\text{DTL} = \text{DOL} \times \text{DFL} = 2.25 \times 3.42 = \mathbf{7.70}$$

Effect of 50% sale increase on EPS using the DTL formula:

$$\text{DTL} = \frac{\% \text{ change in EPS}}{\% \text{ change in sales}}, \quad 7.70 = \frac{\% \text{ change in EPS}}{50\%}$$

$$\% \text{ change in EPS} = 7.70 \times 50\% = 7.70 \times 0.50 = \mathbf{3.85}$$

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STRATEGIC FINANCIAL MANAGEMENT – STAGE-6**Marks****Q.3 (a) (i) Cash operating cycle:**

		Rs. '000'			
Cost of sales	11,200 x (100-25)%	8,400			
Purchase	8,400 x 50%	4,200			
			<u>Days</u>		
Raw material inventory period	(Raw materials inventory/ purchases x 365)	440/4,200 x 365	38.2		1
Work-in-process	(Work-in-process/ (COS x 80%) x 365)	1,100/6,720 x 365	59.7		1
Finished goods	(Finished goods / cost of sales x 365)	700/8,400 x 365	30.4		1
Credit allowed to receivables	(Accounts receivable/ sales x 365)	1,012/11,200 x 365	33.0		1
Credit taken from suppliers	(Accounts payable/ purchases x 365)	420/4,200 x 365	(36.5)		1
			124.8		1
			OR	125 days	

(ii) Suggestion to reduce the length of the cash operating cycle:

The cash operating cycle can be reduced in the following ways

(i) Reduce raw material inventory:

Arrangements can be made with suppliers so raw materials are only ordered when they are needed for production

(ii) Credit taken from suppliers:

Stylish Ltd could negotiate a longer credit period from suppliers

(iii) Reduce work-in-process:

Work-in-process might be reduced by using more advanced technology or improving production processes.

(iv) Reduce finished goods inventory:

Finished goods inventory could be reduced by not holding as much safety inventory to guard against unexpected demands.

(v) Reduce receivables:

Credit control procedures could be tightened, or incentives such as discounts be offered for early payment.

Four methods @ 0.5 mark each = 2

STRATEGIC FINANCIAL MANAGEMENT – STAGE-6**Marks****(b) (i)** Current order size = 50,000 units

Average number of orders per year	255,380/50,000	5.11 orders	0.5
Annual ordering cost	5.11 x Rs.250	Rs. 1,278	0.5
Buffer inventory held	255,380 x 28/365	19,591 units	0.5
Average inventory held	19,591 + (50,000/2)	44,591 units	0.5
Annual holding cost	44,591 x Re.1	Rs. 44,591	1
Annual cost of current ordering policy	44,591 + 1,278	Rs. 45,869	1

(ii) EOQ:

EOQ	$\sqrt{(2 \times 255,380 \times 250)/1}$	11,300 units	1
Average number of orders per year	255,380/11,300	22.6 orders	
Annual ordering cost	22.6 x Rs.250	Rs. 5,650	1
Average inventory held	19,591 + (11,300/2)	25,241 units	
Annual holding cost	25,241 x Re.1	Rs. 25,241	1
Annual cost of EOQ policy	25,241 + 5,650	Rs. 30,891	1
Saving compared to current policy	Rs.45,869 - Rs.30,891	Rs. 14,978	1

(iii)

		Rs.	
Annual credit purchases	255,380 x Rs.110	28,091,800	
Current payable	Rs.28,091,800 x 60/365	4,617,830	
Payables if discount is taken	Rs.28,091,800 x 20/365	1,539,277	
Reduction in payables	Rs.4,617,830 – Rs.1,539,277	3,078,553	1
Finance cost increase	Rs.3,078,553 x 16%	492,568	0.5
Discount gained	Rs.28,091,800 x 2%	561,836	0.5
Net benefit of taking discount	Rs.561,836 – Rs.492,568	69,268	1

The discount is therefore financially worthwhile.

Q.4

The post-tax weighted average cost of capital should first be calculated.

Ordinary shares

	Rs.	
Market value of shares cum div.	32.70	
Less dividend per share (1,620 ÷ 600)	2.70	1
Market value of shares ex div.	30.0	1

Gordon's Growth Model

$$r = \frac{d_0(1+g)}{p_0} + g$$

where r = cost of equity

d₀ = current dividend

g = rate of growth

p₀ = current ex div market value.

STRATEGIC FINANCIAL MANAGEMENT – STAGE-6**Marks**

In this case we shall estimate the future rate of growth (g) from the average growth in dividends over the past four year.

$1,240 (1+g)^4$	=	1,620			
$(1+g)^4$	=	$1,620/1,240$	=	1.3065	1
$(1+g)$	=	$\sqrt[4]{1.3065}$	=	1.069	
g	=	$1.069 - 1$	=	$0.069 = 6.9\%$	1
r	=	$\frac{2.7(1.069)}{30}$	+ 0.069		
Cost of equity			=	16.5%	2

7% TFCs:

The relevant cash flows are:

- (1) Annual interest payments, net of tax: Rs.6,600 x 7% x 65% = Rs.300.3 (for ten years)
- (2) A capital repayment of Rs.6,600 (in ten year time)

NPV at 8%		Rs. '000 ^a	
Current market value of TFCs	Rs.6,600 x 75%	(4,950.0)	1
Annual interest payments net of tax	300.3 x 6.710	2,015.0	
Capital repayment	Rs.6,600 x 0.463	3,055.8	
	NPV	120.8	1

NPV at 9%		Rs. '000 ^a	
Current market value of TFCs		(4,950.0)	
Annual interest payments net of tax	300.3 x 6.418	1927.3	
TFCs repayments	6,600 x 0.422	2785.2	
	NPV	(237.5)	2

$$\begin{aligned} \text{IRR} &= 8\% + \left[\frac{120.8}{120.8 - (-237.5)} \times (9-8) \right]\% \\ &= 8\% + \frac{120.8}{358.3} \times 1\% \\ &= 8\% + 0.34\% \\ &= \mathbf{8.34\%} \end{aligned}$$

The weighted average cost of capital:

	Rs. '000			
	Market value	Cost %	Product	
Equity	18,000	16.50	2,970	1
7% TFCs	4,950	8.34	413	1
	22,950		3,383	
WACC	$= \frac{3,383}{22,950} \times 100$		=	14.7%

STRATEGIC FINANCIAL MANAGEMENT – STAGE-6**Marks****Q.5 (a) Initial investment (net cash flow at time 0):**

	Rs. '000 ^u
Cost of new lathe machine	(2,400)
Market value of old lathe machine	200
Tax savings due to loss on old lathe machine	105
Increase in net working capital	(200)
Total net investment	(2,295)

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Terminal-Year Cash Flows:

	Rs. '000 ^t
Salvage value of new machine	400
Recovery of net working capital	200
Total termination cash flow	600

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Depreciation Schedule on new machine:

				Rupees
Year	Lathe Cost	Depreciation Expense @ 20%	Lathe Cost after Depreciation Expense	
1	2400,000	480,000	1,920,000	
2	1,920,000	384,000	1,536,000	
3	1,536,000	307,200	1,228,800	
4	1,228,800	245,760	983,040	
5	983,040	583,040	400,000	
		1	+	1

= 2

Incremental cash inflows:

						Rupees
Year	1	2	3	4	5	
Cost savings	500,000	500,000	500,000	500,000	500,000	
Depreciation, new machine	480,000	384,000	307,200	245,760	583,040	
Depreciation, old machine	100,000	100,000	100,000	100,000	100,000	
Incremental depreciation	380,000	284,000	207,200	145,760	483,040	
Profit before tax	120,000	216,000	292,800	354,240	16,960	
Taxes (35%)	42,000	75,600	1,02,480	123,984	5,936	
Operating cash flow	458,000	424,400	397,520	376,016	494,064	
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Net Present Value:

							Rupees
Year	0	1	2	3	4	5	
Initial Investment	(2,295,000)						
Operating cash flow		458,000	424,400	397,520	376,016	494,064	
Terminal-Year Cash Flows						600,000	
Cash flows	(2,295,000)	458,000	424,400	397,520	376,016	1,094,064	
PV Discount Factor @ 12%	1.00	0.893	0.797	0.712	0.636	0.567	
PV	(2,295,000)	408,994	338,247	283,034	239,146	620,334	
NPV	(405,245)						

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Decision: The replacement of old lathe machine with new one is not recommended because its NPV is Rs.405,245 negative (2,295,000 –1,889,755).

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- (b) It is assumed that the restriction on investment applies to the total period under consideration, and that this amount cannot be incremented after period 0 by using funds generated from the projects selected earlier. The projects will be ranked using the Profitability Index (PI), which is calculated as the NPV per Rs.1 invested.

Project	NPV Rs. '000 ^l	Investment Rs. '000 ^l	PI	Ranking
A	28.44	300	0.0948	4
B	56.54	400	0.1414	1
C	43.48	350	0.1242	2
D	70.02	600	0.1167	3

$$2 + 1 = 3$$

- (i) Maximum NPV if all projects are divisible:

Project	Investment	NPV
B	400,000	56,540
C	350,000	43,480
D	300,000	35,010
Total (Rs.)	1,050,000	135,030

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- (ii) Maximum NPV if projects are not divisible:

Project	Investment	NPV
B	400,000	56,540
C	350,000	43,480
A	300,000	28,440
Total (Rs.)	1,050,000	128,460

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STRATEGIC FINANCIAL MANAGEMENT – STAGE-6**Marks**

Q.6 Before-tax profits necessary to service annual principal payments on senior debt = Rs.28,000,000/ (1 – 0.3333) = Rs.42,000,000

Before-tax profits necessary to service principal payment at the end of year 6 on the junior subordinated debt = Rs.40,000,000/ (1 – 0.3333) = Rs.60,000,000.

(a) Debt service before taxes with a 12% prime rate:

(Rs. '000⁰)

Year	1	2	3	4	5	6
Senior debt principal	42,000	42,000	42,000	42,000	42,000	-
Interest (Prime + 2%)	19,600	15,680	11,760	7,840	3,920	-
Junior debt principal	-	-	-	-	-	60,000
Interest (15%)	6,000	6,000	6,000	6,000	6,000	6,000
Total	67,600	63,680	59,760	55,840	51,920	66,000
EBIT	17,000	17,000	17,000	17,000	17,000	17,000

@ 1.5 marks for each year

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The debt cannot be properly serviced at this level of interest rates.

(b) Debt service before taxes with a 20% prime rate in year 2:

(Rs. '000⁰)

Year	1	2	3	4	5	6
Senior debt principal	42,000	42,000	42,000	42,000	42,000	-
Interest (Prime + 2%)	19,600	24,640	18,480	12,320	6,160	-
Junior debt principal	-	-	-	-	-	60,000
Interest (15%)	6,000	6,000	6,000	6,000	6,000	6,000
Total	67,600	72,640	66,480	60,320	54,160	66,000
EBIT	17,000	17,000	17,000	17,000	17,000	17,000

@ 1.5 marks for each year

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The debt cannot be properly serviced at this level of interest rates.

THE END