

**STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL****Marks****Question No. 1**

- (a) (i) **Costs of internal failure** are money spent repairing a product BEFORE a customer receives a product that has been found to be faulty. 01  
**Example:** Cost of products rejected during any inspection process.
- (ii) **Costs of external failure** are money spent repairing a product AFTER the customer has received a faulty product. 01  
**Examples:** Meeting warranty costs.
- (iii) **Costs of prevention** represent the money spent BEFORE products are made to prevent problems occurring. 01  
**Examples:** Staff training, design and process engineering and machine maintenance.
- (iv) **Costs of appraisal** are the costs of assessing the level of quality achieved. 01  
**Examples:** Cost of any goods inwards checks and the costs of any supplier vetting.

(b) (i) **Calculation of current and reduced total fixed cost:**

		<b>Rupees</b>	
Operating income	(10,000,000 x 20%)	2,000,000	0.5
Operating income per unit	(2,000,000 ÷ 2,000)	1,000	0.5
Full cost per unit	(1,000 ÷ 0.1)	10,000	0.5
Selling price	(10,000 + 1,000)	11,000	0.25
Fixed cost per unit (Full cost-variable cost)	(10,000 – 8,000)	2,000	0.25
Current total fixed cost	(2,000 x 2,000)	4,000,000	0.5
Reduced fixed cost	(4,000,000 – 200,000)	3,800,000	0.5

(ii) **Calculation of reduced variable cost per unit required to maintain target mark-up on full cost:**

**(1) Without advertisement:**

Reduced revenues without advertisement	(11,000 x 1,600)	17,600,000	0.5
Target full cost at 10% mark-up for reduced level	(17,600,000 ÷ 1.1)	16,000,000	0.5
Target total variable costs	(16,000,000 – 3,800,000)	12,200,000	0.5
Target variable cost per unit	(12,200,000 ÷ 1,600)	<u>7,625.00</u>	0.5

**(2) With advertisement:**

Reduced revenues with advertisement	(11,000 x 1,800)	19,800,000	0.5
Target full cost at 10% mark-up for reduced level	(19,800,000 ÷ 1.1)	18,000,000	0.5
Target total variable costs	(18,000,000 – 3,800,000)	14,200,000	0.5
Target variable cost per unit	(14,200,000 ÷ 1,800)	7,888.89	0.5

(iii) **Advise on advertisement expense:**

Total contribution with advertisement	[(11,000 – 7,889.89) x 1,800]	5,600,000	01
Less: Total contribution without advertisement	[(11,000 – 7,625) x 1,600]	<u>5,400,000</u>	01
Incremental contribution from advertisement		200,000	0.5
Less: Cost of advertisement		<u>150,000</u>	
Net benefit/ (loss) from advertisement		50,000	0.5

Yes, it is worthwhile to incur advertisement expense 01

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**Question No. 2**

	Year	Amount	Tax Impact @ 30%	After-Tax Cash	Discount Factor	Present Value	Rupees
<b>Purchase full automatic machine:</b>							
Acquisition cost of machine		(400,000)	-	(400,000)			0.25
Cost to re-train machine operators		(50,000)	15,000	(35,000)			0.75
Cost to repack existing merchandise		(50,000)	15,000	(35,000)			0.75
Proceeds from sale of old machine		10,000	(3,000)	<u>7,000</u>			0.75
Total	0			(463,000)	1.000	(463,000)	1.0
Update of packing line	3	(25,000)	7,500	(17,500)	0.693	(12,128)	2.0
Tax depreciation						<b>52,634</b> [W-1]	
Salvage value of new machine	6	50,000	<b>*30,258</b> [W-2]	80,258	0.480	38,524	0.75
Annual incremental costs and benefits (years 1 to 6):							
Cost of machine operator saved		150,000					0.25
Incremental Electricity cost		(275,000)					0.25
Incremental maintenance cost		(60,000)					0.25
Incremental contribution resulting increase in production		300,000					0.25
Incremental saving due to control over wastage		30,000					0.25
		145,000	(43,500)	101,500	3.997	405,696	1.0
						<b>21,726</b>	0.5
<b>Keep semi automatic machine*</b>							
Cost of overhaul	2	(25,000)	7,500	(17,500)	0.783	(13,703)	1.0
Net present value						(13,703)	0.25

Novel Delight Limited should purchase the new machine. The NPV of the new machine exceeds that of the old machine. 1.0

\* There is no depreciation tax shield if the old machine is kept, since it has already been fully depreciated.

**STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL****Marks****Working-1:**

					Rupees		
	Year	Cost/ WDV at start	Tax Depreciation @15%	Income- Tax Impact @30%	Discount Factor @13%	Present Value	
Depreciation tax shield:							
	1	400,000	60,000	18,000	0.885	15,930	0.75
	2	340,000	51,000	15,300	0.783	11,980	0.75
	3	289,000	43,350	13,005	0.693	9,012	0.75
	4	245,650	36,848	11,054	0.613	6,776	0.75
	5	208,803	31,320	9,396	0.543	5,102	0.75
	6	177,482	26,622	7,987	0.480	3,834	0.75
						52,634	0.25

**Working-2:**

	Rupees	
Written down Value (177,482- 26,622)	150,860	0.25
Salvage value	(50,000)	0.25
Loss on sale of machine	100,860	0.25
Tax impact @ 30%	30,258	0.25

**Question No. 3**

- (a) (i) **Beta:** 01  
The relationship between the risk of a security and the risk of the market portfolio.
- (ii) **Capital Assets Pricing Model:** 01  
A model that shows the relationship between risk and expected rate of return of an investment.
- (iii) **Hard Capital Rationing:** 01  
A term used to refer to situations where the amount of capital investment is restricted because of external constraints i.e. the inability to obtain funds from the financial markets.
- (iv) **Soft Capital Rationing:** 01  
A term used to refer to situations where an organization imposes an internal budget ceiling on the amount of capital expenditure.

**STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL****Marks****(b) (i)** The cash flows are as follows:

		Rupees		
<b>Without consultant clinic:</b>				
Number of available bed (100 x 365)		36,500		
Current occupancy rate (36,500 x 76%)		27,740		01
Average bed rate		500		
Total revenue (27,740 x 500)			13,870,000	0.5
<b>With consultant clinic:</b>				
Expected occupied bed nights (84%)		30,660		0.5
Average bed rate		550		
Total revenue (30,660 x 550)			16,863,000	0.5
Incremental revenue from occupancy			2,993,000	0.5
Increment revenue from consultant clinic	2,000,000			
Incremental costs:				
Employees cost (200,000 x 2)	400,000			0.5
Consultant's share (50%)	1,000,000			0.5
Overhead	400,000			
	1,800,000		200,000	0.5
Cash flows			3,193,000	0.5

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
A Net Cash flows [5% inflation]	(8,600,000)	3,193,000	3,352,650	3,520,283	3,696,297		01
B Tax depreciation / Expense -@15%		(1,290,000)	(1,096,500)	(932,025)	(4,631,475)		2.0
C Taxable profit [A - B]		1,903,000	2,256,150	2,588,258	(935,178)		01
D Tax (payment)/refund		(285,450)	(623,873)	(726,661)	(247,962)	140,277	2.5
E Residual value					650,000		
F Net Cash flows after tax [A + D + E]	(8,600,000)	2,907,550	2,728,778	2,793,621	4,098,335	140,277	1.5
G Discount factor - 13%	1.000	0.885	0.783	0.693	0.613	0.543	
H Present Value [F x G]	(8,600,000)	2,573,182	2,136,633	1,935,980	2,512,279	76,170	1.5
<b>NPV</b> 634,244							0.5

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(ii) The post tax cost of capital where NPV = 0 is the IRR.

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
I Discount factor @ 20%	1.000	0.833	0.694	0.579	0.482	0.402	
J Present Value [F x I]	(8,600,000)	2,421,989	1,893,772	1,617,507	1,975,397	56,391	1.5
NPV (634,944)							0.5
IRR =	$13\% + \frac{634,244}{634,244 + 634,944} \times (20\% - 13\%)$						0.75
IRR =	$13\% + \frac{634,244}{1,269,188} \times 7\%$						0.75
IRR =	16.50%						0.5

**Question No. 4**

Finance by:	Rupees	Ratio	Cost*	WACC	
Equity	120,000,000	0.60	21.80%	13.08%	01
Debt	80,000,000	0.40	9.80%	3.92%	0.5
	200,000,000	1.00		17.00%	0.5

$$*\text{Cost of Equity } 11\% + [1.2 \times (20\% - 11\%)] = 21.8\%$$

$$E(re) = R_f + (E(r_m) - R_f) \beta_e$$

$$*\text{Cost of Debt } 14\% \times (1 - 30\%) = 9.80\%$$

	Year 0	Year 1	Year 2	Year 3	Year 4	Total (1-4)	Total	Equivalent Annual Cost
<b>Four years replacement cycle:</b>								
Initial cost	(10,000,000)							
Maintenance		(300,000)	(600,000)	(1,000,000)	(1,500,000)			
Residual value					2,000,000			
Net cash flows	(10,000,000)	(300,000)	(600,000)	(1,000,000)	500,000			0.5
Discount factors @ 17% [A]	1.000	0.855	0.731	0.624	0.534	2.744		0.5
Present values [B]	(10,000,000)	(256,500)	(438,600)	(624,000)	267,000		(11,052,100)	1.5
Equivalent Annual Cost [B ÷ A]								(4,027,733) 0.5
<b>Three years replacement cycle:</b>								
Initial cost	(10,000,000)							
Maintenance		(300,000)	(600,000)	(1,000,000)				
Residual value				4,000,000				
Net cash flows	(10,000,000)	(300,000)	(600,000)	3,000,000				0.5
Discount factors [C]	1.000	0.855	0.731	0.624		2.210		0.5
Present values [D]	(10,000,000)	(256,500)	(438,600)	1,872,000			(8,823,100)	1.5
Equivalent Annual Cost [D ÷ C]								(3,992,353) 0.5

**STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL****Marks**

	Year 0	Year 1	Year 2	Year 3	Year 4	Total (1-4)	Total	Equivalent Annual Cost	Rupees
<b>Two years replacement cycle:</b>									
Initial cost	(10,000,000)								
Maintenance		(300,000)	(600,000)						
Residual value			6,000,000						
Net cash flows	(10,000,000)	(300,000)	5,400,000						0.5
11% Discount factors [E]	1.000	0.855	0.731			1.586			0.5
Present values [F]	(10,000,000)	(256,500)	3,947,400				(6,309,100)		1.5
Equivalent Annual Cost [F ÷ E]								(3,977,995)	0.5
Since no residual value for year-1 is given, therefore, equivalent annual cost for every year replacement is not calculated.									0.5
Optimal replacement cycle is every 2-years being minimum annual equivalent cost.									0.5

**Question No. 5****(a) (i) Price proposed by Marketing Manager:**

	Rs. per unit	
Direct Material	400	
Conversion	300	
Distribution, Selling & Admin Cost	100	
Total variable cost (per unit)	800	0.5
Mark-up 400%	3,200	1.0
Price proposed by Marketing Manager	4,000	0.5

**(ii) Price proposed by Production Manager:**

		Rupees/unit	
Manufacturing	200,100,000		
Selling & distribution	87,050,000		
Administrative	36,050,000		
Total fixed cost (A)	323,200,000		0.5
Units (B)	100,000		
Fixed cost per unit (A ÷ B)		3,232	0.5
Variable cost per unit		800	
Full cost per unit		4,032	0.5
Mark-up 55%		2,218	0.5
		6,250	01

**STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL****Marks****(b)** Profit at optimum price:

MC = MR [at optimum level MR = MC (variable cost per unit)]	0.5
therefore, $800 = 10,000 - 0.1x$	01
$x = 100,000 - 8,000$	0.5
$x = 92,000$	0.5
Putting value of x in price demand equation i.e., $p = 10,000 - 0.05(92,000)$	01
we get price of rupees 5,400 per 'SW'	0.5

	<b>Rupees</b>	
Contribution at optimum price $(5,400 - 800) \times 92,000$	423,200,000	1.0
Fixed cost	323,200,000	
Profit at optimum price	100,000,000	1.0

**Question No. 6****(a) (i) & (ii)**

		<b>140% of Full Cost</b>		<b>Market Price</b>	
		--- Takas ---			
<b>Pakistan Spinning Division:</b>					
Division revenues		*42,000,000	*58,000,000		0.5 + 0.5
Costs:					
Division variable costs	(91/ 1.3 x 200,000)	(14,000,000)	(14,000,000)		0.25 + 0.25
Division fixed costs	(104/ 1.3 x 200,000)	(16,000,000)	(16,000,000)		0.25 + 0.25
Division operating income		12,000,000	28,000,000		0.5 + 0.5
Income tax at 30%		3,600,000	8,400,000		0.5 + 0.5
Division after-tax operating income		8,400,000	19,600,000		0.5 + 0.5
<b>Bangladesh Denim Division:</b>					
Division revenues	(1,000 x 100,000)	100,000,000	100,000,000		0.25 + 0.25
Transferred-in costs (Revenue of spinning division)		(42,000,000)	(58,000,000)		
Division processing costs	(300 x 100,000)	(30,000,000)	(30,000,000)		0.25 + 0.25
Division operating income		28,000,000	12,000,000		0.5 + 0.5
Income tax at 25%		7,000,000	3,000,000		0.5 + 0.5
Division after-tax operating income		21,000,000	9,000,000		0.5 + 0.5
Over-all after-tax operating income		29,400,000	28,600,000		0.5 + 0.5

\*Pakistan Spinning Division Revenue

At 140% of full cost:  $(195 \times 1.4/1.3 \times 200,000) = 42,000,000$ At Market price:  $(377/ 1.3 \times 200,000) = 58,000,000$

**STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL****Marks****(b) Preference:**

Pakistan Spinning Division	Market Price	0.5
Bangladesh Denim Division	140% of Full Cost	0.5
Transfer-pricing method that will maximize the total after-tax operating income of Bangla Denim Incorporation.	140% of Full Cost	01

**Question No. 7**

	Rupees				
	Faisalabad	Lahore	Sialkot	Total	
Sales revenue	34,000,000	38,000,000	28,000,000	100,000,000	01
Cost of goods sold	(17,000,000)	(23,750,000)	(22,000,000)	(62,750,000)	01
Sales commissions	(1,360,000)	(1,520,000)	(1,120,000)	(4,000,000)	01
Segment contribution margin	<b>15,640,000</b>	<b>12,730,000</b>	<b>4,880,000</b>	<b>33,250,000</b>	01
Local advertising	(840,000)	(630,000)	(900,000)	(2,370,000)	
Sales manager salary	-	-	(600,000)	(600,000)	
Profit margin controllable by segment manager	<b>14,800,000</b>	<b>12,100,000</b>	<b>3,380,000</b>	<b>30,280,000</b>	01
Rent, taxes, electricity, gas expenses	(1,200,000)	(1,200,000)	(1,200,000)	(3,600,000)	
Store manager salaries	(1,500,000)	(1,200,000)	(1,600,000)	(4,300,000)	
Other non-controllable costs (traceable)	(100,000)	(200,000)	(280,000)	(580,000)	
Segment profit margin	<b>12,000,000</b>	<b>9,50,000</b>	<b>300,000</b>	<b>21,800,000</b>	01
Less: Common fixed expenses				1,800,000	
Net income				<b>20,000,000</b>	01

**(b) Sialkot is the weakest segment because of several factors:**

- Faisalabad and Lahore have much higher mark ups on cost [100% (500 / 500) and 60% (300 / 500), respectively]. However, Sialkot's markup is only 27% (150/550) 01
- Despite being the only store that has a sales manager, and spending considerably more on advertising than Faisalabad and Lahore, Sialkot has the lowest gross rupee sales of the three stores. Sialkot's return on these outlays appears inadequate. 0.5
- Sialkot's "other" non-controllable costs are much higher than those of Faisalabad and Lahore. 0.5

- (c) Moazzam & Co. uses a responsibility accounting system, which means the managers and centres are evaluated on the basis of items under their control. Since this is a personnel-type decision, the decision should be made by reviewing the profit margin controllable by the store (i.e., segment) manager. The segment contribution margin excludes fixed costs under a store manager's control; in contrast, a store's segment profit margin would reflect all traceable costs whether controllable or not. 01**

**THE END**