STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL

Marks

Question No. 1

(a) (1) Process should be designed to achieve a desired outcome rather than focusing on existing tasks. 05

(2) Personnel who use the output from a process should perform the process. For example, a company could set up a database of approved suppliers; this would allow personnel who actually require supplies to order them themselves, perhaps using on-line technology, thereby eliminating the need for a separate purchasing function.

(3) Information processing should be included in the work which produces the information. This eliminates the differentiation between information gathering and information processing.

(4) Geographically dispersed resources should be treated as if they are centralised. This allows the benefits of centralisation to be obtained, for example, economics of scale through central negotiation of supply contracts, without losing the benefits of decentralisation, such as flexibility and responsiveness.

(5) Parallel activities should be linked rather than integrated. This would involve, for example, co-ordination between teams working on different aspects of a single process.

(6) 'Doers' should be allowed to be self-managing. The traditional distinction between workers and managers can be abolished: decision aids such as expert systems can be provided where they are required.

(7) Information should be captured once at source. Electronic distribution of information makes this possible.

(b) (i)

Expected cost:		**Rupees / Sofa Set**	
Frame and filling material		10,200	
Slipcover fabric	5 metres x 640 x 100/ 80	4,000	0.5
Labour (W1)		4,125	0.5
Total cost		18,325	0.5
Less: Target cost	24,500 x (100% – 26%)	18,130	0.5
Cost gap		**195**	0.5

Working: (W1)

$Y = ax^b$ 01

$Y = 2 \times 158^{-0.074000581}$ 01

$Y = 1.375$ Hours 0.5

Average labour cost of a sofa = Rs.3,000 x 1.375 hrs Rs. 4,125

(ii) Using the formula, we need to calculate the time taken for the first 157 sofas and deduct that from the time taken for the first 158 sofas.

$Y = ax^b$

$Y = 2 \times 157^{-0.074000581}$

Y = 1.37572664 or 1.375 hours 0.5

Total time for 157 sofas = 1.37572664 x 157 = 215.989 0.5

Total time for 158 sofas = 1.3750804064 x 158 = 217.262 0.5

Time required for 158th sofa = 217.262 – 215.989 = 1.274 hours 0.5

		Marks
Cost of 158th sofa:	**Rupees / Sofa Set**	
Frame and filling material	10,200	
Slipcover fabric (5 metres x 640 x 100/ 80)	4,000	
Labour (1.274 x 3,000)	3,822	01
Total cost	18,022	01
Less: Target cost	18,130	
The target cost is Rs. 18,130 and the cost of 158th sofa is reduced to Rs. 18,022, so the target cost is now being achieved.	**(108)**	01

Question No. 2

(a) Net Present Value (NPV)

The NPV is found by discounting at the weighted average cost of capital, calculated as follows:

Cost of equity: Using CAPM

$K_e = r_f + [E(r_m) – r_f]$ Beta

$K_e = 6 + (12 – 6) * 1.6 = 15.6$ 0.25

Cost of debt:

After tax cost of debt = 10(1 – 0.31) = 6.9 0.25

Weighted average cost of capital:

Gearing after the investment has been financed is expected to be E = 0.65, D = 0.35

WACC = Keg(E/E+D) + Kd(1-t)*D/E+D

WACC = 15.6(0.65) + 6.9(0.35)

WACC = 12.55%, say 13% 0.5

Net Present Value: (using WACC):

Rs.'000'

Year	0	1	2	3	4	
Pre – tax operating cash flows		6,875	7,700	8,800	9,900	
Tax @ 31%		(2,131)	(2,387)	(2,728)	(3,069)	01
Tax savings from capital allowances (W-1)		2,046	1,432	1,003	702	01
Investments costs	(25,000)					0.25
Issue costs	(2,000)					0.5
After tax realisable value					7,500	0.25
Net cash flows	(27,000)	6,790	6,745	7,075	15,033	1.25
Discount factor 13%	1.000	0.8850	0.7831	0.6931	0.6133	
Present values	(27,000)	6,009	5,282	4,904	9,220	1.25

The expected net present value is Rs. (15,85,000) 0.5

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Capital allowances (W-1):

These are based on Rs. 22 million part of the investment that is fixed assets (not working capital or issue costs).

Rs. '000'

Year	Value at start of year	Capital allowance 30%	Tax saving 31%
1	22,000	6,600	2,046
2	15,400	4,620	1,432
3	10,780	3,234	1,003
4	7,546	2,264	702

(b) Modified internal rate of return (MIRR):

Rs. '000'

Year	1	2	3	4
Net cash flows	6,790	6,745	7,075	15,033
Multiplier	1.13^3	1.13^2	1.13	1
Reinvested amount	9,797	8,613	7,994	15,033

0.25 each=01

0.25 each=01

Total reinvested amount = 41,437

MIRR = $(41,437 / 27,000)^{0.25}$ - 1 — 0.5

MIRR = 1.1130– 1 = 11.3% — 0.5

(c) Adjusted Present Value (APV):

To calculate the base case NPV, the investment cash flows are discounted at the ungeared cost of equity, assuming the corporate debt is risk free and has a beta of zero.

$B_a = B_e [E / E+D(1-t)]$

$B_a = 1.6 * [1 / 1+1(1-0.31)] = 0.947$ — 0.5

The ungeared cost of equity can now be estimated using CAPM:

$Ke_u = rf + [E(rm) – rf]*B$

$Ke_u = 6 + [12 – 6]*0.947 = 11.68\%$ (say, approximately 12%) — 01

Base case net present value:

Rs. '000'

Year	0	1	2	3	4
Net cash flows	(25,000)	6,790	6,745	7,075	15,033
Discount factor 12%	1.000	0.8929	0.7972	0.7118	0.6355
Present values	(25,000)	6,063	5,377	5,036	9,553

0.25 each=01

The expected base case net present value is Rs.1,029,000 — 0.5

Adjusted present value:

	Rs, '000'	
Base case NPV	1,029	0.25
Tax relief on debt interest	1,450	0.25
Issue costs	(2,000)	0.25
	479	0.25

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The adjusted present value is Rs. 479,000 (hence, view of Director Finance is correct)

Present value of tax shield:

Debt capacity of the project = Rs. 27m x 50% = Rs.13.5m 0.25

Annual tax savings on debt interest = Rs. 13.5m x 10% x 31% = Rs. 418,500 0.25

PV of tax savings for 4 years, discounted at the risk free rate 6%, is 418,500 x 3.465 = Rs. 1,450,103. 0.5

Question No. 3

(a)

	Year	PV Factor @12%	CC1	CC2	CC3	CC4	CC5	CC6	
								Rs. '000'	
A	**Outflow:**								
	0	1.000	(27,060)	(19,800)	(19,250)	(19,800)	(19,800)	(16,500)	
B	**Inflow:**								
	1	0.893	6,876	7,367	4,715	6,090	3,929	3,438	1.5
	2	0.797	6,137	7,627	4,208	5,436	4,384	7,189	1.5
	3	0.712	5,482	5,012	4,934	4,856	4,699	6,422	1.5
	4	0.636	4,897	-	5,107	4,338	4,897	-	01
	5	0.567	4,366	-	-	-	2,495	-	0.5
	Total		27,758	20,006	18,964	20,720	20,404	17,049	
	NPV	[B - A]	698	206	(286)	920	604	549	1.5
	Ranking		**2**	**5**	**6**	**1**	**3**	**4**	1.5

(b) Since project CC3 has a negative NPV and projects CC1 and CC5 are mutually exclusive. Therefore following potential combination of projects can be made keeping in view capital outlay constraint of rupees 68,200,000

S#	Project	Expected NPV [Rs. '000']				Total Outlay [Rs. '000']				
1	CC1, CC2, CC4	698	+ 206 +	920 =	1,824	27,060	+ 19,800 +	19,800 =	66,660	01
2	CC1, CC2, CC6	698	+ 206 +	549 =	1,453	27,060	+ 19,800 +	16,500 =	63,360	01
3	CC1, CC4, CC6	698	+ 920 +	549 =	2,167	27,060	+ 19,800 +	16,500 =	63,360	01
4	CC2, CC4, CC5	206	+ 920 +	604 =	1,730	19,800	+ 19,800 +	19,800 =	59,400	01
5	CC2, CC4, CC6	206	+ 920 +	549 =	1,675	19,800	+ 19,800 +	16,500 =	56,100	01
6	CC4, CC5, CC6	920	+ 604 +	549 =	2,073	19,800	+ 19,800 +	16,500 =	56,100	01

Therefore, combination **3** should be selected being maximum expected NPV. 01

Marks

Question No. 4

Financial evaluation of the proposed project:

Year	0	1	2	3	4	5	
Profit and cash flow – (ZWD million)							
Total contribution (W-1)		34.757	166,376	222,757	243,923	267,011	2.5
Fixed costs (per year inflation increases)		(22)	(25.960)	(29.075)	(32.564)	(36.472)	1.25
Tax allowable depreciation		(18)	(18)	(18)	(18)	(18)	1.25
Taxable profit (loss)		(5.25)	122.416	175.681	193.359	212.539	1.25
Tax from 4th year @ 30%					(58.002)	(63.762)	0.5
Add back depreciation		18	18	18	18	18	--
Net after tax cash flow from operations		12.757	140.416	193.681	153.351	166.777	1.25
Investment cash flows							
Land and buildings (W-3)	(40)	-	-	-	-	74.270	01
Plant and machinery (less 10% govt. grant)	(81)						0.25
Working capital (Given)	(30)	(25.4)	(6.648)	(7.446)	(8.339)	77.833	1.5
Cash remittals from/ to Pakistan	(151)	(12.643)	133.768	186.236	145.012	318.881	1.5
Exchange rate ZWD/ Rs.	3.45	3.877	4.175	4.496	4.842	5.214	1.5
Pakistani cash flows (Rs. million)							
Cash remit-table	(43.768)	(3.261)	32.040	41.423	29.949	61.159	1.5
Contribution from sale of chips (Rs.100 per unit)		1	4.5	5.5	5.5	5.5	01
Tax on chip contribution at 31%		(0.310)	(1.395)	(1.705)	(1.705)	(1.705)	1.25
Additional PK tax at 1% on Zimbabwe profits					(0.33)	(0.34)	0.5
Net cash flow in (Rs. million)	(43.768)	(2.571)	35.145	45.218	33.344	64.546	1.5
15% discount factors (W-4)	1.000	0.8696	0.7561	0.6575	0.5718	0.4972	1.25
Present value (Rs. million)	(43.768)	(2.236)	26.573	29.731	19.066	32.092	1.5
Net present value	**61.458 million.**						0.25

Financial evaluation of the investment, based on discounting Rupees value of the incremental cash flow at the company's weighted average cost of capital, shows a positive net present value of Rs 61.458 million. Indicating that the investment is expected to give enough returns over the five year time horizon. So the project is acceptable from the financial perspective only. 0.5

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Workings:

1.

Year	0	1	2	3	4	5
Contribution Margin						
Sales price (10% increase – ZWD)		6,500	7,150	7,865	8,652	9,517
Variable cost per unit in ZWD (previous year inflation increases)		1,900	2,242	2,511	2,812	3149
Chip cost per unit (Converted to ZWD-W2)		1,124.33	1,210.75	1,303.84	1404.18	1512.06
Contribution per unit (ZWD)		3475.67	3697.25	4050.12	4434.96	4854.75
Sales volume (000 units)		10	45	55	55	55
Total contribution		34756.7	166,376	222,757	243,923	267,011

2. Prediction of future exchange rates:

Future exchange rates have been predicted from expected inflation rates, on the principle of purchasing Power Parity Theory, e.g. Year 1 exchange rate = 3.45 * 1.18 / 1.05 = 3.877
Spot rate at time t= current spot rate*((1+ inflation of country A)/ (1+ inflation of country B))^t

	Inflation Pakistan	Inflation Zimbabwe	Exchange rate
Spot			**3.45**
Year 1	5%	18%	3.877
Year 2	4%	12%	4.175
Year 3	4%	12%	4.496
Year 4	4%	12%	4.842
Year 5	4%	12%	5.214

3. Land and buildings:

Value after 5 years = 40m * 1.18 * 1.12^4 = 74.27

4. Discount rate:

The company's WACC has been used as a discount rate, on the grounds that overall risk to investors is not expected to change as a result of this investment.

From the CAPM, Ke = 7% + (16% - 7%)*1.22 = 17.7% approx. 18%

Kd = 7% + (16% - 7%)*0.28 = 9.52% pre-tax. After tax rate = 9.52 (1 – 0.33) = 6.38% approx.

Market values: Equity 2.2m * 280 = Rs. 616m. Debt: Rs. 200m * 900/1,000 = Rs. 180m. Total = Rs. 796m

WACC = (18% * 616/796) + (6.38% * 180/796)

13.91%+1.49%= 15.4% approx. or 15%

Marks

Question No. 5

		GX-0	GX-4	GX-9	Total	
(A) Processing hours / unit		1	1	2		
(B) Contribution per unit		Rupees per Unit				
Selling price		2,000	3,100	3,900		
Variable cost (⅓ of total cost /unit)		600	800	1,000		0.75
Production contribution		1,400	2,300	2,900		0.75
(C) Contribution per processing hour	[B ÷ A]	1,400	2,300	1,450		0.75
Ranking		3	1	2		0.75
(D) Maxim demand (units)	[Given]	22,000	16,000	4,000		
(E) Hours allocation for optimum production [A x D]		3,000*	16,000	8,000	27,000	0.75
* balancing hours (27-16-8=3)						
(F) Optimum production plan	[E ÷ A]	3,000	16,000	4,000		0.75
(G) Optimal contribution (rupees)	[B x F]	4,200,000	36,800,000	11,600,000	52,600,000	02
(I) Existing plan (units)	[Given]	12,000	12,000	1,500		
(J) Existing contribution	[B x I]	16,800,000	27,600,000	4,350,000	48,750,000	02
Difference	[G - J]				3,850,000	0.5

Question No. 6

(a)

			Rupees per Unit	
Pakistan operations:				
Sales revenue (transfer price = variable cost)			5,070.00	0.25
Less: variable manufacturing cost			(5,070.00)	0.25
Contribution margin			-	0.5
Bangladesh operations:				
Sales Revenue (transfer price)		14,040.00		0.25
Less:				
Transfer price	5,070.00			0.25
Shipping fees	780.00			0.25
Additional processing costs	4,485.00			0.25
Import duties (15% of Transfer price)	760.50			0.5
		11,095.50		0.5
Income before tax		2,944.50		0.5
Less: Income tax expenses (45%)		1,325.03		0.5
Income after tax			1,619.47	0.5
	Overall company profitability		1,619.47	0.5

Marks

(b)

			Rupees per Unit	
Pakistan operations:				
Sales revenue (transfer price = market price)			6,630.00	0.25
Less: variable manufacturing cost			(5,070.00)	0.25
Contribution margin			1,560.00	0.5
Less: Income tax expenses (31%)			483.60	0.5
Income after tax			1,076.40	0.5
Bangladesh operations:				
Sales Revenue (transfer price)		14,040.00		0.25
Less:				
Transfer price	6,630.00			0.25
Shipping fees	780.00			0.25
Additional processing costs	4,485.00			0.25
Import duties (15% of Transfer price)	994.50			0.5
		12,889.50		0.25
Income before tax		1,150.50		0.25
Less: Income tax expenses (45%)		517.73		0.5
Income after tax			632.77	0.5
	Overall company profitability		1,709.17	0.5

Transfer price as Pakistan market price is better for overall company profitability. 0.5

(c) When tax rates differ, companies should strive to generate less income in high tax rate countries, and vice versa. When alternatives are available, this can be accomplished by a careful determination of the transfer price. 01

Question No. 7

(a) Current ROI of the 'JKN Division':

Rs. '000'

		'JKN Division'	'Rival JJ'	Additional Transaction	If Acquired	
	Sales revenue	378,000	234,000		612,000	0.75
	Less:					
	Variable costs (70% of sales)	264,600	152,100		416,700	0.75
	Fixed costs	96,750	75,150		171,900	0.75
		361,350	227,250		588,600	0.75
A	Income	16,650	6,750		23,400	0.75
B	Capital Employed	83,250	28,125	16,875	128,250	1.5
C	ROI [A ÷ B]	**20.00%**	**24.00%**		**18.25%**	0.75

Marks

(b) Divisional management would likely be against the acquisition because ROI will be lowered from 20% to 18.25%. Since bonuses are awarded on the basis of ROI, the acquisition will result in less compensation. 01

(c)

		Rs. '000'	
A	Rival's income	6,750	0.5
B	Capital Employed [28,125 + 16,875]	45,000	0.5
C	ROI [A ÷ B]	**15.00%**	0.5
D	Modern Engineering Company's overall ROI (Given)	**13.00%**	0.5

Corporate management would probably favour the acquisition. If past earnings trend continue it will increase overall ROI of the company. 01

THE END