STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL

Marks

Question No. 1

(a) (i)

	No. of Batches	Time (hours) per batch*	Time (hours) Total	Marks
	100	106.862	10,686	1.00
(ii)	99	107.030	10,596	0.50
	Time required for 100th batch		90	0.50

* $y = ax^b$

(iii)

		Rupees		Marks
Labour cost 100th batch	(90 x 500)	45,000		0.50
Overhead	(45,000 x 2/3)	30,000		0.50
	Total cost	75,000		0.50
Mark-up	(75,000 x 1/3)	25,000		0.50
Bid amount for batch of 100 motorcycles		100,000		0.50
Bid amount	(100,000 ÷ 100)	1,000	per motorcycle	0.50

(b)

	Jamal Industries	**Kamal Industries**	**Nehal Industries**	
			Rupees	
Gross margin	4,000,000	4,800,000	5,600,000	
Less: Customer specific costs				
Sales visits	(700,000)	(840,000)	(980,000)	0.75
Order processing	(150,000)	(180,000)	(210,000)	0.75
Despatch costs	(1,750,000)	(2,325,000)	(2,975,000)	0.75
Billing and collections	(100,000)	(110,000)	(140,000)	0.75
Profit	1,300,000	1,345,000	1,295,000	0.75
Ranking	**2**	**1**	**3**	0.25

(c)

Point of Comparison	**Business Process Reengineering**	**Continuous Improvement**
Philosophy	Scrap and rebuild from 'clean slate'	Gradual continual improvements made to existing processes
Degree of change	Dramatic, radical	Incremental, small
Timescale	Short period -rapid	Ongoing, long term, open ended
Organisational Impact	High level	Low level
Primary Enabler	Information Technology	Total Quality Management.
Risk of Failure	High risk	Low risk

5

Marks

Question No. 2

(a)

Rupees

			Year 0	Year 1	Year 2	Year 3	Year 4	Sum of Inflow	PB & DPB (years)	PI		Marks
	Discount Factor		–	0.877	0.769	0.675	0.592					
Coconut Cookie	Cash flow		(2,000,000)	1,400,000	1,505,000	1,617,875	2,739,216					02
	Tax Saving on depreicaion / loss:		–	81,000	68,850	58,523	91,627					01
	Net Cash flow	[NF]	(2,000,000)	1,481,000	1,573,850	1,676,398	2,830,843					01
	Cumulative NF		(2,000,000)	(519,000)	1,054,850	–	–		**1.33**			0.75
	Present Value	[PV]	(2,000,000)	1,298,837	1,210,291	1,131,569	1,675,859	5,316,556		**2.66**		1.5
	Cumulative PV		(2,000,000)	(701,163)	509,128	–	–		**1.58**			0.75
Pineapple Pastry	Cash flow		(2,750,000)	2,100,000	2,257,500	2,426,813	3,758,824					02
	Tax Saving on depreicaion / loss		–	112,500	95,625	81,281	190,594					01
	Net Cash flow		(2,750,000)	2,212,500	2,353,125	2,508,094	3,949,418					01
	Cumulative NF		(2,750,000)	(537,500)	1,815,625	–	–		**1.23**			0.75
	Present Value		(2,750,000)	1,940,363	1,809,553	1,692,963	2,338,055	7,780,934		**2.83**		1.5
	Cumulative PV		(2,750,000)	(809,637)	999,916	–	–		**1.45**			0.75

		CC	PP
*	**First year cash flow**		*Rs. in '000'*
	Sales	10,000	12,000
	Materials cost	(5,000)	(5,500)
	Conversion cost	(3,000)	(3,500)
	Net operating cash flow before tax	2,000	3,000
	Tax on operating flow	(600)	(900)
	Net operating cash flow after tax	1,400	2,100

** PB = year of last negative CNF ÷ next year NF

*** DPB = year of last negative CPV ÷ next year PV

**** PI = sum of return phase PV ÷ PV of investment phase

Note 1: Allocation of fixed overhead is irrelevant to the decision.

Note 2: Subsequent years cash flow inflated as per inflation rate given

Working for Depreciation Coconut cookie	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	Marks
Tax 'depreciation allow.' / loss	270,000	229,500	195,075	305,425	01
Tax WDV	1,530,000	1,300,500	1,105,425		

Pineapple pastry	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	Marks
! Tax 'depreciation allow.' / loss	375,000	318,750	270,938	635,313	01
Tax WDV	2,125,000	1,806,250	1,535,313		

(b) Advise: As the NPV and PI of pineapple pastry (PP) is more than coconut cookie (CC), and PB & DPB is less than 'CC', company should introduce product 'PP'. 1

Marks

Question No. 3

(a) **Real options are choices** a company's management makes to expand, change or curtail projects based on changing economic, technological or market conditions. It **differs** from financial option because it typically **references a tangible asset instead of financial instrument.** **01** **0.75**

Types of Real Options:

Options relating to project size:

- Option to expand (call option) **0.25**
- Option to contract (put option) **0.25**
- Option to expand or contract (switching option) **0.25**

Options relating to project life and timing

- Initiation or deferment options **0.25**
- Option to abandon (termination option) **0.25**
- Sequencing options **0.25**

Options relating to project operation

- Output mix options (product flexibility option) **0.25**
- Input mix options (process flexibility option) **0.25**
- Operating scale options (intensity options) **0.25**

(b) (i) WACC:

				Marks
5,000,000,000	66.67%	11.5%*	7.67%	1
2,500,000,000	33.33%	7.0%**	2.33%	0.5
7,500,000,000	100.00%		10.00%	0.5

*11.5% = 6% + 1.1 x (11% - 6%)

**7.0% = 10% x (1 - 30%)

Good consumer demand:

Net present value

(NPV) = (800,000,000) + 2.487 x 330,000,000 0.5

NPV = 20,710,000 0.5

Poor consumer demand:

NPV = (800,000,000) + 2.487 x 300,000,000 0.5

NPV = (53,900,000) 0.5

Marks

Expected NPV (ENPV):

Demand	NPV	Probability	ENPV	Marks
Good	20,710,000	65%	13,461,500	0.5
Poor	(53,900,000)	35%	(18,865,000)	0.5
			(5,403,500)	0.5

No, FPL should not launch 'Sport Fit' because ENPV is negative. 0.5

(b) (ii)

	NPV	Probability	ENPV	Marks
If demand is good in 1st year:				
- Estimated cash flow will change in 2nd & 3rd year				

Year	Cash flow	PV Factor	Present Value	Marks
0	(800,000,000)	1.000	(800,000,000)	
1	330,000,000	0.909	299,970,000	0.5
2	363,000,000	0.826	299,838,000	0.5
3	399,300,000	0.751	299,874,300	0.5

	NPV	Probability	ENPV	Marks
	99,682,300	39.00%	38,876,097	1.0
Estimated cash flow will not change in 2nd & 3rd year	* 20,710,000	26.00%	5,384,600	1.0

Further investment in tools & equipments:

Year	Cash Flow	PV Factor	Present Value
1	(40,000,000)	0.909	(36,360,000)

	NPV	Probability	ENPV	Marks
Further investment in tools & equipments	(36,360,000)	65%	(23,634,000)	01
			20,626,697	0.5
If demand is poor in 1st year	* (53,900,000)	35%	(18,865,000)	01
			1,761,697	0.5

* see answer to requirement (i)

Yes, FPL should launch 'Sport Fit' because ENPV is positive. 0.5

Marks

Question No. 4

ZIL's assets beta:		Marks
Equity beta	1.08	
Market value of equity	= 113 x million = 565 million	0.50
Market value of debt	= 90 x 5m = 450m	0.50
Assets beta	= 1.08 x 565m / (565m + 450m x 0.8)= 0.66 (Assuming debt is risk free)	0.50
Project assets beta	= 0.66 + 0.2 = 0.86	0.50
Project all-equity finance	**discount rate = 4% + 7% x 0.86 = 10%**	0.50

		Year-0	Year-1	Year-2	Year-3	Year-4	Year-5	Total / Net	Marks
				--- *Guatemalan Quetzal* ---					
A	Revenue		250,000,000	250,000,000	250,000,000	250,000,000	250,000,000		
B	Construction / maintenance cost		(208,000,000)	(216,320,000)	(224,972,800)	(58,492,928)	(60,832,645)		1.25
C	Capital Allow.		(60,000,000)	(60,000,000)	(60,000,000)	(60,000,000)	(60,000,000)		1.25
D	Taxable Income [A+B+C]		(18,000,000)	(26,320,000)	(34,972,800)	131,507,072	129,167,355		1.25
E	Tax [D x 25%]					(13,053,568)	(32,291,839)		0.50
F	Machinery & Equipment	(300,000,000)							
G	Working Capital	(100,000,000)	-	-	-	-	100,000,000		0.25
H	Cash flow [D+E+F+G-C]	(400,000,000)	42,000,000	33,680,000	25,027,200	178,453,504	256,875,516		1.50
I	Exchange Rate*	10	10.2941	10.5969	10.9086	11.2294	11.5597		1.50
J	Cash flow (£) [H ÷ I]	(40,000,000)	4,080,007	3,178,288	2,294,263	15,891,633	22,221,642		1.75
K	PV Factor [Table 10%]	1.000	0.909	0.826	0.751	0.683	0.621		
L	Present Value (£) [J x K]	(40,000,000)	3,708,726	2,625,266	1,722,992	10,853,985	13,799,640	(7,289,391)	1.75
M	**Adjustment (GTQ):**								
N	Annual tax shield**		4,000,000	4,000,000	4,000,000	4,000,000	4,000,000		0.25
	Annual Interest subsidy***		15,000,000	15,000,000	15,000,000	15,000,000	15,000,000		0.25
			19,000,000	19,000,000	19,000,000	19,000,000	19,000,000		0.25
O	**Adjustment (£)** [N ÷ I]		1,845,717	1,792,977	1,741,745	1,691,987	1,643,641		1.25
P	PV factor [Table 6%]		0.943	0.890	0.840	0.792	0.747		
Q	Present value of adjustment (£)		1,740,511	1,595,750	1,463,066	1,340,054	1,227,800	7,367,181	1.50
R	Adjusted present value (APV) (£)							77,790	0.50

As APV is positive; project should be undertaken. 0.50

* (based on purchase power parity)

** 400,000,000 x 4% x 25%

*** 400,000,000 x (9% - 5%) x (1 - 25%)

Marks

Question No. 5

(a)

Rs. per Set

	GMCH	ICH		Marks
Market Price	5,000	4,000		
Variable Cost:				
Material cost	2,000	2,000		
Labour cost	800	500		
Overhead	400	250		
Total variable cost	3,200	2,750		
Contribution margin (CM)	1,800	1,250		02
Labour (hours)	8	5		01
Contribution per hour	225.00	250.00		01
Variable Cost	3,200	2,750		
Contribution lost on constraint resource	2,000	1,250		01
Minimum TP acceptable to C-Div (TP_{Min})	5,200	4,000		0.50
Maximum TP acceptable to B-Div (TP_{Max})	5,000	4,000	(Market Price)	0.50
Acceptable range	Not acceptable range	4,000 ≤ TP ≥ 4,000		1.00

(b)

Rs. per Set

	GMCH	ICH	Marks
Contribution [as above in (a)]	1,800	1,250	
• Saving by C-Div	300	150	
Revised CM	2,100	1,400	01
Contribution per hour	262.50	280.00	01
Revised variable cost	2,900	2,600	01
Contribution lost on constraint resource	*2,240	**1,400	01
Minimum TP acceptable to C-Div (TP_{Min})	5,140	4,000	0.50
Market Price	5,000	4,000	
• Saving by B-Div	200	100	
Maximum TP acceptable to B-Div (TP_{Max})	5,200	4,100	0.50
Acceptable range	5,140 ≤ TP ≥ 5,200	4,000 ≤ TP ≥ 4,100	1.00

Working:

Contribution lost on constraint resource

* GMCH	=	250 x 8	=	2,000
** ICH	=	250 x 5	=	1,250

Marks

Question No. 6

(a) (i) Contribution is maximised at Rs. 270,000 by making 3,000 units of PAB and 3,000 units of GMB. 01

(ii) There will be 1,000 slack hours in Finishing Process. Process Blending and Packing will be fully utilised. 01

(b) Shadow price of Packing process is rupees 3.333 and is valid for (upto):

				Marks
GMB	5,000	hours	(1,000 ÷ 0.2)	01
Packing	2,000	hours	(Given)	
Finishing	1,667	hours	(1,000 ÷ 0.6)	01
Lowest	**1,667**	hours		0.5

The Shadow price of Packing process is rupees 3.333 and is valid upto 1,667 hours. 0.5

The increase in contribution will be rupees 5,556.(1,666.667 x 3.333). 01

(c)

			Original	**Change**	**Revised**	Marks
Production of (Units):	ACB	(Given)	0	1,200	1,200	
	PAB	(1,200 x 0.667)	3,000	800	3,800	1.5
	GMB	(1,200 x 1.600)	3,000	(1,920)	1,080	1.5
Slack Hours (Finishing)		(1,200 x 2.200)	1,000	2,640	3,640	1.5
Contribution (Rupees)		(1,200 x 23.333)	270,000	(28,000)	242,000	1.5

STRATEGIC MANAGEMENT ACCOUNTING [C2] – CHARTERED LEVEL

Marks

Question No. 7

			Rs. in million		
			2016-17	2015-16	
A	Operating profit		325,000	275,000	0.5
	Research costs expensed (SUV Project)		25	25	0.5
	Amortisation of prior year research expenses (DTC Project)		(35)	(35)	
	Non-cash expenses		750	750	
	Cash taxes	[working F]	(97,500)	(85,250)	2
	Net operating profit after tax		228,240	190,490	1
B	Capital at start (as per extract of financial statement)		1,850,000	1,675,000	
	Capitalisation of research and development:	[working G]	130	70	2
	Other non-cash expenses incurred		750		
	Adjusted capital employed at start		1,850,880	1,675,070	1
C	Weighted average cost of capital		11%	10%	
D	Cost of capital	[B x C]	203,597	167,507	1
E	EVA	[A - D]	24,643	22,983	1

Working (marks already included in above answer)**:**

		2016-17	2015-16
F	Calculation of net tax		
	Tax charge per income statement	82,500	71,300
	Tax relief on interest	15,000	13,950
	Cash taxes	97,500	85,250

G A reconciliation of R&D cost is as follows:

	PROJECT *(Rs. in million)*		
	SUV	**DTC**	**Total**
Balance at start of previous year	-	70	70
Expenditure incurred during previous year	25	-	25
Amortisation during previous year	-	35	35
Balance at 1 start of current year	25	105	130

Note: The research and development expenditure on both projects was expensed in the income statement in accordance with financial reporting standards. Since it is considered to be market building expenditure; it is added back to profits in the year it was incurred, and added back to capital employed at the end of the year in which it was incurred, when calculating EVA.

Such capitalisation should also be amortised over the period that it brings benefits. Therefore, in the case of DTC, this has been amortised over the two years during which the company sold products. SUV has not been completed yet, so no amortisation has taken place.

THE END