THE INSTITUTE OF CHARTERED ACCOUNTANTS OF SRI LANKA

SUGGESTED SOLUTIONS

KB2– Business Management Accounting

June 2015

SECTION 1

Answer 01

Relevant Learning Outcome/s: 1.1.1, 1.1.3
1.1.1 Assess the key features of the absorption costing method and ABC method. 1.1.3 Evaluate product profitability and customer profitability decision using information generated from absorption costing and activity based costing.

	Customer		
	AH	LW	Company
Contribution (Rs. '000)	1,500	810	9,000
Packs sold ('000)	50	27	300
Sales visits to customers	24	12	200
Orders placed by customers	75	20	700
Normal deliveries to customers	45	15	240
Urgent deliveries to customers	5	-	30
Activity costs			Rs. '000
Sales visits to customers			1,000
Processing orders			1,400
Normal deliveries			2,400
Urgent deliveries			1,200

(a)

Activity (Cost driver)	Cost	Cost drivers	Cost per cost driver
	Rs. '000		Rs.
Sales visits to customers (Sales visits)	1,000	200	5,000
Processing orders (Orders processed)	1,400	700	2,000
Normal deliveries to customers (Normal deliveries)	2,400	240	10,000
Urgent deliveries to customers (Urgent deliveries)	1,200	30	40,000

Customer Profitability	AH	LW
	Rs. '000	Rs. '000
Contribution	1,500	810
Customer costs:		
Sales visits	120	60
Processing orders	150	40
Normal deliveries	450	150
Urgent deliveries	200	-
	920	250
Customer Profit	580	560

(b) Improving Profitability

Persuade customers to increase order quantities (even by offering discounts after a cost benefit analysis) and thereby reduce the number of orders which will reduce the order processing cost.

Curtail sales visits by improving efficiency of delivery scheduling, attempting to merge deliveries to same customers and combining deliveries to different customers, which will reduce costs of sales visits and delivery costs.

Charge additional delivery cost to the customers on urgent deliveries: either cost will be recovered or urgent deliveries will reduce due to the disincentive.

Answer 02

Relevant Learning Outcome/s: 1.3.2, 1.3.3
1.3.2 Demonstrate the importance of the following concepts for cost accounting and decision making: - Kaizen costing - Quality- related costing (TQM) - Manufacturing/ Enterprise resource planning (MRP and ERP) 1.3.3 Assess environmental accounting (including its importance, types of costs and techniques available).

(a) Costs of quality conformance are the costs incurred by an organisation in attempting to ensure that its quality standards are complied with before the product or service is completed. In other words, it refers to the total cost of achieving specified quality standards.

In contrast, costs of quality non-conformance are costs that occur as a result of quality failures. This could be broadly twofold:

(i) internal failure costs - which arise because the failure requires the product / service to be re-worked.

(ii) external failure costs - which arise because of the damage the failure causes to the business as a result of supplying a poor quality item to a customer.

(b) SHL is operating in a market where consumers consider price and quality as the main factors when making the buying decision. This is not unusual but highlights the need for SHL to understand the profile of its customers. i.e. to what extent they are prepared to pay for high quality. SHL should understand that there is a trade-off between price and quality.

The more that SHL spends on developing a quality product, the greater will be its costs and hence its product selling price will need to reflect this additional cost in order for SHL to be profitable.

SHL will need to decide whether to follow a low price, low quality strategy or a high price, high quality strategy, or to follow a strategy that lies somewhere between these two extremes.

(c) Kaizen principles encourage gradual and continuous improvement by making small changes in the product or the method of operations.

SHL operates in a market where products have comparatively a short life cycle. If this life cycle could be extended then this would result in greater profitability for SHL.

Kaizen principles could achieve this by gradually improving product quality without any increase in price for example by making small changes to the components being used in its products.

Answer 03

Relevant Learning Outcome/s: 3.8.1, 3.8.2
3.8.1 Define the term uncertainty and risk. 3.8.2 Demonstrate how a decision would be made under conditions of uncertainty, using: - Decision tree- based expected value calculations - Data tables - Alternative decision criterions (minimax, maximax and minimax regret)

(a) Rs.

	Probability	**Small Truck (200 boxes)**	**Large Truck (300 boxes)**
Demand - 180 boxes	40%	W1 = 10,500	W2 = (2,500)
Demand - 270 boxes	60%	W3 = 11,000	W4 = 15,500

W1 - (200*180) - 20,000 - 5,500 = 10,500
W2 - (200*180) - 30,000 - 8,500 = (2,500)
W3 - (200*200) - 20,000 - 5,500 - (70*50) = 11,000
W4 - (200*270) - 30,000 - 8,500 = 15,500

(b)

(i) Expected Value criterion

		Small Truck (200 boxes)	**Large Truck (300 boxes)**
Demand - 180 boxes	40%	10,500*0.4	(2,500)*0.4
Demand - 270 boxes	60%	11,000*0.6	15,500*0.6
Expected Value		**10,800.00**	**8,300.00**

Expected value criterion is possible when probabilities are given and produces most likely outcome with a lesser quantum of risk. Accordingly, best option is buying a small truck.

(ii) Maximax decision criterion

If the management is optimistic (risk taking attitude) then the management would choose maximax decision rule which selects the maximum of highest return;

	ST	LT
Highest return (Rs)	11000	15500

Large truck should be bought since it gives the highest return.

(iii) Maximin decision criterion

If the management is pessimistic (risk avoiding attitude) then the management would choose maximum of minimum return. Selection of best worst-case scenario.

	ST	LT
Lowest return (Rs)	10500	(2,500)

Small truck should be bought since it gives the highest return from the lowest return.

Answer 04

Relevant Learning Outcome/s: 4.2.1
4.2.1 Discuss different types of transfer pricing possible under decentralized organizational structure (including maximum and minimum price, cost based pricing, market based pricing, dual pricing and negotiated pricing).

(a) Calculation of revised price per unit

	Rs.	
Variable cost (120/1.2)	100.00	
Fixed cost ((300/60)*2)200%	20.00	
Full cost	120.00	
Profit margin (10%)	12.00	
Proposed Transfer Price	**132.00**	per unit

(b) (i) Maximum transfer price - The lowest market price at which Division B could purchase the goods or services externally. Therefore the maximum price should be LKR 125.

(ii) The minimum transfer price should be the sum of the supplying division's marginal cost plus opportunity cost of the item transferred. The marginal cost of a LED bulb is LKR 100. Division B could sell any quantity of bulbs to the external market at LKR 125. Therefore The opportunity cost = The maximum contribution foregone by Division B if transferred at Rs. 100 (Rs. 125 less selling & distribution cost (Rs. 4) and less Rs. 100 = Rs 21)

Therefore the minimum transfer price stands at Rs.121 per bulb.

(iii) Any price between Rs. 121 and Rs. 125 is acceptable to both divisions.

Accordingly, EPL's current transfer pricing policy of Rs. 120 and the proposed policy of Rs. 132 are not the best transfer prices.

(c) Dual rate transfer pricing sets two different prices for the transferring division and receiving division. Usually **transferring division invoices at a higher price whereas the receiving division records these purchases at lower rate ideally marginal cost of the transferring division.** This method motivate both divisions and enable them to achieve their profit targets. However, **The company profit will be overstated due to duplication of profit and hence, a separate accounting entry should be passed to neutralise this overstatement of profit.**

Answer 05

Relevant Learning Outcome/s: 5.1.3, 5.1.4, 5.1.6
5.1.3 Discuss receivable and payable management (including credit policy, credit assessment, credit control and collection and factoring option). 5.1.4 Discuss available options of inventory management. 5.1.6 Assess receivable management decisions such as cash discounts, age analysis, change in credit policy including whether to factor or not.

(a) Annual demand = 100,000 + 110,000 + 190,000 + 140,000 = 540,000

Annual production capacity = 135,000 x 4 = 540,000

Therefore, the capacity is just sufficient to meet the demand and no overtime is required.

Current system - constant production

Quarter	1	2	3	4	Total
Opening inventory	-	35,000	60,000	5,000	
Production	135,000	135,000	135,000	135,000	
Sales	100,000	110,000	190,000	140,000	
Closing inventory	35,000	60,000	5,000	-	
Average inventory	17,500	47,500	32,500	2,500	
Storage cost (Rs)	70,000	190,000	130,000	10,000	400,000

(b) JIT production system

Quarter	1	2	3	4
Sales	100,000	110,000	190,000	140,000
Normal production	100,000	110,000	135,000	135,000
OT production	-	-	54,000	5,000
Lost sales	-	-	1,000	-

	Rs
Incremental cost of OT working per unit	
Labour: 20% x 35	7
Overhead: 10% x 10	1
	8

Q3 additional cost on OT production (54,000*8)	432,000
Q4 additional cost on OT production (5,000*8)	40,000
Q3 loss of contribution (1,000*15)	15,000
Total incremental cost due to JIT	487,000
Storage cost that can be saved	400,000
Net adverse impact on profit	(87,000)

Changing to JIT will result in profits reducing by Rs. 87,000 for the year.
Therefore, change to JIT is not recommended.

Answer 06

Relevant Learning Outcome/s: 2.2.1, 2.2.2, 2.2.3, 2.2.5
2.2.1 Discuss different purposes of budgeting and possible conflicts arising due to such multiple purposes. 2.2.2 Assess the behavioural implications of different budgeting approaches (imposed style, participatory style, negotiated style, incremental style, zero based, ABB). 2.2.3 Analyse the budgetary control statement (original budget, flex budget, actual and variances). 2.2.5 Discuss "beyond budgeting" as a potential solution for criticism levelled at traditional budgetary planning and control.

(a).

		In Rs. '000s
Budgeted profit		4,660
Sales volume contribution variance	(9,000 units - 10,000 units) x 636	(636) ADV
Selling price variance	9,000 units x (1,840 - 1,800)	360 FAV
Cost variances:		
Direct material price variance	74,000 kg x (108 – 112)	(296) ADV
Direct material usage variance	(9,000 x 8 kg) – 74,000 kg) x 108	(216) ADV
Direct labour rate variance	10,800 x (180 - 190)	(108) ADV
Direct labour efficiency variance	((9,000 x 1.25) – 10,800) x 180	81 FAV
Variable overhead expenditure variance	(10,800 hours x 60) - 700,000	(52) ADV
Variable overhead efficiency variance	((9,000 x 1.25) – 10,800) x 60	27 FAV
Fixed overhead expenditure variance	1,700,000 - 1,680,000	20 FAV
Actual profit		3,840

Workings

Budgeted Profit for the Period (10,000 units)			Rs. '000
Sales	@	1,800	18,000
Direct Materials	@	864	(8,640)
Direct Labour	@	225	(2,250)
Variable Production Overheads	@	75	(750)
Contribution	@	636	6,360
Fixed Production Overheads			1,700
Budgeted Profit			4,660

Actual Profit for the Period (9,000 units)		Rs. '000
Sales	9,000 units x 1,840	16,560
Direct Materials	74,000kg x 112	(8,288)
Direct Labour	10,800 hours x 190	(2,052)
Variable Production Overheads		(700)
Contribution		5,520
Fixed Production Overheads		(1,680)
Actual Profit		3,840

(b) In a standard marginal costing variance statement the sales volume contribution variance is calculated using the standard contribution per unit. In a standard absorption costing variance statement, standard contribution is replaced by the standard profit per unit, which includes a fixed overhead absorption rate.

The difference in the variance is represented in the absorption costing variance statement by the fixed production overhead volume variance, which is calculated as the difference in actual and budgeted volume x the fixed overhead absorption rate.

The fixed production overhead volume variance represents a part of the under absorbed fixed overhead as a result of producing a lower volume than budgeted.

(c) Sales volume profit variance

(9,000 units - 10,000 units) x 466 = 466,000 Adv

It would also be necessary to include a fixed production overhead volume variance as follows:

Fixed production overhead volume variance
(9,000 units – 10,000 units) x 170 = 170,000 Adv

(d) The arguments in favour of using absorption costing for profit reporting and inventory valuation:

(i) Fixed production overheads can be a large proportion of total production costs. It is therefore important that these costs are included in the measurement of product costs, as they have to be recovered to make a profit.

(ii) Absorption costing follows the matching concept by carrying forward a proportion of the fixed production overhead costs in the inventory valuation to be matched against the sales revenue generated when the items are sold.

(iii) It is necessary to include fixed production overheads in inventory valuations for financial statements.

(iv) It has been argued that in the longer term, all costs are variable and it is appropriate to try to identify overhead costs with the products or services that cause them.

Answer 07

Relevant Learning Outcome/s: 3.7.1, 3.7.2, 3.7.3
3.7.1 Explain the process of long- term decision-making (proposal generating, initial screening, analysis and acceptance, and monitor and review). 3.7.2 Compute non- discounted cash flow methods (payback/accounting rate of return and discounted cash flow methods (net present value/ internal rate of return/profitability index/ discounted payback) with: - Inflation - Tax - Uncertainty (use of probabilities and sensitivity analysis is expected) 3.7.3 Evaluate projects considering results derived from non-discounted cash flow and DCF valuation methods and other related factors.

(a) Cash Flows	**Y00 (Rs. 000)**	**Y01 (Rs. 000)**	**Y02 (Rs. 000)**	**Y03 (Rs. 000)**	**Y04 (Rs. 000)**
Booth and commissioning (10mn+2mn)	(12,000)	-	-	-	-
Sale of scraps	-	-	-	-	3,000
Booth maintenance	-	(2,000)	(2,000)	(2,200)	(2,420)
Concrete work done (Sunk cost)	-	-	-	-	-
Revenue (W2) from existing facilities	-	2,000	2,400	3,000	3,400
Contribution on additional revenue (W3)	-	4,000	4,400	4,840	4,840
Saving on labour cost	-	500	500	500	500
Increase in electricity cost	-	(200)	(200)	(200)	(200)
Net Cash Flows	(12,000)	4,300	5,100	5,940	9,120
Tax @ 28%	-	(1204)	(1428)	(1663)	(2,554)
Net Cash flows after tax before cash inflow due to Cap. all	(12,000)	3,096	3,672	4,277	6,566
DR at 12%	1.000	0.893	0.797	0.712	0.636
DCF (before Cap. all)	(12,000)	2,764	2,927	3,045	4,176
Cash inflow due to Cap. all (W-4)	-	1,120	1,120	1,120	-
DR cash inflow due to cap.all@17.6%	1	0.850	0.723	0.615	0.523
DCF cash inflow due to Cap. all @ 17.6%	-	952	810	688	-
Net DCF	(12,000)	3,716	3,737	3,733	4,176
NPV	3,362				

Since this investment generates a positive NPV, the investment is financially desirable to ASL

WI - Since all cash flows are subject to inflation at a uniform rate of 5% we can apply the real discounting rate.

Real discounting rate = ((1 + nominal DR)/(1+inflation)) - 1

= (1.176/1.05) - 1

= 12%

W2 - Increase in forecasted revenue over existing revenue

	Y01 (Rs. 000)	**Y02 (Rs. 000)**	**Y03 (Rs. 000)**	**Y04 (Rs. 000)**
Forecasted revenue	10,000	12,000	15,000	17,000
Increase in contrib. (20%)	**2,000**	**2,400**	**3,000**	**3,400**

W3 - Contribution from additional revenue

Additional revenue	5,000	5,500	6,050	6,050
Contribution (80%)	**4,000**	**4,400**	**4,840**	**4,840**

W4 -

Capital allowance	4,000	4,000	4,000	-
Cash inflow due to Cap.all(@28%	1,120	1,120	1,120	

Note: Cash inflows due to capital allowances are discounted at the nominal DR as they are not affected by inflation.

(b)(i)

	NCF	**Cumul.**
	(12,000)	(12,000)
Y-01	4,216	(7,784)
Y-02	4,792	(2,992)
Y-03	5,397	2,405

Payback period = 2years +(2992/5397)*12 **= 2 years & 7 months** (approx.)

(ii) Payback period is useful due to the following;

- It can be easily applied and understood.
- If the company is facing liquidity issue payback period, helps to identify the period within which it can recover the initial capital investment.
- When the continuation of the investment for the expected period is uncertain due to technology changes/product changes etc. this method is useful.
- More useful when small investments are being evaluated.

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(c)

	Y00 (Rs. 000)	Y01 (Rs. 000)	Y02 (Rs. 000)	Y03 (Rs. 000)	Y04 (Rs. 000)
When DR = 20%,(Real)					
NCF (before Cap. all)	(12,000)	3,096	3,672	4,277	6,566
DR	1.000	0.833	0.694	0.579	0.482
PV	(12,000)	2,579	2,548	2,476	3,165
Cash flow due to Cap. all	-	1,120	1,120	1,120	
DR @ 26% nominal	-	0.794	0.630	0.500	
DCF due to Cap. all	-	889	706	560	
Net DCF	(12,000)	3,468	3,254	3,036	3,165

NPV = 923

NPV @ 12% (real) 3,362

NPV @ 20% (real) 923

IRR $20\% + 8\% \left(\frac{923}{2439}\right)$

IRR 23% (real)

= 29.15% (nominal)

If the discounted rate (company's cost of capital) increases above 29.15% this project is not financially desirable. In other words, if the financing cost for this project exceeds 29.15% the project will not be financially worthwhile.

(d)

(i) The highest price is the price at which the NPV of the investment become zero.

	Rs.000
The NPV as calculated above	3,362
Cost of the repair booth	10,000
Total PV other than cost of repair booth (at Y01)	13,362
When delayed by another one year (DR at Y01 = 0.893)	11,932
Price of the repair booth now (DR at Y00 = 1)	(10,000)
The new NPV	1,932
If money is advanced the NPV will come down by	**1,430**

		Rs.000
(ii)	Here, the NPV should be at least	1,932
	NPV in one year ahead	2,164
	NPV when price of the booth equals to 10mn	3,362
	Possible decrease in NPV due to increase in price	(1,198)
	If X is the price revision, the effect on NPV should be;	
	(-X*1) + (X/3*28%*2.188) + (X*30%*72%*0.636) =	(0.65841X)
	X=increase in price = 1,198/0.65841 (Rs.)	1819.533
	Increased/Revised price should be (Rs. '000)	**11,820**

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