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THE INSTITUTE OF
CHARTERED ACCOUNTANTS
OF SRI LANKA

SUGGESTED SOLUTIONS

05204 Fundamentals of Management Accounting and Busi
Certificate in Accounting and Business II Examination
September 2012

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF SRI LAN

Answer No. 01

(a) Calculation of de-seasonalised sales quantities for four quarters in 2009 and first quarter in 2012

	2009				2012
	Q1	Q2	Q3	Q4	Q1
Quarterly Actual Sales (units)	150	162	240	390	270
Seasonal Sales %	75%	75%	100%	150%	75%
De-seasonalised sales (units)	200	216	240	260	360

(b) Calculation of average growth rate in sales for the period from Q1 of 2009 to Q1 of 2012

$$[(360-200)^{(1/12)}] - 1 = \underline{\underline{5\%}}$$

(c) Calculation of quarterly sales for 2012/2013 in quantities ('000 units)

Year	Quarter	Trend value @ 5%	Seasonal Adjustments	Adjusted Sales
2012	2	360 x 1.05 = 378	75%	284
2012	3	378 x 1.05 = 397	100%	397
2012	4	397 x 1.05 = 417	150%	625
2013	1	417 x 1.05 = 438	75%	328
Total sales (Rs. '000)				1,634

$$2012/2013 \text{ sales to the nearest } 100,000 \text{ (in units)} = \underline{\underline{1,600,000}}$$

(d) (i) Polyester fibre packs required in 2012/2013 $\frac{1,600,000}{800} = \underline{\underline{2,000 \text{ packs}}}$

(ii) Calculation of Optimum Order Quantities in respect of suppliers, X and Y.

Optimum Order Quantity

$$OOQ = \sqrt{\frac{2Q * CO}{CU * CC\%}}$$

Supplier X

$$\sqrt{\frac{2 \times 2000 \times 10000}{160000 \times 0.1}} = \underline{\underline{50 \text{ Packs}}}$$

Supplier Y

$$\sqrt{\frac{2 \times 2000 \times 8700}{160000 \times 0.1 \times (1 - 2000/5000)}} = \underline{\underline{60 \text{ Packs}}}$$

- (e) Calculation of total Order Cost and Holding Cost in respect of X and Y at OQs.

Supplier X

Annual Order Cost	=	(2000/50) x 10000	=	Rs.	400,000
Annual Holding Cost	=	(50/2) x 16000	=	Rs.	<u>400,000</u>
Total Cost	=		=	Rs.	<u>800,000</u>

Supplier Y

Annual Order Cost	=	(2000/60) x 8700	=	Rs.	290,000
Annual Holding Cost	=	(60/2) x 16000 x (3/5)	=	Rs.	<u>288,000</u>
Total Cost	=		=	Rs.	<u>578,000</u>

Recommendation - Since the material buying cost is the same for both suppliers, based on the above order cost and holding cost, it should be bought from Supplier Y.

- (f) Strategies that the unselected supplier, i.e. X, could apply to attract SLT Limited.

In this situation Supplier X would be rejected.

He may adopt the following strategies.

- (i) Reduce his selling price to nullify the difference above.
- (ii) Introduction of quantity discounts.
- (iii) Offering a credit period to the buyer
- (iv) Free transports, loading and unloading, in order to reduce the ordering cost.

Answer No. 02

(a) Calculation of budgeted variable and fixed factory overheads per unit

<u>Variable factory overheads</u>	<u>Small</u>	<u>Large</u>
Material utilised per mattress (Kg.)	12.50	18.50
	(30,250,000/12,100)/200	(40,700,00/11000)/200
<u>Variable factory overheads/unit</u>		
Actual production –August (units)	12,100	11,000
Budgeted Material utilization	30,250,00/200 =151,250 Kgs	40,700,000/200 =203,500 Kgs
Total variable cost (Rs.)	50*151,250 = 7,562,500	50*203,500 =10,175,000
Budgeted variable factory overhead/unit	625.00	925.00

Calculation of budgeted fixed factory overhead per unit

	Rs.
Total factory overheads	32,037,500.00
Variable factory OH - Small (12100*625)	(7,562,500.00)
Variable factory OH - Large (11000*925)	(10,175,000.00)
Fixed factory overheads absorbed to production	<u>14,300,000.00</u>
 <u>Fixed production overhead absorption</u>	
Total production overheads	14,300,000.00
 <u>Budgeted Labour hours</u>	
Small - (4,840,000/200)	24,200
Large - (6,600,000/200)	33,000
Total Hours	57,200
Per hour rate (Rs.)	250.00

Calculation of budgeted fixed factory overhead/unit

	<u>Small</u>	<u>Large</u>
Absorption of total fixed factory overheads	6,050,000.00 (250*24,200)	8,250,000.00 (250*33,000)
Actual production (units)	12,100	11,000
Budgeted fixed factory overhead/unit	Rs. 500.00	Rs.750.00

(b) Based on absorption Costing System - Profit statement for September 2012

		<u>Rs. '000</u>
Sales - Small (price=6000)	12,000	72,000.00
Large (price=8500)	10,500	89,250.00
		161,250.00
Cost of sales (Ref. W 1)		
Small (4,025*12,000)		(48,300.00)
Large (5,975*10,500)		(62,737.50)
Gross profit		50,212.50
Selling and distribution cost		(3,225.00)
Administration and other overheads		(10,000.00)
Over-absorption of POH (Working 2)		1,475.00
Projected net profit		38,462.50

<u>Working 1</u>	<u>Small</u>	<u>Large</u>
Material	2,500.00	3,700.00
Labour costs	400.00	600.00
Variable factory overheads	625.00	925.00
Fixed overheads	500.00	750.00
Total unit cost	4,025.00	5,975.00

<u>Working 2</u>	<u>Small</u>	<u>Large</u>
Production (units)	11,750.00	10,800.00
Average production (units)	10,000.00	10,000.00
Over/(under) production	1,750.00	800.00
Per unit absorption rate (Rs.)	500.00	750.00
Over/(under) absorption of POH (Rs.)	875,000	600,000

(c) **Profit Statement for September -2012 Based on Marginal Costing System**

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Sales -	Small (price=6000)	12,000	72,000.00
	Large (price=8500)	10,500	<u>89,250.00</u>
			161,250.00
	Less - Selling and distribution cost		<u>(3,225.00)</u>
	Net sales		<u>158,025.00</u>
Cost of sales			
	Small (2500+400+625)*12,000		(42,300.00)
	Large (3700+600+925)*10,500		<u>(54,862.50)</u>
Total contribution			60,862.50
	Fixed production overheads(10000*500 + 10000*750)		(12,500.00)
	Administration and other overheads		<u>(10,000.00)</u>
Projected net profit			<u>38,362.50</u>

(d) **Profit Reconciliation for answer (b) and (c) above.**

Difference in profit

Rs. 100,000

	<u>Small</u>	<u>Large</u>
Opening Stock	500	250
Production during the month	11,750	10,800
- Sales	<u>(12,000)</u>	<u>(10,500)</u>
Closing Stock	<u>250</u>	<u>550</u>
Increase/(reduction) in stock C/F	(250)	300
Per unit Overhead absorption	<u>500</u>	<u>750</u>
Difference in profit Rs.	<u>(125,000)</u>	<u>225,000</u>
	100,000	

Reason for the difference

The difference in the profit is arising due to the difference in value of opening and closing stocks. Value of stocks in absorption system includes the factory overheads for the relevant quantity whereas marginal costing system does not.

(e) **Arguments in Support of Absorption Costing System over the Marketing proposal.**

- a) The production cannot be carried out without the fixed production overheads. Absorption costing system therefore incorporates these costs in the product whereas marginal costing treat them as period cost.
- b) Where the production is constant and sales fluctuate, net profit fluctuation is less with absorption costing than with marginal costing.
- c) Absorption costing incorporates the fixed cost to the production and thereby helps the management to make accurate pricing decisions and avoids underpricing.
- d) For taxation and accounting reporting standard purposes it is required to identify the relevant cost incurred to generate the revenue of the period, which the absorption costing system comply with.
- e) Absorption system helps to calculate the profit of each product separately whereas marginal system allows to compute the contribution.

Answer No. 03

Part A

(a) **Appropriate methods of raising funds.**

(i) Issue of ordinary shares

Company can issue shares to the existing shareholders of the company which is called as right issue. Or it can request a new party to buy shares of the company which will be a fresh share issue.

(ii) Issue of preference shares

The preference shares which are another source of equity finance also can be used by the company to raise funds. This is similar to a loan where the holders are entitled for a fixed agreed dividend per annum.

(iii) Issue of debentures

This is similar to issue of preference shares. However this falls under debt capital of the company. A debenture is a loan obtained from the public and other institutions.

(iv) Long-term bank loans

The company can apply for a bank loan from a bank. The bank then will study the project and consider granting loan at a fixed interest rate. The bank often asks for security before granting the loan.

(v) Financial lease arrangement

The company can buy the total or part of the machinery requirement from a long term financial lease arrangement.

(b) **Benefits of each method.**

(i) Issue of ordinary share

- There is no committed payment of dividends. When profits available dividends can be paid.
- No securities required to be pledged
- Strengthen Debt/Equity ratio of the company.
- No need of repayment

(ii) **Issue of preference share**

- Since preference shares carry no voting rights, the controlling power is retained with the existing shareholders
- No securities required.
- Repayment period can be decided by the company, (if redeemable).

(iii) **Issue of debentures**

- It is easier than issuing shares and less time consuming.
- There won't be any impact to controlling power of existing shareholders since equity remains unchanged.
- Interest is tax allowable so that after tax cost of debt is lower.

(iv) **Long-term bank loans**

- There won't be any impact to controlling power since equity remains unchanged.
- Interest is tax allowable so that after tax cost of debt is lower.
- Can negotiate for a longer repayment period with a low instalment.

(v) **Financial lease arrangement**

- There won't be any impact to controlling power since equity remains unchanged.
- Lease rentals are tax allowable.
- Easier to obtain than other long term financing methods

(c) **Crrrtqrktcvg" o gvjqfu"vq" o gg" Eg{e jg o ou financial needs.**

- i. Temporarily increasing the bank overdraft in order to meet the seasonal fund requirement.
- ii. Short-term bank loans.
- iii. Negotiation with suppliers for deferred settlement for purchases.
- iv. Offering discounts and other incentives to credit customers for early settlement.
- v. Can also request an advance from the parent company or a sister company.
- vi. Negotiate with a finance company for factoring of debtors.

Part B

(d) **Calculation of Yield to maturity of the bonds of Ceygoods Limited.**

PV = PV of coupon payment + PV of face value

$$PV = C [(1 - (1+r)^{-n})/r] + MV/(1+r)^n$$

Using the trial and error method the calculation of IRR can be done;

@ Discount rate of 12%

$$C = 1,000 * 16\% / 2 = \text{Rs.80}$$

$$MV \text{ (Maturity Value)} = \text{Rs.1,000}$$

$$PV = 80 [(1 - (1 + 6\%)^{-20}) / 6\%] + 1000 / (1 + 6\%)^{20}$$

$$PV = (80 * 11.4699) + (1000 / 3.207)$$

Rs. 1,229.40

@ Discount rate of 14%

$$PV = 80 [(1 - (1 + 7\%)^{-20}) / 7\%] + 1000 / (1 + 7\%)^{20}$$

$$PV = (80 * 10.594) + (1000 / 3.869)$$

Rs. 1,105.94

PV	Discount rate	NPV
1,229.40	6%	= 1,229.40 - 1,150 = 79.40
<u>1,105.94</u>	7%	= 1,105.94 - 1,150 = (44.06)
123.46	-1%	

IRR or the **Yield** is

$$= 6\% + ((7\% - 6\%) / (79.40 - (-44.06) * 79.4)) = 6.643\%$$

$$\text{Yield} = \text{bi} - \text{annual} = 6.643\%$$

$$\text{Annual Yield} = 6.643 \times 2 = \underline{\underline{13.29\%}}$$

Alternative Method

$$= 6\% + ((7\% - 6\%) / (1,229.40 - 1,105.94) * (1,229.40 - 1,150)) = 6.643\% * 2$$

13.29%

(e) **Other matters to consider before buying Bonds.**

- * Volatility of interest rate. When interest rates are increasing the price of bonds will come down.
- * The issuer, its businesses and going concern should be evaluated.
- * Current inflation and economic condition.
- * Current and future tax pertaining to interest income from bonds.
- * Whether bond certificate can be kept as a security.
- * Ensure that the return in bonds is higher than the cost of capital of the company.

Answer No. 04

(a) Calculation of the followings for the quarter ended 30 June 2012

(i)

Standard profit per transport kilometer	=	$\frac{2,000,000}{200,000}$	=	10
Sales volume variance (km)	=	$\frac{220,000}{10}$	=	22,000
Actual travelling kilometers	=	$200,000 - 22,000$	=	<u>178,000 Km</u>

(ii)

Standard direct labour rate per hour	=	$\frac{20}{0.02}$	=	1000
Standard cost of 3,600 hours	=	$3,600 \times 1000$	=	3,600,000
Actual cost of 3,600 hours	=	$3,600,000 - 270,000$	=	3,330,000
Actual direct labour rate per hour	=	$\frac{3,330,000}{3,600}$	=	<u>Rs.925</u>

(iii)

Standard fuel rate per litre	=	$\frac{10}{0.1}$	=	100
Fuel usage variance (litres)	=	$\frac{320 \times 1000}{100}$	=	3,200
Standard usage of fuel	=	$178,000 \times 0.1$	=	17,800
Actual usage of fuel	=	$17,800 + 3,200$	=	<u>21,000 Liters</u>

(iv)

Standard VOH cost for 178,000km	=	$178,000 \times 15$	=	2,670,000
Total VOH variance (Favourable)	=	$70,000 - 45,000$	=	25,000
Actual VOH cost	=	$2,670,000 - 25,000$	=	<u>Rs. 2,645,000</u>

(b) Describing the different type of standards

There are four types of standards

1. Ideal standards - Set at the ideal condition of operation assuming no wastage, no scraps, no spoilage, no inefficiency, no power failure etc.
2. Attainable standards - Set after allowing some level of losses so as to bring them to a achievable level.
3. Current standards - Set based on the current condition for a shorter time frame.
4. Basic standards - Set with the intention to keep constant for a longer time period.

NOT FOR SALE

Answer No. 05

(a) **Calculation of MC, TC, TR, MR etc. of one unit of cake, with the old machine**

(i) If the new machine is not hired

Marginal cost per unit	Rs.
Material (1200/20)	60
Piecework Labour rate	15
Royalty Payment	15
Marginal cost per unit	90

(ii) If the number of units is q, Total Cost (TC) function would be

$$TC = (\text{Marginal Cost per Unit}) \times (q) + \text{Total Fixed Cost}$$

$$\underline{TC = 90q + 150,000}$$

To increase demand by 1 unit selling price must be reduced by: $3/1000$ i.e. by Rs. 0.003 which is the gradient of the demand curve.

If quantity to be made zero, price has to be increased by: $3 \times 20,000/1000$ i.e. by Rs. 60 to Rs 150 (= 90 + 60) Therefore gradient of the demand curve is Rs. 150

Therefore the demand function (P) would be

$$\underline{P = 150 - 0.003q}$$

Accordingly Total Revenue function:

$$TR = (p) \times (q)$$

$$TR = (150 - 0.003q) \times (q)$$

$$\underline{TR = 150q - 0.003q^2}$$

Therefore Marginal Revenue (by differentiating TR) :

$$\underline{MR = 150 - 0.006q}$$

(iii) Optimum output is where MC = MR

$$\text{Therefore } 90 = 150 - 0.006q \text{ where } \underline{q = 10,000 \text{ units}}$$

$$\text{Selling price at optimum output level} = 150 - 0.003q = \underline{\text{Rs } 120}$$

$$\text{Profit} = (120 - 90) \times 10,000 - 150,000 = \underline{\text{Rs } 150,000}$$

(b) **Calculation of the optimum output level (OOL) and selling price and profit at OOL, with the new machine.**

If the new machine is hired Material cost will be reduced by 50% i.e. by Rs 30.
Accordingly Marginal cost per unit would be Rs.90 – Rs.30; = **Rs. 60**

Fixed cost will increase by the machine hire of Rs 345,000,
Accordingly, new Fixed Cost = 150,000 + 345,000 = **Rs. 495,000**
Then the Total Cost (TC) function would be **TC = 60q + 495,000**

Optimum output is where MR = MC

Therefore $60 = 150 - 0.006q$ where **q = 15,000 units**

Selling price at optimum output level = $150 - 0.003q =$ **Rs. 105**

Profit = $(105 - 60) \times 15,000 - 495,000 =$ **Rs. 180,000**

(c) **Recommendation as to whether the new machine should be hired.**

If the new machine is hired the profit for the next quarter will increase to Rs 180,000 compared to Rs.150,000 generated with the existing machine. Therefore it is recommended that the new machine is hired.

(d) **Possible reasons for making a loss in the quarter just ended.**

Last quarter losses could have resulted due to,

1. Production of 20,000 units which is as twice as the optimum quantity under those circumstances may have resulted in diseconomies of scale.
2. Material loss of around 50% must have been significantly affecting the material cost.

Answer No. 06

(a) **Calculation of monthly operational profit before price reduction**

	(Rs. '000)
Sales (650*75,000)	48,750.00
Variable costs (535*75,000)	(40,125.00)
Fixed overheads	<u>(6,000.00)</u>
Monthly profit - current operation	<u>2,625.00</u>

(b) **Calculation of possible profit saving from Proposal A**

	Rs.
<u>Cost savings on buttons eyes</u>	
Current cost of two glass buttons per toy (600/96*2)	12.50
<u>If plastic eyes used - Cost on plastic buttons:</u>	
New cost of two plastic buttons per toy (450/90*2)	(10.00)
Per toy cost savings	<u>2.50</u>
Total cost saving from proposal A	<u>187,500.00</u>

Calculation of possible profit saving from Proposal B

	Rs.
<u>Cost Saving that can be made from fabric based filling material</u>	
Per unit cost of synthetic filling material = 90,000/2000 (1 metric ton is sufficient for 2000 toys @500 g per toy)	45.00
<u>New cost on filling material</u>	
Material cost of sorted fabric (20,000/80%)	25,000.00
Additional Labour cost	15,000.00
Total cost of sorted & cut fabric sent to manuf. floor	40,000.00
<u>Per unit new filling material cost</u>	
Per unit cost of 80% in synthetic filling material (90,000/2000*80%)	36.00
Per unit cost of 20% in sorted & cut fabric (40000/2000*20%)	4.00
New per unit filling material cost	40.00
Variable cost (VC) saving per unit (Rs.45.00-Rs.40.00)	5.00
Total VC Saving on 75,000 units (75,000* Rs.5.00)	375,000.00
Less; Additional FC	<u>(150,000.00)</u>
Net saving from proposal B	<u>225,000.00</u>

Total saving from both proposals (A+B)		412,500.00
Decrease in profit due to price reduction	(75,000*20)	<u>(1,500,000.00)</u>
Decrease in profit due to price reduction, not covered		<u>(1,087,500.00)</u>

The company cannot recover the loss due to the price reduction from the both of proposal A and B.

(c) **Calculation of the quantity that should be sold to maintain the monthly profit at current operational level.**

		Rs.
Reduced price/Unit (Rs.650.00-Rs. 20.00)		630.00
Less;		
Current Variable Cost (VC)/Unit	(535.00)	
VC savings - proposal A	2.50	
VC savings - proposal B	<u>5.00</u>	
New Variable cost / Unit		<u>(527.50)</u>
New Contribution / Unit		<u>102.50</u>
New Fixed cost (6,000,000 +150,000)		6,150,000.00
Current profit, as per (a) above		<u>2,625,000.00</u>
Total Contribution to be earned to earn current profit		<u>8,775,000.00</u>
No. of units to be sold to maintain the current profit		<u>85,610</u>

(d) **Calculation of the quantity that should be sold to maintain the monthly profit at current operational level.**

Sales (85,000*630)		53,550,000.00
Variable Cost with Proposal A and B	(527.50)	
Advertising Proposal C (630*2%)	<u>(12.60)</u>	
New Variable Cost per unit	<u>(540.10)</u>	
Total Variable Cost (85,000*540.10)		<u>(45,908,500.00)</u>
Total Contribution		7,641,500.00
New Fixed Cost		<u>(6,150,000.00)</u>
New Profit from Proposal C		<u>1,491,500.00</u>
Profit from proposal A and B with price reduction		
(412,500 + 2,625,000) –(1,500,000)		<u>1,537,500.00</u>
Advice: Proposal C is not advisable to be implemented.		

Answer No. 07**(a) Monthly Profit Statement**

	Chemical A	Chemical B	Chemical C	Total
Selling price/Kg (Rs.)	170.00	240.00	310.00	
Quantity of outputs(Kgs.)	50,000	30,000	15,000	
Turnover (Rs.)	8,500,000.00	7,200,000.00	4,650,000.00	20,350,000.00
Sale of by-products (100,000*0.03)*40)				120,000.00
Joint Costs				
Material X	(100,000/5*4)*85			(6,800,000.00)
Material Y	(100,000/5*1)*150			(3,000,000.00)
Incineration of lumped waste (100,000*2%)*140				(280,000.00)
Labour Cost				(1,040,000.00)
Total Overheads other than Depreciation				(1,200,000.00)
Depreciation , per month (26Mn-5Mn)/ 60 months				(350,000.00)
Net profit to the company				7,800,000.00

(b) Calculation of unit cost of each Chemical manufactured;

Total joint cost	12,670,000.00
Less: sale of by product	(120,000.00)
Total joint processing cost	12,550,000.00

	Chemical A	Chemical B	Chemical C	Total
Sales Value (Rs.)	8,500,000.00	7,200,000.00	4,650,000.00	20,350,000.00
Proportion for apportionment (Rs.)	85.00	72.00	46.50	203.5
Apportionment of TJPC (Rs.)	5,242,014.74	4,440,294.84	2,867,690.42	12,550,000.00
Quantity of Output Kgs.	50,000	30,000	15,000	95,000
Per Kg. Joint Cost based on output (Rs.)	104.84	148.01	191.18	

Justification of superiority of sales value method for joint cost apportionment

- Selling prices of the chemicals are not at the same level.
- The cost should be apportioned on the benefit received (i.e. selling prices) from each chemical.
- The weight of output method ignores the realisable value (benefit) of chemicals.
- The weight of output method gives the same cost for every product.
- The profit of each product under weight of output method will be inconsistent.

(c) **Output of chemical AA (50,000 Kg*98%)**

Output of chemical AA (50,000 Kg*98%)	49,000 Kg
	Rs.
Additional revenue from further processing (Rs.220*49,000 Kg) – (Rs.170*50,000 Kg)	2,280,000.00
<u>Less; Further processing costs;</u>	
Total Cost of further processing	(1,700,000.00)
Incineration cost (50,000*2%*140)	(140,000.00)
Net benefit on further processing	440,000.00

Since the further processing adds a positive contribution to the profits it is advisable to further process the entirety of chemical “A”

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