

CA



THE INSTITUTE OF
CHARTERED ACCOUNTANTS
OF SRI LANKA

SUGGESTED SOLUTIONS

KB 2 – Business Management Accounting

December 2017

SECTION 1

Answer 01

Relevant Learning Outcome/s: 1.1.3

Evaluate product profitability and customer profitability decisions using information generated from absorption costing, and activity based costing.

Study text reference: Page 22

(a)

	Rs.'000	
	EXE	WYE
Project supervision (30/2000)	1,800	3,750
Planning & monitoring (100/500)	10,000	38,000
Labour related overheads (200/8,000,000)	7,500	35,000
Total overheads	19,300	76,750
Total direct cost	400,000	800,000
Total job cost	419,300	876,750

- (b) The cost computed based on activity-based costing gives a more accurate cost related to each project since it identifies different cost drivers for each cost pool and accordingly charges overheads to the jobs.

Based on the activity-based costing approach, the total relevant cost of EXE is only Rs. 419.3 million, and the markup is Rs. 41.93 million. The management can consider offering a maximum discount of Rs. 44.77 million (506 – 461.23), depending on their discretion.

The cost of WYE per the activity-based costing approach is only Rs. 876.75 million, and the markup is Rs. 87.675 million. The management can consider offering a maximum discount of Rs. 47.58 million (1,012 – 964.43), depending on their discretion.

- (c) The traditional absorption method allocates fixed costs to service departments and charges them to the product based on a single output-based method, mainly labour hours or machine hours.

However, the ABC method allocates costs to each cost pool of activities with a common cost driver and charges them to the products based on the utilisation of the cost driver by each product. As such ABC uses cost drivers as absorption bases.

(Total: 10 marks)

Answer 02

Relevant Learning Outcome/s: 1.3.2 and 5.1.1
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)
5.1.1 Define the term “working capital management”.
Study text reference: Pages 109 and 609

- (a) Total Quality Control (TQC) measures defects and thereby attempts to reduce them at each stage of the production process rather than checking the outgoing items.

IEE could reduce defects at each stage as follows.

1. **Product design**

Development of a precise design is critical. For this purpose the design team at the design stage should liaise closely with the engineering and manufacturing teams to ensure the designs are practical. They should collectively go through each element in the design for the manufacturing team to understand them. Also at this stage they should be able to eliminate waste by excluding unwanted elements.

2. **Production engineering**

The engineering department, by working closely with the design and manufacturing teams, should develop an effective process to manufacture the item. The process should have inbuilt quality control measures that will reduce defects.

3. **Manufacturing**

With a precise design and a well-developed process, the manufacturing department will be in a position to produce the item with minimum defects and waste.

4. **Procurement**

The quality of output depends on the quality of input materials. The procurement department therefore should impose quality standards on the suppliers so that they will not supply substandard materials. Consequently the extent of checking can be reduced.

5. **Output inspection**

In TQC, quality measures are introduced at each stage so that the effort required at the output stage is minimised.

(b)

- (i) Overtrading refers to a situation where a company does more business than what its finances allow. It is related to the cash position of the enterprise, and it occurs when the company expands its scale of operations with insufficient cash resources.

(ii) **Overtrading and liquidity issues**

When the owners are more interested in development and growth activities, there is the need to increase sales.

In order to increase sales a company may have to offer price discounts and longer credit periods resulting in an increase in trade receivables. This could lead to more bad debts.

Increase in sales results in increased production, and a consequent increase in purchases and inventories. Increase in stocks will result in increased stock holding costs, including pilferages.

Increased purchases will lead to more pressure on cash outflows to creditors unless longer credit periods can be negotiated.

It is very unlikely that the increase in debtors and inventories can be completely financed through creditors. Therefore unless the company has retained earnings, it will have to borrow to finance the additional working capital.

The additional borrowing costs together with price discounts, bad debts and inventory holding costs will reduce profitability. This reduced profitability and the necessity to repay debt will in turn increase cash deficits.

The above will continue with spiral effects and worsen the issue unless arrested at an early stage.

(Total: 10 marks)

Answer 03

Relevant Learning Outcome/s: 3.1.1 and 3.1.2

3.1.1 Identify relevant and irrelevant information for decision making.
3.1.2 Demonstrate relevant costs under material, labour, make or buy, continue/
Discontinue / outsource, accept or reject decisions.

Study text reference: Page 270

	Quantity	Rate	Relevant cost
Latex material	60,000	410	24,600,000
Chemicals	10,000	1,450	14,500,000
Pigment			-
Direct labour			4,800,000
Variable overheads			2,000,000
Fixed overheads (6,400,000 * 40%)			<u>2,560,000</u>
Relevant cost of order			48,460,000
Contribution to be foregone (50,000 * 500)			<u>25,000,000</u>
Relevant cost			<u>73,460,000</u>
Minimum price			<u>73,460,000</u>
Number of units			1,000,000
Minimum price per unit			73.46

Note 1

- Purchase cost (Rs. 400) is a sunk cost → Not relevant
- Current price is the cost when purchasing material for the job (future cost) → Relevant

Note 02

- The original cost (Rs. 1,500) is a sunk cost → Not relevant
- Resale price is irrelevant since there is no intention of sale and it should be regularly purchased for production → Not relevant
- Current price (Rs. 1,450) is the cost when purchasing materials for the job → Relevant

Note 03

- Purchase cost (Rs. 10,000) is a sunk cost → Not relevant
- No need to purchase at new price since there is no future use → Not relevant

Note 04

- Fixed overhead absorption cost is not a job specific cost → Not relevant
- Increase in fixed overheads is due to the acceptance of the project → Relevant

Note 05

- Contribution of sacrificed existing products is an opportunity cost → Relevant
- Variable overheads and direct labour are directly attributable to output → Relevant

(Total: 10 marks)

Answer 04

Relevant Learning Outcome/s: 4.2.1

Discuss different types of transfer pricing possible under decentralized organisational structure (including maximum and minimum price, cost based pricing, market based pricing, dual pricing and negotiated pricing).

Study text reference: Page 560

(a)

(i) CA division

For existing 2,000 units		
Reduction in selling price (Rs.)	2,500	
Reduction in variable cost (Rs.)	2,500	
Net impact on contribution	Nil	
Incremental 500 units		
Contribution per unit (Rs.)		25,000
Incremental contribution (Rs. million)		12.50

Since there is an additional benefit, the CA division will desire this decision.

(ii) EE division

Contribution per processor unit	Nil
Loss of contribution on accessories (Rs. million)	
$2,500 \times 12,500 \times 40\%$	12.50

EE will not agree for this as its profit is reduced.

(iii) EL

	Rs. million
Gain for CA	12.5
Loss for EE	(12.5)
Net result	-

Since there is no net impact it is indifferent to EL.

(b)

If EE supplies the processors, the relevant cost would be as follows.

	Rs.
Actual variable cost	22,500
Loss of contribution (12,500 x 40%)	<u>5,000</u>
	<u>27,500</u>

However, it can be purchased from the outside supplier for Rs. 25,000.

Therefore EL should buy the processors from the outside supplier.

(Total: 10 marks)

Alternative answer

(a)

	Unit cost/Price	Units	CA	EE
			Rs. '000	
Current situation				
Sales (EXCEL)	75,000	2,000	150,000	
Sales (Y)	12,500	8,000		100,000
Sales			150,000	100,000
V/C Processor X	25,000	2,000	(50,000)	
V/C Product Y				(60,000)
Other variable cost (Processor X)			(50,000)	-
Contribution			50,000	40,000
Fixed cost			(30,000)	(20,000)
Current profit			20,000	20,000
	Unit cost/Price	Units	CA	EE
Sales (EXCEL)	72,500	2,500	181,250	
Sales of Y (8,000 – 2,500)	12,500	5,500		68,750
Sales of X	22,500	2,500		56,250
Total sales			181,250	125,000
V/C Product Y				(41,250)
Variable costs on EXCEL (Processor X)	22,500	2,500	(56,250)	
Other variable costs	25,000	2,500	(62,500)	(56,250)
Contribution			62,500	27,500
Fixed cost			(30,000)	(20,000)
Profit			32,500	7,500
Current profit			20,000	20,000
Impact			12,500	(12,500)

From CA's point of view it is beneficial.

From EE's point of view it is not beneficial.

From the company's point of view there is no change in profit therefore the proposals are indifferent.

(b)

	Unit cost/Price	Units	CA
			Rs. '000
With the new proposals			
Sales (EXCEL)	72,500	2,500	181,250
Sales			181,250
Variable costs on EXCEL (Processor X)	25,000	2,500	(62,500)
Other variable costs of CA division			(62,500)
Contribution			56,250
Fixed cost			(30,000)
Profit			26,250
Current profit			20,000
Impact			6,250
Since the profit of the company increases by Rs. 6.25 million, the proposal is worthwhile.			

(Total: 10 marks)

Answer 05

Relevant Learning Outcome/s: 5.1.7

Assess optimum inventory decision (EOQ) including the decision of whether to accept a quantity discount or not.

Study text reference: Page 651

(a)

To be manufactured	12,500
Material Y (10 units per output unit)	125,000
Total demand for Material Y	125,000

Economic Order Quantity (EOQ)

$$Q = \sqrt{\frac{2C_o D}{C_h}}$$

C_o = Ordering cost = 10,000

C_h = Holding cost = 120

D = Annual Demand = 125,000

$$EOQ = (\sqrt{2 \times 125,000 \times 10,000}) / 120 = 4,564 \text{ units}$$

b) **At present EOQ level = 4,564 units**

Inventory cost

Purchasing cost (1,000 * 125,000)	125,000,000.00
Ordering cost = (125,000/4,564) * 10,000	273,882.56
Holding cost = (4,564/2) * 120	273,840.00
Total cost	125,547,722.56

Between 4,700 – 6,999 units

$$EOQ = (\sqrt{2 \times 125,000 \times 10,000}) / (1,000 \times 90\% \times 1\% \times 12) = 4,811.00$$

Inventory cost

Purchasing cost (125,000 * 900)	112,500,000.00
Ordering cost = (125,000/4,811) * 10,000	259,821.24
Holding cost = (4,811/2) * 108	259,794.00
Total cost	113,019,615.24

Above 7,000 units

$$EOQ = (\sqrt{2 \times 125,000 \times 10,000}) / (1,000 \times 88\% \times 1\% \times 12) = 4,865.00$$

Inventory cost

Purchasing cost (125,000 * 880)	110,000,000.00
Ordering cost = (125,000/7,000) * 10,000	178,571.43
Holding cost = (7,000/2) * 105.6	369,600.00
Total cost	110,548,171.43

It is recommended to purchase 7,000 units per order with a 12% discount.

(Total: 10 marks)

Answer 06

Relevant Learning Outcome/s: 2.2.3

Analyse the budgetary control statement (original budget, flexed budget, actual and variances)

Study text reference: Page 216

(a)

Annual cost at 100% occupancy

Function	Amount (Rs. million)	Notes
Administration	460	100% fixed
Catering	820	70% variable and 30% fixed
Cleaning	160	20% variable and 80% fixed
Laundry	400	100% variable
Medical supervision	1,300	30% variable and 70% fixed
Other overheads	500	25% variable and 75% fixed

Actual costs for the quarter ended 30 September 2017

Function	Variable (Rs. '000)	Fixed (Rs. '000)
Administration	-	110,000
Catering	137,500	62,000
Cleaning	7,625	31,000
Laundry	96,900	-
Medical supervision	92,625	218,000
Other overheads	30,000	90,000
Total	364,650	511,000

	Annual budget (100%)		Per quarter (100%)		Fixed budget (90%)		Flexed budget (95%)		Actual	
	Fixed	Variable	Fixed	Variable	Fixed	Variable	Fixed	Variable	Fixed	Variable
	Rs. million									
Administration	460	-	115	-	115	-	115	-	110	-
Catering	246	574	61.5	143.50	61.5	129.15	61.5	136.325	62	137.5
Cleaning	128	32	32	8.00	32	7.20	32	7.6	31	7.625
Laundry	-	400	0	100.00	0	90.00	0	95	0	96.9
Medical supervision	910	390	227.5	97.50	227.5	87.75	227.5	92.625	218	92.625
Other overheads	375	125	93.75	31.25	93.75	28.125	93.75	29.6875	90	30
	2,119	1,521	529.75	380.25	529.75	342.225	529.75	361.238	511	364.65

Profit statement for the quarter ended 30 September 2017

	Fixed	Flexed	Actual
	Rs. million		
Revenue	972	1,026	1,043.5
Variable costs	(342.225)	(361.238)	(364.65)
Contribution	629.775	664.762	678.85
Fixed cost	(529.75)	(529.75)	(511)
Profit	100.025	135.012	167.85

Calculation of revenue

	Fixed	Flexed	Actual
Revenue (Rs. million)	972	1,026	1,043.5
Fixed budget	$30,000 \times 90 \times 360 = 972,000,000$		
Flexed budget	$30,000 \times 90 \times 380 = 1,026,000,000$		
Actual	$3,500 \times 35,000 + 30,000 \times 30,700 = 1,043,500,000$		

Variable cost per bed

Fixed	$342,225,000 / 32,400 = 10,562.50$
Flexed	$361,237,500 / 34,200 = 10,562.50$
Actual	$364,650,000 / 34,200 = 10,662.28$

(b) Reconciliation

Fixed with Flexed	Rs. million	
Fixed budget profit	100.02	
Sales volume variance $(34,200 - 32,400) \times 19,437.5$	34.99 (F)	
Flexed budget profit	135.01	

Flexed budget profit	135.01	
Revenue		
Bed rate variance $(35,000 - 30,000) \times 3,500$	17.5 (F)	
Variable expenditure variance		
Catering	1.18 (A)	
Cleaning	0.02 (A)	
Laundry	1.9 (A)	
Medical supervision	-	
Other overheads	0.31 (A)	3.41 (A)
Fixed cost variance $(529.75 - 511)$	18.75 (F)	
Actual profit	167.85	

(c)

- Costs could be higher or lower than the fixed budget due to the volume of actual output being higher or lower than the fixed budget. Therefore, costs per fixed budget if compared with actuals will be meaningless.
- Revenue could be higher or lower than the fixed budget due to actual sales being higher or lower than the fixed budget. Comparison with the fixed budget does not indicate whether the company has varied from the budget.
- Comparison with the fixed budget does not indicate whether the revenue was satisfactory at actual occupancy level.

(Total: 25 marks)

Answer 07

Relevant Learning Outcome/s: 3.7
Long-term decision making
Study text reference: Pages 496, 503 and 507

(a)

	(Rs. million)						
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Capital investment	(120.00)					12.00	-
Increase in contribution							
In existing sales (300 * 5%)	-	15.00	15.00	15.00	15.00	15.00	-
Expected contribution (W1)	-	60.40	60.40	60.40	53.60	53.60	-
Additional fixed overheads	-	(20.00)	(20.00)	(20.00)	(20.00)	(20.00)	-
Cash flows before taxation	(120.00)	55.40	55.40	55.40	48.60	60.60	-
Tax payment (W2)	-	(3.23)	(4.31)	(4.31)	(11.28)	(16.13)	(4.24)
NCF	(120.00)	52.17	51.09	51.09	37.32	44.47	(4.24)
Discount factor	1.000	0.847	0.718	0.609	0.516	0.437	0.370
DCF	(120.00)	44.18	36.68	31.11	19.26	19.43	(1.57)
NPV	29.10						

Since the expected NPV is positive (Rs. 29.10 million) the project can be financially recommendable to accept.

W1

	Years 1 - 3	Probability	Expected	Years 4 - 5	Probability	Expected
High	200.00	0.30	60.00	200.00	0.10	20.00
Medium	150.00	0.50	75.00	150.00	0.60	90.00
Low	80.00	0.20	16.00	80.00	0.30	24.00
Expected sales			151.00			134.00
Expected contribution			60.40			53.60

W2

	Rs. million					
Year	1	2	3	4	5	6
Profit	55.40	55.40	55.40	48.60	48.60	
Residual value	-	-	-	-	12.00	
Depreciation allowance	<u>(40.00)</u>	<u>(40.00)</u>	<u>(40.00)</u>	<u>-</u>	<u>-</u>	
Taxable income	<u>15.40</u>	<u>15.40</u>	<u>15.40</u>	<u>48.60</u>	<u>60.60</u>	
Tax liability	<u>4.31</u>	<u>4.31</u>	<u>4.31</u>	<u>13.61</u>	<u>16.97</u>	-
Tax payment	<u>3.23</u>	<u>4.31</u>	<u>4.31</u>	<u>11.28</u>	<u>16.13</u>	<u>4.24</u>

(b)

- Takes into consideration time value of money
- Uses all cash flows relating to the project
- Allows for the timing of cash flows
- Can be utilised as a criterion for mutually exclusive projects

(c)

NCF	(120.00)	52.17	51.09	51.09	37.32	44.47	(4.24)
Discount factor (DR = 25%)	1.000	0.800	0.640	0.512	0.410	0.328	0.262
DCF	(120.00)	41.73	32.70	26.16	15.30	14.59	(1.11)
NPV	9.36						

DR	NPV
18%	29.10
<u>25%</u>	<u>9.36</u>
-7%	19.74

$$\text{IRR} = 25\% + (7\%/19.74) * 9.36 = 28\%$$

(d) (i)

Year	1	2	3	4	5	6
Contribution	60.40	60.40	60.40	53.60	53.60	-
Contribution increase in existing sales	15.00	15.00	15.00	15.00	15.00	
Tax payment	(15.83)	(21.11)	(21.11)	(19.68)	(19.21)	(4.80)
NCF	59.57	54.29	54.29	48.92	49.39	(4.80)
Discount factor	0.847	0.718	0.609	0.516	0.437	0.370
PV of contribution	50.45	38.98	33.06	25.24	21.58	(1.78)
Total PV of contribution	167.54					
NPV	29.10					

Sensitivity $(29.10/167.54) = 17\%$

The NPV of the project is Rs. 29.10 million. Therefore the PV of the contributions can fall by this amount. This means they can fall by $29.10/167.54$, that is, a sensitivity of 17%.

(ii)

Year	1	2	3	4	5	6
Fixed overheads	(20.00)	(20.00)	(20.00)	(20.00)	(20.00)	
Tax savings	4.20	5.60	5.60	5.60	5.60	1.40
NCF	(15.80)	(14.40)	(14.40)	(14.40)	(14.40)	1.40
Discount factor	0.847	0.718	0.609	0.516	0.437	0.370
PV of overheads	(13.38)	(10.34)	(8.77)	(7.43)	(6.29)	0.52
Total PV of overheads	(45.70)					
Sensitivity $(29.10/45.70)$	64%					

The NPV of the project is Rs. 29.10 million. Therefore the PV of the fixed overheads can fall by this amount. This means they can increase by $29.10/45.70$, that is, a sensitivity of 64%.

(Total: 25 marks)



Notice of Disclaimer

The answers given are entirely by the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka) and you accept the answers on an "as is" basis.

They are not intended as "Model answers", but rather as suggested solutions.

The answers have two fundamental purposes, namely:

1. to provide a detailed example of a suggested solution to an examination question; and
2. to assist students with their research into the subject and to further their understanding and appreciation of the subject.

The Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka) makes no warranties with respect to the suggested solutions and as such there should be no reason for you to bring any grievance against the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka). However, if you do bring any action, claim, suit, threat or demand against the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka), and you do not substantially prevail, you shall pay the Institute of Chartered Accountants of Sri Lanka's (CA Sri Lanka's) entire legal fees and costs attached to such action. In the same token, if the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka) is forced to take legal action to enforce this right or any of its rights described herein or under the laws of Sri Lanka, you will pay the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka) legal fees and costs.

© 2013 by the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka).

All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission of the Institute of Chartered Accountants of Sri Lanka (CA Sri Lanka).
