

CA



THE INSTITUTE OF
CHARTERED ACCOUNTANTS
OF SRI LANKA

SUGGESTED SOLUTIONS

KB 2 – Business Management Accounting

June 2018

SECTION 1

Answer 01

Relevant Learning Outcome/s: 1.3.1

Page: 84,86,92

(a)

Year	2019	2020	2021
<u>Computation of life cycle cost</u>			
Material costs (Rs. million)	240	330	72
Labour costs (Rs. million)	60	81	18
Marketing costs (Rs. million)	100	80	20
Other overheads (Rs. million)	<u>58</u>	<u>38</u>	<u>8</u>
	<u>458</u>	<u>529</u>	<u>118</u>
Total (Rs. million)			1,105
Plant modification cost (Rs. million)			10
Development expenditure (Rs. million)			<u>5</u>
Total life cycle cost (Rs. million)			1,120
Total sales (20,000+30,000+6,000)			56,000
Per unit cost (Rs.)			20,000
Year	2019	2020	2021
Expected margin	40%	35%	25%
Selling price (Rs.)	33,333.33	30,769.23	26,666.67
Selling price approximately is (Rs.)	33,000.00	31,000.00	27,000.00

(b)

- Provides information in advance in order to increase the revenue/price or to decrease the cost.
- Considers the total cost including research cost during the life cycle and therefore more accurate product costing and pricing decisions can be made.
- Life cycle thinking can promote long-term rewarding in contrast to short-term profitability rewarding.

(c) Target costing involves setting a target cost by subtracting a desired profit margin from a competitive market price.

Target costing is useful when the expected price with the expected profit mark-up is not viable in the market conditions due to current similar product prices being lower. In this situation the management can analyse the components of its product and its value addition to the customer. Any non-value adding features which the customers do not really need can be removed and the cost thereby can be reduced to the accepted level.

(Total: 10 marks)

Answer 02

Relevant Learning Outcome/s:1.3.2/5.1.1

Page: 97,612

- (a) Kaizen Costing
- Used as a continuous cost reduction strategy/ Focusing on Continues Improvement
 - It is believed that the employees who actually do the job have the best information and knowledge on how the job can be done better/ Employees are empowered.
 - A culture is created in which the employee suggestions are valued, recognised and rewarded/ Respects new ideas.
 - Commitment from Top management
 - Forward Looking

It would be helpful in a competitive environment because:

- Reduced costs are achieved without extra costs for consultants, less time spent on re working etc.
- Competitive prices can be offered in the market.
- Employees are motivated as their efforts are recognised resulting in less turnaround.
- Improved quality.

(b)

		<u>Rs. Million</u>
(i)	Permanent net current assets	60.00
	Fluctuating net current assets (260-60)	200.00
	Financed by short-term financing	
	Permanent working capital (60-35-15)	10.00
	Total fluctuating net current assets	<u>200.00</u>
	Total	<u>210.00</u>

Since part of the minimum/permanent net current assets is also financed by the short term loan of the company, RPL practices an aggressive working capital financing policy.

Alternatively,

Permanent WC (60-35) =25

Total fluctuating net current assets=200

Total= 225

(ii) Advantages

- Since Short-term financing is less costly, (under normal yield curve) the cost of financing can be minimised.
- Even if net current assets fall below expected “permanent” levels, RPL would not be over-financed.
- RPL faces potentially large fluctuations in net current asset levels so it would benefit from the flexibility that an aggressive financing policy offers.
- Prepayments can be made whenever funds are available.
- Short term loan administration is easier when compared with long term financing options.

Disadvantages

- The policy carries a higher risk of illiquidity unless overdrafts/short-term loans are backed up by committed bank facilities.
- It involves greater management time to manage and renew short-term financing sources.

(Total: 10 marks)

Answer 03

Relevant Learning Outcome/s:3.2.1

Page: 293,294,298

- (a) **Option A** (Manufacture and sale of 80,000 units of Product P)

	<u>Rs. million</u>
Sales revenue	32.0
Variable costs	<u>(13.6)</u>
Contribution	18.4
Fixed costs	<u>(6.02)</u>
Net profit	<u>12.38</u>

Option B Net profit 13.08

Option B should be selected.

- (b) (i) **Option C**

	Per unit (Rs.)			
	P	Q	R	
Price	400	350	350	
Variable cost	153	216	234	
Contribution	247	134	116	
Budgeted sales for 170,000 units	20,000	50,000	100,000	
Total contribution (Rs. million) (170,000 units)	4.94	6.7	11.6	23.24

No. of units needed to generate the budgeted profit.

$$= \frac{(13.08 + 8.998) \times 170,000}{23,240}$$

$$= 161,500$$

P	Q	R
19,000	47,500	95,000

- (ii) Margin of safety

Option B

$$\text{Breakeven level} = \frac{6.02 \times 1,000 \times 170}{19.10}$$

$$= 53,581 \text{ units}$$

$$\text{Sales level} = 170,000 \text{ units}$$

$$\text{Margin of safety} = (170 - 53.581) \times 1,000 = 116,419 \text{ units}$$

$$\text{OR} = \frac{116.42 \times 100}{170}$$

$$= 68.48\%$$

Option C

$$\begin{aligned} \text{Breakeven level} &= \frac{8.998 \times 1,000 \times 161.5}{22.078} \\ &= 65,820 \text{ units} \\ \\ \text{Sales level} &= 161,500 \text{ units} \\ \text{Margin of safety} &= 161,500 - 65,820 = 95,680 \\ \\ \text{OR} &= \frac{95,680}{161,500} \times 100 \\ &= 59.2\% \end{aligned}$$

Option B is preferable as it has a higher margin of safety.

(Total: 10 marks)

Answer 04

Relevant Learning Outcome/s:4.3.1

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(a)

The annual ROI and RI calculations for each option are as follows:

	Option 1 (Rs. million)				
	Y1	Y2	Y3	Y4	Total
Net cash flows	240	240	240	240	960
Depreciation	<u>160</u>	<u>160</u>	<u>160</u>	<u>160</u>	<u>640</u>
Profit	80	80	80	80	320
Capital charge at 16%	<u>102</u>	<u>77</u>	<u>51</u>	<u>26</u>	<u>256</u>
Residual income	<u>(22)</u>	<u>3</u>	<u>29</u>	<u>54</u>	<u>64</u>

	Option 2 (Rs. million)				
	Y1	Y2	Y3	Y4	Total
Net cash flows	260	220	150	100	730
Depreciation	<u>130</u>	<u>130</u>	<u>130</u>	<u>130</u>	<u>520</u>
Profit	130	90	20	-30	210
Capital charge at 16%	<u>83</u>	<u>62</u>	<u>42</u>	<u>21</u>	<u>208</u>
Residual income	<u>47</u>	<u>28</u>	<u>(22)</u>	<u>(51)</u>	<u>2</u>

WDV at the beginning of the year	640	480	320	160
ROI	12.5%	16.7%	25.0%	50.0%

520	390	260	130
25.0%	23.1%	7.7%	-23.1%

Over the entire life of the project both ROI and RI favour Option 1. ROI and RI averages to 26.05% and Rs. 16 million for Option 1 whereas it is 8.18% and Rs. 0.5 million for Option 2.

(b) The manager will favour Option 2 because it yields a higher ROI and RI over the first two years. He will probably focus on a two year time horizon because of his personal circumstances, as choosing Option 1 is likely to result in losing the bonus.

(Total 10 marks)

Answer 05

Relevant Learning Outcome/s:5.1.1

Page: 603,605

(a)

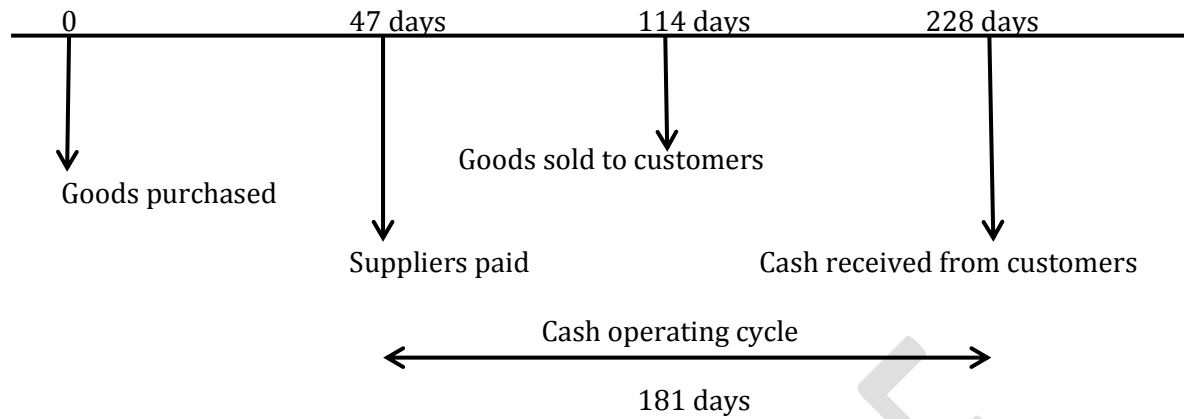
(i)	Inventory turnover period				
			Cash	Credit	
	Sales	600.00	20%	80%	
	GP margin		20%	30%	
	Sales		120.00	480.00	
	Cost of sales		96.00	336.00	
	Total cost of sales			432.00	
	Material cost (80%)			345.60	
	Raw material stock period =			89	
	Inventory turnover period =			114 days	(89+15+10)

(ii)	Accounts receivable days =	
	Credit sales	480.00
	Accounts receivable	150.00
	Accounts receivable days =	114 days

(iii)	Accounts payable payment period =	
	Material cost	345.60
	Credit purchases (90%)	311.04
	Accounts payable payment period	47 days

(iv)	Cash operating cycle	
	Raw material stock period	89
	Finished goods period	15
	Production period	10
	Accounts receivable days	114
	Accounts payable payment period	(47)
	Cash operating cycle	181 days

(b) (i)



(ii) The connection between investment in working capital and cash flow is illustrated by means of the cash operating cycle.

When the turnover period for inventories and trade receivable days **increase** or the payment period to suppliers **decreases** the operating cycle will lengthen and the **investment in working capital will increase**.

(Total: 10 marks)

Answer 06

Relevant Learning Outcome/s: 2.1.3/2.1.1/2.1.2/2.1.4

Page: 161,132,139,155

(a)

For information

	Std	Revised	Actual		
Fabric price/metre	600.00	650.00	660.00		
Fabric usages in metres	2.40	2.64	2.66		
<u>(i) Planning price variance = (Original std price - Revised price) Act output*revised mat. usage</u>					
Planning price variance = $(600-650)*(2.64*60,000) =$				Rs. (7,920,000)	Adverse
<u>Planning usage variance = Act output *Ori. Std price * (Ori. Std usage - revised std usage)</u>					
Planning usage variance = $(60,000*600)*(2.4-2.64) =$				Rs. (8,640,000)	Adverse
<u>(ii) Operating price variance = (Revised std price - Act price) Act purchase</u>					
Operating price variance = $(650 - 660) 159,600 =$				Rs. (1,596,000)	Adverse
<u>Operating usage variance = (Revised usage - Act Usage) Revised price</u>					
Operating usage variance = $((60,000*2.64) - 159,600)650 =$				Rs. (780,000)	Adverse

(b)

<u>Labour rate variance = (Std rate - Act rate)*Act hours</u>		
Skilled labour = $(300 - 315)*10,000 =$	Rs. (150,000)	Adverse
Unskilled labour = $(200-190)*13,000 =$	Rs. 130,000	Favourable
<u>Labour efficiency variance = (Std utilisation - Act utilisation)*Std rate</u>		
Skilled labour = $((12*60,000/60)-10,000)*300 =$	Rs. 600,000	Favourable
Unskilled labour = $((8*60,000/60)-13,000)*200 =$	Rs. (1,000,000)	Adverse

(c) **Materiality** – If the variance between the actual and standard is small, it is not worthwhile investigating, as the investigation may be time consuming and irritating to the manager concerned due to the insignificance of the variance.

The cost of investigating a variance should be compared with the benefit of correcting it. If there is no material benefit from investigating it, there is no point of investigating.

If the causes are obvious/not controllable by the Departmental Manager such as a general salary increases of labour or scarcity of labour, then there is no point of investigating a variance.

The type of the standard used for the variance – If the company uses an ideal standard then there is a higher possibility that there can be adverse variances, requiring no investigation.

Interdependence between variances – When two variances are interdependent (interrelated), one will usually be adverse and the other one favourable hence no requirement to carry out an investigation of the adverse variance.

(d)

<u>Labour mix variance</u>						
	<u>Std Mix</u>	<u>Act hrs Std mix</u>	<u>Act hrs Act mix</u>	<u>Std.Rate/hr Rs.</u>	<u>Variance hrs</u>	<u>Variance Rs.</u>
Skilled labour	12.00	13,800	10,000	300	3,800	1,140,000
Unskilled labour	8.00	9,200	13,000	200	(3,800)	(760,000)
	<u>20.00</u>	<u>23,000</u>	<u>23,000</u>		-	<u>380,000</u>
<u>Labour yield variance</u>						
	<u>Std Mix</u>	<u>Std hrs Std mix</u>	<u>Act hrs Std mix</u>	<u>Std.Rate/hr Rs.</u>	<u>Variance hrs</u>	<u>Variance Rs.</u>
Skilled labour	12.00	12,000	13,800	300	(1,800)	(540,000)
Unskilled labour	8.00	8,000	9,200	200	(1,200)	(240,000)
	<u>20.00</u>	<u>20,000</u>	<u>23,000</u>		<u>(3,000)</u>	<u>(780,000)</u>

Alternative answer 1

<u>Labour mix variance</u>						
	<u>Std Mix</u>	<u>Act hrs Std mix</u>	<u>Act hrs Act mix</u>	<u>Difference between Std.rate/hr and Std.WA rate/hr Rs.</u>	<u>Variance Hrs</u>	<u>Variance Rs</u>
Skilled labour	12.00	13,800	10,000	40 more	3,800	152,000
Unskilled labour	8.00	9,200	13,000	60 less	(3,800)	228,000
	<u>20.00</u>	<u>23,000</u>	<u>23,000</u>			<u>380,000</u>

Labour yield variance

Std. hours that should have been used	20,000
Actual hours taken	<u>23,000</u>
Labour yield variance in hrs.	3,000 (A)
Std. weighted average labour rate/hr. (W1)	Rs. <u>260</u>
Labour yield variance	Rs. <u>780,000 (A)</u>

Alternative answer 2**Labour yield variance**

Actual output	60,000 units
Expected output using 23,000 hrs. (W3)	<u>69,000 units</u>
Labour yield variance in units	9,000 units (A)
Labour cost/unit (W4)	Rs. <u>86.67</u>
Labour yield variance	Rs. <u>780,000 (A)</u>

Workings

(1) Std. weighted average labour rate/hr.

	<u>Std hours</u>	<u>Std labour rate/hr</u>	<u>Std. labour cost</u>
		<u>Rs.</u>	<u>Rs.</u>
Skilled labour	12,000	300	3,600,000
Unskilled labour	<u>8,000</u>	200	<u>1,600,000</u>
	<u>20,000</u>		<u>5,200,000</u>

$$\begin{aligned}\text{Std. weighted average labour rate/hr.} &= \frac{5,200,000}{20,000} \\ &= \text{Rs. 260}\end{aligned}$$

(2) Difference between std. labour rate/hr. and std weighted average labour rate/hr.

		<u>Difference</u>
Skilled labour	300 - 260 (W1)	Rs. 40 more
Unskilled labour	200 - 260	Rs. 60 less

(3) Expected output

$$\begin{aligned}\text{Expected output using 1 hour} &= 60 / (12+8) = 3 \text{ units} \\ \text{Expected output using 23,000 hrs.} &= 23,000 \times 3 = 69,000 \text{ units}\end{aligned}$$

(4) Labour cost/unit

$$\text{Labour cost/unit} = 300 \times 12/60 + 200 \times 8/60 = \text{Rs. 86.67}$$

(e) More unskilled labour has been utilised in place of the skilled labour which is evidenced by the favourable mix variance.

However, the expected output was not produced from the labour time which has caused the yield variance to be adverse.

The unskilled labour has not been productive since they do not possess the required skills.

(Total: 25 marks)

Answer 07

Relevant Learning Outcome/s: 3.5.1/3.3.1

Page: 358-400

(a)

	A	B	C	D
Consumption of limited resources				
Non-machine related labour hours	5	6		
Machine-related labour hours			6	7
Machine hours			7	10

Non machine related labour hours are shared only by A and B.
 Machine related labour hours and machine hours are shared only by C and D.
 Use of limited resources is different for A & B and C & D.
 Therefore A & B and C & D can be considered as two separate product groups.

	A	B	C	D
Selling price per unit (Rs.)	125	134	160	180
Material cost per unit (Rs.)	37	50	50	40
Non-machine related labour cost per unit (Rs.)	40	48	0	0
Machine-related labour cost per unit (Rs.)	0	0	48	56
Machine hour cost per unit (Rs.)	0	0	42	60
Contribution per unit (Rs.)	48	36	20	24

Contribution per non-machine related labour hour	9.60	6.00
Rank	1	2

Contribution per machine-related labour hour	3.33	3.43
Rank	2	1

Contribution per machine hour	2.86	2.40
Rank	1	2

Resource allocation and production for A & B

	Units A	Units B	Labour hours Available	Consumption
Available labour hours			19,200	
Committed 1,000 units of B (1,000 x 6)		1,000		6,000
Maximum demand of A (2,400 x 5)	2,400			12,000
Utilisation of remaining labour for B		200		1,200
Production	2,400	1,200	19,200	19,200

Resource allocation and production for C & D

Ranking based on the two limited resources is contradicting.
Therefore LP is required to solve the problem.
As there are only two variables, the LP graphical method can be used.

LP model will be as follows.				
Max: $Z = 20c + 24d$ subject to				
Labour: $6c + 7d \leq 19,200$			(2 marks)	
Machine time: $7c + 10d \leq 14,000$				
Demand: $c \leq 1,800$ and $d \leq 2,000$				
The corner points for the LP graph would be:	$c=0; d=?$	$d=0; c=?$		
Labour: $6c + 7d \leq 19,200$	2,742.857	3,200		
Machine time: $7c + 10d \leq 14,000$	1,400	2,000		
Demand: $c \leq 1,800$		1,800		
Demand: $d \leq 2,000$	2,000			
The corner points of the feasible area would be	c	d	Contribution	
Point 1	0	1,400	33,600	
Point 2	1,800	140	39,360	
Point 3	1,800	0	36,000	
Optimal product mix for C & D is 1,800 of C and 140 of D				

(b)

- (i) Since the demand for A is restricted at 2,400, there will be 7,200 non-machine related labour hours available.

Product B requires 6 labour hours whereas BB requires 8 labour hours. Therefore LJH can either produce 1,200 of B or 900 of BB with the available labour hours.

Further processing cost is:		
Material	40	
Labour	16	
Opportunity cost (36 x 2/6)	12	
	68	
To be indifferent the selling price should be	134+68 =	202

Proof

1200 of B
Total Contribution 43,200

900 of BB
Contribution = 202 - 98 - 56 = 48
Total contribution 43,200

If BB can be sold in the market at a price above Rs. 202, then 900 units of BB shall be made.

- (ii) After the first 900 units of B/BB, any further units will eat into product A.

Product A generates a contribution of Rs. 9.60 per labour hour.

Therefore 8 labour hours would generate a contribution of $9.60 \times 8 = \text{Rs. } 76.80$

Direct cost of one unit of BB is $98 + 56 = \text{Rs. } 154$

Therefore the minimum price at which BB should be sold is $= 154 + 76.80 = \text{Rs. } 230.80$

After the first 900 units, BB should be produced if its selling price is more than Rs. 230.80.

(Total: 25 marks)



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