

CA



THE INSTITUTE OF  
**CHARTERED** ACCOUNTANTS  
OF SRI LANKA

# SUGGESTED SOLUTIONS

**KE2 – Management Accounting Information**

**September 2015**

## SECTION 1

### Answer 01

1.1.

Learning Outcome: 1.1.2.	
All four statements are correct.	
Answer	(D)

1.2.

Learning Outcome: 2.1.1.	
	Rs.
All-inclusive selling price =	72,150.00
Net price (72,150/1.11) =	65,000.00
Price per TV (65,000*25%) =	16,250.00
Therefore answer is (A)	

1.3.

Learning Outcome: 1.2.2.	
(i) and (iv) are assumptions of EOQ model	
Answer	(B)

1.4.

Learning Outcome: 2.2.1.	
Breakeven point = $1000/10 = 100$ units	
Range for cost per unit: $1000/110 = 9.09$ to $1000/90 = 11.11$	
Maximum error is $1.11/10 = 11.11\%$	
Answer (C)	

1.5.

Learning Outcome: 2.6.1.	
Since both statements are true, correct answer is D	

1.6.

Learning Outcome: 4.1.1.
Effective interest rate = $(1+r)^n - 1$ (i) = $(1+0.3)^2 - 1 = 6.09\%$ (ii) = $(1+0.3)^4 - 1 = 6.14\%$ (ii) Annually 6.09%  Therefore the correct answer is "B".

1.7.

Learning Outcome: 4.2.1.
FV at year 9 (beginning of year 10) of the initial Rs 50,000 = $50,000 \times 1.05^9 =$ Cum Annuity factor for Rs 10,000 payment = $77,566/10,000 = 7.757$ From annuity factor tables at 5% this value approximately corresponds for 10 years. <b>OR</b> FV at the end of year 10 = $50,000 \times (1.05)^{10} = 81,444.3$ cum annuity factor for Rs. 10,000 payment- $81,444.3/10,000 = 8.14$ from annuity factor tables at 5% this value approximately corresponds for 10 years.  Therefore the answer is "C".

1.8.

Learning Outcome: 6.2.
At profit maximisation point Gradient of profit function is zero; (i) is correct Second derivative of the profit function is negative; (iii) is correct MR = MC and therefore MR - MC = 0; (ii) is correct Second derivative of the cost function is not relevant; (iv) is incorrect  Therefore the answer is "D".

1.9.

Learning Outcome: 6.1.1.
The correct answer is "B".

1.10.

Learning Outcome: 7.1.1.
Since all four are true, correct answer is "D".

(Total: 20 marks)

## Answer 02

2.1.

Learning Outcome: 1.3.1.			
Monthly salary (Rs.)		40,000	
Employer's contribution to EPF and ETF (Rs.)		6,000	
Lunch cost (20 days) (Rs.)		2,000	
		<hr/>	
Total cost per month (Rs.)		48,000	
		<hr/>	
Number of working hours per month (20 x 10)		200	
Cost per hour (Rs)		240	
Cost charged to the job (Rs.240 x 28)	Rs.	6,720	
		<hr/>	

2.2.

Learning Outcome: 1.2.2.	
$EOQ = \sqrt{2 \times 360,000 \times 2,000 / 40} = 6,000 \text{ units}$	
Total annual ordering cost = $2,000 \times 360,000 / 6,000 = \text{Rs } 120,000.$	

2.3.

Learning Outcome: 2.3.1.	
(i)	CoV for factory workers = $3,500 / 28,000 = 12.5\%$ CoV for supervisory staff = $4,500 / 75,000 = 6\%$
(ii)	(a) On an absolute basis, there is more variability in supervisory staff remuneration ( $s = 4,500$ ) than that in factory workers' remuneration ( $s = 3,500$ ).  (b) On a basis relative to the respective means CoV of factory worker remuneration (12.5%) is higher than that of supervisory staff remuneration (6%). This indicates greater relative variability for the factory worker remuneration.

2.4.

Learning Outcome: 2.4.2.

Probability of the item being defective  $P(D) = P(MXD) + P(MYD)$   
 $= (70\% \times 3\%) + (30\% \times 5\%)$   
 $= 3.6\%$

If it is from Machine X  $P(MX|D) = (70\% \times 3\%) / (3.6\%)$   
 $= 58.33\%$

2.5.

Learning Outcome: 4.1.1.

Investment Option B

If a deposit of Rs 100,000 is made the interest received upfront is  
 $100,000 \times 8\% \times 5 = \text{Rs. } 40,000$

This means effectively for an investment of Rs 60,000 you will receive Rs 100,000 after 5 years

Investment Option A

If Rs 60,000 is invested in a FD, you will get after 5 years:  $60,000 + 60,000 \times 10\% \times 5 = \text{Rs. } 90,000$

At the end of the five years you are better off with Option B which is the better investment.

2.6.

Learning Outcome: 3.1.1.

- Assists in more accurate product pricing and recovery of actual production cost via pricing. Absorption costing avoids underpricing.
- Consistency with reporting requirements in stock valuations.
- Avoids fictitious losses being reported when there is no or low sales.

2.7.

Learning Outcome: 5.1.2.

- Standard costing is more labour intensive. But modern technologies are less labour intensive.
- Due to the new technologies a large proportion of the cost is fixed costs. Therefore there is a doubt whether fixed overhead variance can address this increased emphasis.
- Unlike with the human operation, with the new technology material usage variance is very minimal and unimportant.
- Standard costing is concerned only with the cost and does not consider the qualitative factors such as product quality, customer service and environmental impact.
- Control statement from the standard costing is generated monthly or weekly. But the modern manager needs these reports more frequently to improve efficiency and meet competitive prices.

2.8.

Learning Outcome: 4.2.3.

PV of FCF =  $29,833 \times \text{CDF}@12\%$  for 5 years =  $29,833 \times 3.605 = 107,548$

NPV =  $107,548 - 100,000 = \text{Rs } 7,548$

At IRR, PV of FCF = Rs. 100,000

$\text{CDF} = 100,000/29,833 = 3.352$

For 5 years this is the CDF at discount rate of 15%

**Therefore IRR = 15%**

***Just plugging in figures to the IRR formula is not sufficient. Students are required to arrive at the approximate answer.***

2.9.

Learning Outcome: 6.2.1.

Total contribution =  $3X + Y$

Since  $Y = (42X - 2X^2 - X^3/3)$

Total contribution =  $3X + (42X - 2X^2 - X^3/3)$

Total contribution (P) =  $45X - 2X^2 - X^3/3$

$d(P)/d(X) = 45 - 4X - X^2 = 0$

$X^2 + 4X - 45 = 0$

$(X+9)(X-5) = 0$

$X = -9$  or  $X = +5$ , since  $X > 0$ , **X should be 5**

Substituting in  $Y = (42X - 2X^2 - X^3/3)$

**Y = 118**

2.10

Learning Outcome: 6.1.1.

Total cost function =  $(X^3/3 - 8.5X^2 + 50X + 90)$

Total revenue function =  $22 - p = 0.5X$

$p = 22 - 0.5X$

**TR =  $22X - 0.5X^2$**

Profit function =  **$22X - 0.5X^2 - X^3/3 + 8.5X^2 - 50X - 90$**

Profit function =  **$-X^3/3 + 8X^2 - 28X - 90$**

**(Total: 30 marks)**

## SECTION 2

### Answer 03

Learning Outcome: 1.4.1 /1.4.2

	Rs.
(a) Initial cost for development of graphics and printing plates	245,000
Printing Materials	750,000
Direct labour (Rs. 250/- per hour)	25,000
Other variable cost	10,000
Fixed production overheads – $(25,000/250)*100$	10,000
Production cost	1,040,000
Fixed administration overheads – 5% on the production cost	52,000
Total expected cost	1,092,000
Minimum profit mark-up – 25%	273,000
Total sales value for the job	1,365,000
No. of books to be printed	2,200
Unit price per book	620.45

Since the price of the offer per book is only Rs. 500 it is not recommended to accept the job at the offered price.



(b)

As per the pricing policy total cost varies based on the output (Output = 2,200 copies)

	Rs.
Printing materials	750,000
Direct labour (Rs. 250/- per hour)	25,000
Other variable cost	10,000
Fixed production overheads – (25,000/250)*100	10,000
Total for 2,200 copies	795,000
Cost per book (795,000/2200)	361.36

*Please note that fixed production overheads and fixed administration overheads should be treated as variable according to the companies pricing policy though they are fixed in the short-term.*

Price per book (Rs.) 500

Assume No. of copies to be produced is 'X', then

Total copies to be produced for the order to be accepted at Rs. 500 per Copy

$$=(361.36X+245,000)*1.05*1.25 = 500X =$$

$$= 474.29X + 321,563 = 500X$$

Therefore the no. of copies should be

12,505

Alternatively

$$(361.36X+245,000+(361.36X+245,000)*5\%+[(361.36X+245,000) + (361.36X+245,000*5\%)*25\%]) = 500X$$

Accordingly,  $474.29X + 321,563 = 500X$

Therefore the no. of copies should be

= 12505

(c)	<u>Total variable cost of the job</u>	Rs.
	Initial cost for development of graphics and printing plates	245,000
	Printing Materials	750,000
	Direct labour (Rs. 250/- per hour)	25,000
	Other variable cost	10,000
	Total variable cost	1,030,000
	Total sales for 2,200 books at Rs. 500 each	1,100,000
	Additional contribution from the order	70,000
	Since JPP has spare capacity it should not drop this order since this will give an additional contribution of Rs. 70,000.	

- (d)
- Time period - The time period to complete a batch is relatively shorter than the period for a contract. For example printing a book is a batch costing and constructing a building falls into contract costing.
  - Value - the value of contract costing is larger than batch costing.
  - The income for the contract costing is recognised partially based on the degree of completion. However, batch costing recognises income at the completion of the entire job.

**(Total: 10 marks)**

## **Answer 04**

Learning Outcome: 6.1.1.

- (a) Estimated range of mean monthly profit is

$SEM = \sigma / \sqrt{n}$ , since  $\sigma = 1,200$  and  $n = 36$

$$SEM = 1,200 / \sqrt{36} = 200$$

$$8,000 \pm 1.96(200) = 7,608 - 8,392$$

Therefore estimated range of total monthly profit is

$$10,000 \times (7,608 - 8,392) = \text{Rs. } 76.08\text{mn} - \text{Rs. } 83.92\text{mn}$$

- (b) On the 10,000 shop population standard deviation of sales is

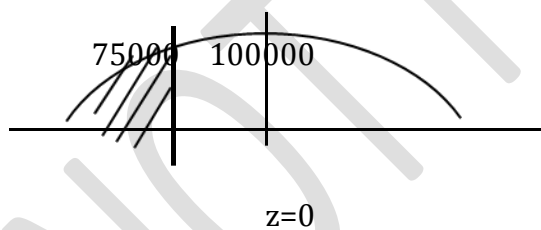
$$72,000 / \sqrt{36} = 12,000$$

On the 10,000 shop population Z score at 75,000 is

$$(100,000 - 75,000) / 12,000 = 2.0833$$

Area from the tail end of this score is  $= 50\% - 48.12\% = 1.88\%$

Therefore number of shops to be closed  $= 10,000 \times 1.88\% = 188$



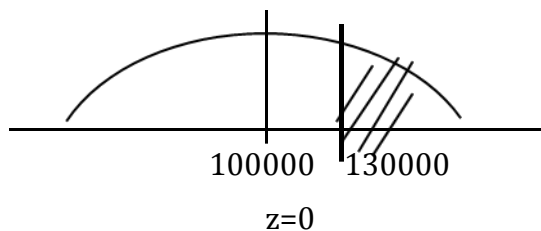
(c) On the 10,000 shop population Z score at 130,000 is

$$(130,000 - 100,000)/12,000 = 2.5$$

Area from this score to the tail end is =  $50\% - 49.38\% = 0.62\%$

Therefore number of shops to be branded =  $10,000 \times 0.62\% = 62$

Therefore cost of branding =  $250,000 \times 62 = \text{Rs } 15.5\text{mn}$



(d) 1% of the shops include 100 which is 38 more

Therefore the extra cost is  $250,000 \times 38 = \text{Rs } 9.5\text{mn}$

Alternatively,

$$(100 * 250,000) - 15.5\text{mn} = 25\text{mn} - 15.5\text{mn} = 9.5\text{mn}$$

**(Total: 10 marks)**

## Answer 05

Learning Outcome: 6.1.1.

(a) Direct material price variance = (Std cost of actual purchase - Act cost of purchase)  
= (80,000 kgs of W1 \*Rs.300) - (80,000kgs\*Rs. 305)  
(400,000) Adv

Material usage variance = (Std usage - Act usage)\* Std price per kg  
= (70,000 kgs - 75,000 kgs) \* Rs. 300  
Or = (5,000kgs) \* Rs. 300  
(1,500,000) Adv

(W1) Calculation of purchased quantity

Opening materials	10,000
+ Purchases	<b>80,000</b>
- Closing balance	<u>(15,000)</u>
Utilised materials (5,000 pallets*14kg + 5000kg)	<u><u>75,000</u></u>

Labour rate variance = (Std rate - Act rate ) Act hours  
= (15,300hour\*Rs.150) - Rs. 2.4million  
(105,000) Adv

Labour efficiency variance = (Std hours - Act hours) Std rate  
= ((3hours\*5000) - 15,300)\*150  
(45,000) Adv

- (b)
- Use of substandard materials can increase the material losses.
  - Use of unskilled workers instead of skilled workers.
  - Technical issues in the production processes and machinery can increase the production losses.
  - Inaccurate standards can also show variances between standards and actuals.
  - Less supervision of labour will decrease the productivity and increase wastage.

- (c) ■ Periodical machinery testing and ensuring machinery are in good working condition.
- Quality control of materials and ensuring materials are of good quality.
  - Training of employees will improve their efficiency.
  - Good working environment and employee motivational factors.
  - Good supervision of labour.

**(Total: 10 marks)**

## Answer 06

Learning Outcome: 6.1.1.

Based on the standard absorption costing system

	<u>Product A</u>	<u>Product B</u>
Labour time utilised (minutes)	3.00	2.00
Per hour absorption rate (Rs.)	<u>800.00</u>	<u>800.00</u>
<b>Fixed overheads per unit (Rs.)</b>	<b><u>40.00</u></b>	<b><u>26.67</u></b>

Based on the standard ABC principles

	Total Rs.'000	Product A	Product B	Total no. of the driver
Machinery maintenance cost	2500	500.00	2,000.00	12,500 machine hours
Material ordering cost	500	250.00	250.00	100 orders
Labour related cost	600	<u>333.33</u>	<u>266.67</u>	4,500 labour hours
Total		1,083.33	2,516.67	
Output in units		<u>50,000</u>	<u>60,000</u>	
<b>Fixed overheads per unit (Rs.)</b>		<b><u>21.67</u></b>	<b><u>41.94</u></b>	

- (b)
- Fixed production overheads are considered fixed in the short-run. However, it has some components which will vary based on different cost drivers other than output.
  - ABC system attempts to identify such activities and assign fixed production overheads to each product based on utilisation of these driver by each product.
  - Therefore ABC system assigns production overheads to products in a more realistic way which will consequently help in accurate product costing/pricing.
  - It is evident in (a) above that allocation of fixed production overheads is completely different with the ABC system.

**(Total: 10 marks)**

## SECTION 3

### Answer 07

Learning Outcome: 1.1.3/7.2.4/7.3.1

(a) Sales forecast

Quarter	x =	4,200x		Trend (y)	Seasonal Index	Forecast Units	Value (Rs '000)
Y3 - Q1	9	37,800	10,000	47,800	120	57,360	286,800
Y3 - Q2	10	42,000	10,000	52,000	80	41,600	208,000
Y3 - Q3	11	46,200	10,000	56,200	90	50,580	252,900
Y3 - Q4	12	50,400	10,000	60,400	110	66,440	332,200
Y4 - Q1	13	54,600	10,000	64,600	120	77,520	387,600

(b) High point (highest quarterly production) is Q4-Y2

Production = 50,000 units

Cost without step up cost = Rs.67m - 7m = 60 m

Low point (lowest quarterly production) is Q2-Y1

Production = 15,000 units

Cost = Rs. 25 m

Variable cost =  $\frac{60,000,000 - 25,000,000}{50,000 - 15,000} = \text{Rs } 1,000 \text{ per unit}$

Fixed cost (without step up cost) = Rs. 25,000,000 - (Rs. 1,000 x 15,000) = Rs 10 m

(c) Production budget (in units)

	Y3 - Q1	Y3 - Q2	Y3 - Q3	Y3 - Q4	Y4 - Q1
Forecast sales	57,360	41,600	50,580	66,440	77,520
End of quarter FG	10,400	12,645	16,610	19,380	
Beginning of quarter FG	(20,000)	(10,400)	(12,645)	(16,610)	
Production	<u>47,760</u>	<u>43,845</u>	<u>54,545</u>	<u>69,210</u>	



Factory overhead budget (Rs '000)

	Y3 - Q1	Y3 - Q2	Y3 - Q3	Y3 - Q4
Variable cost @ 1000/-	47,760	43,845	54,545	69,210
Fixed cost	10,000	10,000	10,000	10,000
Step up cost	<u>7,000</u>	<u>-</u>	<u>7,000</u>	<u>7,000</u>
	<u>64,760</u>	<u>53,845</u>	<u>71,545</u>	<u>86,210</u>

Raw material purchases budget

	Y3 - Q1	Y3 - Q2	Y3 - Q3	Y3 - Q4
Production	47,760	43,845	54,545	69,210
End of quarter RM	17,538	21,818	27,684	
Beginning of quarter RM	<u>(40,000)</u>	<u>(17,538)</u>	<u>(21,818)</u>	
RM purchases	<u>25,298</u>	<u>48,125</u>	<u>60,411</u>	
Value @ 1,200 (Rs '000)	<u>30,358</u>	<u>57,750</u>	<u>72,493</u>	

(d) Cash budget (Rs '000)

	Y3 - Q2	Y3 - Q3
Sales collection (W1)	239,520	234,940
Payments for RM (W2)	(44,054)	(65,122)
Payments for labour	(35,076)	(43,636)
Payments for factory overheads (W3)	(55,245)	(70,145)
Other overheads	(20,000)	(20,000)
Capital expenditure	<u>(10,000)</u>	<u>(10,000)</u>
Net cash flow	<u>75,145</u>	<u>26,037</u>

W1 Sales collection (Rs '000)	Y3 - Q1	Y3 - Q2	Y3 - Q3
Sales revenue	286,800	208,000	252,900
Collection during the same period (60%)		124,800	151,740
Collection during the following period (40%)		<u>114,720</u>	<u>83,200</u>
		<u>239,520</u>	<u>234,940</u>

W2 Payments for RM (Rs '000)	Y3 - Q1	Y3 - Q2	Y3 - Q3
RM purchases	30,358	57,750	72,493
Payment during the same period (50%)		28,875	36,247
Payment during the following period (50%)		<u>15,179</u>	<u>28,875</u>
		<u>44,054</u>	<u>65,122</u>

W3 Payments for factory overheads (Rs '000)	Y3 - Q2	Y3 - Q3
Variable factory overhead	43,845	54,545
Fixed factory overhead paid in the same quarter	8,000	13,600
Fixed factory overhead paid in the following quarter	<u>3,400</u>	<u>2,000</u>
	<u>55,245</u>	<u>70,145</u>

## 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).

---