

CA



THE INSTITUTE OF
CHARTERED ACCOUNTANTS
OF SRI LANKA

SUGGESTED SOLUTIONS

KE2 – Management Accounting Information

September 2019

SECTION 01

Answer 01

1.1

Relevant Learning Outcome/s:1.1.1

Cost classification, behaviour estimation

Study text reference: Page: 95

Correct Answer: C

1.2

Relevant Learning Outcome/s: 1.1.2

Explain the nature, scope and purpose of cost classifications (direct/indirect, fixed/ variable/semi-variable, production/period, controllable/non-controllable, relevant/ non-relevant costs).

Study text reference: Pages: 84-86

Correct Answer: B

1.3

Relevant Learning Outcome/s:2.6.1

Interpret simple and aggregate indices.

Study text reference: Pages: 47-49

Correct Answer: D

1.4

Relevant Learning Outcome/s: 2.4.2

Calculate simple and conditional probabilities using multiplicative and additive rules, expectation and variance of discrete probability distribution (special discrete probability distribution such as 'Binomial and Poisson distributions' are not expected), and probability estimates using normal distribution.

Study text reference: Pages: 315-316

Correct Answer: D

1.5

Relevant Learning Outcome/s: 3.1.1

Explain the steps involved in absorption costing and marginal costing, and their relevance in the modern business environment.

Study text reference: Pages: 358-359

Correct Answer: C

1.6

Relevant Learning Outcome/s: 3.2.1

Discuss the need for Activity-Based Costing (ABC)

Study text reference: Pages: 388-389

Correct Answer: D

1.7

Relevant Learning Outcome/s: 4.1.1

Calculate simple and compound interest, effective rate of interest, the yield amount when the rate of interest changes with time, regular investment interest, and amortisation schedule.

Study text reference: Pages: 420-422

Correct Answer: B

1.8

Relevant Learning Outcome/s: 5.1.1

Define standard costing (should compare standards vs budgets) and types of standards.

Study text reference: Page: 473

Correct Answer: C

1.9

Relevant Learning Outcome/s: 5.2.1

Calculate and interpret basic variances on direct material cost, direct labour cost, variable production overheads, fixed production overheads and sales.

Study text reference: Pages: 490-491

Correct Answer: C

1.10

Relevant Learning Outcome/s: 6.1.1

Identify linear and quadratic functions related to revenue, costs and profit in the algebraic, and graphical forms.

Study text reference: Page: 554

Correct Answer: A

(2 x 10 = Total 20 marks)

Question 02

2.1

Relevant Learning Outcome/s: 1.2.2

Explain material control systems and calculate EOQ, reorder levels, maximum and minimum levels, valuation of stocks and the issues using FIFO, LIFO and AVCO.

Study text reference: Pages: 140-143

$EOQ = \sqrt{(2 * \text{Annual demand} * \text{Ordering cost}) / \text{Holding cost}}$	
$EOQ = \sqrt{(2 * 300,000 * 50,000) / 100} =$	17,321 units
Ordering cost (Rs.) = $(300,000 / 17,321) * 50,000 =$	866,000.81
Holding cost:	
Average inventory ex-buffer stock $17,321 / 2 =$	8,660.50
Buffer stock $(40\% * 300,000 / 12)$	<u>10,000.00</u>
Total inventory	<u>18,660.50</u>
Holding cost of Rs. 100 each	1,866,050.00

2.2

Relevant Learning Outcome/s: 1.3.1

Explain types of remuneration (time based, piece based and incentive schemes), and accounting for cost of labour (including flexible working and labour turnover).

Study text reference: Pages: 193-196

Working	Amount (Rs.)
(i) <u>Total direct overtime cost</u>	
Skilled: Specific = $600 * 150\% * 6$	5,400
General = $600 * 100\% * 4$	2,400
Semi-skilled: Specific = $400 * 150\% * 6$	<u>3,600</u>
	<u>11,400</u>
(ii) <u>Total indirect overtime cost</u>	
Skilled: General = $600 * 50\% * 4$	1,200
Semi-skilled: General = $400 * 150\% * 4$	<u>2,400</u>
	<u>3,600</u>

2.3

Relevant Learning Outcome/s: 1.1.3

Calculate fixed and variable elements from total cost using “high-low” and “linear regression” methods

Study text reference: Pages:110-115

Working	Amount (Rs.)
Step-up cost eliminated at 15,000 units = Rs. 103,000 – Rs. 12,000	91,000
(i) Variable cost per unit (Rs.) = $\frac{\text{Total cost at the high demand level} - \text{Total cost at the low demand level}}{\text{Demand at the high level} - \text{Demand at the low level}}$ = $\frac{(91,000 - 66,000)}{(15,000 - 10,000)}$ Variable cost per unit	5
(ii) Fixed cost (Rs.) Total cost at 15,000 units = 103,000 Total variable cost (15,000*5) = <u>75,000</u> Total fixed cost = 28,000	28,000
(iii) Total advertising cost to sell 18,000 units Rs. Total variable cost (18,000*5) = 90,000 Fixed cost = <u>28,000</u> Total cost = 118,000	118,000

2.4

Relevant Learning Outcome/s: 2.1.1

Calculate mark-up and margin, and arrive at the amount in rupees for given mark-up/margin percentages in scenarios (including VAT, income tax and discounts)

Study text reference: Pages: 21/18/19

	Rs.
Current price	161.00
Net price	140.00
Cost of the product	112.00
Material cost	44.80
With the price increase of 10%	4.48
New material cost	49.28
Other cost	67.20
New product cost	116.48
Price without VAT	145.60
Price with VAT	167.44

2.5

Relevant Learning Outcome/s: 2.2.1

Calculate variations under addition, subtraction, multiplication and division. Estimate maximum error in profit when price, quantity, variable cost per unit and fixed costs are subject to error.

Study text reference: Pages:28-30

Working

(i) Maximum absolute error in cost per pack

Expected cost per pack = $20 + 15$ = Rs. 35

Maximum expected cost = $(20+5) + (15+2)$ = Rs. 42

Maximum absolute error = $42 - 35$ = Rs. 7

(ii) Maximum absolute error for total revenue

Expected revenue = $2,000 * 60$ = Rs. 120,000

Biggest revenue = $(2,000+500)*(60+5)$ = Rs. 162,500

Maximum absolute error = $162,500 - 120,000$ = Rs. 42,500

2.6

Relevant Learning Outcome/s: 2.3.1

Calculate and interpret the mean, standard deviation and coefficient of variation.

Study text reference: Pages: 39-40

Mean weight ($90*2 + 40*3$)	300 kg
Variance ($2*16^2 + 3*5^2$)	587 kg
Standard deviation	24.23 kg

2.7

Relevant Learning Outcome/s: 3.1.3

Prepare profit statements under both absorption and marginal costing, and the profit reconciliation statement.

Study text reference: Pages: 384/385

Difference in inventory ($240,000 - 225,000$)	15,000 units	
Only the manufacturing cost will be absorbed to the product. Therefore,		
Fixed manufacturing overheads per unit (Rs.)	72	
Over-absorption for 15,000 units	1,080,000	
Therefore the profit in absorption costing will be higher by		Rs. 1,080,000

2.8

Relevant Learning Outcome/s:3.2.2
Explain the steps involved in ABC
Study text reference: Page:389

Working	Amount (Rs.)
Total budgeted overhead cost = $(8,000 \times 4) \times 80$	2,560,000
<u>Overhead apportionment</u>	
Handling overhead cost = $2,560,000 \times 60\%$	1,536,000
Stitching overhead cost = $2,560,000 \times 40\%$	1,024,000
<u>Overhead cost per cost driver</u>	
Handling overhead cost = $1,536,000 / (8,000 \times 2)$	Rs. 96
Stitching overhead cost = $1,024,000 / (8,000 \times 4)$	Rs. 32
Total overhead cost per unit under activity based costing = $(2 \times 96) + (4 \times 32)$	Rs. 320

2.9

Relevant Learning Outcome/s:5.1.2
The applicability of standard costing to organisations (with special reference to the difficulties involved in implementing standard costing to service organisations and modern organisations)
Study text reference: Page: 479

- (i) It can be difficult to establish measurable cost units.
- (ii) In some service organisations, every cost unit will be different or heterogeneous.
- (iii) It is difficult to predict and control the quality of the output and resources used as human influence is greater in services.

2.10

Relevant Learning Outcome/s: 5.2.1
Calculate and interpret basic variances on direct material cost, direct labour cost, variable production overheads, fixed production overheads, and sales.
Study text reference: Pages:498-502

	Rs.
Absorption rate per unit $(4,000,000 / 5,000) =$	800
Fixed production overhead absorbed $(4,000 \times 800) =$	3,200,000
Under absorption	1,000,000
Actual fixed production overhead cost	4,200,000
Budgeted fixed production overhead cost	4,000,000
Fixed production overhead expenditure variance	- 200,000
	Adverse

SECTION 2

Answer 03

Relevant Learning Outcome/s: 1.4.2

Demonstrate job, batch, contract (contract account preparation and recognising profit), process (losses, gains, scrap value, disposal cost, closing WIP and opening WIP based on AVCO method) and service costing under appropriate business situations.

Study text reference: Pages: 218-223

(a)	<u>Cost is accumulated for a period of one month</u>	
		<u>Rs. '000</u>
	Depreciation of lorries (W1)	2,187.50
	Salaries of drivers (70,000*11)	770.00
	Salaries of cleaners/helpers (50,000*11)	550.00
	Salaries of office staff	150.00
	Salary of the garage worker	50.00
	Licensing and insurance (240,000/12)	20.00
	Servicing, repairs and maintenance (15*5,000*10)	750.00
	Fuel expenses:	
	Empty lorry (2,500 km*110*110%/5)* 10	605.00
	Laden lorry (2,500 km*110*110%/3.25)* 10	<u>930.80</u>
	Total operating cost per month	6,013.30
	Profit mark-up (30%)	<u>1,803.99</u>
	Total hiring charge	7,817.29
	Effective distance (5,000 km*10*50%)	25,000 km
(i)	Effective transport charge per km	<u>Rs. 312.69</u>
	W1 = (Rs. 15 million*70%/4 years/12 months) =	218.75
	For 10 lorries (218.75*10)	2,187.50
(ii)	Weight carried by a laden lorry (Cubic metres)	5.00
	Effective transport charge per km (Rs.) (as above)	312.69
	Per cubic metre per km (Rs.) (divide by 5)	62.54

- (b) When lorries are loaded fully, per cubic metre per kilometre would be a useful cost unit to monitor and control transport charges than using transport charge per kilometre as the cost unit. However, when lorries are not fully loaded, it would be more appropriate to use, transport charge per kilometre based on the distance travelled instead of using the composite cost unit.

(Total: 10 marks)

Answer 04

Relevant Learning Outcome/s: 2.4.2/2.5.1

2.4.2 Calculate simple and conditional probabilities using multiplicative and additive rules, expectation and variance of discrete probability distribution (special discrete probability distribution such as 'Binomial and Poisson distributions' are not expected), and probability estimates using normal distribution.

Study text reference: Pages: 323-326/292/329

(a)

Working	
(i) <u>Break-even quantity</u>	
	Rs.
Selling price per item	= 400
Expected variable cost per item = (250*50%)+(300*30%)+(350*20%)	= <u>(285)</u>
Contribution per item	= 115
Break-even quantity = Fixed cost/ Contribution per item	
= Rs. 667,000 /Rs. 115	<u>5,800</u>
<u>items</u>	
(ii) <u>Expected sales demand</u>	
Gampaha = (5,000*30%)+(5,800*30%)+(10,000*40%)	= <u>7,240 items</u>
Kandy = (5,000*20%)+ (5,800*55%) +(10,000*25%)	= <u>6,690 items</u>
Gampaha district should be selected as it is generating the highest demand.	
(iii) <u>Expected total profit per month</u>	
	Rs.
Expected contribution = 7,240* 115	= 832,600
Fixed cost	= <u>(667,000)</u>
Expected total profit per month	= <u>165,600</u>

(b)

Working	
Standard error of the mean = $50 \sqrt{400}$	= 2.5 meters
<u>Distance at the 95% confidence level</u>	
= 200 +/- (1.96 * 2.5)	
= 200 - (1.96 * 2.5) - 200 + (1.96 * 2.5)	
= <u>195.10 meters - 204.90 meters</u>	

(Total: 10 marks)

Answer 05

Relevant Learning Outcome/s: 4.2.3
Calculate Payback, ARR, NPV and IRR under simple cash flow projects.
Study text reference: Pages: 445-449/450-455/456-460

(a)

Working	Value (Rs.)	Discount Factor (12%)	Value (Rs.)
(i) <u>Net present value</u>			
Cost of machinery (4,600,000 – 1,000,000) Y-0	(3,600,000)	1.000	(3,600,000)
Sale of machinery (3,600,000*10%) Y-10	360,000	0.322	115,920
<u>Yearly net cash flows (Y1-Y10)</u>			
Increase in revenue 1,500,000			
Increase in expenses (600,000)			
Loss of income (100,000)	800,000	5.65	<u>4,520,000</u>
Net present value of the investment			1,035,920
(ii) <u>Internal rate of return (IRR)</u>			
$\text{IRR} = a\% + [(\text{NPV}_A / (\text{NPV}_A - \text{NPV}_B)) * (b - a)\%]$ $= 12\% + [(1,035,920 / (1,035,920 + 188,080)) * (20\% - 12\%)]$ $= 12\% + 0.84633987 * 8\%$ $= \underline{\underline{18.77\%}}$			

(b)

Working	Rs.
<u>Monthly repayment of the loan</u>	
$A = \frac{SR^n * (R-1)}{(R^n - 1)}$	
$R = 1 + (0.12/12) = 1.01$	
$A = \frac{3,600,000 * (1.01)^{120} * (1.01 - 1)}{1.01^{120} - 1}$	
$A = 118,814 / 2.30039$	
Monthly repayment	<u>Rs. 51,650</u>

Alternatively,

$$S_n = \frac{A(R^n - 1)}{R - 1}$$

$$S_n = 3,600,000 * 1.01^{120}$$

$$S_n = 11,881,392.82$$

$$S_n = \frac{A(R^n - 1)}{R - 1}$$

$$11,881,392.82 = \frac{A(1.01^{120} - 1)}{1.01 - 1}$$

$$11,881,392.82 = \frac{2.30038A}{0.01}$$

$$\mathbf{A = 51,650}$$

(c) Advantages of using the NPV method in investment analysis

- It computes the present value of all items of cash inflow and outflow.
- It considers the time value of money.
- It computes the total monetary value created for the investor.

(10 marks)

Answer 06

Relevant Learning Outcome/s: 6.2.1

Demonstrate the use of differential calculus in maximisation and minimisation decisions (using the profit function or marginal functions with necessary and sufficient conditions).

Study text reference: Pages: 568-571/575

Working

(a)

Profit maximising price and quantity

$$\begin{aligned}\text{Revenue function} &= \text{Price} * \text{Quantity} \\ &= (5,000 - 4.5X) * X \\ &= 5,000X - 4.5X^2\end{aligned}$$

Profit is maximised when MC = MR

$$\begin{aligned}\text{Marginal revenue} &= \text{1st derivative of revenue function} \\ &= \mathbf{5000 - 9X}\end{aligned}$$

$$\begin{aligned}\text{Marginal cost} &= \text{1st derivative of variable cost function} \\ &= \mathbf{2,000 + 1X}\end{aligned}$$

$$\begin{aligned}5,000 - 9X &= 2,000 + 1X \\ -10X &= -3,000\end{aligned}$$

X = 300 units. Profit maximising No. of students

$$\begin{aligned}\text{Optimal selling price, } P &= 5,000 - 4.5X \\ P &= 5,000 - 4.5 * 300 \\ P &= 5,000 - 1,350 \\ \mathbf{P} &= \mathbf{Rs. 3,650}\end{aligned}$$

(b) Total profit at the profit maximising level

$$\begin{aligned}\text{Revenue} &= 3,650 * 300 &= \text{Rs. 1,095,000} \\ \text{Total cost} &= 300,000 + (2,000 * 300) + 0.5 (300)^2 &= \text{(Rs. 945,000)} \\ \mathbf{\text{Total maximum profit}} & & \mathbf{\text{Rs. 150,000}}\end{aligned}$$

(c) Net change in profitability

$$\begin{aligned}\text{Current quantity, } 4,550 &= 5,000 - 4.5X \\ 4.5X &= 450\end{aligned}$$

X = 100 students

$$\begin{aligned}\text{Total income} &= 4,550 * 100 &= \text{Rs. 455,000} \\ \text{Total cost} &= 300,000 + (2,000 * 100) + 0.5(100)^2 &= \text{(Rs. 505,000)} \\ \text{Total monthly loss} & &= \text{(Rs. 50,000)}\end{aligned}$$

$$\text{Change in profit at the maximum level} = 150,000 - (50,000) = \mathbf{Rs. 200,000}$$

The current course fee per student is not the optimal price; hence the particular course is generating a net loss situation.

However, at the profit maximising price and quantity, the particular course is generating a net profit of Rs. 150,000, which is an increase of Rs. 200,000 in current profitability. The management should continue this course and the course fees should be revised.

(d) Limitations in applying optimum pricing practices

- (i) The demand curve (or marginal revenue) and total costs (or marginal costs) of the course may not be identified with certainty.
- (ii) It assumes that the firm has no constraint in attracting students into the course. However, in practice, the equilibrium point between supply and demand may not be reached.
- (iii) Other training organisations may also react to the increase/decrease in course fees. In such situations, quantity demanded will not change as expected (inelastic demand).
- (iv) Demand for the course may change due to various reasons other than the price. Hence, it is difficult to separate the effect of changing prices on demand.

(Total: 10 marks)

SECTION 3

Answer 07

Relevant Learning Outcome/s: 7.2.2/7.3.1/7.4.1

7.2.2 Demonstrate a regressed relationship and its correlation to a simple regression scenario through the scatter diagram method and least squares method.

7.3.1 Prepare functional and cash budgets (only an understanding of the budget is expected)

7.4.1 Prepare budgetary control statements (fixed/flexed/actual/variance)

Study text reference: Pages: 591-595/596/609-616/650-651

(a)

(i)	Production budget (in number of pairs)			
		August	Sep	Oct
	Sales	5,500	5,900	6,200
	Add: Closing inventory	2,950	3,100	3,200
	Less: Opening inventory	(2,750)	(2,950)	(3,100)
	Production in pairs	<u>5,700</u>	<u>6,050</u>	<u>6,300</u>

(ii)	Raw material purchases budget (in value)			
		August	Sep	Oct
	<i>(In terms of production units)</i>			
	Production	5,700	6,050	6,300
	Add: Closing inventory	2,420	2,520	2,580
	Less: Opening inventory	(2,280)	(2,420)	(2,520)
	Material purchases	<u>5,840</u>	<u>6,150</u>	<u>6,360</u>
	Material purchases (Rs. million)	<u>11.68</u>	<u>12.30</u>	<u>12.72</u>
	Computation of Closing inventory for November			
			Nov	Dec
	Sales		6,400	6,500
	Add: Closing inventory		3,250	
	Less: Opening inventory		(3,200)	
	Production		<u>6,450</u>	

(b)

$$Y = a + bX$$

$$b = \frac{N \sum XY - (\sum X)(\sum Y)}{N \sum X^2 - (\sum X)^2} \quad a = \frac{\sum Y - b \sum X}{N}$$

Solving for b,

$$b = \frac{6 * 92,080 - 22,000 * 25}{6 * 81.08 - (22,000)^2}$$

$$b = \frac{552,480 \text{ million} - 550,000 \text{ million}}{486.48 \text{ million} - 484 \text{ million}}$$

$$b = \frac{2,480 \text{ million}}{2.48 \text{ million}}$$

$$b = 1,000$$

Applying $b = 1,000$ in the formula

$$a = \frac{25 \text{ million}}{6} - 1,000 * \frac{22,000}{6}$$

$$a = 4.166667 \text{ million} - 3.666667 \text{ million}$$

$$a = 500,000$$

Total production overhead cost (Y) = a + bX

$$Y = 500,000 + 1,000X$$

Where X represents the production quantities

(c)

	Aug	Sep	Oct
Production (in number of pairs)	5,700	6,050	6,300
Fixed cost (Rs. million)	0.50	0.50	0.50
Variable cost (Rs. million)	<u>5.70</u>	<u>6.05</u>	<u>6.30</u>
Total production overhead cost (Rs. million)	<u>6.20</u>	<u>6.55</u>	<u>6.80</u>

(d)

Cash budget for the month of September 2019	
<u>Receipts</u>	Rs. '000
Cash sales (September = 5,900*5,200*40%)	12,272.00
From debtors (5,500*5,000*60%*95%)	<u>15,675.00</u>
Total receipts	<u>27,947.00</u>
<u>Payments</u>	
Raw material purchases: cash (12.30*50%)	6,150.00
Raw material purchases: creditors (11.68*50%)	5,840.00
Direct labour (6,050 * 500)	3,025.00
Variable production overhead cost	6,050.00
Fixed production overhead cost	<u>500.00</u>
Total payments	<u>21,565.00</u>
Net cash flows	6,382.00

(e)

Budgetary control statement for the month of August 2019				
	Flexible budget	Actual	Variance	
Budgeted production (pairs)	5,500	5,500	-	
Raw materials (Rs.)	11,000,000	11,550,000	(550,000)	
Direct labour (Rs.)	2,750,000	2,475,000	275,000	
Variable production overhead cost (Rs.)	5,500,000	5,555,000	(55,000)	
Fixed production overhead cost (Rs.)	500,000	600,000	(100,000)	

(Total: 20 marks)

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