

CA



THE INSTITUTE OF
CHARTERED ACCOUNTANTS
OF SRI LANKA

SUGGESTED SOLUTIONS

KE2 – Management Accounting Information

September 2017

SECTION 01

Answer 01

1.1

Relevant Learning outcome : 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 and calculate profit under each stock valuation method.
Study text reference: Page No. 140-143
Correct Answer: B

1.2

Relevant Learning outcome : 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: Page No. 172
Correct Answer: C

1.3

Relevant Learning outcome : 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: Page No. 217
Correct Answer: D

1.4

Relevant Learning outcome : 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: Page No. 279
Correct Answer: C

1.5

Relevant Learning outcome : 3.1 Absorption costing and marginal costing
Study text reference: Page No. 364
Correct Answer: A

1.6

Relevant Learning outcome : 3.2 Activity-based costing
Study text reference: Page No. 395/396
Correct Answer: B

1.7

Relevant Learning outcome : 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
Study text reference: Page No. 406
Correct Answer: C

1.8

Relevant Learning outcome : 4.2 Discounting
Study text reference: Page No. 456
Correct Answer: D

1.9

Relevant Learning outcome : 5.1.1 Define standard costing (should compare standards vs. budgets) and types of standards.
Study text reference: Page No. 481
Correct Answer: A

1.10

Relevant Learning outcome : 7.2.1 Explain regression and time series as possible techniques in forecasting principle budgetary factor.
Study text reference: Page No. 643/644
Correct Answer: B

(2 x 10 = Total 20 marks)

Question 02

2.1

Relevant Learning outcome : 1.4		
Specific and continues order costing		
Study Text reference: Page No.214		
		Amount (Rs.)
Fixed production OH absorption	Rs. 160,000/8,000 = Rs. 20 per hour	
<u>Total labour hours</u>		
Stitching + Designing	$(30,000/150)+(20,000/200) = 200+100= 300$	
<u>Cost computation</u>		
Material		94,000
Labour	= 30,000+20,000	<u>50,000</u>
Prime cost		144,000
Overhead absorption	= 300* 20	<u>6,000</u>
Factory cost		150,000
Selling & administrative costs	=150,000*10%	<u>15,000</u>
Total cost of the batch		<u>165,000</u>
Unit cost	= 165,000/500	<u>330</u>

Alternatively,

	Per unit (Rs.)
Material cost 94,000/500	= 188
Labour cost- Stitching: 30,000/500	= 60
Or (0.4hrs * 150)	
-Designing: 20,000/500	= 40
Or (0.2hrs * 200)	
Fixed production overhead cost: 0.6hrs *20 (W1)	= 12
Total factory cost	= 300
Selling & Administration cost 10%	= 30
Cost per t-shirt	= 330

Working 1(W1)

Fixed production overhead cost per hour	= Rs. 160,000/8,000
	= Rs. 20

2.2

Relevant Learning outcome : 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: Page No. 16	
Assume an item with a price tag of Rs. 30,000 (This is at student's choice)	
Selling price after discount (Rs.)	= 24,000
Instalment value (Rs.)	= 1,000
Implicit interest rate per month	= 1.50%
PV of 24 instalments (Rs.)	= 20,030 (1,000 x 20.03)
Discount for cash up front	= 33.23% ((30,000-20,030)/30,000)

2.3

Relevant Learning outcome : 2.3	
Descriptive measures	
Study text reference: Page No. 40/41	
(a)	CoV for F&B = $360/6,000 = 6\%$ CoV for Other = $250/2,000 = 12.5\%$
(b) (i)	On an absolute basis, there is more variability in F&B (Standard deviation = 360) than other household items (Standard deviation = 250).
(ii)	On a basis relative to the respective means CoV of Other household items (12.5%) is higher than that of F&B (6%). This indicates greater relative variability for the Other household items.

2.4

Relevant Learning outcome : 2.6	
Index numbers	
Study text reference: Page No. 43	
Real income of 2006 in base year 2003 ($600,000/1.4$)	= 428,571.43
Real income of 2016 in base year 2003 ($1,560,000/2.2$)	= 709,090.91
Increase	= 280,519.48
In year 2016 his real income has been increased by Rs. 280,519 when compared to year 2006 (in terms of prices at base year 2003).	

Alternative answer

- (1) Real earnings in 2016 based on 2006 Index
- $$(1,560,000/220 \times 140) = 992,727$$
- Or**
- $$(600,000/140 \times 220) = 942,857$$
- (2) Real earnings have increased

2.5

Relevant Learning outcome : 3.1		
Absorption costing and marginal costing		
Study text reference: Page No 341		
		Amount (Rs.)
Sales	= 1,200*650	780,000
(-) <u>Cost of sales</u>		
Production cost	= (550+75+(22,500/900))*800 = 520,000	
(a) Closing inventory	= (550+75+(22,500/900))*(800-650) = <u>(97,500)</u>	
		<u>(422,500)</u>
		357,500
Overhead under absorbed	= 20,800 - (22,500/900)*800	<u>(800)</u>
(b) Gross profit		356,700
Selling & other Administrative costs		<u>(145,000)</u>
(c) Net profit		<u>211,700</u>

Alternative answer

Cost per unit			
Direct material & Labour			
Variable production overheads		75	
Fixed production overheads	(22,500/900)	25	
Total		650	

(a) Value of closing inventory = $650 * (800-650)$
97,500

(b) **Gross profit**

Sales	(650*1200)	780,000
Less; Cost of sales	650*650	(422,500)
		357,500
+/- FPOH Over/(Under)		
Absorption		
Actual	20,800	
Absorbed	(800*25) 20,000	(800)
		356,700

(c) **Net Profit**

Gross profit	356,700
Less; Selling & other administrative costs	<u>(145,000)</u>
	<u>211,700</u>

2.6

Relevant Learning outcome : 3.2.1

Discuss the need for Activity-Based Costing (ABC)

Study text reference: Page No. 389

- ABC select appropriate cost drives for each distinct activity and charge overheads to products accordingly.
- This enables an organisation to determine the most relevant cost of an output.
- Consequently the organisation can be competitive in the market in setting the appropriate competitive prices.
- The organisation can be effective in their decisions for instance shut-down decisions/pricing decisions.

2.7

Relevant Learning outcome : 4.1

Compounding

Study text reference: Page No. 407

Value of Sri Lanka Rupee deposit after 5 years = $1,000 \times 150 \times 1.12^5 = \text{Rs. } 264,351$

Value of USD deposit after 5 years = $1,000 + 1,000 \times 6\% \times 5 = \text{USD } 1,300$

Exchange rate if both investment returns to be equal = $264,351 / 1,300 = \text{Rs. } 203.35$

Average annual depreciation rate = $(203.35/150)^{(1/5)} - 1 = 6.27\%$

2.8

Relevant Learning outcome : 4.2 Discounting

Study text reference: Page No. 446

	Rs. million
Initial capital outlay	(40)
Years 1 - 3	50
Years 3 - 5	<u>40</u>
	50
less: NPV	(30)
PV of Year 03	20
At the discounted rate of	15%
Nominal value for 3rd year	$(1.15^3) = 1.520875$
Nominal value for 3rd year (Rs .million)	30.42

2.9

Relevant Learning outcome : 6.1 Revenue, costs and profit
Study text reference: Page No. 552
$X = 18 - P/5$ $P = 90 - 5X$ $TR = 90X - 5X^2$ $TC = 15X + 250$ At break-even level $TR = TC \longrightarrow 90X - 5X^2 = 15X + 250$ $90X - 5X^2 - 15X - 250 = 0$ $X = 10$ or $X = 5$ Since the minimum production is 7 units per day X should be 10 Therefore, break-even selling price per unit is: $P = 90 - 5(10)$ $P = 40$

2.10

Relevant Learning outcome : 7.1 Budgeting
Study Text reference: Page No. 587
(a) Sales & Marketing - He should provide the total sales budget for the period (items & revenue) with the total overhead cost requirement to sales & marketing functions (b) Purchasing & Warehouse Management - He has to provide the total item purchase requirement from respective suppliers/agents in order to fulfil the sales dept. target budget - He has to provide all the overhead cost requirement for purchasing and warehouse management. (c) Human Resources and Administration - He has to provide the total staff cost budget to be taken in with new recruitments, training and advancement costs. - He needs to provide all other overhead cost requirement/allocation of the company.

(Total 30 marks)

SECTION 2

Answer 03

Relevant Learning Outcome/s: 2.5
Sampling technique
Study text reference: Page No. 328

Suggested detail answer

(a)

	Working
Proportion of input bottles that become sellable in the sample	$= (368 + 32 \times 0.5) / 400 = 0.96$
Standard error of proportion	$SEP = \sqrt{\frac{p(1-p)}{n}}$ $= \sqrt{\frac{0.96 \times (1-0.96)}{400}} = \sqrt{0.000096}$ $= \underline{\underline{0.009798}}$
At 95% confidence level	$= 0.96 \pm 1.96 \times 0.009798$ $= 0.96 \pm 0.0192$ <u>In the range 94.08 % - 97.92%</u>

(b)

	Working
(i) Daily sales value	$= 100,000 \times 0.9408 \times 10 - 100,000 \times 0.9792 \times 10$ $= 94,080 \times 10 - 97,920 \times 10$ <u>= Rs. 940,800 - Rs. 979,200</u>
(ii) Proportion of defects	$= 16 / 400 = 0.04$ $SEP = 0.009798$ Range 0.04 ± 0.0192 <u>= 2.08% - 5.92%</u>
	<u>Daily loss of sales (in quantity)</u> $= 100,000 \times 2.08\% - 100,000 \times 5.92\%$ <u>= 2,080 units - 5,920 units</u>
	<u>Monthly loss of revenue</u> $= \text{quantity loss} \times \text{sales price per item} \times \text{no of days}$ $= 2,080 \times 10 \times 25 - 5,920 \times 10 \times 25$ <u>= Rs. 520,000 - Rs. 1,480,000 monthly</u>

• Profitability increase due to new Quality Assurance Executive (QA)			
	Workings	Rs.	Rs.
Increase in contribution	Contribution = 10-8 = 2 = 3,262*25*2 - 4,738*25*2	163,100	236,900
Savings in penalty	= 3,262*25*3 - 4,738*25*3	244,650	355,350
QA cost increase		(60,000)	(60,000)
Range of Profitability Increase		<u>347,750</u>	<u>532,250</u>
Working 01- SEP prior to the recruitment of QA			
$SEP = \sqrt{\frac{0.08 * (1-0.08)}{400}} = \sqrt{0.000184} = 0.01356$			
Daily defect range = $0.08 - (1.96*0.01356)*100,000$ $0.08 + (1.96*0.01356)*100,000$		5,342	10,658
Daily savings in defects (range) = (5,342-2080) (10,658-5920)		<u>3,262</u>	<u>4,738</u>
Or			
<u>Daily savings in sales</u>			
= 0.92 - (1.96*0.01356)*100,000 = 0.92 + (1.96*0.01356)*100,000		89,342	94,658
Daily sales improved (97,920- 94,658) (94,080-89,342)		<u>3,262</u>	<u>4,738</u>

(Total 6 Marks)

(c) Monthly break-even units

	Working
Contribution	= 10-8 = 2
Total FC	= 2,500,000 +60,000 = 2,560,000
Monthly break-even sales	= FC/ Per unit contribution = 2,560,000/ 2 = <u>1,280,000 bottles</u>

(Total 10 marks)

Answer 04

Relevant Learning Outcome/s: 5.2
Variance Analysis
Study text reference: Page No. 475/490/616

Suggested detail answer

(a)

- In the marginal costing system the only fixed overhead variance is an expenditure variance. Therefore, no fixed overhead volume variance.
- In the marginal costing system the sales volume variance is valued at standard contribution margin not standard profit margin.

(b) (i) Calculation of variances

Material price variance	=	$[70 - 141,250/2,030] \times 2,030$	=	850	F
Material usage variance	=	$[294 \times 7 - 2,030] \times 70$	=	1,960	F
DL rate variance	=	$[50 - 78,540/1,520] \times 1,520$	=	2,540	A
DL efficiency variance	=	$[294 \times 5 - 1,520] \times 50$	=	2,500	A
VOH efficiency variance	=	$[294 \times 5 - 1,520] \times 6$	=	300	A
VOH rate variance	=	$[6-6]1,520$	=		
FOH expenditure variance	=	$90,000 - 92,880$	=	2,880	A

(c)

Reconciliation of Standard cost and Actual cost of productionStandard marginal cost for actual production $[490 + 250 + 5 \times 6] \times 294 = 226,380$

Variances	Favourable	Adverse	
Material price variance	850		
Material usage variance	1,960		
DL rate variance		2,540	
DL efficiency variance		2,500	
VOH efficiency variance		300	
	2,810	5,340	= <u>2,530</u>
			= 228,910
Budgeted fixed overheads		90,000	
FOH expenditure variance		<u>2,880</u>	
			= <u>92,880</u>
Actual cost of production			= 321,790

(Total: 10 marks)

Answer 05

Relevant Learning Outcome/s: 6.2
Profit maximisation and cost minimisation
Study text reference: Page No. 561/568

Suggested detail answer

(a) Price = $a - bX$

Current selling price (Rs) 12,000

Current sales 10,000 units

Demand = zero when the price is at (Rs) 14,000

Therefore, $a = 14,000$

Price difference for the demand to be zero $(14,000 - 12,000) = 2,000$

Therefore, $b = (2,000 / 10,000)X = 1/5X$

Price = $14,000 - 1/5X$

Revenue = $14,000X - 1/5X^2$

MR = $14,000 - 2/5X$

MC = 5,600

Profit is maximised when MR = MC

$$14,000 - 2/5X = 5,600$$

$$X = 21,000$$

Substituting $X = 21,000$ in the demand function

Price = $14,000 - 1/5X$

P = 9,800

(b) Profit at the optimal point = $(9,800 - 5,600) \times 21,000 = \text{Rs. } 88,200,000$

Last month contribution = $(12,000 - 5,600) \times 10,000 = \text{Rs. } 64,000,000$

Loss from not applying the correct price = Rs. 24,200,000

(Total 10 marks)

Answer 06

Relevant Learning Outcome/s :7.3
Budget preparation
Study text reference: Page No 591/593/596

Suggested detail answer**(a) Production budget (in units)**

	October	November	December	January
Sales	80	70	120	110
+ Closing stock	35	60	55	-
- Opening stock	(40)	(35)	(60)	-
Production	75	95	115	110

(b) Purchase budget (Rs.)

	October	November	December
Material req.	7,500,000	9,500,000	11,500,000
+ Closing stock	1,900,000	2,300,000	-
- Opening stock	(1,500,000)	(1,900,000)	-
Purchases	7,900,000	9,900,000	11,500,000

Cash budget (Rs.)

	November
<u>Receipts</u>	(Rs.)
Cash sales ($200,000 * 1.4 * 70 * 0.2$)	3,920,000
From debtors ($200,000 * 1.4 * 80 * 0.8$)	17,920,000
Total receipts	21,840,000

Payments

Material purchases	(2,970,000)
Creditors	(5,530,000)
Labour	(4,750,000)
Variable overheads	(2,850,000)
Fixed overheads	(1,600,000)
Total payments	(17,700,000)
Cash surplus	4,140,000

SECTION 3

Answer 07

Relevant Learning Outcome/s : 1.1 Cost classification, behaviour estimation

Study text reference: Page No. 90/96/97/99/113

(a) Total cost statement

Item	Working	Amount (Rs.)
<u>Production cost</u>		
Material cost	$= 40,000 \times 2 \times (675,000/1,500)$	36,000,000
Labour	$= (40,000/1,000) \times 150 \times 125$	750,000
Other direct expenses	$= 40,000 \times 25$	<u>1,000,000</u>
Prime cost		37,750,000
Variable overheads	$= 40,000 \times 0.5 \times 30$	600,000
Depreciation	$= ((3,000,000 - 600,000)/4)/12$	50,000
Utility cost	VC $= ((243,000 - 12,000) - 183,000) / (22,000 - 16,000)$ = Rs. 8 FC $= 243,000 - (22,000 \times 8) = \text{Rs. } 67,000$ Total machine hours $= 40,000 \times 0.5 = 20,000$ Cost $= 67,000 + 20,000 \times 8 = \text{Rs. } 227,000$	<u>227,000</u>
Full factory cost		38,627,000
<u>Admin cost</u>		
Office staff cost		225,000
Office rent		<u>130,000</u>
		355,000
<u>Selling & distribution cost</u>		
Delivery & promotions		<u>280,000</u>
Total Cost		<u>39,262,000</u>

(b) Net benefits of the options

1. By utilising for another unit of work = **Rs. 550 contribution per hour**
2. Outsourced = $600 - 125 = \text{Rs. } 475$ per hour

Option 1 is the most attractive option

Item	working	Amount (Rs.)
Total hours	$= 40,000/1,000 \times 150 = 6,000$ hours	
Per hour opportunity cost	Rs. 550	
(i) Total opportunity cost	$= 6,000 \times 550$	3,300,000
Business profit	= Revenue - Total cost	
Revenue	$= 40,000 \times 1,250$	50,000,000
Total cost		<u>(39,262,000)</u>
Present profitability		10,738,000
(ii) Differential benefit	= Business profit - Opportunity cost	
	$= 10,738,000 - 3,300,000$	<u>7,438,000</u>

(c)

Item	Working	Amount (Rs.)
Item cost	= Full factory cost/ output =38,627,000/40,000	965.68
(i) Inventory balance	= 5,000 * 965.68	4,828,400
<u>New Profitability</u>		
Revenue	= (40,000 - 5,000) * 1,250	43,750,000
<u>Cost of sales</u>		
Full factory cost	38,627,000	
- Inventory	(4,828,400)	(33,798,600)
Gross profit		9,951,400
- Admin/selling expenses		(635,000)
(ii) Net profit		9,316,400

(d)

Answer- Method 1

Item	Working	Amount (Rs.)
Revenue	= 2,350 * 18,000	42,300,000
Material	= 18,000 * 3.5 * 450	(28,350,000)
Labour	= 5,500 * 125	(687,500)
Other direct cost	= 18,000 * 25	(450,000)
VOH cost	= 17,500 * 30	(525,000)
Utility cost	= (17,500 * 8) + (67,000 - 12,000)	(195,000)
Extra earnings from labour hrs saving	= (6,000 - 5,500) * 550	275,000
Depreciation		(50,000)
Admin expenses		(355,000)
New designer's salary		(150,000)
Selling expenses		(280,000)
Total benefits/profitability due to new section		11,532,500
Incremental profits	= 11,532,500 - 10,738,000	794,500

It is recommended to start the new designing business since it generates an incremental benefit of Rs. 794,500.

Answer - Method 2

Incremental benefits computation

Item	Working	Amount (Rs.)
Drop in revenue	$= (18,000 \times 2,350) - 50,000,000$	(7,700,000)
Material saving	$= 36,000,000 - (18,000 \times 3.5 \times 450)$	7,650,000
Labour cost saving	$= (6,000 - 5,500) \times 125$	62,500
Additional profit in labour saving	$= 500 \text{ hours} \times 550 \text{ (best option)}$	275,000
VOH saving	$= (20,000 - 17,500) \times 30$	75,000
Utility cost saving	$= 227,000 - 8 \times 17,500 - (67,000 - 12,000)$	32,000
Direct expenses saving	$= (40,000 - 18,000) \times 25$	550,000
Incremental salaries		(150,000)
Incremental benefit		794,500

It is recommended to start the new designing business since it generates an incremental benefit of Rs. 794,500.

(e) (i)

Responsibility accounting is a system of accounting that segregates revenue and costs into areas of personal responsibility in order to monitor and assess the performance of each part of an organisation.

(ii) **Profit center & Investment center**

Similarity

- Both the centers are responsible for effective cost utilisation and maximisation of profit.

Difference

- Investment center has additional responsibility for capital investments and possibly for financing whereas profit center has no responsibility on capital investments.
- Investment center performances are measured by its return on investment whereas profit center performances are measured on net profitability.

(Total 20 marks)

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