THE INSTITUTE OF CHARTERED ACCOUNTANTS OF SRI LANKA

SUGGESTED SOLUTIONS

KE2 – Management Accounting Information

March 2015

SECTION 1

Answer 01

1(a)

1.1

Relevant Learning Outcome/s: 1.1.2
Correct answer: C Direct cost can either be variable or fixed - (i) is incorrect. Fixed cost may be controllable particularly in the short run - (ii) is incorrect. (iii) is correct. Therefore the correct answer is C.

1.2

Relevant Learning Outcome/s: 1.1.2
Correct answer: B Graph A is correct since fixed cost is not varying with the level of output in the short run. Graph B is correct since the variable cost per unit will not change with the output level in the short run. Graph C is also correct, since the fixed cost per unit will reduce with the increase in output level in the short run. Graph D is incorrect since the variable cost is zero when there is no production. Therefore the correct answer is B.

1.3

Relevant Learning Outcome/s: 2.3.1
Correct answer: D Mean daily output = (10*18+20*15)/30 = 16 Standard deviation = √[(2950 + 5000)/30 - (16 x 16)] = 3 Therefore the correct answer is D.

1.4

Relevant Learning Outcome/s: 2.6.1
Correct answer: C A is correct based on the first index. B is correct: impact of price increase on expenditure is 40%; If the expenditure increase is only 30%, consumption must have reduced. C is incorrect: 40% increase based on the second index is expenditure not price. D is correct based on the second index. Therefore the correct answer is C.

1.5

Relevant Learning Outcome/s: 2.1.1
Correct answer: D On A, B and C discount is 20%. On D discount is 25%. Therefore the correct answer is D.

1.6

Relevant Learning Outcome/s: 5.1.1
Correct answer: C A is not correct, since standards are based on current performance. B is not correct, since wastages and normal losses are adjusted in arriving at attainable standards. C is correct, since a standard costing system is not successful without a good budgetary control system. D is not correct, since standard costing is not just a method of making estimations. Therefore the correct answer is C.

1.7

Relevant Learning Outcome/s: 2.4.2
Correct answer: C No. of students doing only Accountancy = 100 – 30 = 70 No. of students doing only Combined Mathematics = 80 – 30 = 50 Probability of doing one subject = ((100 – 30) + (80 – 30)) / 300 Therefore the correct answer is C.

1.8

Relevant Learning Outcome/s: 4.1.1
Correct answer: D (i) is incorrect; when AER is calculated denominator should be the amount invested i.e. Rs. 89,286 (ii) is incorrect, as amortised interest is not the difference between market/fair values. (iii) Initial interest rate = (100,000 - 89,286)/89,286 = 11.99% After 6 months, (((100,000 - 94,787)/94,787)*2)% = 10.99% Interest rate has declined therefore the statement is not correct. Therefore the answer is D.

1.9

Relevant Learning Outcome/s: 2.5.1
Correct answer: A (i) is incorrect; approximately the range is 3 times Std Error on either side of the mean. (ii) is correct. (iii) is correct; SE = 600/ $\sqrt{36}$ = 100 Therefore the correct answer is A.

1.10

Relevant Learning Outcome/s: 5.2.1
Correct answer: B Selling price variance is calculated by multiplying the price difference or profit margin difference, by the actual sales quantity and not the budgeted sales quantity. Therefore, the correct answer is B.

[Total marks for 1(a) (MCQs) 2x10= 20 marks]

1(b)

1.11

Relevant Learning Outcome/s: 3.2.2
(i) Material ordering cost - No. of orders placed (1 mark) (ii) Material handling cost - Average quantity of material held in the inventory/production runs (1 mark) (iii) Machinery maintenance cost - Machine utilisation time/production runs/No. of machinery setups (1 mark)

1.12

Relevant Learning Outcome/s: 4.2.1
PV = 1000 x [(1/1.10) + ($2/1.10^2$) + ($2^2/1.10^3$) + ……+ ($2^{14}/1.10^{15}$)] = 1000 x (1/1.10) x $\frac{(2/1.10)^{15} - 1}{(2/1.10) - 1}$ = 1000 x (1/1.10) x 9,586 = Rs. 8,714,545

1.13

Relevant Learning Outcome/s: 4.2.1
31st Birthday--------30 yrs------>60th birthday -----> From 61st birthday -------> 15 yrs----> PV of the pension (as of the 30th birthday) = 300,000 x 6.811 x 0.0334 = 68,246 Instalment payable over 30 years = 68,246 / 8.055 = Rs. 8,472.53 6.811 is the annuity discounting factor for 15 years @ 12% 0.334 is the discounting factor for 30th year @ 12% 8.055 is the annuity discounting factor for 30 years *Alternatively;* $S = A[(1+r)^n - 1]/r$ $S = 300,000[(1+0.12)^{15} - 1]/0.12 = 11,183,914.4$ $FV = PV(1+r)^n$ $11,183,914.4\ (1+0.12)^{15} = 2,043,259$ $2,043,259 = A[(1+0.12)^{30} - 1]/0.12$ A = Annual instalment = Rs. 8,466.57

1.14

Relevant Learning Outcome/s: 1.2.2
(i) Rent is a fixed payment and does not depend on the volume of inventory. Therefore it is not a inventory holding cost. (ii) Insurance cost - Incremental cost based on the value of the inventory. Therefore this is an inventory holding cost. (iii) Salary of the warehouse manager does not change based on the volume of the inventory. Therefore it is not a inventory holding cost

1.15

Relevant Learning Outcome/s: 1.2.2
Reorder level = 75 x 6 = 450kg Maximum level = 450 + 300 – 25 x 4 = 650kg Minimum level = 450 – 50 x 5 = 200kg

1.16

Relevant Learning Outcome/s: 2.2.1

	Min	Max
Sales quantity	80	120
Unit price	190	210
Variable cost	90	110
Fixed cost	3,750	6,250

Profit estimate = (200 - 100) x 100 - 5000 = 5000
Minimum profit = (190 - 110) x 80 - 6250 = 150
Maximum profit = (210 - 90) x 120 - 3750 = 10,650
Maximum error = +5650 or - 4850
Maximum error = + 5650

1.17

Relevant Learning Outcome/s: 6.1.1

$p = 21 - 3q$ and Total Revenue (TR) = $pq = 21q - 3q^2$
Total cost = $4q + 10$
Profit = TR - TC = $-3q^2 + 17q - 10$

At BEP; Profit = 0, $3q^2 - 17q + 10 = (3q - 2)(q - 5) = 0$
$q = 2/3$ or $q = 5$ but $q \geq 1$, hence $q = 5$

$p = 21 - 3q = 6$
Breakeven selling price = Rs. 6

1.18

Relevant Learning Outcome/s: 1.1.3

	Production	Cost (Rs. million)
Highest	42,000	25.00
Lowest	23,000	21.20
Difference	19,000	3.80

Variable production cost per unit 3,800,000/19,000 = Rs. 200.00
Fixed production cost per month (25mn - (42,000*200)) = Rs. 16.60 million
Fixed production cost per annum = Rs. 199.20 million

1.19

Relevant Learning Outcome/s: 2.1.1		
Display price	1,000	
Discount	(50)	
Sale Value	950	
Sales Tax	(114)	
	836	
Purchase cost	(711)	
	125	100
Income tax	(25)	(20)
Net profit	100	80

Mark up = (1000 – 711) / 711 = 40.65%

Alternatively;
Assume display price is Rs. 1000 and purchase cost is Rs. Y. Then;
Selling price = 1000*95% = 950
Sale tax = 950*0.12 = 114
Income tax = (950-114-Y)20% = 167.20 - 0.2Y
Expected profit = 1000*10% = 100
Therefore; 950 -114 - (167.20 - 0.2Y) - Y = 100
Y = 711
Expected markup = ((1,000-711)/711)% = 40.65%

1.20

Relevant Learning Outcome/s: 1.2.2
➢ Adequacy of material for continuous production. Proper inventory management will avoid production stoppages due to stock out situations. ➢ Cost on inventory ordering and holding are minimised. ➢ Facilitate to maintain quality of material and output. ➢ Avoid overstocking and stock obsolescence. ➢ Inventory purchase cost can be reduced if bulk discounts are available.

[Total marks for 1(b) 3 x10= 30 marks]

SECTION 2

Answer 02

Relevant Learning Outcome/s: 1.4.1 / 1.4.2

1.

	Output units
Opening balance	500.00
Material introduced for	20,000.00
	20,500.00
Normal loss (5%)	(1,000.00)
Abnormal loss	(200.00)
Less closing semi-finished goods	(300.00)
Output transferred to Process 2	19,000.00

(2 marks)

2. **Statement of equivalent units**

	In Output units		
	% completed	Materials	Conversion
Units comp. in Feb (18,500)	100%	19,000	19,000
Abnormal loss (200)	100%	200	200
Closing goods (300)	60%	300	180
Total equivalent units		19,500	19,380

Cost statement

	Material cost	Conversion
Opening WIP (Rs. '000)	1,275.00	155.10
Added during the month (Rs. '000)	48,450.00	7,500.00
Total cost (Rs. '000)	49,725.00	7,655.10
Cost per equivalent unit (Rs.)	2,550.00	395.00

Completed goods transferred to Process 2

Opening value (Rs. 2550 + Rs. 395)*19,000 = Rs. 55,955,000

Closing semi-finished goods	**Rs.**
Materials (300 units*Rs. 2550)	765,000.00
Conversion cost (180 units*Rs. 395)	71,100.00
Value of closing semi-finished goods	836,100.00

(8 marks)

(Total: 10 marks)

Answer 03

Relevant Learning Outcome/s: 3.1.1 / 3.1.3

1. *Workings*

Variable cost (200 + 80 + 50)	330	
Fixed Cost (8,000,000/320,000)	25	
Total manufacturing cost	355	

Marginal Costing

	Quarter 2 (Rs. '000)	
Sales (90,000 x 900)	81,000	
Opening stock (10,000 x 330)	3,300	
Var prod cost (100,000 x 330)	33,000	
Closing stock (20,000 x 330)	(6,600)	
	29,700	[90,000 x 330]
Var S&D cost	2,700	[90,000 x 30]
	32,400	
Contribution	48,600	[90,000 x (900-360)]
Fixed costs		
Production (8,000/4)	2,000	
S&D (1,600/4)	400	
Admin (2,400/4)	600	
	3,000	
Profit	**45,600**	

Absorption Costing

	Quarter 2 (Rs. '000)	
Sales (90,000 x 900)	81,000	
Opening stock (10,000 x 355)	3,550	
Prod cost (100,000 x 355)	35,500	
Closing stock (20,000 x 355)	(7,100)	
	31,950	[90,000 x 355]
	49,050	[90,000 x (900-355)]
Under/(over) absorption of POH	(500)	[(100,000 - 80,000) x 25]
Other OH costs: S&D	3,100	[1,600/4]
Admin	600	[2,400/4]
	3,200	
Profit	**45,850**	

(6 marks)

2. In marginal costing all fixed costs are expensed as a period cost.

In absorption costing fixed costs included in closing stocks are carried forward to the following period.

(2 marks)

3.

Quarter 2	Rs. '000
Profit - Marginal Costing method	45,600
Add: fixed costs included in closing stock and c/f to next period (20,000 x 25)	500
Less: fixed costs included in opening stock and b/f from last period (10,000 x 25)	(250)
Profit- Absorption Costing method	45,850

(2 marks)

(Total: 10 marks)

Answer 04

Relevant Learning Outcome/s: 4.2.2 / 4.2.3

1. **Evaluation of Rent-a-car project at the discounting rate of 15%**

	Period	Value (Rs. '000)	DF	PV (Rs.)
Import cost of cars	Year 0	(80,000)	1.000	(80,000)
Re-sale value	Year 4	24,000	0.572	13,722
Initial registration	Year 0	(1,500)	1.000	(1,500)
Fixed annual cost	Year 1-4	(5,000)	2.855	(14,275)
Hiring income (320*8,000)	Year 1-4	51,200	2.855	146,176
Running cost (40%*320*8,000)	Year 1-4	(20,480)	2.855	(58,470)
Charge for garaging **(Note 01)**	-	-	-	-
Security officer salaries	Year 1-4	(240)	2.855	(685)
Net present value (NPV)				**4,967**

Note 01: Charge for the garage is not an incremental cost in the company's perspective. This is a charge which does not go out of the company. Therefore not relevant.

Since the NPV is positive the project can be recommended.

Alternative answer:

	Y-0	Y-1	Y-2	Y-3	Y-4
Import cost of cars	(80,000)	-	-	-	-
Re-sale value	-	-	-	-	24,000
Initial registration	(1,500)	-	-	-	-
Fixed annual cost	-	(5,000)	(5,000)	(5,000)	(5,000)
Hiring income	-	51,200	51,200	51,200	51,200
Running cost	-	(20,480)	(20,480)	(20,480)	(20,480)
Charge for garaging **(Note 01)**		-	-	-	-
Security officer salaries	-	(240)	(240)	(240)	(240)
NCF	(81,500)	25,480	25,480	25,480	49,480
DR @ 15%	1.000	0.870	0.756	0.658	0.572
DNCF/PV	(81,500)	22,168	19,263	16,766	28,303
NPV	**4,999**				

(7 marks)

2. - NPV considered all cash flows of the project whereas the Payback method considers cash flows only up to Payback period.

- NPV considers the discounted cash flows whereas Undiscounted Payback method considers undiscounted cash flows.

- NPV method can be used with unconventional cash flows whereas Payback method cannot be used in such instances.

- Payback method is not a measure to compare mutually exclusive projects while NPV being the best option.

(3 mark

(Total: 10 marks)

Answer 05

Relevant Learning Outcome/s: 6.2.1

1. Revenue $R = V \times P$

$R = (t^2 - 54t + 765) \times (t/3 - 5)$

$R = t^3/3 - 23t^2 + 525t - 3825$

When R is maximum, $dR/dt = 0$

$dR/dt = t^2 - 46t + 525 = 0$

$(t - 21)(t - 25) = 0$

$t = 21$ or $t = 25$

$d^2R/dt^2 = 2t - 46$

$d^2R/dt^2 (t = 21) = -4 (< 0$; R is maximum)

$d^2R/dt^2 (t = 25) = +4 (> 0$; R is minimum)

Alternatively;

Substituting t = 21 to R function;

$R = 21^3/3 - (23*21^2) + (525*21) - 3825 = 144$

Substituting t = 25 to R function;

$R = 25^3/3 - (23*25^2) + (525*25) - 3825 = -4961$

When t= 21 R is a maximum and when t=25, R is a minimum. Therefore R increases from t=25 up to t=30, when t=30, R=225

Therefore, Revenue is maximised when the age is 30 years.

(7 marks)

2. The best age is when the profit is maximised rather than when revenue is maximized.

(1 mark)

3. For this purpose cost of planting and cultivating the tree should be considered

Time value of money should be considered because;

- the costs are incurred over a period of time
- the revenue is generated at the end of that period

(2 marks)

(Total: 10 marks)

SECTION 3

Answer 06

Relevant Learning Outcome/s: 7.4.1 / 5.2.2

1.

	Flexed Budget	Actual	Variance	Remarks
Production/sales (units)	70,000	70,000	-	
Direct materials:				
Material X (Rs.'000)	1,890	1,927.60	(37.60)	Adv.
Liquid Y (Rs. '000)	1,820	1,747.20	72.80	Fav.
Direct labour (Rs.'000)	630	606.3	23.70	Fav.
Fixed overheads (Rs.'000)	300	320	(20.00)	Adv.

(4 marks)

2. In the given scenario, the actual production is only 70%. This deviation has caused all variable expenses to deviate from the original budget. For example original budget shows favourable variance for material X. However, comparison with the flexed budget gives an adverse variance for the same material. Since the flexed budget produces the operational information at the actual activity level the management can clearly get a better understanding on the operational efficiencies/inefficiencies.

(3 marks)

3. (i)

Material price variance = (Std price - Act price) * Act. purchase
Chemical X = (2,700,000/45,000*31,600) - 1,927,600 = (31,600.00) Adverse

Liquid Y = (2,600,000/65000)*44,800) - 1,747,200 = 44,800.00 Favourable

Total price variance **13,200.00** Favourable

(ii) Material usage variance = (Std usage - Act usage) * Std price

Chemical X = (31,500 - 31,600)*60 =	(6,000.00)	Adverse
Liquid Y = (45,500 - 44,800)*40 =	28,000.00	Favourable
Total usage variance	**22,000.00**	Favourable

(iii) Labour rate variance = (Std rate - Act rate) * Act hours worked
= (180*3,525) - 606,300
= 28,200.00 Favourable

(iv) Labour efficiency variance = (Std hours - Act hours) * Std rate
= (3,500 - 3,525) * 180
= (4,500.00) Adverse

(v) Fixed overhead expenditure variance = (Btd FOH - Act FOH)
= 300,000- 320,000
= (20,000.00) Adverse

(vi) Fixed overhead volume variance = (Actual Production-Budgeted Production)x Standard rate per unit
= (70,000 – 100,000) 3
= (90,000) Adverse

(10 marks)

4. Materials are purchased by the procurement/purchasing department and not the production department. As such controlling the price variance is a responsibility of the procurement/purchasing dept. Production manager is responsible only for deviation in utilisation during the production. Therefore it is important to split off the material variance into price and usage. However, the utilisation of material can be affected by the quality of purchased material which is again a responsibility of the procurement/purchasing dept.

(3 marks

(Total: 20 marks)

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