Cost Accounting
Level 3

Model Answers

Series 2 2006 (Code 3616)

Certificate in Cost Accounting Level 3 - Malaysia
Series 2 2006

How to use this booklet

Model Answers have been developed by Education Development International plc (EDI) to offer additional information and guidance to Centres, teachers and candidates as they prepare for LCCI International qualifications. The contents of this booklet are divided into 3 elements:

(1)   Questions   –   reproduced from the printed examination paper

(2)   Model Answers   –   summary of the main points that the Chief Examiner expected to see in the answers to each question in the examination paper, plus a fully worked example or sample answer (where applicable)

(3)   Helpful Hints   –   where appropriate, additional guidance relating to individual questions or to examination technique

Teachers and candidates should find this booklet an invaluable teaching tool and an aid to success.

EDI provides Model Answers to help candidates gain a general understanding of the standard required. The general standard of model answers is one that would achieve a Distinction grade. EDI accepts that candidates may offer other answers that could be equally valid.

QUESTION 1

Edge Limited makes and distributes a single product and budgeted to produce 2,000 units in a month.

The standard production cost of one unit of the product is as follows:

	RM per unit
Direct materials (8 kilos x RM7.50 per kilo)	60.00
Direct labour (3 hours x RM24 per hour)	72.00
Variable production overheads (3 hours x RM6 per hour)	18.00
Fixed production overheads (3 hours x RM3 per hour)	9.00
Total Standard Production Cost (per unit)	159.00

The actual production for the month was 2,200 units and the actual costs incurred were as follows:

	RM
Direct materials purchased at 18,800 kilos	138,180
Direct labour at 7,000 hours	142,560
Variable production overheads	36,750
Fixed production overheads	19,500

The opening stock of raw materials was 3,000 kilos, valued at standard purchase price, the raw material price variance being calculated at the time of purchase.

19,800 kilos of materials were issued to production in the month.

There was no opening stock or closing stock of work in progress.

REQUIRED

Prepare the following accounts in the company's integrated accounting system:

(a) Raw Material Stock

(5 marks)

(b) Production Overhead

(6 marks)

(c) Work in Progress

(9 marks)

When compiling the above, show clearly all relevant variances within the three above accounts.

(Total 20 marks)

MODEL ANSWERS TO QUESTION 1

(a)

Raw Material Stock Account (RMs)

Opening stock (3,000 x RM 7.50)	22,500	Work in Progress	148,500
Creditors	138,180	Closing stock (2,000 x RM 7.50)	15,000
Material Price Variance	2,820		_____
	163,500		163,500

(b)

Production Overhead Account (RMs)

Creditors	56,250	W I P - Variable	42,000
Variable overhead expenditure	5,250	W I P - Fixed	18,000
variance	_____	Fixed overhead exp variance	1,500
	61,500		61,500

(c)

Work in Progress Account (RMs)

Raw Materials	148,500	Labour efficiency variance	9,600
Direct Labour	168,000	Direct mat usage variance	16,500
Production overhead - variable	42,000	Var o/h efficiency variance	2,400
Production overhead - fixed	18,000	Transfer to Finished Goods	349,800
Fixed o/h volume variance	1,800		_____
	378,300		378,300

MODEL ANSWERS TO QUESTION 1 CONTINUED

Workings:

Material Price Variance
Standard (18,800 x RM7.50) = 141,000 less actual 138,180   = **RM2,820 Fav**

Material usage variance
      = Issued to production 148,500 (19,800 kgs x RM7.5) less
        standard usage 132,000 (2,200 units x RM60)   = **RM16,500 Adv**

Labour rate variance
      Standard (7,000 x RM24) = RM168,000 less actual RM142,560
                                                   = **RM25,440 Fav**

Labour efficiency variance
      = Actual hrs 7,000 less standard hrs 6,600 (2,200 x 3) = 400 hours x RM24
                                                   = **RM9,600 Adv**

Variable overhead expenditure variance
      = Standard (7,000 x RM6) RM42,000 less actual RM36,750
                                                   = **RM5,250 Fav**

Variable overhead efficiency variance
      = Standard (2,200 x 3 x 6) RM39,600 less
        actual hours 7,000 x standard rate RM6 = RM42,000
                                                   = **RM2,400 Adv**
      OR 400 hrs x RM6 = RM2,400

Fixed overhead volume variance
      = Absorbed (2,200 x RM9) = RM19,800 less budget RM18,000
                                                   = **RM1,800 Fav**

Fixed overhead expenditure variance
      = Budget (2,000 x RM9) RM18,000 less actual RM19,500
                                                   = **RM1,500 Adv**

Work in Progress (19,800 x RM7.50)
                                                   = **RM148,500**

Transfer to Finished goods = 2,200 units x RM159
                                                   = **RM349,800**

QUESTION 2

Lewis Court Limited manufactures a single product.

The budget for a period includes the following:

Sales/Production	800 units
Standard selling price per unit	RM145
Standard cost per unit	RM125

During the period the actual results were as follows:

Sales/Production	780 units
Sales revenue	RM116,450
Total cost	RM95, 580

REQUIRED

(a)   Calculate the following variances for the period:

    (i)   sales price variance

    (ii)   sales volume profit variance

    (iii) total cost variance

    (iv) total profit variance

(8 marks)

Roland Wiseman Limited makes a single product and uses a standard absorption costing system.

The production budgets for a period include the following:

Production	18,000 units
Direct labour hours per unit	4.5

During the period the actual results were:

Production	18,600 units
Direct labour hours	87,520

REQUIRED

(b)   Calculate for the period the following production ratios:

    (i)   efficiency

    (iii) capacity

    (iii) production volume (activity)

(9 marks)

(c)   Explain the meaning of the term **Standard Hour**

(3 marks)

(Total 20 marks)

MODEL ANSWERS TO QUESTION 2

(a)

i) **Sales price variance**

(780 x RM145) = 113,100

RM113,100 less RM116,450   = **RM3,350 Fav**

ii) **Sales volume profit variance**

(800 – 780) 20 x RM20 (RM145 – RM125)   = **RM400 Adv**

iii) **Total cost variance**

(780 x RM125) = RM97,500

RM97,500 less 95,580   = **RM1,920 Fav**

iv) **Total profit variance**

(800 x RM20) = RM16,000 less (RM116,450 less RM95,580) RM20,870

                                     = **RM4,870 Fav**

(b)

(i) **Production efficiency ratio**

Standard direct labour hours of actual production x 100%
Actual direct labour hours worked

= 83,700 hrs x 100%
   87,520 hrs

                                  = **95.63 %**

  (83,700 = 18,600 x 4.5)

(ii) **Production capacity ratio**

Actual direct labour hours worked x 100%
Budgeted direct labour hours

= 87,520 hrs x 100%
   81,000 hrs   = **108.05 %**

(81,000 = 18,000 x 4.5)

(iii) **Production volume (activity) ratio**

Standard direct labour hours of actual production x 100%
Budgeted direct labour hours

= 83,700 hrs x 100%
   81,000 hrs   = **103.33 %**

(c)   The term Standard Hour refers to the **QUANTITY of work** achievable at **standard efficiency** in an hour.

QUESTION 3

Barmby Limited manufactures and sells a single product A, which uses raw material X in its production.

The sales budget for the next three month period is as follows:

	Month 1	Month 2	Month 3
Product A (units)	54,500	55,624	57,535

Stock of finished goods at the start of the budget period is 5,553 units. This is to be increased to 10,000 by the end of the first month and increased by 2,000 units a month thereafter.

2% of the finished goods produced are budgeted to be rejected. These will be disposed of with no further value

The quantity of raw material X required per unit of finished product is 3 kilos. In addition to this requirement for raw material in the finished product, allowance has to be made for a 10% loss in weight in the preparation of material X.

Stock of raw material X at the start of the budget period is to be 24,000 kilos. At the end of each month in the budget period the stock of material X should be increased by 10%.

The price for material X is expected to be RM5 per kilo.

REQUIRED

(a)   Prepare the following budgets for each of months 1, 2 and 3:

    (i)   Production of product A (units)

(7 marks)

    (ii)   Purchases of raw material X (kilos and total RMs)

(9 marks)

(b)   Define the term **principle budget factor** and explain its influence on the budget setting process.

(4 marks)

(Total 20 marks)

MODEL ANSWERS TO QUESTION 3

(a)

(i) **Production Budget** (units of product A)

Units	Month 1	Month 2	Month 3
Sales	54,500	55,624	57,535
Less opening stock	(5,553)	(10,000)	(12,000)
Plus closing stock	10,000	12,000	14,000
Good production	58,947	57,624	59,535
Rejected manufacture	1,203	1,176	1,215
Gross Production	**60,150**	**58,800**	**60,750**

Example of rejected production = 58,947 / 98 x 2 = 1,203

(ii) **Material Purchases Budget** (kilos and total RMs of raw material X):

	Month 1 kilos	Month 2 kilos	Month 3 kilos
Required for final production **(W1)**	180,450	176,400	182,250
Plus wastage **(W2)**	20,050	19,600	20,250
	200,500	196,000	202,500
Less opening stock	(24,000)	(26,400)	(29,040)
Plus closing stock	26,400	29,040	31,944
Purchases (kilos)	202,900	198,640	205,404
	x RM5	x RM5	x RM5
Purchases (RM)	1,014,500	993,200	1,027,020

W1 Gross Production units x 3kgs   60,150 x 3 = 180,450
Gross Production units x 3kgs   58,800 x 3 = 176,400
Gross Production units x 3kgs   60,750 x 3 = 182,250

W2 180,450 /90 x 10 = 20,050 kgs
176,400 /90 x 10 = 19,600 kgs
182,250 /90 x 10 = 20,250 kgs

(b) The principal budget factor is the factor which restricts the activities of the organisation during the budget period. This budget must be prepared first and all the other budgets will be derived from it.

QUESTION 4

Burgess Facey Ltd has three production cost centres (A, B and C) and two service cost centres (Stores and Maintenance), in its factory. The company re-apportions the costs of the service cost centres to the production cost centres in order to calculate budgeted overhead absorption rates.

The budgeted production overhead costs for a period allocated to the five cost centres were as follows:

	Production cost centres			Service cost centres	
	A	B	C	Stores	Maintenance
Allocated overheads (RM)	225,000	180,000	144,000	87,000	52,500

Other budgeted overheads, which have yet to be apportioned, are as follows (RM):

Rent and Rates	180,000
Depreciation	225,000
Supervision	360,000

In addition, the following budgeted information is available for each cost centre:

	Production cost centres			Service cost centres	
	A	B	C	Stores	Maintenance
Number of employees	66	51	45	6	12
Floor area (m²)	4,500	3,600	2,400	3,000	1,500
Machine cost (RM)	420,000	270,000	150,000	24,000	36,000
Usage of stores	40%	30%	20%	Nil	10%
Usage of maintenance	35%	30%	15%	20%	nil

Budgeted machine hours for the period were 60,000 for Production Cost Centre A, 39,850 for Production Cost Centre B, and 30,000 for Production Cost Centre C

Actual results for the period were as follows:

	Production cost centres		
	A	B	C
Allocated overheads (RM) (allocated and apportioned)	585,750	480,575	355,250
Actual machine hours	58,750	39,200	29,780

REQUIRED

(a) Produce a budgeted overhead distribution table, for the period, showing the allocated and apportioned costs for the five cost centres

(3 marks)

QUESTION 4 CONTINUED

(b) Re-apportion the budgeted service cost centre overheads to the production cost centres,
     using **simultaneous equations**. (Full marks will **not** be awarded for other methods).

(8 marks)

(c) Calculate a pre-determined overhead absorption rate, to TWO decimal places of RM
     per machine hour, for each of the three production cost centres.

(3 marks)

(d) Calculate the over/under absorbed overhead for each production cost centre.

(6 marks)

(Total 20 marks)

MODEL ANSWERS TO QUESTION 4

(a)

Cost (RM)	Production Cost Centres			Service Cost Centres	
	A	**B**	**C**	**Stores**	**Maintenance**
Allocated	225,000	180,000	144,000	87,000	52,500
Rent and Rates (W1)	54,000	43,200	28,800	36,000	18,000
Depreciation (W2)	105,000	67,500	37,500	6,000	9,000
Supervision (W3)	132,000	102,000	90,000	12,000	24,000
	516,000	392,700	300,300	141,000	103,500

W1   Rent and Rates based on floor area
    PCC A = RM180,000 / 15,000m2 x 4,500 m2   = RM54,000

W2   Depreciation based on machine cost
    PCC A = RM225,000 / RM900,000 x RM420,000   = RM105,000

W3   Supervision based on employees
    PCC A = RM360,000 / 180 x 66   = RM132,000

(b)   Secondary apportionment of service cost centre overheads

Cost (RM)	Production Cost Centres			Service Cost Centres	
	A	**B**	**C**	**Stores**	**Maintenance**
Balances b/d	516,000	392,700	300,300	141,000	103,500
Stores	66,000	49,500	33,000	(165,000)	16,500
Maintenance	42,000	36,000	18,000	24,000	(120,000)
	624,000	478,200	351,300	nil	nil

Workings:
Equation 1   S = 141,000 + 0.2 M
Equation 2   M = 103,500 + 0.1 S

Equation 1 x 5   5S = 705,000 + M
Equation 2 re-arranged   -0.1S = 103,500 - M
Added together   4.9S = 808,500

S = 165,000

Substitute in equation 2   M = 103,500 + 16,500 (0.1 of 165,000)

M = 120,000

Apportionment of stores   A = 40% x RM165,000 = RM66,000
                B = 30% x RM165,000 = RM49,500
                C = 20% x RM165,000 = RM33,000
                M =10% x RM165,000 = RM16,500

Apportionment of maintenance   A = 35% x RM120,000 = RM42,000
                B = 30% x RM120,000 = RM36,000
                C = 15% x RM120,000 = RM18,000
                S = 20% x RM120,000 = RM24,000

MODEL ANSWERS TO QUESTION 4 CONTINUED

(c) Calculation of pre-determined overhead absorption rates

   (i)   PCC A = RM624,000 / 60,000 machine hours = RM10.40 per machine hour

   (ii) PCC B = RM478,200 / 39,850 machine hours = RM12.00 per machine hour

   (iii) PCC C = RM351,300 / 30,000 machine hours = RM11.71 per machine hour

(d) Calculation of over/under absorption

<table>
<tr><th></th><th colspan="3">Production Cost Centres</th></tr>
<tr><th></th><th>A</th><th>B</th><th>C</th></tr>
<tr><td>Actual activity – m/c hours</td><td>58,750</td><td>39,200</td><td>29,780</td></tr>
<tr><td>Overhead absorption rate</td><td>RM10.40</td><td>RM12.00</td><td>RM11.71</td></tr>
<tr><td>Overheads absorbed</td><td>611,000</td><td>470,400</td><td>348,724 *</td></tr>
<tr><td>Actual overheads</td><td>585,750</td><td>480,575</td><td>355,250</td></tr>
<tr><td>Over (under) absorption</td><td>25,250</td><td>(10,175)</td><td>(6,526) *</td></tr>
</table>

   * rounded

QUESTION 5

Ashbee Stockdale Limited has budgeted to sell 35,000 units of its product in a period.

The following further budgeted information has been prepared for the period:

Selling price RM60 per unit

Direct labour 3 hrs per unit @ RM6 per hour

Direct materials 2 kgs per unit @ RM7 per kg

Variable production overheads RM4 per direct labour hour

Variable selling and administration overheads RM8 per unit

Fixed overheads RM5 per unit

REQUIRED

(a) Using marginal costing, calculate for the period the budgeted:

    (i) Contribution per unit

    (ii) Total contribution and total net profit

    (iii) Break even point (in units)

    (iv) Margin of safety as a % of sales

(10 marks)

(b) Using the **graph paper** provided, prepare a conventional **break-even chart**, clearly showing:

    (i) The break-even point

    (ii) The margin of safety

(6 marks)

(c) State **THREE** assumptions in cost-volume-profit analysis.

(4 marks)

(Total 20 marks)

MODEL ANSWERS TO QUESTION 5

(a) (i) & (ii) Calculation of budgeted contribution and profit:

		Per unit
Sales		60
Variable costs		
Direct labour (3 hrs x RM6)	18	
Direct materials (2 kilos x RM7)	14	
Variable production overheads (3 hrs x RM4)	12	
Selling and administrative overheads	8	
Total variable costs		52
Contribution per unit		**8**
Total contribution (35,000 x RM8)		**280,000**
Less Fixed costs (35,000 x RM5)		175,000
Total Net Profit		**105,000**

Syllabus Topic 3: Marginal Costing (3.4)

(iii) Break even point = 175,000/ 8 = **21,875 units**

(iv) Margin of safety

35,000 less 21,875 = 13,125 units
= 13,125/35,000 **= 37.5% of budgeted sales**

(b) See next page for break even chart

(c) Assumptions in cost – volume – profit analysis
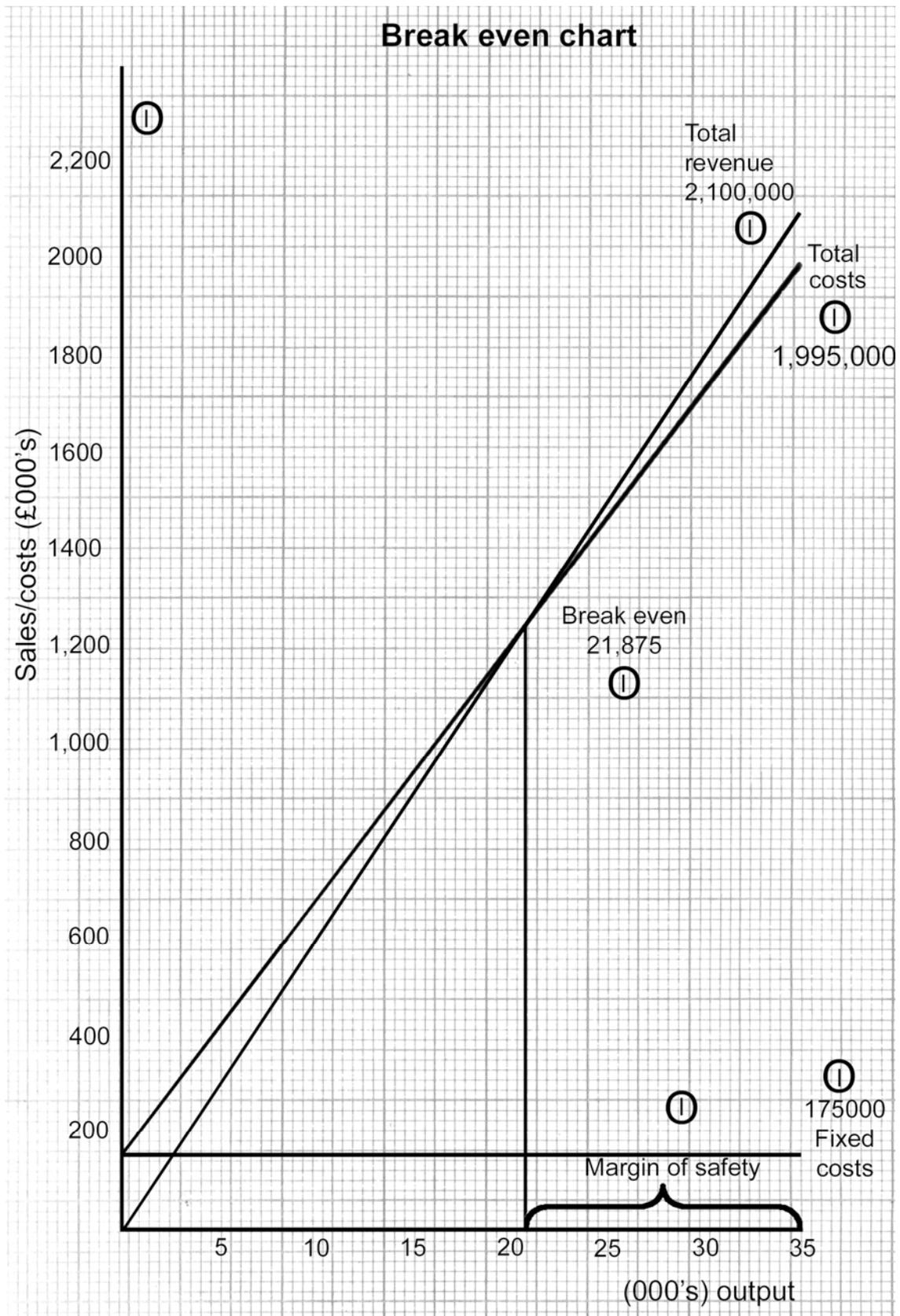
THREE of the following

Selling price per unit is constant across the range of activity

Total fixed costs remain constant across the range of activity

Total variable costs will vary in direct proportion to activity

Costs can be split between fixed and variable

Break even chart

Sales/costs (£000's)

Total revenue 2,100,000

Total costs 1,995,000

Break even 21,875

175000 Fixed costs

Margin of safety

2,200

2000

1800

1600

1400

1,200

1,000

800

600

400

200

5   10   15   20   25   30   35

(000's) output

QUESTION 6

Elliot Ellison Limited manufactures three products, details of which are as follows:

Product	A	B	C
Selling price per unit (RM)	84	72	62
Variable cost per unit (RM)	44	36	30
Weekly demand (units)	300	400	500
Machine hours per unit	4	3	4

Additional information:

Fixed costs are RM12,500 per week

The firm currently has 40 machines, which have insufficient capacity to satisfy demand

The company is considering three, separate, proposals:

(i)   To operate the machines at the present capacity of 2 x 7 hour shifts per day for a five day week.

(ii) To change to 3 x 7 hours shifts per day for a 5 day week, where upon variable costs of each product would rise by 10% per unit and fixed costs would increase by RM5,000 per week.

(iii) To install 10 extra machines, and to operate on the normal 2 x 7 hour shifts per day for a 5 day week, where upon fixed costs would increase by RM7,500 per week.

REQUIRED

(a) Calculate the short fall in capacity for the period, based on operating the existing machines for 2 x 7 hour shifts per day for a 5 day week.

(2 marks)

(b) Determine the maximum weekly profit possible from each proposal.

(16 marks)

(c) State which alternative you would recommend.

(2 marks)

(Total 20 marks)

MODEL ANSWERS TO QUESTION 6

(a) Current capacity = 40 x 2 x 7 x 5 = 2,800 machine hours per week
Demand = A (300 x 4) B (400 x 3) C (500 x 4) = 4,400 machine hours per week

Therefore there is a shortfall in capacity of **1,600 machine hours per week**

(b)
1. To operate 2 x 7 hr shifts per day: **Product**

	A	B	C
Contribution per unit	40	36	32
Machine hours per unit	4	3	4
Contribution per m/c hour	10	12	8
Order of priority	2	1	3

Production schedule:

Machine hours available per week		2,800
Product B 400 units x 3 hours	1,200	1,600
Product A 300 units x 4 hours	1,200	400
Product C 100 units x 4 hours	400	Nil

Contribution schedule RMs

Product B 400 units x RM36	14,400
Product A 300 units x RM40	12,000
Product C 100 units x RM32	3,200
Total contribution	29,600
Less Fixed costs	12,500
Profit	**17,100**

2. To operate 3 x 7 hr shifts per day

Machine hours available	= 40 x 5 x 7 x 3 = 4,200	
Machine hours required	=	4,400
Shortfall in capacity		200

	A	B	C
Selling Price	84.00	72.00	62.00
Variable costs (10 % increase)	48.40	39.60	33.00
Contribution (SP – VC)	35.60	32.40	29.00
Machine hours	4	3	4
Contribution per m/c hour	8.90	10.80	7.25
Order of priority	2	1	3

Production schedule:

Machine hours available		4,200
Product B 400 units x 3 hours	1,200	3,000
Product A 300 units x 4 hours	1,200	1,800
Product C 450 units x 4 hours	1,800	Nil

Contribution schedule RMs

Product B 400 units x RM32.40	12,960
Product A 300 units x RM35.60	10,680
Product C 450 units x RM29.00	13,050
Total contribution	36,690
Less Fixed costs	17,500
Profit	**19,190**

MODEL ANSWERS TO QUESTION 6 CONTINUED

3. To operate 50 machines x 2 x 7hr shifts per day:

Machine hours available   = 50 x 5 x 7 x 2 = 3,500
Machine hours required   =   4,400
Shortfall in capacity   900

Contribution per machine hour and production schedule same as number one

Production schedule:
Machine hours available		3,500
Product B 400 units x 3 hours	1,200	2,300
Product A 300 units x 4 hours	1,200	1,100
Product C 275 units x 4 hours	1,100	Nil

Contribution schedule RMs

Product B 400 units x RM36	14,400
Product A 300 units x RM40	12,000
Product C 275 units x RM32	8,800
Total contribution	35,200
Less Fixed costs	20,000
Profit	**15,200**

(c)   The second alternative makes the greatest profit