Cost Accounting
Level 3

Model Answers

Series 3 2007 (Code 3016)

Cost Accounting Level 3
Series 3 2007

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

A company purchases a number of different components from an outside supplier. The following information relates to three of these components.

Component A1

Daily usage varies between 25 and 35 units
Lead time for delivery varies between 19 and 25 days
Order quantity is 1,000 units

Component A2

Annual usage is 4,800 units (evenly distributed through the year)
Cost of component is £30 per unit
Ordering costs are £50 per order
Stock holding costs are 10% of the component cost per annum
No safety stock is held.

Component A3

Balance in stores is currently 1,250 units
Stock on order is 2,000 units
Allocated stock is 550 units

REQUIRED

(a) For component A1 calculate:

    (i)   the reorder level

    (ii) the minimum and maximum stock control levels

    (6 marks)

(b) For component A2 calculate:

    (i)   the economic order quantity

    (ii) the total annual cost (if orders are placed in this quantity)

    (8 marks)

(c) For component A3 calculate the free stock currently available

    (2 marks)

(d) Briefly explain the meaning of:

    (i)   Reorder level

    (ii) Allocated stock

    (iii) Free stock

    (4 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 1

(a) **Component A1**

   (i) **Re-order level**

              = Maximum usage x maximum lead time
              = 35 x 25 =   **875 units**

   (ii) **Minimum stock control level**

              = Re-order level – (average usage x average leadtime)
              = 875 – (30 x 22) =   **215 units**

     Maximum stock control level
              = Re-order level – (minimum usage x minimum lead time)
                + re-order quantity
              = 875 – (25 x 19) + 1,000 =   **1,400 units**

(b) **Component A2**

   (i) **Economic order quantity**

$$EOQ = \sqrt{\frac{2 \times Co \times D}{Ch}}$$

$$= \sqrt{\frac{2 \times 4,800 \times 50}{30 \times 0.10}}$$

$$= \quad \textbf{400 units}$$

   (ii) **Total annual cost**

			(£)
Ordering costs	(4800 / 400) x £50	=	600
Stock holding costs	(400 / 2) x £30 x 0.10	=	600
Cost of components	4800 x £30	=	144,000
Total annual cost			**145,200**

(c) **Component A3**

  Free stock

         =   Stock balance – allocated stock + stock on order
         =   1250 – 550 + 2000
         =   **2,700 units**

(d) (i) **Re-order level**
     The stock level at which the business re-orders more items

   (ii) **Allocated stock**
     Stock that has been scheduled for use

   (iii) **Free stock**
     Stock that is available for reservation or allocation, (or immediate issue from stock, without prior reservation, provided there is physical stock in stores)

QUESTION 2

A company produces a single product in a continuous process. The following information is available for Period 5.

	Units	**£**
Opening work in progress	12,500	21,250
Started in period	40,000	
Material introduced		55,890
Conversion costs		72,400
Output to finished goods	33,500	
Closing work in progress	13,000	
Normal loss (scrap)	4,800	

The opening work in progress is 60% complete with respect to materials and 40% complete with respect to conversion costs.

The closing work in progress is 70% complete with respect to materials and 50% complete with respect to conversion costs.

All losses (scrap) occurred at end of period and were sold at £0.30 per unit.

REQUIRED

For Period 5

(a) Calculate the equivalent units of production and the cost per equivalent unit for each element of cost.

(9 marks)

(b) Prepare the process and abnormal loss accounts.

(11 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 2

(a) **Statement of equivalent units**

	Materials	**Conversion costs**
Output to finished goods	33,500	33,500
Opening work in progress	(7,500)	(5,000)
Closing work in progress	9,100	6,500
Abnormal loss	1,200	1,200
Equivalent production	**36,300**	**36,200**
Costs incurred (£)	55,890	72,400
Scrap sales	(1,440)	
	54,450	
Costs per unit	**£1.50**	**£2.00**

Workings:

Opening work in progress	12,500	x 60%	12,500	x 40%
	= 7,500		= 5,000	
Closing work in progress	13,000	x 70%	13,000	x 50%
	= 9,100		= 6,500	

Scrap sales   =   4,800 x £0.30 = £1,440
Abnormal loss   =   12,500 + 40,000 – 13,000 – 33,500 – 4,800 = 1,200 units

(b)
Process Account

	units	£		units	£
Opening WIP	12,500	21,250	Normal scrap	4,800	1,440
Materials	40,000	55,890	Finished goods	33,500	117,250
Conversion cost		72,400	Abnormal loss	1,200	4,200
			Closing WIP	13,000	26,650
	52,500	149,540		52,500	149,540

Workings:

Completion of opening WIP		**£**
opening stock		21,250
Materials	5,000 units x £1.50	7,500
Conversion costs	7,500 units x £2.00	15,000
		43,750
Started and completed in period	21,000 units x £(1.50 + 2.00)	73,500
		117,250

Abnormal loss	1,200 units x £(1.50 + 2.00)	**4,200**

Closing WIP		
Materials	9,100 units x £1.50	13,650
Conversion costs	6,500 units x £2.00	13,000
		26,650

Abnormal loss account

	units	£		units	£
Process account	1,200	4,200	Scrap account	1,200	360
			Profit & Loss		3,840
	1,200	4,200		1,200	4,200

QUESTION 3

The Walker shoe company operates a chain of shoe shops. The shops sell different types of shoes all with identical unit costs and selling prices. Each shop has a manager, who is paid a fixed salary, and sales assistants, who receive a fixed salary plus a sales commission.

The company is considering opening another shop which would be expected to have the following costs for the next period.

Purchase cost of shoes	£8.50 per unit (pair)
Variable overheads	£2.50 per unit (pair)
Salaries (including commission)	£45,000
Rent	£28,000
Other fixed costs	£27,000

Commission to sales assistants to be paid at the rate of 5% of sales revenue.

For the next period the shop is expecting to sell 20,000 pairs of shoes at a selling price of £20 per pair.

REQUIRED

(a) Calculate for the period:

    (i) the breakeven point (in sales units)

    (ii) the margin of safety as a percentage of expected sales

    (iii) the profit.

(7 marks)

The company is also considering discontinuing the sales commission. The effect on the new shop would be to increase the sales assistants' salaries by £19,000 for the next period.

REQUIRED

(b) Advise the company as to the level of sales, for the new shop for the next period, at which this change to salary structure is worthwhile.

(5 marks)

(c) Draw a single profit/volume chart, for the new shop, for the period showing the profit arising if the salary structure included:

    (i) commission paid to sales assistants

    (ii) no commission paid to sales assistants.

Clearly show on the chart the breakeven point and the margin of safety for each salary structure.

(8 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 3

(a) **Fixed costs:** **(£)**

Total salaries	45,000
Commission (20,000 x £20 x 0.05)	20,000
Fixed salaries	£25,000
Total Fixed cost:	
Salaries	25,000
Rent	28,000
Other	27,000
	£80,000
Variable cost:	£/unit
Purchase cost	8.50
Overheads	2.50
Commission (£20 x 0.05)	1.00
	£12.00
Contribution (20.00 - 12.00)	£8.00

Breakeven point

Total fixed cost / unit contribution   80,000 / 8.00
10,000 pairs

Margin of safety

(Expected sales - breakeven sales) =   20,000 - 10,000
10,000 units

as percentage of expected sales   =   **50%**

Profit

Total contribution - fixed costs
20,000 x £8.00 - £80,000   **£80,000**

(b) Fixed costs

Increase by £19,000	(80,000 + 19,000)	=	£99,000
Variable unit cost			
Decrease by £1.00	(12.00 – 1.00)	=	£11.00
Contribution per unit	(20.00 – 11.00)	=	£9.00
or £(8 + 1)		=	£9.00

Original salary structure:
Profit   =   Number of sales units x £8.00 - £80,000
Proposed salary structure:
Profit   =   Number of sales units x £9.00 - £99,000
Point at which profits are equal
(No of sales units x £8) - £80,000 = (No of sales units x £9) - £99,000
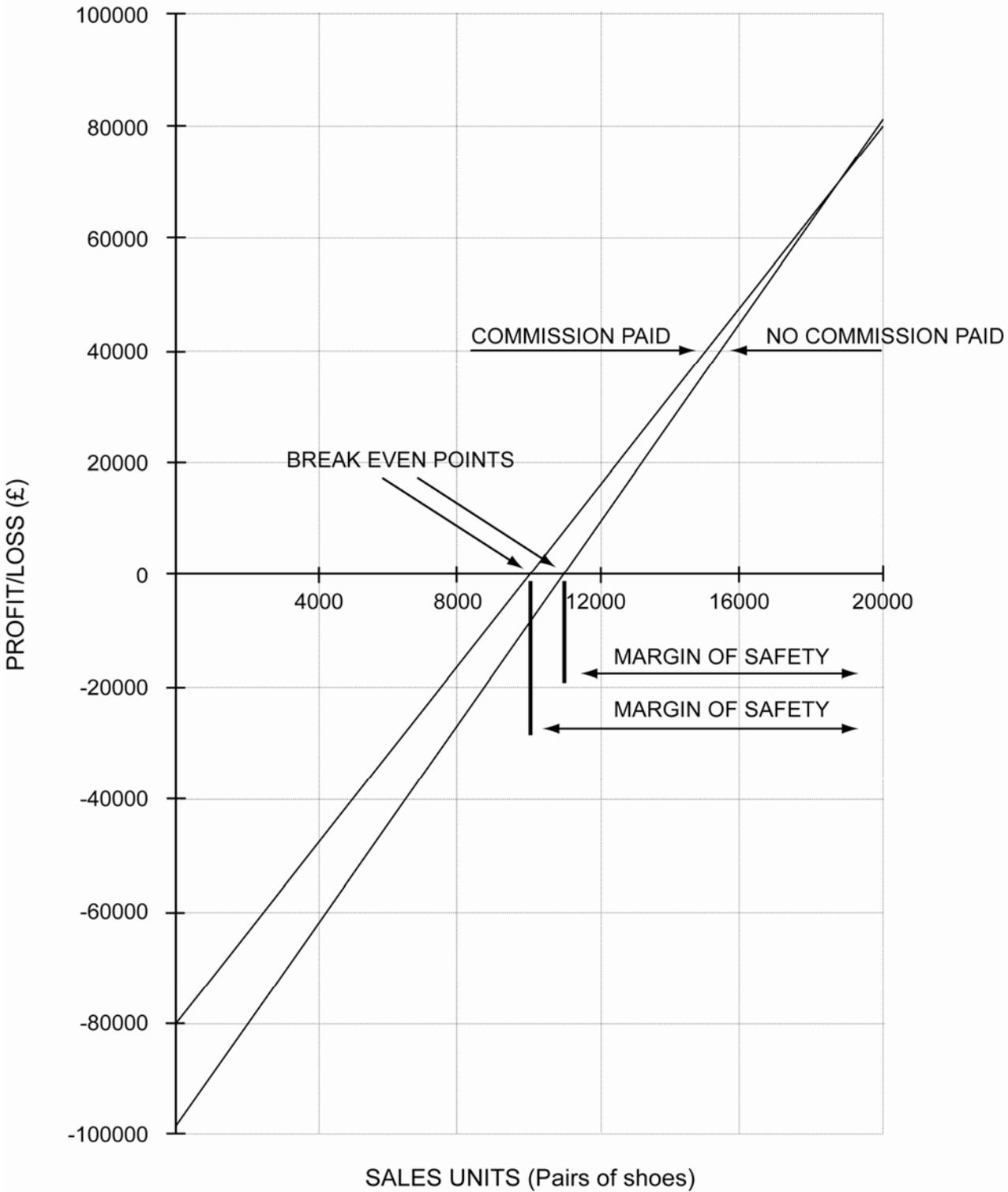No of sales units   = (99,000 – 88,000) / (9 – 8)
No of sales units   = 19,000 pairs

Advise company to pay increased fixed salaries with no commission if sales exceed
19,000 pairs

(c) **Profit/Volume Chart**

Title	Fixed costs
Labelling	Breakeven points
Lines	Margins of safety

PROFIT VOLUME CHART

QUESTION 4

Easy Read Ltd manufactures and sells two books, Book P and Book Q. The books are produced in separate printing departments (Book P in dept A and Book Q in dept B) before being packed into boxes in the dispatch department. The company has provided the following budgeted information:

	Book P	Book Q
Direct material (per book)	£2.50	£3.50
Direct production labour (per100 books) at £8.00 per hour	2.5 hours	
Direct production labour (per 20 books) at £10.00 per hour		5 hours
Packing boxes	£0.20 each	£0.30 each
Number of books per packing box	5	5
Dispatch dept labour (per box packed) at £8.00 per hour	0.05 hours	0.05 hours

Variable overheads are absorbed at £4 per labour hour in each of the three departments

Fixed overhead absorption (if absorption costing is applied:- based on planned production quantities)

Department A	Absorbed at a rate of £15 per printing machine hour. (A batch of 100 books takes two hours of machine time)
Department B	Absorbed at a rate of £9 per direct labour hour.
Dispatch dept	Absorbed at a rate of £2 per box of books packed

Unit selling price, Book P £12, Book Q £20.

Planned production and sales for the next period are as follows.

	Book P	Book Q
Production (books)	2,000	500
Sales (books)	1,800	450

There is no stock of packed or unpacked books, direct material or packing boxes at the beginning of the period.

At the end of the period it is expected to have 200 book P's unpacked in the dispatch dept. All other production in the period will be packed.

REQUIRED

Produce a single budgeted manufacturing and trading account, which includes closing stock figures, for the period using:

(a)   Absorption Costing

(14 marks)

(b)   Marginal Costing

(6 marks)

(**Total 20 marks)**

MODEL ANSWER TO QUESTION 4

(a)

	Book P	**Book Q**
Sales for period	1,800	450
Print dept production	2,000	500
Closing stock (unboxed books)	200	0
Closing stock (boxed books)	0	50
Books boxed	1,800	500

<u>Budgeted Manufacturing and Trading account for the period</u>

(i) **Absorption Costing**

		(£)	(£)	(£)
Sales				
Book P	(1,800 x £12)			21,600
Book Q	(450 x £20)			9,000
				30,600
Manufacturing cost:				
Direct material				
Book P	(2,000 x £2.50)	5,000		
Book Q	(500 x £3.50)	1,750	6,750	
Direct labour				
Dept A	(2,000/100 x 2.50 x £8.00)	400		
Dept B	(500/20 x 5.00 x £10.00)	1,250	1,650	
Material (packing boxes)				
Book P	(1,800/5 x £0.20)	72		
Book Q	(500/5 x £0.30)	30	102	
Labour (Dispatch dept)				
Book P	(1800/5 x 0.05 x £8.00)	144		
Book Q	(500/5 x 0.05 x £8.00)	40	184	
Variable Overheads				
Dept A	(2000/100 x 2.50 x £4.00)	200		
Dept B	(500/20 x 5.00 x £4.00)	500		
Dispatch dept-Book P	(1,800/5 x 0.05 x £4.00)	72		
Dispatch dept-Book Q	(500/5 x 0.05 x £4.00)	20	792	
Fixed Overheads				
Dept A	(2000/100 x 2.00 x £15.00)	600		
Dept B	(500/20 x 5.00 x £9.00)	1,125		
Dispatch dept-Book P	(1,800/5 x £2.00)	720		
Dispatch dept-Book Q	(500/5 x £2.00)	200	2,645	
			12,123	
Less closing stock of work in progress (unboxed books)				
Book P			620	
Manufacturing cost of books completed			11,503	
Less closing stock (boxed books)				
Book Q			492	
Manufacturing cost of sales				11,011
Gross profit				**19,589**

MODEL ANSWER TO QUESTION 4 CONTINUED

Workings:
Closing stock of work in progress
Book P = (5,000+400+200+600) x 200/2,000
         =   6,200 x 200/2000   = £620

Closing stock (boxed books)
Book Q = (1,750+1,250+30+40+500+20+1,125+200) x 50/500)
         =   4,915 x 50/500   = £491.50

(ii) **Marginal Costing**

	(£)	(£)	(£)
Sales			30,600
Variable manufacturing cost:			
Direct materials	6,750		
Direct labour	1,650		
Materials (packing)	102		
Labour (dispatch dept)	184		
Variable overheads	792		
		9,478	
Less closing stock (W.I.P unboxed books)			
Book P		560	
Variable manufacturing cost of books completed		8,918	
Less closing stock (boxed books))			
Book Q		359	
Variable manufacturing cost of sales			8,559
Contribution			**22,041**
Less Fixed overheads			2,645
Gross Profit			**19,396**

Workings:

Closing stock of work in progress
Book P = (6,200 - 600) x 200/2,000 = £560

Closing stock (boxed books)
Book Q = [4,915 - (1,125 + 200)] x 50/500 = £395

QUESTION 5

REQUIRED

(a) Define the term flexible budget.

(2 marks)

A to B Taxi company, which operates a fleet of 5 similar motor vehicles and employs 5 drivers, has prepared the following monthly flexible budget based on the number of paying journeys with customers.

Number of paying journeys (with customers)	1,200	1,300	1,400	1,500
	km	**km**	**km**	**km**
Vehicle travel (with customers)	14,400	15,600	16,800	18,000
Vehicle travel (without customers)	4,800	5,200	5,600	6,000
	£	**£**	**£**	**£**
Income from customers	11,040	11,960	12,880	13,800
Fuel costs	1,728	1,872	2,016	2,160
Driver wages	3,880	4,120	4,360	4,600
Vehicle maintenance	300	600	600	600
Office costs	1,500	1,500	1,500	1,500

Income from customers is generated by charging a fixed rate per journey plus a charge proportional to the distance travelled. The budgeted fixed rate is £2.00 per journey.

During month 1 the following actual data was recorded:

Number of paying journeys (with customers)	1,375
	km
Vehicle travel (with customers)	16,100
Vehicle travel (without customers)	5,700
	£
Income from customers	12,750
Fuel costs	1,905
Driver wages	4,350
Vehicle maintenance	650
Office costs	1,600

REQUIRED

(b) Prepare a statement for month 1 showing for each budgeted item the following:

   (i) The flexed budget

   (ii) The actual recorded data

   (iii) The variance

(15 marks)

   (c) State whether each item of cost is a variable, fixed, semi-variable or stepped-fixed cost.

(3 marks)

(Total 20 marks)

MODEL ANSWER TO QUESTION 5

(a) **Flexible budget**

A budget which, by recognising different cost behaviour patterns, is designed to change as the volume of activity changes.

(b) **A to B Taxi company – Budget Report- Month 1**

Based on 1,375 paying journeys

	Flexed Budget	Actual	Variance
	km	**km**	**km**
Vehicle travel (with customers)	16,500	16,100	400F
Vehicle travel (without customers)	5,500	5,700	200A
	£	**£**	**£**
Income from customers	12,650	12,750	100F
Costs			
Fuel	1,980	1,905	75F
Driver wages	4,300	4,350	50A
Vehicle maintenance	600	650	50A
Office	1,500	1,600	100A

(c) **Cost Classification**

Variable	Fuel
Fixed	Office costs
Semi-variable	Driver wages
Stepped-fixed	Maintenance

Workings:

Vehicle travel (with customers)

14,400 budgeted km for 1,200 journeys	=	14,400/1,200 = 12km per journey
15,600 budgeted km for 1,300 journeys	=	15,600/1,300 = 12km per journey
16,800 budgeted km for 1,400 journeys	=	16,800/1,400 = 12km per journey
18,000 budgeted km for 1,500 journeys	=	18,000/1,500 = 12km per journey
1,375 journeys = 1,375 x 12	**=**	**16,500 km**

Vehicle travel (without customers)

4,800 budgeted km for 1,200 journeys	=	4,800/1,200 = 4km per journey
5,200 budgeted km for 1,300 journeys	=	5,200/1,300 = 4km per journey
5,600 budgeted km for 1,400 journeys	=	5,600/1,400 = 4km per journey
6,000 budgeted km for 1,500 journeys	=	6,000/1,500 = 4km per journey
1,375 journeys = 1,375 x 4	**=**	**5,500 km**

MODEL ANSWER TO QUESTION 5 CONTINUED

Workings continued:

Income from customers

Income per journey = 11,040 / 1,200   = £9.20

           1,375 journeys = 1,375 x £9.20   £12,650

Fuel cost

Journeys	Total distance travelled(km)	Cost per km (£)		
1200	14,400 + 4,800 = 19,200	1,728 / 19,200	=	£0.09 per km
1300	15,600 + 5,200 = 20,800	1,872 / 20,800	=	£0.09 per km
1400	16,800 + 5,600 = 22,400	2,016 / 22,400	=	£0.09 per km
1500	18,000 + 6,000 = 24,000	2,160 / 24,000	=	£0.09 per km

        Vehicle travel for 1,375 journeys = 16,500 + 5,500 = 22,000 km

        Fuel cost = 22,000 x 0.09 =   £1,980

Drivers wages

Variable wage cost

Over journey range	1200:1300 = (4,120 - 3,880) / (15,600 -14,400)	=	£0.20 per km
	1300:1400 = (4,360 - 4,120) / (16,800 -15,600)	=	£0.20 per km
	1400:1500 = (4,600 - 4,360) / (18,000 -15,600)	=	£0.20 per km

Total wage   =   Fixed wage + (Total variable wage per km travelled)

Using 1500 journeys per period

4,600	=	Fixed wage + (0.20 x 18,000)	
Fixed wage	=	4,600 - 3,600	= £1,000
Total wage	=	£1,000 + 0.20 x vehicle travel	

      1,375 journeys = 1,000 + 0.20 x 16,500   = £4,300

QUESTION 6

A mail-order company hires staff, to process and pack its orders, from two employment agencies (quality staff and reliable recruitment).

The budget, relating to agency staff for a period, is as follows:

Employment Agency

	Quality Staff	Reliable Recruitment
Direct labour rate per hour paid to agency	£20.00	£16.00
Time to process and pack each order	12 mins	15 mins
Number of orders (packed in the period)	2,000	2,600

Packing material, for the period, is budgeted to be 2 metres per order at a cost of £8 per 10-metre roll.

Budgeted fixed overheads for the period of £8,400 are absorbed on the basis of total hired labour hours.

Actual results for the period:

Employment Agency

	Quality Staff	Reliable Recruitment
Total cost of hired staff	£9,702	£8,640
Total hours worked	441	576
Number of orders completed	2,100	2,400

1100 rolls of packing material were purchased at a total cost of £8,360.

Stock of packing material at start of period	nil
Stock of packing material at end of period	150 rolls

Fixed overheads incurred £9,000.

REQUIRED

(a) Calculate the following variances for the period:

    (i) direct labour rate (for each employment agency)

    (ii) direct labour efficiency (for each employment agency)

    (iii) direct material price (packing material)

    (iv) direct material usage (packing material)

<div align="right">(12 marks)</div>

(b) Calculate the following fixed overhead variances for the period:

    (i) expenditure

    (ii) volume

    (iii) capacity

    (iv) efficiency

<div align="right">(8 marks)</div>

<div align="right">**(Total 20 marks)**</div>

MODEL ANSWER TO QUESTION 6

		Quality Staff	Reliable Recruitment
(a)			

(i) Labour Rate Variance

	Quality Staff	Reliable Recruitment
Actual hours worked	441	576
Standard hire rate per hour	£20	£16
	£8,820	£9,216
Actual cost to hire	£9,702	£8,640
Labour rate variance	**£882A**	**£576F**

(ii) Labour Efficiency Variance

	Quality Staff	Reliable Recruitment
Number of orders	2100	2400
Standard hours per order	0.20	0.25
	420 hours	600 Hours
Actual hours	441 hours	576 hours
	21 hours	24 hours
Standard hire rate per hour	£20	£16
Labour efficiency variance	**£420A**	**£384F**

(iii) Material Price Variance

Packing Material Purchased	1100 rolls at 10 metres per roll	11,000 metres
Closing Stock of Packing Material	150 rolls at 10 metres per roll	1,500 metres
Actual Packing Material Used		9,500 metres
Standard price (£8 / 10) per metre	=	£0.80
Actual price (£836 / 1100) per metre	=	£0.76
		£0.04
Quantity purchased (metres)		11,000
Material Price Variance		**£440F**

(iv) Material Usage Variance

Standard Quantity [(2100 + 2400) x 2]	=	9,000 metres
Actual quantity	=	9,500 metres
		500 metres
Standard price per metre		£0.80
Material Usage Variance		**£400A**

MODEL ANSWER TO QUESTION 6 CONTINUED

(b) **Fixed overhead variances**

Fixed overhead for period			£8,400
Standard hours for budgeted orders	(400 + 650)	=	1,050 hours
Fixed overhead absorption rate	(8,400 / 1,050)	=	£8 per labour hour

(i) **Expenditure**

Budgeted for the period	£8,400		
Actual for the period	£9,000		
Expenditure variance			**£600A**

(ii) **Volume**

Standard hours for budgeted orders	(400 + 650)	=	1,050
Standard hours for actual orders	(420 + 600)	=	1,020
			30
Fixed overhead absorption rate	(8,400 / 1,050)	=	£8
Volume variance			**£240A**

(iii) **Capacity**

Standard hours for budgeted orders		1,050
Actual hours for actual orders	(441 + 576)	1,017
		33
Fixed overhead absorption rate		£8
Capacity variance		**£264A**

(iv) **Efficiency**

Standard hours for actual orders	1,020
Actual hours for actual orders	1,017
	3
Fixed overhead absorption rate	£8
Efficiency variance	**£24F**