OCR
RECOGNISING ACHIEVEMENT

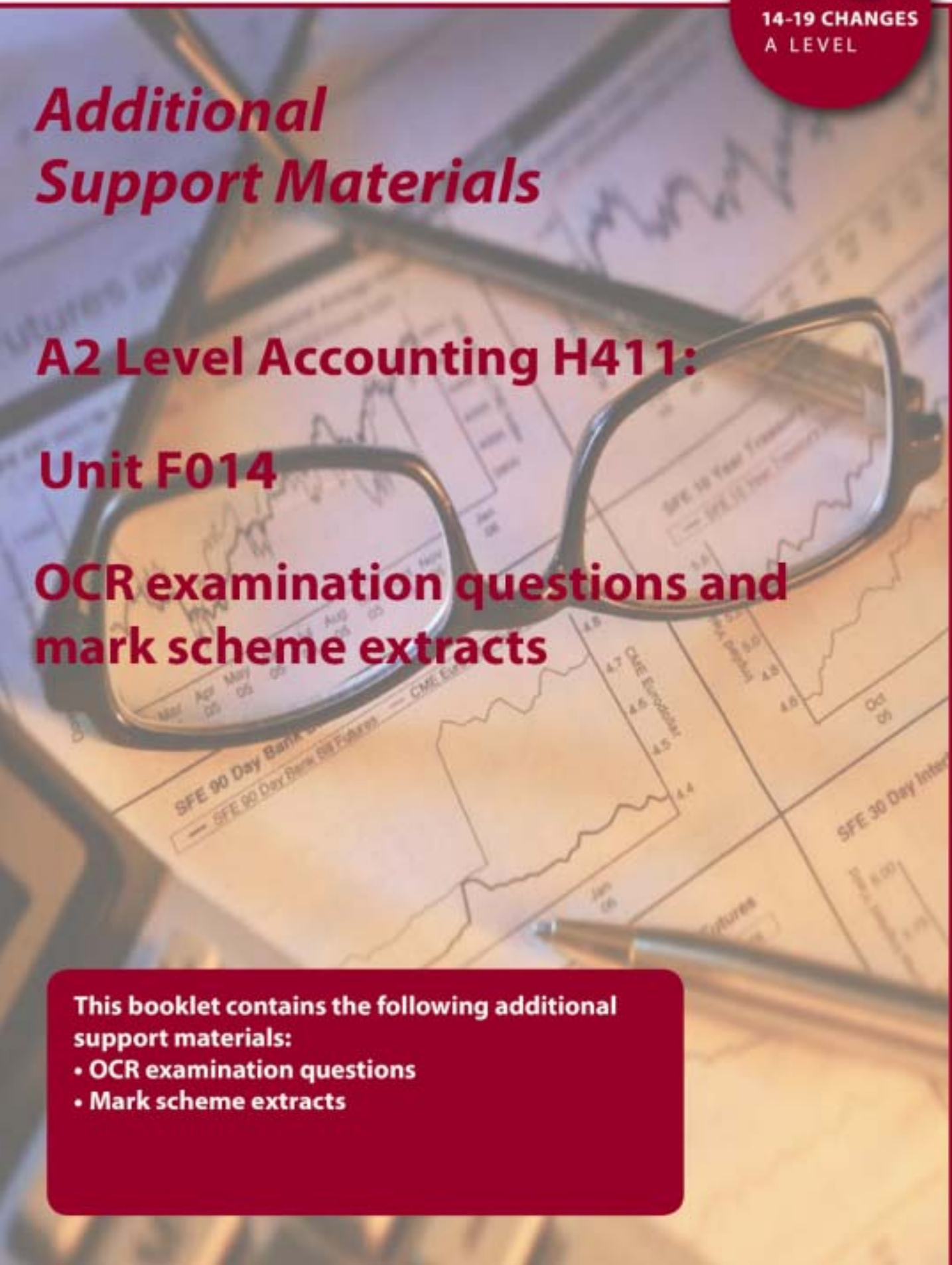
14-19 CHANGES
A LEVEL

Additional Support Materials

A2 Level Accounting H411:

Unit F014

OCR examination questions and mark scheme extracts



This booklet contains the following additional support materials:

- **OCR examination questions**
- **Mark scheme extracts**

AS/A Level Accounting

Contents

Introduction

Background

A new structure of assessment for A Level has been introduced, for first teaching from September 2008. Some of the changes include:

- The introduction of stretch and challenge (including the new A* grade at A2) – to ensure that every young person has the opportunity to reach their full potential
- The reduction or removal of coursework components for many qualifications – to lessen the volume of marking for teachers
- A reduction in the number of units for many qualifications – to lessen the amount of assessment for learners
- Amendments to the content of specifications – to ensure that content is up-to-date and relevant.

OCR has produced an overview document, which summarises the changes to Accounting. This can be found at **www.ocr.org.uk,** along with the new specification.

In order to help you plan effectively for the implementation of the new specification OCR has produced a Scheme of Work and Sample Lesson Plans for the A2 Level Accounting H411 Unit F014. The Support Materials are contained within the booklet *Support Materials A2 Level Accounting H411: Unit F014.*

http://www.ocr.org.uk/qualifications/asa_levelgceforfirstteachingin2008/accounting/documents.html#Support_materials

These Support Materials are designed for guidance only and play a secondary role to the Specification.

This booklet contains additional Support Materials designed to accompany and complement the Unit F014 Scheme of Work. It contains the OCR examination questions referenced within the Scheme of Work Unit together with relevant mark scheme extracts.

The Specification is the document on which assessment is based and specifies what content and skills need to be covered in delivering the course. At all times, therefore, this Support Material booklet should be read in conjunction with the Specification. If clarification on a particular point is sought then that clarification should be found in the Specification itself.

Budgeting and Budgetary Control

Budgeting and Budgetary Control

F014 Specimen Jade Question 1

1* The following is a summary of the Balance Sheet for Jade plc as at 31 December 2006.

	£	£
Fixed Assets at cost		65,000
Less depreciation to date		14,000
		51,000
Current Assets		
Stock	60,000	
Trade Debtors	35,000	
Bank	14,300	
	109,300	
Current Liabilities		
Trade Creditors	30,000	
		79,300
		130,300
Capital and Reserves		130,000

The company is in the process of preparing budgets for the three months ending 31 March 2007, and the following information is available.

(i) Budgeted sales (which provide a gross profit of 25% on cost) are:

	£
December 2006	70,000
January 2007	75,000
February 2007	65,000
March 2007	100,000
April 2007	90,000

Half the sales are paid for in the month in which the sales are made and attract a 2% cash discount. The remainder are paid net the following month.

(ii) It has been company policy since January 2006 to arrange purchases such that stock at the end of each month exactly covers sales for the following month. Half of the purchases are paid in the month received and the company have negotiated a 2.5% discount for prompt payment. The remainder are paid net the following month.

F014 Specimen Jade Question 1 continued

(iii) Expenses (excluding depreciation) are £8,400 per month, payable in the month they are incurred.

(iv) The company will be purchasing additional fixed assets costing £17,000 on 1 January 2007, with 50% payable in February 2007 and the balance in May 2007. Depreciation on all fixed assets is at the rate of 10% per annum on cost (rates being charged from the date of purchase).

REQUIRED

The Cash Budget for the three months ending 31 March 2007, and the Budgeted Trading and Profit and Loss Account for the three months ending 31 March 2007.

Total marks [27]

Budgeting and Budgetary Control

F014 Specimen Jade Question 1 Mark scheme

Question Number	Answer	Max Mark
1*	Calculations	

	Dec	Jan	Feb	Mar
Sales	70,000	75,000	65,000	100,000
50%-2%	34,300	36,750	31,850	49,000
50%		35,000	37,500	32,500
		71,750	69,350	81,500
2%		750	650	1,000

Sales		Purchases (Sales x 4/5)	
Jan	75,000	Dec	60,000
Feb	65,000	Jan	52,000
Mar	100,000	Feb	80,000
Apr	90,000	Mar	72,000

	Dec	Jan	Feb	Mar
Purchases	60,000	52,000	80,000	72,000
50%-2.5%	29,250	25,350	39,000	35,100
50%		30,000	26,000	40,000
		55,350	65,000	75,100
2.5%		650	1,000	900

Depreciation 65,000 + 17,000 = 82,000 x 10% x 0.25 = 2,050

F014 Specimen Jade Question 1 Mark scheme continued

Jade plc

Cash Budget for the three months ending 31 March 2007

	Jan		Feb		Mar	
Receipts						
Sales	71,750	[2]	69,350	[2]	81,500	[2]
Payments						
Purchases	55,350	[2]	65,000	[2]	75,100	[2]
Expenses	8,400		8,400		8,400	[1]
Fixed asset			8,500	[1]		
	63,750		81,900		83,500	
Net receipts/(payments)	8,000		(12,550)		(2,000)	
Opening balance	14,300	[1]	22,300		9,750	
Closing balance	22,300		9,750		7,750	[1]

Budgeted Trading and Profit and Loss Account for the three months ending 31 March 2007

Sales			240,000	[1]
Opening stock	60,000			
Purchases	204,000	[1]		
	264,000			
Closing stock	72,000	[1]		
Cost of sales			192,000	
Gross Profit			48,000	
Discount received			2,550	[1]
			50,550	
Expenses	25,200	[1]		
Discount allowed	2,400	[1]		
Depreciation	2,050	[2]		
			29,650	
Net Profit			20,900	

NB Up to an additional three marks can be awarded for the candidate's quality of written communication (numerical responses)

Total marks [27]

Budgeting and Budgetary Control

2503 Jun 2007 Susan Lee Question 3

3 Susan Lee is planning to start trading on 1 July 2007 with £25000 of her own savings and a £15000 bank loan to the business. Both of these amounts will be paid into the business bank account on 1 July 2007. Susan has also arranged a £5000 bank overdraft facility.

Susan has already prepared budgets for her sales and purchases for the first six months of trading. These are as follows:

	July	Aug	Sep	Oct	Nov	Dec
Sales (£)	12500	22500	32500	25000	22500	30000
Purchases (£)	40000	17500	25000	15000	22500	17500

Additional information

1. 40% of sales will be for cash, for which a 2% discount will be allowed. The remainder are on two months credit.

2. Purchases for July 2007 will be paid for immediately in cash. From August 2007 Susan has arranged credit terms and will pay in the month after purchase.

3. Equipment is to be purchased for £16000 on 1 July 2007. Payment is to be made in four equal monthly instalments starting in October 2007.

4. The equipment is to be depreciated at 20% per annum using the straight line method, the rate applying for each month of ownership.

5. Susan intends to take cash drawings of £2000 per month in July, August and September 2007 and £2500 in October, November and December 2007.

6. The bank loan is repayable in 2010 and interest at an annual rate of 8% is payable at the end of each quarter. The first payment is to be made on 30 September 2007.

7. Other expenses (excluding depreciation) of £2400 are to be paid monthly commencing in July 2007.

8. Closing stock at 31 December 2007 is estimated at £21500 at cost.

2503 Jun 2007 Susan Lee Question 3 continued

REQUIRED

(a) The Cash Budget for the six months ending 31 December 2007. [20]

(b) The Budgeted Trading and Profit and Loss account for the six months ending 31 December 2007. [8]

(c) The Budgeted Balance Sheet as at 31 December 2007. [11]

(d) Evaluate Susan's cash management for her first six months of trading. [6]

Total marks [45]

2503 Jun 2007 Susan Lee Question 3 Mark scheme

3 (a)

Susan Lee
Cash Budget for the six months ending 31 December 2007

	July	Aug	Sept	Oct	Nov	Dec	
Receipts							
Capital	25,000 **(1)**						
8% Bank loan	15,000 **(1)**						
Cash sales	4,900 **(1)**	8,820 **(1)**	12,740 **(1)**	9,800 **(1)**	8,820 **(1)**	11,760 **(1)**	
Credit sales	0	0	7,500	13,500	19,500	15,000 **(1)**	**line**
	44,900	8,280	20,240	23,300	28,320	26,760	
Payments							
Cash purch	40,000 **(1)**						
Creditors			17,500	25,000	15,000	22,500 **(1)**	**line**
Equipment				4,000 **(1)**	4,000	4,000	
Drawings	2,000 **(1)**	2,000	2,000	2,500 **(1)**	2,500	2,500	
Loan interest			300 **(1)**			300 **(1)**	
Other expenses	2,400	2,400	2,400	2,400	2,400	2,400 **(1)**	**line**
	44,400	4,400	22,200	33,900	23,900	31,700	
Net cash flow	500	4,420	-1,960	10,600	4,420	-4,940	
Opening bal	0	500	4,920	2,960	-7,640	-3,220	
Closing bal	500 **(1)**	4,920	2,960	-7,640	-3,220	-8,160	**(2/1of) line**

[20]

(b)

Susan Lee
Budgeted Trading and Profit and Loss account for the six months ending 31 December 2007 **(1)**

Sales			145,000	**(1)**
Opening stock	0			
Purchases	137,500	**(1)**		
Closing stock	(21,500)	**(1)**		
Cost of sales			116,000	
Gross profit			29,000	
Discount allowed	1,160	**(1)**		
Loan interest	600	**(1)**		
Depreciation	1,600	**(1)**		
Other expenses	14,400	**(1)**		
			17,760	
Net profit			11,240	

[8]

2503 Jun 2007 Susan Lee Question 3 Mark scheme continued

(c)

Susan Lee
Budgeted Balance Sheet as at 31 December 2007

Fixed Assets				
Equipment			14,400	**(2)**
Current Assets				
Stock	21,500			
Debtors	31,500	**(2)**		
	53,000			
Current Liabilities				
Trade Creditors	17,500	**(1)**		
Owing for equipment	4,000	**(1)**		
Bank	8,160	**(1 of)**		
	29,660		23,340	
			37,740	
Long Term Liabilities				
Loan			15,000	**(1)**
			22,740	
Financed by				
Capital			25,000	**(1)**
Net profit			11,240	**(1 of)**
			36,240	
Drawings			13,500	**(1)**
			22,740	

[11]

(d) Analysis:

Overdraft limit exceeded/interest incurred/may need to renegotiate overdraft limit.
Initial need for cash purchases/financed adequately/suppliers trade credit terms not known.
Incentive for cash sales via discount/fairly generous customer credit terms.
Excessive drawings/increased in spite of worsening overdraft/exceed forecast profit.
Capital expenditure plans drains cash/can instalments be delayed/reduced?

Recommendations:

Renegotiate overdraft limit
Reduce drawings
Reduce customer credit period

(3 x 2 marks)
(1 for point plus 1 for development)

[6]

Total marks [45]

Budgeting and Budgetary Control

2503 Jun 2006 Badge Question 3

3 Badge Ltd has prepared the following production budget for the period 1 June – 31 October 2006.

Production budget (units)

	June	July	August	September	October
Opening stock	2000	2400	2500	2350	2750
Production	4400	4900	4850	5100	5050
	6400	7300	7350	7450	7800
Sales	4000	4800	5000	4700	5500
Closing stock	2400	2500	2350	2750	2300

1. Each unit of production requires 4 kilos of raw material at £3 per kilo.
2. Each month the exact quantity of raw materials is bought to meet the following month's production requirements. Half of the purchases are paid for in the month of purchase and a 2% prompt settlement discount is received. The remainder is paid in full in the following month.
3. The selling price is £40 per unit. Half of all sales are for cash, the remainder being paid for in full in the following month.
4. Commission is payable on sales at 2.5% of sales revenue. This is paid in the month in which customer payment is received.
5. General expenses are £140000 each month. This amount includes depreciation of office equipment of £10000 each month. General expenses are paid in the month in which they are incurred.
6. Badge Ltd's budgeted bank balance at 30 June 2006 is £1100.

REQUIRED

(a) The Cash Budget for each of the three months July, August and September 2006. [18]

(b) The Budgeted Balance Sheet extract as at 30 September 2006 to show:

- bank
- debtors
- creditors (for raw materials) [3]

(c) Discuss the benefits and limitations of a system of budgetary control. [12]

Total marks [33]

2503 Jun 2006 Badge Question 3 Mark scheme

3 (a)

Production		Purchases		
Jul	4,900	Jun	x 12	58,800
Aug	4,850	Jul		58,200
Sep	5,100	Aug		61,200
Oct	5,050	Sep		60,600

Purchase payments

	Jun	Jul	Aug	Sep
Purchases	58,800	58,200	61,200	60,600
50%	29,400	29,100	30,600	30,300
-2%	588	582	612	606
		28,518	29,988	29,964
50%		29,400	29,100	30,600
		57,918	59,088	60,294

Sales receipts

	Jun	Jul	Aug	Sep
Sales	160,000	192,000	200,000	188,000
50%	80,000	96,000	100,000	94,000
50%		80,000	96,000	100,000
		176,000	196,000	194,000

Badge Ltd
Cash Budget for the three months ending 30 Sep 2006

	Jul	Aug	Sep	
Receipts				
Sales	176,000 **(2)**	196,000 **(2)**	194,000 **(2)**	
Payments				
Purchases	57,918 **(2)**	59,088 **(2)**	60,294 **(2)**	
Sales Commission	4,400 **(1)**	4,900 **(1)**	4,850 **(1)**	
General Expenses	130,000	130,000	130,000 **(1)**	line
	192,318	193,988	195,144	
Net cash flow	(16,318)	2,012	1,144	
Opening balance	1,100 **(1)**	(15,218)	(13,206)	
Closing balance	(15,218)	(13,206)	(14,350) **(1of)**	

[18]

2503 Jun 2006 Badge Question 3 Mark scheme continued

(b) Budgeted Balance Sheet extracts as at 30 Sep 2006

Current assets		
Debtors	94,000	**(1)**
Current liabilities		
Creditors	30,300	**(1)**
Bank	(14,350)	**(1 of)**

[3]

(c) Benefits of budgetary control

Planning – alternative courses of action / highlight potential problems / shortages and surpluses
Control – provides information for ongoing control / responsibility is handed down to individual managers
Co-ordination – less conflict between departments / managers can be made aware of one another's needs
Participation – by actively involving managers at all levels / aids motivation / encourages consultation

Limitations
Quality of information – accuracy of forecasts / budgets can become irrelevant if hopelessly wayward
Managers may be judged unfairly / some costs may be outside of their control / budgets can be too too tight / may not have had input

(4 x 3 marks)
(1 for point plus up to 2 for development) **[12]**

Total marks [33]

Budgeting and Budgetary Control

2503 Jun 2003 Bridge Question 1

1 Bridge Ltd prepared the following Balance Sheet as at 31 May 2003.

	£	£	£
Fixed Assets at cost			100 000
Less: Depreciation			37 500
			62 500
Current Assets			
Stock		22 000	
Trade debtors		16 000	
		38 000	
Creditors: amounts falling due within one year			
Trade creditors	11 000		
Wages owing	7 500		
Bank overdraft	2 000		
		20 500	
			17 500
			80 000
Called Up Share Capital			75 000
Profit and Loss Account			5 000
			80 000

Budgeting and Budgetary Control

2503 Jun 2003 Bridge Question 1 continued

The company is preparing budgets for the three months ending 31 August 2003. The following information is available:

1. Budgeted sales are:

Month	£
June	33 000
July	34 500
August	36 000
September	36 900

2. Sales provide 50% gross profit on cost. Half the income from sales is received in the month in which the sale is made, for which customers receive a 2% discount. The remainder is received net in the following month. This pattern has remained unchanged for some time.
3. Purchases are made so that stock at the end of each month exactly covers the budgeted sales for the following month. Half of the purchases are paid for in the month of purchase, the other half in the following month. No discount received applies to purchases.
4. Equipment which originally cost £10 000 is to be sold on 1 June 2003 for £3 000. Payment to Bridge Ltd is to be made in cash, half at the time of sale and half one month later. The equipment sold had been depreciated by £6 500. The company has always charged depreciation at 20% per annum on the cost of all fixed assets, the rate applying for each proportion of a year held. Assume all months are of equal length and all remaining fixed assets are to be depreciated.
5. Wages and salaries are to be maintained at the current rate of £7 500 per month, payable one month in arrears.
6. Other expenses are £2 500 each month payable in the month in which they are incurred.

REQUIRED

(a) The Cash Budget for the three months ending 31 August 2003. [19]

(b) The Budgeted Trading and Profit and Loss Account for the three months ending 31 August 2003. [13]

(c) Discuss the importance of a Cash Budget to a business such as Bridge Ltd. [6]

Total marks [38]

Budgeting and Budgetary Control

2503 Jun 2003 Bridge Question 1 Mark scheme

1 Workings

	June	July	Aug	Sep
Sales	33,000	34,500	36,000	36,900
50% Current	16,500	17,250	18,000	18,450
less 2%	330	345	360	369
	16,170	16,905	17,640	18,081
50% prev mth	16,000	16,500	17,250	18,000
	32,170	33,405	34,890	36,081

Sales in:				Purchases in:		
	June	33,000	x2/3 =		May	22,000
	July	34,500	x2/3 =		June	23,000
	Aug	36,000	x2/3 =		July	24,000
	Sep	36,900	x2/3 =		Aug	24,600

	June	July	Aug
Purchases	23,000	24,000	24,600
½ this mth	11,500	12,000	12,300
½ last mth	11,000	11,500	12,000
	22,500	23,500	24,300

(a) Cash Budget for the three months ending 31 August 2003

	June		July		Aug	
Receipts						
Sales	32,170	**(2)**	33,405	**(2)**	34,890	**(2)** or **(1of)** each item
Disposal	1,500	**(1)**	1,500	**(1)**		
	33,670		34,905		34,890	
Payments						
Purchases	22,500	**(2)**	23,500	**(2)**	24,300	**(2)** or **(1of)** each item
Wages	7,500		7,500		7,500	**(1)** for line
Other expenses	2,500		2,500		2,500	**(1)** for line
	32,500		33,500		34,300	
Net cash flow	1,170		1,405		590	
Opening balance	(2,000)	**(1)**	(830)		575	
Closing balance	(830)		575		1,165	**(2) (1 of)**

[19]

2503 Jun 2003 Bridge Question 1 Mark scheme continued

(b) Budgeted Trading & Profit & Loss Account for the three months ending 31 August 2003 **(1)**

Sales			103,500	**(1)**	
Opening stock	22,000				
Purchases	71,600	**(1)**			
	93,600				
Closing stock	24,600				
Cost of sales			69,000		
Gross Profit			34,500	**(1)**	
Wages	22,500	**(1)**			
Expenses	7,500	**(1)**			
Discount All	1,035	**(2)**			
Depreciation [18000 **(1)**]	4,500	**(2)**			
Loss on disposal	500	**(2)**	36,035		
Net Loss			(1,535)	**(1)**	

[13]

(c)

- Management of funds – planning for cash surpluses/shortages.
- Co-ordination and control – cash budget is important in co-ordinating other operational budgets.
- Aid to decision making – "what if" planning.
- Check on future solvency.

3 x 2 marks
(1 for point plus 1 for development) **[6]**

Total marks [38]

Standard Costing and Variance Analysis

Standard Costing and Variance Analysis

2503 Jun 2007 Omega Question 1

1 Omega Ltd is the manufacturer of a single product.

The standard production costs per unit are:

Materials	4 kg at £12 per kg
Labour	40 minutes at £12 per hour
Variable overheads	40 minutes at £7.50 per hour

Fixed overheads are estimated at £30 000 per month.

In May 2007, budgeted and actual production was 3 600 units.

The cost accountant at Omega Ltd has identified the following variances for the month of May 2007.

	£	
Material price	10 100	favourable
Material usage	2 500	adverse
Labour rate	7 250	adverse
Labour efficiency	950	adverse
Total variable overhead	1 050	favourable
Total fixed overhead	3 040	adverse

REQUIRED

(a) Calculate the budgeted production cost for May 2007. [5]

(b) **(i)** State the formula for calculating a labour rate variance. [2]

(ii) Give possible explanations for the material and labour variances. [8]

(c) A statement reconciling original budgeted production cost with the actual total cost for May 2007. [4]

(d) Explain the stages involved in setting material standards. [6]

Total marks [25]

Standard Costing and Variance Analysis

2503 Jun 2007 Omega Question 1 Mark scheme

1 (a)

Materials 4 x 12	48	**(1)**
Labour 40/60 x 12	8	**(1)**
Variable overheads 40/60 x 7.5	5	**(1)**
Total	61	
	x 3,600	
	219,600	**(1)**
Fixed overhead	30,000	**(1)**
	249,600	

[5]

(b) (i)

(Standard rate - actual rate) **(1)** x actual hours **(1)** **[2]**

(ii)

Material price	Unexpected fall in price. Special offers/discounts.
Material usage	Inferior quality materials/increased wastage.
Labour rate	Wage rate increased or overtime. Labour shortages.
Labour efficiency	Delays caused by working with poor quality materials. Production breakdowns.

(8 x 1 mark) **[8]**

(c)

Statement reconciling budgeted costs with actual costs for May 2007

Budgeted cost					249 600	**(1 of)**
	+		-			
Material price			10,100			
Material usage	2,500					
Labour rate	7,250					
Labour efficiency	950					
Total variable overhead			1,050			
Total fixed overhead	3,040					
	13,740	**(1)**	(11,150)	**(1)**	2,590	
Actual total cost					252,190	**(1 of)**

[4]

(d)

Type - engineers and technical staff should be involved
Price - purchasing department need to forecast future prices
Quantity - should take into account normal wastage **[2]**

(3 x 2 marks or 2 x 3 marks)
(1 for point plus up to 2 for development) **[6]**

Total marks [25]

Standard Costing and Variance Analysis

2503 Jun 2006 EC Question 1

1 EC Ltd manufactures a single product.

The standard cost per unit for the month of May 2006 was:

	£
Direct materials (£2 per metre)	8.00
Direct labour (£12 per hour)	30.00
Variable overheads (£6 per direct labour hour)	15.00

Budgeted production for May 2006 was 24 000 units.
Budgeted sales for the month were 20 000 units at £75 each.

The actual results for May 2006 were:

	£
Sales (18 500 units)	1 480 000
Materials (82 500 metres)	181 500
Labour (50 000 hours)	662 500
Variable overheads	342 000

Actual production for May 2006 was 22 000 units.

REQUIRED

(a) Outline **two** types of standards which may be used in a standard costing system. [4]

(b) Explain the purpose of standard costing. [4]

(c) Calculate each of the following variances:

(i) sales price; [2]

(ii) sales volume; [2]

(iii) material price; [2]

(iv) material usage; [2]

(v) labour rate; [2]

(vi) labour efficiency; [2]

(vii) total variable overhead. [2]

(d) Advise the management of EC Ltd of possible explanations for the material and labour variances. [8]

Total marks [30]

Standard Costing and Variance Analysis

2503 Jun 2006 EC Question 1 Mark scheme

1 a) Basic standards – left unchanged not updated / used to highlight trends over time
Ideal standards – represent maximum performance and efficiency / likely to be regarded as unattainable
Current standards – based on existing levels of performance / attainable expected standards – represent normal efficient operating / allowing for normal wastage and idle time.

(2 x 2 marks)
(1 for point plus 1 for development) **[4]**

(b) Budget preparation / using predetermined standards
Record actual costs / compare with standard
Management by exception
Controlling operations
Using variance analysis
Also used in preparing estimates and quoting prices for work.
Unrealistic standards could lower morale

(4 x 1 mark) or
(2 x 2 marks - 1 for point plus 1 for development) **[4]**

(c) Variances

Sales
Price (80 – 75) x 18,500 = 92,500 F **(2)**
Volume (18,500 – 20,000) x 75 = 112,500 A **(2)**

Materials
Price (2 – 2.20) x 82,500 = 16,500 A **(2)**
Usage (88,000 – 82,500) x 2 = 11,000 F **(2)**

Labour
Rate (12 – 13.25) x 50,000 = 62,500 A **(2)**
Efficiency (55,000 – 50,000) x 12 = 60,000 F **(2)**

Total variable overhead
330000 – 342000 = 12,000 A **(2)**

Allow 1 mark in each case for correct figure only. **[14]**

(d) More expensive materials / better quality
Less materials used / less wastage
Higher paid labour / better grade appears to have been used
Less hours worked / due to improved quality of material and/or labour

(4 x 2 marks)
(1 for point plus 1 for development) **[8]**

Total marks [30]

Standard Costing and Variance Analysis

2503 Jun 2005 Precise Question 2

2 Precise Ltd manufactures a single product which has the following standard cost per batch of 500 units produced.

Material A	3 000 kg at £14.00 per kilo
Material B	3 000 kg at £15.00 per kilo
Labour	2 000 hours at £9 per hour
Total fixed overheads	£6 per labour hour

During May 2005 three complete batches were produced.

The actual costs of production were as follows:

Material A	7 800 kg at £15.40 per kilo
Material B	10 560 kg at £10.00 per kilo
Labour	6 600 hours at £9.75 per hour
Total fixed overheads	£38 430

REQUIRED

(a) A calculation of:

(i) standard cost per unit of production; [5]

(ii) actual cost per unit of production in May 2005. [4]

(b) A calculation of the following variances:

(i) labour rate variance; [2]

(ii) labour efficiency variance; [2]

(iii) material price variances; [4]

(iv) material usage variances; [4]

(v) total fixed overhead variance. [2]

(c) Explain **two** limitations of a standard costing system. [6]

(d) Assess **two** possible effects of favourable material price variances on a business. [6]

Total marks [35]

Standard Costing and Variance Analysis

2503 Jun 2005 Precise Question 2 Mark scheme

2 (a)

	(i) Standard cost			(ii) Actual cost		
	500 units or	1500 units		500 units or	1500 units	
Material A	42 000	126 000	**(1)**	40 040	120 120	**(1)**
Material B	45 000	135 000	**(1)**	35 200	105 600	**(1)**
Labour	18 000	54 000	**(1)**	21 450	64 350	**(1)**
Overheads	12 000	36 000	**(1)**	12 810	38 430	
Total	117 000	351 000		109 500	328 500	
Unit Cost	£ 234.00		**(1)**	£219.00		**(1)**
			[5]			**[4]**

(b)

	Variances:	Adv	Fav
(i)	Labour Rate (9 - 9.75) x 6600	4 950 **(2)**	
(ii)	Labour efficiency (6000 - 6600) x 9	5 400 **(2)**	
(iii)	Material price A (14.00 – 15.40) x 7800	10 920 **(2)**	
	Material price B (15.00 – 10.00) x 10560		52 800 **(2)**
(iv)	Material usage A (7800 – 9000) x 14		16 800 **(2)**
	Material usage B (9000 – 10560) x 15	23 400 **(2)**	
(v)	Overhead (36000 – 38430)	2 430 **(2)**	

[14]

2503 Jun 2005 Precise Question 2 Mark scheme continued

(c) Problems of setting standards/ ideal – attainable – current
Changing conditions/prices – economy-technology/standards can become unrealistic
Analysis of past performance/not very useful to managers/need to know how to improve future performance.
Some argue not relevant in modern production environment/rapidly changing/multi product/does not lend itself to culture of continuous improvement.
(2 x 3 marks)
(1 for point plus up to 2 for development) **[6]**

(d) Favourable variances reduces costs/increase budgeted profit per se/significance depends on by how much and for how long.
Cheaper materials may cause production problems/cause adverse variances elsewhere/may reduce profit.
Cheaper materials may lower quality of finished product/loss of custom/reputation/reduce profit.
More efficient buying/no loss in quality or permanent changes in supply/increase profit.
(2 x 3 marks)
(1 for point plus up to 2 for development) **[6]**

Total marks [35]

Standard Costing and Variance Analysis

2503 Jun 2004 Benjamin Question 1

1 Benjamin Ltd is a manufacturer of a single product.

The standard monthly production cost (based on a production of 750 units) is as follows:

Materials	18,000 kilos at £3.10 per kilo
Labour	2,400 hours at £10 per hour
Variable overheads	2,400 hours at £5.50 per hour
Fixed overheads	£9 per unit

Actual results for May 2004 were as follows:

Production	780 units
Materials	£57,000 for 19,000 kilos
Labour	£28,600 for 2,600 hours
Variable overheads	£13,700
Fixed overheads	£7,000

There were no opening or closing stocks for May 2004.

REQUIRED

(a) A calculation of:

(I) standard monthly production cost; [4]

(II) actual production cost for May 2004. [1]

(b) A calculation of the following variances:

(I) material price; [2]

(II) material usage; [2]

(III) labour rate; [2]

(IV) labour efficiency; [2]

(V) total variable overhead; [3]

(VI) total fixed overhead. [4]

(c) Advise the management of Benjamin Ltd of possible explanations for the material and labour variances. [8]

Total marks [28]

Standard Costing and Variance Analysis

2503 Jun 2004 Benjamin Question 1 Mark scheme

1 (a) May 2004

	(i) Standard production cost 750 units		(ii) Actual production cost 780 units	
Materials	55,800	**(1)**	57,000	
Labour	24,000	**(1)**	28,600	
Variable overheads	13,200	**(1)**	13,700	
Fixed overheads	6,750	**(1)**	7,000	
Total	99,750		106,300	**(1)**

[5]

(b) Variances:

Materials
Price (3.1 – 3) x 19,000 = 1,900 **(1)** F **(1)**
Usage (18720 – 19,000) x 3.1 = 868 **(1)** A **(1)**

Labour
Rate (10 –11) x 2,600 = 2,600 **(1)** A **(1)**
Efficiency (2496 – 2,600) x 10 = 1,040 **(1)** A **(1)**

Total variable overhead
Standard variable overhead (for activity) –
Actual variable overhead (for activity)
13,728 **(1)** – 13,700 **(1)** = 28 F **(1)**

Total fixed overhead
Standard fixed overhead (for activity) –
Actual fixed overhead (for activity)
7,020 (9 x 780)**(2)** – 7,000 **(1)** = 20 F **(1)** **[15]**

(c) Material is favourable due to cheaper price
In turn, this could be due to inferior quality, greater wastage and using more material
Overtime rate paid/longer time taken
More hours worked/result of inferior materials or poor supervision

(4 x 2 marks)
(1 for point plus 1 for development) **[8]**

Total marks [28]

Standard Costing and Variance Analysis

2503 Jun 2002 Jasper Question 1

1 Jasper Ltd is a manufacturer of a single product.

The company has recently introduced a system of standard costing. The material standards are based on average usage in the previous year and suppliers' current trade price lists. Labour standards were set by observing one of the most experienced employees.

The standard production costs per unit are:

Materials	2 kg at £3 per kg
Labour	4.5 hours at £8 per hour
Variable overheads	4.5 hours at £4 per hour

Fixed overheads are estimated at £9,000 per month.
The production and sales budgets for May 2002 were 1,000 units.

The standard selling price per unit was £80.

Actual results for May 2002 were as follows:

Production	850 units
Sales	800 units at £78.50 per unit
Materials	£5,670 for 2100 kg
Labour	£36,900 for 4500 hours
Variable overheads	£14,880
Fixed overheads	£8,000

REQUIRED

(a) Calculate the following variances:

(i) materials – price and usage [4]

(ii) labour – rate and efficiency [4]

(iii) total variable overhead [3]

(iv) total fixed overhead [3]

(b) Discuss **three** factors which the management of Jasper Ltd should take into account when setting labour standards. **[9]**

Total marks [23]

Standard Costing and Variance Analysis

2503 Jun 2002 Jasper Question 1 Mark scheme

1 Jasper

(a)

(i)	Materials		
	Price (3 – 2.7) x 2100	630 F	**(2)**
	Usage (1700 – 2100) x 3	1200 A	**(2)**
(ii)	Labour		
	Rate (8 – 8.20) x 4500	900 A	**(2)**
	Efficiency (3825 – 4500) x 8	5400 A	**(2)**
(iii)	Total variable overhead		
	(4.50 x 4 x 850) – 14880	420 F	**(3)**
(iv)	Total fixed overhead		
	Standard fixed o/h (for activity) – Actual fixed o/h (for activity)		
	[(9000/1000) x 850] – 8000	350 A	**(3)**

[14]

(b) Labour Standards

- Method used for setting standard labour time. Current standard is based on a tiny sample (one employee) – is this representative?
- Target times need to be realistic. Labour time must be attainable – current standard appears to be "ideal" and may only be acheivable by most experienced employees. Is idle time allowed for?
- Effects on morale. Workforce should be consulted otherwise motivation may be poor.
- Personnel dept should be consulted on wage rates – setting standard rate may involve inputs from different grades of worker. (There is no mention in the question as to how a standard wage rate was defined)

(3 x 3 marks)
(1 for point plus up to 2 for development) **[9]**

Total [23]

Capital Expenditure Appraisal

Capital Expenditure Appraisal

2503 Jun 2007 Whitney Question 2

2 Whitney plc is considering acquiring one of two businesses in order to diversify its operations.

The options are Cracker Ltd and Musket Ltd which make different products.

Option 1 – Cracker Ltd

Estimated cost of acquisition:	£8.6 million
Annual production:	400 000 units
Sales:	75% of production is to be sold under an existing fixed price contract which has a further four years to run at £20 per unit. The remaining 25% will be sold at the following prices:

Year	1	2	3	4
Selling price per unit:	£18	£18.50	£20	£21

Operating costs (including depreciation) are estimated at £4 million in each of years 1 and 2 and £4.4 million in each of years 3 and 4. Depreciation is estimated at £500 000 per annum.

Option 2 – Musket Ltd

Estimated cost of acquisition:	£6.8 million
Annual production:	250 000 units
Sales:	A contract already exists covering the next four years under which the entire product will be sold at a price of £16 per unit for years 1 and 2, and £18 per unit in years 3 and 4.

Operating costs (including depreciation) are estimated at £0.9 million in year 1, £1.0 million in year 2, and £1.2 million in each of years 3 and 4. Depreciation is estimated at £300 000 per annum.

Whichever option is chosen, the estimated cost of acquisition would be payable immediately. All other receipts and payments take place at the end of each year. The cost of capital for Whitney plc is 10%.

Extract from present value tables at 10%:

Year 1	0.909
Year 2	0.826
Year 3	0.751
Year 4	0.683

Capital Expenditure Appraisal

2503 Jun 2007 Whitney Question 2 continued+

REQUIRED

(a) The net present value of each of the two options. [14]

(b) Evaluate **each** option and recommend which, if either, Whitney plc should choose. [6]

(c) **(i)** Identify **two** other methods of capital investment appraisal. [2]

(ii) Discuss the advantages and disadvantages of each of these methods. [8]

Total marks [30]

Capital Expenditure Appraisal

2503 Jun 2007 Whitney Question 2 Mark scheme

2 (a) Workings

Option 1	75% contract sales	25% open market	Operating costs - depreciation	Net cash inflow
Year 1	6,000,000	1,800,000	(3,500,000)	4,300,000
Year 2	6,000,000	1,850,000	(3,500,000)	4,350,000
Year 3	6,000,000	2,000,000	(3,900,000)	4,100,000
Year 4	6,000,000	2,100,000	(3,900,000)	4,200,000

Option 2	Contract sales	Operating costs - depreciation	Net cash inflow
Year 1	4,000,000	(600,000)	3,400,000
Year 2	4,000,000	(700,000)	3,300,000
Year 3	4,500,000	(900,000)	3,600,000
Year 4	4,500,000	(900,000)	3,600,000

NPV Calculations

Option 1	Net cash flow	Discount factor	Present value	
Year 1	4,300,000	0.909	3,908,700	**(1 of)**
Year 2	4,350,000	0.826	3,593,100	**(1 of)**
Year 3	4,100,000	0.751	3,079,100	**(1 of)**
Year 4	4,200,000	0.683	2,868,600	**(1 of)**
			13,449,500	
		Capital cost	(8,600,000)	**(1)**
		NPV	4,849,500	**(2)**

Option 2	Net cash flow	Discount factor	Present value	
Year 1	3,400,000	**(1)** 0.909	3,090,600	
Year 2	3,300,000	**(1)** 0.826	2,725,800	
Year 3	3,600,000	**(1)** 0.751	2,703,600	
Year 4	3,600,000	**(1)** 0.683	2,458,800	
			10,978,800	
		Capital cost	(6,800,000)	**(1)**
		NPV	4,178,500	**(2)**

[14]

Capital Expenditure Appraisal

2503 Jun 2007 Whitney Question 2 Mark scheme continued

(b)

Option 1 gives a higher NPV and on this basis should take preference **(2)**.
Option 1 requires a higher capital investment **(1)**.
Option 2 may allow additional projects to be funded by spare funds **(2)**.
Option 1 provides higher production and better unit selling price in all years **(1)**.
Option 2 has a fixed contract for all output for next four years **(1)** but at a lower price **(1)**.
(1 for point plus up to 2 for development) **[6]**

(c) **(i)**

Payback method **(1)**

Accounting rate of return **(1)**

(One mark for ach of two correct responses) **[2]**

(ii)

Payback method	Advantages Easy to use Measures risk Uses cash flows	Disadvantages Ignores time value of money Ignores net cash flows after payback period
Accounting rate of return	Uses profit figures - easier to understand ARRs for different projects can be compared	Ignores time value of money Ignores cash flows Subjective nature of profits

(Up to 4 marks for each of payback and ARR) **[8]**

Total marks [30]

Capital Expenditure Appraisal

2503 Jun 2006 Layla Question 2

2 Layla Ltd is a major employer in a rural area. The directors are replacing the main production line. The directors can choose between System A or System B.

Details of the two systems are as follows:

	System A	System B
System cost at start	£320 000	£375 000
Estimated useful life	4 years	4 years
Scrap value at end of year 4	£16 000	£32 000

Layla Ltd depreciates its fixed assets using the straight line method.
System A produces slightly toxic waste which would be taken by lorry through the local town for disposal elsewhere. System B would require fewer production staff.

Estimated receipts and costs (excluding depreciation) are as follows:

Receipts

	System A £000	System B £000
Year 1	224	280
Year 2	300	360
Year 3	400	400
Year 4	280	240

Costs (excluding depreciation)

	System A £000	System B £000
Year 1	124	167
Year 2	188	196
Year 3	273	268
Year 4	152	116

All receipts and payments of costs take place at the end of the year.
Layla Ltd's cost of capital is 9% per annum.

Extract from present value tables of £1 at 9%:

Year 1	0.917
Year 2	0.842
Year 3	0.772
Year 4	0.708

Capital Expenditure Appraisal

2503 Jun 2006 Layla Question 2

REQUIRED

(a) Calculate for each system (work to two decimal places where appropriate):

- **(i)** net cash flows for each year; [4]
- **(ii)** payback; [2]
- **(iii)** net present value; [8]
- **(iv)** the accounting rate of return (defined by the company as average profit to initial capital outlay). [8]

(b) Evaluate the financial implications of each system. [6]

(c) Discuss **three** non-financial factors Layla Ltd needs to consider before buying either system. [9]

Total marks [37]

Capital Expenditure Appraisal

2503 Jun 2006 Layla Question 2 Mark scheme

2 (a) (i) Net cash flows

	System A	£000		System B	£000	
Year 1	224 – 124	100		280 – 167	113	
Year 2	300 – 188	112	**(1)**	360 – 196	164	**(1)**
Year 3	400 – 273	127		400 – 268	132	
Year 4	280 + 16 – 152	144	**(1)**	240 + 32 – 116	156	**(1)**

[4

(ii) Payback

System A	System B
2.85 years **(1)**	2.74 years **(1)**

[2

(iii) Net present value

System A

Year	Net cash flow	Discount factor **(1)** (all 4)	Present Value	
1	100 000	0.917	91 700	**(1 of)**
2	112 000	0.842	94 304	**(1 of)**
3	127 000	0.772	98 044	**(1 of)**
4	128 000	0.708	90 624	
4	16 000	0.708	11 328	
			386 000	
		Capital cost	320 000	**(1)**
		NPV	66 000	**(1 of)**

System B

Year	Net cash flow	Discount factor	Present Value	
1	113 000	0.917	103 621	
2	164 000	0.842	138 088	
3	132 000	0.772	101 904	
4	124 000	0.708	87 792	
4	32 000	0.708	22 656	
			454 061	
			375 000	**(1)**
		NPV	79 061	**(1 of)**

[8]

2503 Jun 2006 Layla Question 2 Mark scheme continued

(iv) Accounting rate of return

System A	System B
163 000 **(1)** / 4 = 40750 **(1)**	190 000 **(1)** / 4 = 47 500 **(1)**
40750 / 320 000 **(1)**	47 500 / 375 000 **(1)**
= 12.73% **(1 of)**	= 12.67% **(1 of)**

[8]

(b) B has shorter payback
A has smaller capital outlay
A has slightly better ARR
Both have positive NPV
(up to 3 marks for identification)

Availability of finance
Little difference in payback or ARR
System B gives more overall sales and profits
B depends more on scrap value being realised
(up to 3 marks for identification)

[6]

(c) Local community – effects of noise and congestion in A / loss of jobs in B / impact on house prices under both
Workforce – is health and safety being put at risk in A? / training / effects on morale if jobs lost in B
Environment – effects of disposing of waste / how toxic? /
Public relations – negative publicity to do with toxic waste / loss of jobs

(3 x 3 marks)
(1 for point plus up to 2 for development) **[9]**

Total marks [37]

Capital Expenditure Appraisal

2503 Jun 2004 Triffid Question 2

2 Trifid Ltd has £200,000 available for investment. Two new projects are being considered. Both projects are to be appraised over a four year life.

Project X11 involves the production of a disease resistant cereal crop. Project X12 involves the production of a powerful pesticide.

Details of each project are given below.

	Project X11	Project X12
Fixed asset cost at commencement of project:	200,000	180,000
Sales:		
Year 1	240,000	180,000
Year 2	290,000	210,000
Year 3	120,000	180,000
Year 4	50,000	150,000
	700,000	720,000

Net profit as a percentage of sales is forecast to be 15% of sales for each project and the fixed asset cost is to be depreciated on the straight line basis assuming a nil residual value at the end of year four.

Other than the cost of new equipment, which would be purchased immediately, all receipts and payments take place at the end of each year.

The company's cost of capital is 6% per annum.

Extract from present value tables of £1 at 6%:

Year 1	0.943
Year 2	0.890
Year 3	0.840
Year 4	0.792

Capital Expenditure Appraisal

2503 Jun 2004 Triffid Question 2 continued

REQUIRED:

(a) Calculate the annual cash inflows for each project. [8]

(b) Calculate for each project (work to one decimal place where appropriate):

(I) payback; [2]

(II) accounting rate of return (defined by the company as average net profit to initial capital outlay); [8]

(III) net present value. [12]

(c) Briefly evaluate the financial implications of each project. [6]

(d) Discuss **two** non-financial factors Trifid Ltd should consider before making this capital investment decision. [6]

Total marks [42]

Capital Expenditure Appraisal

2503 Jun 2004 Triffid Question 2 Mark scheme

2 (a)

Annual cash inflows

Project X11

	Year 1	Year 2	Year 3	Year 4
Sales	240,000	290,000	120,000	50,000
Net profit	36,000	43,500	18,000	7,500
Depreciation	50,000	50,000	50,000	50,000
Cash flow	86,000	93,500	68,000	57,500

(4 x 1 mark)

Project X12

Sales	180,000	210,000	180,000	150,000
Net profit	27,000	31,500	27,000	22,500
Depreciation	45,000	45,000	45,000	45,000
Cash flow	72,000	76,500	72,000	67,500

(4 x 1 mark)

[8]

(b) (i) Payback

X11
2.3 years **(1)**

X12
2.4 years **(1)**

(ii) ARR

Average profit

X11

$\frac{105{,}000\ \textbf{(1)}}{4} = 26{,}250$

$\frac{26{,}250\ \textbf{(1 of)}}{200{,}000\ \textbf{(1)}} = 13.1\%\ \textbf{(1 of)}$

X12

$\frac{108{,}000\ \textbf{(1)}}{4} = 27{,}000$

$\frac{27{,}000\ \textbf{(1 of)}}{180{,}000\ \textbf{(1)}} = 15.0\%\ \textbf{(1 of)}$

Capital Expenditure Appraisal

2503 Jun 2004 Triffid Question 2 Mark scheme continued

(iii) Net present value

X11

Year	Cash flow	DF	PV	
1	86,000 **(1)**	0.943	81,098	
2	93,500 **(1)**	0.89	83,215	
3	68,000 **(1)**	0.84	57,120	
4	57,500 **(1)**	0.792	45,540	
			266,973	
	Capital cost		(200,000)	**(1)**
	NPV		66,973	**(1 of)**

X12

Year	Cash flow	DF	PV	
1	72,000	0.943	67,896	**(1)**
2	76,500	0.89	68,085	**(1)**
3	72,000	0.84	60,480	**(1)**
4	67,500	0.792	53,460	**(1)**
			249,921	
	Capital cost		(180,000)	**(1)**
	NPV		69,921	**(1 of)**

[22]

(c) X11 has shorter payback/little difference in capital cost
X12 costs £20,000 less/could this be invested profitably elsewhere?
Both projects give positive NPV, X12 has higher NPV
X12 gives better ARR, higher overall sales and profits.
Overall X12 appears less risky and should be chosen.

(3 x 2 marks)
(1 for point plus 1 for development) **[6]**

(d) Health and safety - are any hazardous materials or processes involved?/need for consultation with workforce.
Environmental effects - could the crops and pesticides cause environmental damage?
Public relations - e.g. ecologic and anti GM crop groups may oppose new products/effects on trade if company receives bad press.

(2 x 3 marks)
(1 for point plus up to 2 for development) **[6]**

Total marks [42]

Capital Expenditure Appraisal

2503 Jun 2003 Song Question 2

2 During 2002 Song Ltd spent £30 000 on market research into potential new products. As a result two new products are under consideration, only only one of which will be undertaken. These have been coded Product X and Product Y.

The estimated profits arising from each product are as follows:

	Product X		Product Y	
	£	£	£	£
Annual sales		200 000		240 000
Cost of sales	84 000		108 000	
Other expenses	65 000	149 000	84 000	192 000
Profit		51 000		48 000

No change is anticipated in the above costs and revenues during each product's life.

The cost of new equipment involved in making each product is £90 000 for Product X and £124 000 for Product Y. The estimated economic lives are 3 years for Product X and 4 years for Product Y.

Depreciation is included in the figure for other expenses and is calculated on a straight line basis assuming a nil residual value for Product X, and an estimated residual value of £12 000 for Product Y.

Other than the cost of new equipment, which would be purchased immediately, all receipts and payments take place at the end of each year with the first year ending 31 May 2004.

The company's cost of capital is 10%.

Extract from the net present value tables of £1 at 10%:

Year 1	0.909
Year 2	0.826
Year 3	0.751
Year 4	0.683

The company accountant has calculated the following in respect of Product X:

Payback	1.11 years
Accounting rate of return*	56.67%
Net present value	£111 366

* Accounting rate of return is defined by the company as average net profit to initial capital cost.

Capital Expenditure Appraisal

2503 Jun 2003 Song Question 2 continued

REQUIRED:

(a) Calculate for Product Y:

(i) Payback [2]

(ii) Accounting rate of return [1]

(iii) Net present value [10]

(b) State which, if either, of the two projects you think the directors should undertake, giving reasons for your recommendation. [7]

(c) Explain the reasons for the treatment you have adopted in relation to the cost of market research carried out in 2002. [4]

Total marks [24]

Capital Expenditure Appraisal

2503 Jun 2003 Song Question 2 Mark scheme

2 (a) (i) Payback period

1 year + 48/76 = 1.63 years **(2)**

(ii) Accounting rate of return

48/124 = 38.71% **(1)**

(iii) Net Present Value

Year	Cashflow		Discount factor		PV	
1	76,000	(2)	0.909	(1)	69,084	
2	76,000		0.826	(1)	62,776	
3	76,000		0.751	(1)	57,076	
4	76,000		0.683	(1)	51,908	
4	12,000	(1)	0.683		8,196	
					249,040	
			Capital cost		(124,000)	(1)
			Net present value		125,040	(2)(1of)

[13]

(b) X has shorter payback
X has lower capital cost
X has higher ARR
Y has higher NPV
Both have positive NPV
(up to 3 marks for identification)

Early Payback – less than 2 years in both cases
NPV takes timings and all incomes into account
Y better even if nil residual value on disposal
Limitations of payback and ARR
(up to 3 marks for development)

Reasoned recommendation **(1)** **[7]**

(c) Cost of market research should be ignored in the investment decision **(1)**
Money already spent is irrelevant **(1)**
It is a sunk cost **(2)** **[4]**

Total marks [24]

Stock

Stock

2501 Jan 2007 J Bells Question 2

2 J. Bells, a retailer of festive decorations, supplied the following information on purchases and sales for the month of December 2006.

Date	Purchases		Sales	
	Quantity units	Cost price per unit £	Quantity units	Selling price per unit £
2 December	2 000	15		
3 December			2 300	30
10 December	1 500	18		
14 December			1 300	32
18 December	2 000	20		
19 December			2 100	34

At 1 December 2006 J. Bells had an opening stock of 500 units valued at £14 each.

REQUIRED

(a) Calculate the closing stock valuation as at 31 December 2006 using the following methods of stock valuation (perpetual).

(I) FIFO. [5]

(II) LIFO. [9]

(b) The Trading Account for the month of December 2006 using the FIFO method of stock valuation (perpetual). [6]

(c) Advise J. Bells how the stock should be valued in the final accounts. [4]

Total marks [24]

Stock

2501 Jan 2007 J Bells Question 2 Mark scheme

2 (a)

FIFO

300**(2)** @ 20**(2)** = 6,000 **(1)**

[5]

LIFO

200**(2)** @ 14**(2)** = 2,800
100**(2)** @ 18**(2)** = 1,800
4,600 **(1)**

[9]

(b)

Trading Account for the month ended 31 December 2006				
Sales			182,000	**(2)**
Opening stock	7,000	**(1)**		
Purchases	97,000	**(2)**		
	104,000			
Closing stock	6,000			
			98,000	
Gross Profit			84,000	**(1)**

[6]

(c) Stock should be valued at the lower of cost and net realisable value.
SSAP 9 states companies should use either the FIFO or AVCO method of stock valuation in the final accounts. Whichever method is chosen it should be applied consistently.
Prudence concept states companies should choose the lowest value when valuing assets.

(2 points x 2 marks)
(1 for point plus 1 for development) **[4]**

Total marks [24]

Stock

2501 Jun 2006 Winston Bai Question 1

1 Winston Bai commenced business fitting security doors on 1 December 2005. During the first six months of trading his transactions were:

Purchases of doors	
December 2005	10 doors at £250 each
March 2006	15 doors at £230 each
April 2006	20 doors at £235 each

Sales of doors	
December 2005	4 doors at £400 each
January 2006	6 doors at £400 each
February 2006	5 doors at £400 each
March 2006	9 doors at £420 each
April 2006	7 doors at £420 each
May 2006	5 doors at £420 each

Expenses for the six month period were £1 500. All transactions were on a cash basis.

REQUIRED

(a) Calculate the net profit for the six month period ending 31 May 2006, using both the LIFO **and** FIFO methods of stock valuation (periodic). [12]

(b) Discuss how stock should be valued in the final accounts of a business. [6]

Total marks [18]

2501 Jun 2006 Winston Bai Question 1 Mark scheme

(a)

		LIFO		FIFO
Sales		14,820 **(1)**		14,820 **(1)**
Purchases	10,650**(1)**		10,650 **(1)**	
Closing stock	(9@250) 2,250 **(3)**		(9@235) 2,115 **(1)**	
Cost of sales		8,400		8,535
Gross profit		6,420		6,285
Expenses		1,500		1,500 **(1)**
Net Profit		4,920		4,785 **(1)**

[12]

(b) SSAP9 stocks and work in progress.
Prudence requires that stock must be valued at the lower of cost and net realisable value.
The application of the prudence concept will not overstate the profit and the net assets of the business.
Consistency must be applied from one financial year to the next.
The same method of stock valuation should be used.

(3 x 2 marks) **[6]**
(1 for point plus 1 for development)

Total Marks [18]

Stock

2501 Jun 2005 Simon Khan Question 2

2 Simon Khan is a retailer of garden furniture. He has supplied the following information for the month of May 2005.

Purchases and Sales of Garden Furniture

Purchases			Sales	
Date	Quantity	Price per unit £	Date	Quantity
8 May	20	90	9 May	11
12 May	35	85	17 May	31
20 May	32	93	23 May	18
25 May	23	100	24 May	12
			27 May	26

All sales were made at £180 per item.

Simon Khan had an opening stock of 10 items valued at £80 each on 1 May 2005.

REQUIRED

(a) Calculate the closing stock of garden furniture at 31 May 2005 under the following methods of stock valuation (perpetual):

(i) FIFO; [4]

(ii) LIFO. [9]

(b) A Trading Account for the month ended 31 May 2005 using the FIFO method of stock valuation (perpetual). [8]

(c) **(i)** Explain the term *just in time* (JIT). [2]

(ii) How could *just in time* (JIT) benefit the business of Simon Khan? [2]

Total marks [25]

Stock

2501 Jun 2005 Simon Khan Question 2 Mark scheme

2 (a)

FIFO
22 Units **(2)** @ 100 **(2)** = 2,200 **[4]**

LIFO

10 units **(1)** @ 80 **(2)** = 800
9 units **(1)** @ 90 **(2)** = 810
3 units **(1)** @ 85 **(2)** = 255
1,865

[9]

(b)

Trading Account for the month ended 31 May 2005

Sales			17,640	**(2)**
Opening Stock	800	**(1)**		
Purchases	10,051	**(2)**		
	10,851			
Closing Stock	2,200	**(2) (1 of)**		
Cost of Sales			8,651	
Gross Profit			8,989	**(1)**

[8]

(c) (i) A business will hold enough stock to cover the immediate orders that are due to customers.
A business will order goods for delivery just in time for production to commence.
(1 x 2 marks)
(1 for point plus 1 for development) **[2]**

(ii) Will reduce costs of storing and holding stock.
Improves cash flow because stock not ordered until it is required.
(1 x 2 marks)
(1 for point plus 1 for development) **[2]**

Total marks [25]

Stock

2501 Jun 2004 Martin Zuckor Question 1

1 Martin Zuckor has provided the following information for the year ended 31 December 2003.

Month	Purchases	Sales
January	1000 units @ £10 each	300 units @ £15 each
February		400 units @ £15 each
March	2000 units @ £12 each	800 units @ £15 each
April		500 units @ £18 each
May		400 units @ £18 each
June	3000 units @ £14 each	1000 units @ £20 each
July		700 units @ £20 each
August	1000 units @ £14.50 each	600 units @ £20 each
September		400 units @ £20 each
October		500 units @ £25 each
November	800 units @ £15 each	400 units @ £25 each
December		300 units @ £25 each

All transactions for the year were on a cash basis. At 1 January 2003 Martin Zuckor had an opening stock of 200 units valued at £11 each.

REQUIRED

(a) Calculate the closing stock valuation for the year ended 31 December 2003 using the following methods of stock valuation (periodic method):

(I) FIFO; [6]

(II) LIFO. [4]

(b) The Trading Account for the year ended 31 December 2003 using the FIFO method of stock valuation (periodic method). [6]

(c) Evaluate the implications for Martin Zuckor's business of introducing a computerised system of stock control. [8]

Total marks [24]

Stock

2501 Jun 2004 Martin Zuckor Question 1 Mark scheme

1 (a)

FIFO				LIFO			
800**(1)** @15	**(1)**	=	12,000	200**(1)** @ 11 **(1)** =			2,200
900**(1)** @14.50	**(1)**	=	13,050	1,000**(1)** @ 10 **(1)**=			10,000
			25,050	500 **(1)** @ 12 **(1)** =			6,000
							18,200

[10]

(b) Martin Zuckor
Trading Account for the year ended 31 December 2003

Sales			122,700 **(2)**
Opening stock	2,200		
Purchases	102,500	**(2)**	
	104,700		
Less Closing stock	25,050	**(2)(1 of)**	79,650
Gross profit			43,050

[6]

(c) Instant stock levels on screen will help customers. Stock information can be given promptly.

Electronic point of sale systems are an integrated stock package.
Will update stock records from the point of sale.

Just in time systems of stock control will help with the costs of stockholding.
Martin Zuckor would be able to hold enough stock to meet orders from customers.

Re-order quantities would be easier.
Martin would have a re-order quantity that would be identified and an order generated to the relevant supplier.

Orders could be completed on time.
Reduce the time and cost of stocktaking.

Cost of implementation software and hardware.
Training to use a new system.

Backup of all files from a manual system.
The effect of a computer crash through a virus.

(4 x 2 marks)
(1 for point plus 1 for development) **[8]**

Total marks [24]

Stock

2501 Jun 2003 Sophie Scott Question 3

3 Sophie Scott had the following purchases and sales for product number FAB1 for the six month period ended 31 December 2002.

Date	Purchases Quantity	Price per unit £	Date	Sales Quantity
13 July	300	20	15 July	100
20 September	250	22	18 August	150
8 November	280	25	23 September	180
17 December	300	30	15 October	100
			10 November	260
			20 December	280

At 1 July 2002 Sophie Scott had an opening stock of 100 units at £18 each. All transactions for the six month period were on a cash basis. The selling price of each unit for the period was £40.

REQUIRED

(a) Calculate the closing stock valuation as at 31 December 2002 using the LIFO method of stock valuation (perpetual basis). [12]

(b) Using your answer to part **(a)**, calculate the gross profit for the six month period ended 31 December 2002. [8]

Total marks [20]

2501 Jun 2003 Sophie Scott Question 3 Mark scheme

3 (a) LIFO

100	**(1)**	@	£18	**(2)**	=	1,800
20	**(1)**	@	£20	**(2)**	=	400
20	**(1)**	@	£25	**(2)**	=	500
20	**(1)**	@	£30	**(2)**	=	600
						3,300

[12]

(b)

Sales			42,800	**(2)**
Opening stock	1,800	**(1)**		
Purchases	27,500	**(2)**		
	29,300			
Closing stock	3,300	**(2) (1 of)**	26,000	
Gross profit			16,800	**(1)**

[8]

Total marks [20]

Stock

2501 Jan 2002 David Manfredini Question 2

2 David Manfredini had the following sales and purchases for product number Z333 for the month of December 2001:

Date	Purchases	Sales
1 December	400 units at £20 each	
5 December		90 units at £40 each
12 December		60 units at £40 each
17 December		120 units at £40 each
19 December	200 units at £25 each	
20 December		80 units at £42 each
21 December		90 units at £42 each
23 December	320 units at £30 each	
27 December		180 units at £50 each
29 December		90 units at £50 each

All transactions for the month were on a cash basis. At 1 December 2001 David Manfredini had an opening stock of 100 units valued at £20 each.

REQUIRED

(a) Calculate the closing stock valuation for the month of December 2001 using the FIFO and LIFO methods of stock valuation (perpetual method). [9]

(b) Prepare a Trading Account for the month of December 2001 using the FIFO method of stock valuation (perpetual method). [6]

(c) Explain **three** reasons why David could not use the latest selling price of his products to value the closing stock as at 31 December 2001. [9]

Total marks [24]

Stock

2501 Jan 2002 David Manfredini Question 2 Mark scheme

2 (a)

LIFO		£
230 (1) at =	£20 (1) =	4600
30 (1) at =	£25 (1) =	750
50 (1) at =	£30 (1) =	1500
		6850

FIFO		
310 (2) at	£30 (1) =	9300

[9]

(b) Trading Account for the month of December 2001 (FIFO)

	£		£	
Sales			31,440	(2)
Opening stock	2000	(1)		
Purchases	22,600	(1)		
	24,600			
Closing stock	9,300	(1 of)	15,300	(2)
Gross profit			16,140	

[6]

(c) Stock must now be valued at the lower of cost or net realisable value.

The concept of prudence must be applied when valuing stock.

The use of selling price would overstate the profit.

The use of selling price would overstate the net asset value of the business.

(1 mark for point plus up to 2 for development)

(3 x 3 marks). **[9]**

Stock

2501 Jun 2001 Gary Owen Question 3

3 Gary Owen had the following purchases and sales for product number Z678 for the month of May 2001.

Date	Purchases	Sales
1	200 units at £10 each	
3		60 units at £18 each
4		40 units at £18 each
8		50 units at £19 each
15	90 units at £11 each	
19		30 units at £19 each
21		40 units at £19 each
22	150 units at £12 each	
23		35 units at £20 each
24		65 units at £20 each
25		25 units at £20 each
27	70 units at £14 each	
29		65 units at £22 each

All transactions for the month were on a cash basis. At 1 May 2001 Gary Owen had an opening stock of 30 units at a cost of £9 per unit.

REQUIRED:

(a) Calculate the closing stock valuation for the month of May 2001 using the FIFO and LIFO methods of stock valuation (periodic basis). [12]

(b) Prepare the Trading Account for the month of May 2001 using the FIFO closing stock valuation. [6]

(c) Gary Owen is considering the purchase of a computer for use in the business. Advise him on **three** advantages a computerised system of stock control would bring to the business. [6]

(d) According to SSAP 9 explain how stock should be valued in the final accounts. Why is stock valuation important in the final accounts? [6]

Total [30 marks]

Stock

2501 Jun 2001 Gary Owen Question 3 Mark scheme

3 (a)

FIFO

	£
60 **(2)** Units at £12 = **(1)**	720
70 **(2)** Units at £14 = **(1)**	980
	1700

LIFO

	£
30 **(2)** Units at £9 **(1)**	270
100 **(2)** Units at £10 **(1)**	1000
	1270

[12]

(b) Gary Owen
Trading Account for May 2001

	£	£
Sales		8010 **(1)**
Opening Stock	270 **(1)**	
Purchases	5770 **(2)**	
	6040	
Closing Stock	1700 **(2 of)**	4340
Gross Profit		3670

[6]

(c) Integrated accounting package
Electronic point of sale
Just in time methods
Re -order quantity
Economic order quantity
Instant stock balance

(1 mark for identification of point plus 1 for development)
(Maximum 6 marks)

[6]

(d) Application of prudence concept.
Stock must be valued at the lower of cost and net realisable value.
Will overstate or understate reported profit.
Will overstate or understate net asset value of business.

(1 mark for identification of point plus 1 for development)
(3 x 2 marks) **[6]**

Total: [30]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2006 Mallet and Meyer Question 3

3 Mallet and Meyer plc manufactures industrial workwear. The company's budgeted costs and selling prices for the year ending 30 September 2007 are as follows:

Product		Female workwear		Male workwear	
		£	£	£	£
Selling price per unit			30		40
Variable costs per unit:					
Direct wages			10		16
Direct materials	– cloth	6		8	
	– other	2		2	
			8		10
Expected sales		10000 units		12000 units	

The company allocates half of its annual fixed costs of £84000 to each product.

REQUIRED

(a) Calculate the break-even output in units and sales value for female workwear. [3]

(b) Prepare a contribution to sales graph for male workwear. [3]

(c) Calculate the total budgeted profit for Mallet and Meyer plc assuming the expected sales volume is achieved. [3]

(d) Since preparing the budget, Mallet and Meyer plc has been informed that there is a world shortage in the supply of the cloth used in the manufacture of workwear. It has now forecast that there will be cloth only to the value of £130000 available during the year ending 30 September 2007.

Calculate the maximum profit the company could now make during the budgeted year. [12]

(e) Evaluate the usefulness of break-even analysis for decision making. [10]

(f) Discuss three uses of marginal costing in decision making. [9]

Total marks [40]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

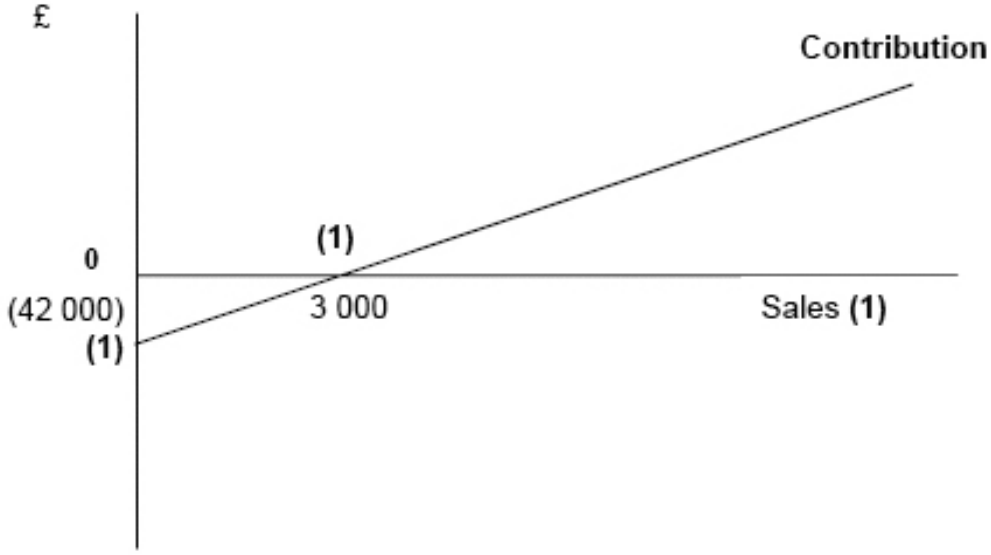
2504 Jun 2006 Mallet and Meyer Question 3 Mark scheme

3 **(a)** Female workwear contribution per unit: 30 – (10 + 8) = 12 **(1)**

Break-even - units: 42 000/12 = 3 500 **(1)**
- sales revenue: 3 500 x 30 = 105 000 **(1)**

[3]

(b) Contribution to sales graph for male workwear:



[3]

(c)

	Female workwear	Male workwear	Total
Sales per unit	30	40	
Less variable costs per unit	18	26	
Contribution per unit	12	14	
x expected sales volume	10 000	12 000	
Total contribution	120 000 **(1)**	168 000 **(1)** =	288 000
Less fixed costs			84 000
Profit			204 000 **(1)**

[3]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2006 Mallet and Meyer Question 3 Mark scheme cont

(d)

	Female workwear	Male workwear
Contribution per unit	12	14
Contribution to limiting factor	12/6 = 2 **(2)**	14/8 = 1/75 **(2)**
Ranking	1 **(2)**	2
Cloth available	130 000	
Female workwear (10 000 x 6)	60 000 **(1)**	
	70 000	
Male workwear (8 750 **(1)** x 8)	70 000	
Contribution:		
Female workwear (12 x 10 000)	120 000 **(1)**	
Male workwear (14 x 8 750)	122 500 **(1)**	
Total contribution	242 500	
Less fixed costs	84 000 **(1)**	
Profit	158 500 **(1of)**	

[12]

(e) Advantages:

Simple to construct and interpret
Easy to explain to non-accountants
Facilitates 'what – if' analysis
Useful for comparison with actual performance
Useful for setting production targets and for pricing decisions

Limitations:

Over-simplified
Cost and revenue curves may in reality not be linear
Fixed costs may be stepped
Some costs may not be easily categorised as either fixed or variable (semi-variable costs)

(1 + 1 for development) x 2 for advantages
(1 + 1 for development) x 2 for limitations
Up to 2 for conclusion

[10]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2006 Mallet and Meyer Question 3 Mark scheme cont

(f) Uses of marginal costing for decision making:

Limiting factor, maximising contribution from restricted inputs
Acceptance of special orders
Make or buy
Discontinuing a product or service, based on contribution

(3 x 3 mark)
(1 + up to 2 for development) **[9]**

Total marks [40]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2005 Calthorpe and Earle Question 1

1 Calthrop and Earle Ltd manufactures electronic ignition systems for the motor industry. The company has recently developed a new ignition system.

The **draft budget** for the new ignition system for the financial year ending 30 June 2006 includes the following:

Production and sales	100 000 units
Variable costs per unit:	£
Direct materials	180
Direct labour	110
Variable overheads	60
Fixed costs:	£
Production	7 000 000
Administration	2 500 000
Marketing and Advertising	3 700 000
Selling price per unit	£550

At a recent Board meeting the following points were made:

(i) The Chief Executive suggested that the business should aim for a 70% margin of safety.

(ii) The Marketing Director suggested that if the advertising budget was increased by £500 000, sales and production quantities would rise by 5%. The Production Director estimated that the business would then benefit from increased bulk purchase discounts and direct material costs would fall by 5%. All other costs would remain unchanged, and the selling price would remain at £550.

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2005 Calthorpe and Earle Question 1 continued

REQUIRED

(a) Using the original draft budget:

(i) calculate the break-even output in units; [3]

(ii) calculate the margin of safety as a percentage; [2]

(iii) produce a profit statement for the year ending 30 June 2006 clearly showing contribution per unit. [9]

(b) Using the Marketing Director's suggestion and the Production Director's estimate, produce a profit statement for the year ending 30 June 2006, clearly showing contribution per unit. [5]

(c) How realistic is the Chief Executive's aim for a 70% margin of safety? Justify your answer. [7]

(d) Explain **two** reasons why absorption costing **and not** marginal costing should be used in the preparation of final accounts. [6]

Total marks [32]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2005 Calthorpe and Earle Question 1 Mark scheme

1 (a) (i) Break even: $\frac{13,200,000\ (1)}{550\ (1) - 350\ (1)}$ = 66,000 units **[3]**

(ii) Margin of Safety: $\frac{34,000\ (1)}{100,000\ (1)} \times 100 = 34\%$ **[2]**

(iii) Profit statement:

Selling price	550 **(1)**		
Variable cost per unit	350 **(2)**		
Contribution per unit **(1)** 200 **(1)** x 100 000 **(1)** =		20,000,000	
Fixed costs		13,200,000	**(1)**
Profit		6,800,000	**(2) (1of)**

[9]

(b) Profit statement:

Selling price	550		
Variable cost per unit	341 **(1)**		
Contribution per unit 209 **(1)** x 105 000 **(1)** =		21,945,000	
Fixed costs		13,700,000	**(1)**
Profit		8,245,000	**(1of)**

[5]

(c) To achieve the Chief Executive's aim would require a large increase in sales or a reduction in the break-even output level

A higher sales level may incur higher variable costs and/or higher fixed costs.

Could selling price be raised without loss of customers?

Could fixed costs or variable costs be reduced in order to reduce break-even?

The Chief Executive's aim is over double the budgeted margin of safety, therefore this would seem unrealistic.

The margin of safety for the suggestion is only a slight improvement on the original and again seems unrealistic.

(2 x 3 marks) or **(3 x 2 marks)**
(1 for point plus up to 2 for development)
Conclusion (1) **Max [7]**

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2005 Calthorpe and Earle Question 1 Mark scheme cont

(d)

At the financial year end, stock valuation must include a fair proportion of overhead.

Marginal costing treats overheads as a period cost, whereas absorption costing treats them as production costs, therefore under absorption costing closing stock values will include a proportion of overheads.

Marginal costing does not include fixed costs and therefore is inappropriate when producing final accounts.

Per SSAP 9, explanation of why.

(2 x 3 marks)
(1 for point plus up to 2 for development) **[6]**

Total marks [32]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2004 George England Question 1

1 George England Ltd's sales and costing information for the year ended 31 December 2003 included the following:

Sales (units)	25000
Selling price per unit	£35

Total costs for the year were as follows:

	£
Direct materials	200 000
Direct labour	250 000
Variable overheads	50 000
Fixed costs	180 000

During 2004 sales (in units) were expected to remain at the 2003 level.

George England Ltd is currently in the process of compiling its 2005 budget and research has indicated a potential increase in sales (in units) of 60% compared with the 2003 level. The company is assuming that selling price and all variable costs per unit in 2005 will remain at the 2003 level.

At present factory capacity is limited to 32 000 units per annum. To increase capacity further would require capital investment of £3 000 000, and an increase in fixed costs of £195 000 per annum.

REQUIRED

(a) Calculate for the year ended 31 December 2003:

(I) contribution per unit; [5]

(II) the break-even output level (in units); [3]

(III) the margin of safety expressed both in units and as a percentage of sales. [4]

(b) Produce a break-even chart for 2005, taking the potential expansion of sales and the increase of fixed costs into account. The selling price and variable costs remain at the 2003 level. [6]

(c) **(I)** Identify **three** examples of fixed costs. [2]

(II) Explain what is meant by the term 'stepped costs'. [3]

(d) "Increasing capacity will allow George England Ltd to produce more units and potentially earn more profit, but it could also pose significant risks to the business". Evaluate this statement, supporting your answer with appropriate calculations or data. [12]

Total marks [35]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2004 George England Question 1 Mark scheme

1 (a) (i) Selling price per unit 35 **(1)**

Variable costs per unit:

Direct materials	8	**(1)**
Direct Labour	10	**(1)**
Variable Overheads	2	**(1)**
	20	

Contribution per unit 15 **(1)** **[5]**

(ii) $\frac{\text{Fixed Costs}}{\text{Contribution}} = \frac{180{,}000}{15}$ **(1)** **(1 of)**

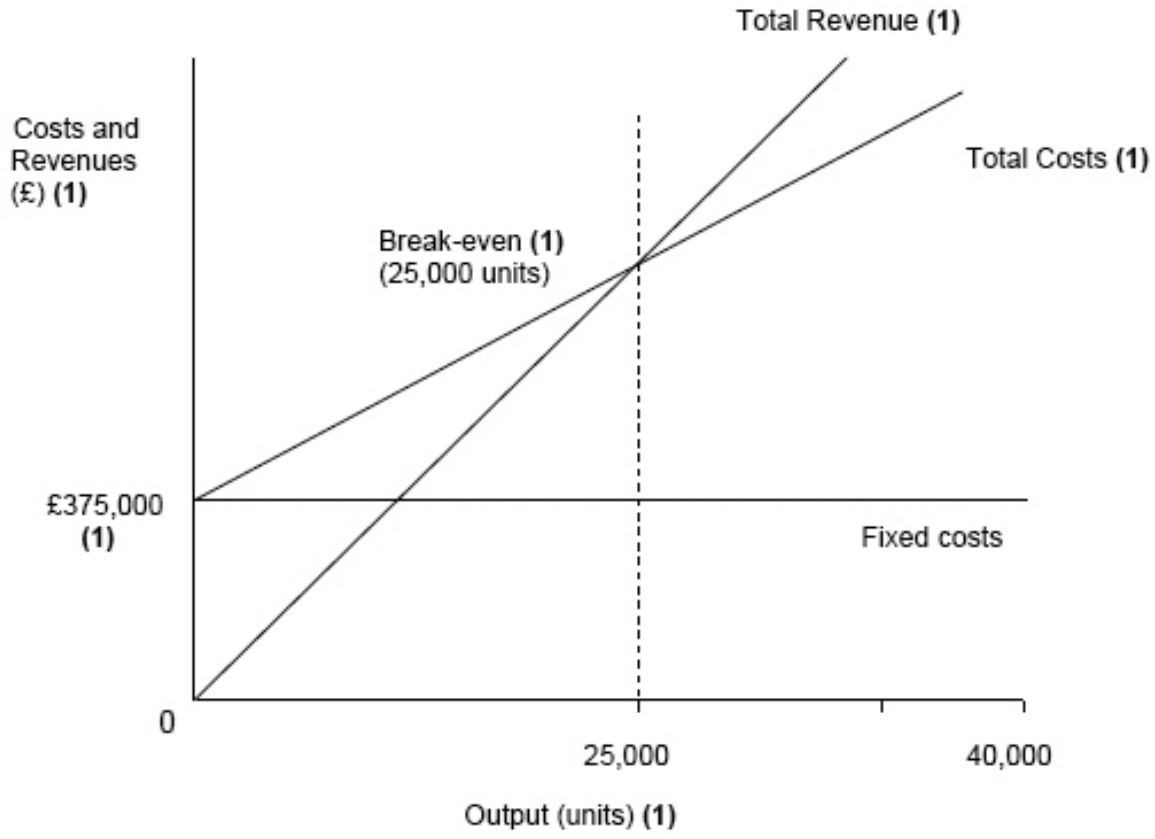
Break-even = 12,000 units **(1 of)** **[3]**

(iii) Margin of Safety

25,000 **(1)** – 12,000 **(1 of)** = 13,000

$\frac{13{,}000}{25{,}000}$ **(1 of)** x 100 = 52% **(1 of)** **[4]**

(b)



[6]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2504 Jun 2004 George England Question 1 Mark scheme cont

(c) **(i)** Depreciation
Maintenance costs
Insurance
Rates
Loan interest

(3 examples, 2 marks
2 examples, 1 mark) **[2]**

(ii) Stepped costs occur when a business increases capacity. As a result of expansion overheads such as insurance, rent and rates and bank interest payments are likely to increase. On a break-even chart these increases would result in the horizontal fixed cost line moving to a higher level beyond the output at which increased capacity occurs.

(3 x 1 mark) **[3]**

(d) If budget data is reasonably accurate and the budgeted levels of activity could be maintained in future years:

The business would generate more profits (£225,000 v £195,000) by increasing capacity.

The margin of safety will also be higher in unit terms (15,000 v 13,000) but lower in percentage terms (37.5% v 52%).

But if the budget is over optimistic or the budgeted level of activity for 2005 is not sustained in the future:

The business will make no profit following expansion if sales return to the 2003 level as the new break-even is the same as the 2003 sales/output (25,000 units).

Break-even has increased from 12,000 units to 25,000 units. Below the higher break-even the business would have difficulties meeting its commitments such as repayments on borrowings.

The capital cost of £3,000,000 is likely to result in interest payments which would have to be met irrespective of profit performance.

(3 x 4 marks)
(1 for point, plus up to 3 for development) **[12]**

Total marks [35]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2500 Jun 2002 S Piper Question 3

3 S. Piper Limited currently produces one product for which the following information is available:

Product P4	*£ per unit*
Selling price	6.00
Direct materials	2.50
Direct labour	1.40
Variable overheads	1.10
Total fixed costs	£120 000 per annum
Sales per annum (units)	200 000

The company is considering extending its product range with two additional products. The fixed costs would double to £240 000 if any new product was introduced. This amount would apply regardless of the number of new products introduced.

The following information relates to the additional products:

	Product P5 *£ per unit*	*Product P6* *£ per unit*
Selling price	9.00	13.00
Direct materials	3.60	7.00
Direct labour	2.40	2.10
Variable overheads	1.50	0.90
Sales per annum (units)	50 000	30 000

The demand for each product is estimated to be fixed at the levels stated, regardless of whether one or two additional products are introduced. The existing workforce is currently operating at full capacity in the production of product P4.

REQUIRED

(a) Using the data for the current product, P4 **only**, calculate:

(i) Break-even point in units and sales value. [6]

(ii) Profit for one year, showing the contribution per unit. [4]

(iii) Margin of safety in units and as a percentage of sales. [4]

(b) Prepare the contribution to sales (profit/volume) graph for the current product P4 only, clearly showing the profit at the current sales level. [4]

(c) On the basis of extending the product range with both additional products, calculate the maximum profit S. Piper Limited could achieve in the next full year, if it were to produce products P4, P5 and P6. Show clearly the total contribution per product. [10]

(d) Evaluate the implications for the local community if a company decided to extend its product range. [9]

Total marks [37]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2500 Jun 2002 S Piper Question 3 Mark scheme

3 (a) (i) $\frac{120{,}000\ (1)}{6\ (1) - 5\ (1)}$ = 120,000 (1) units

120,000 **(1of)** x £6 **(1)** = £720,000 **[6]**

(ii)

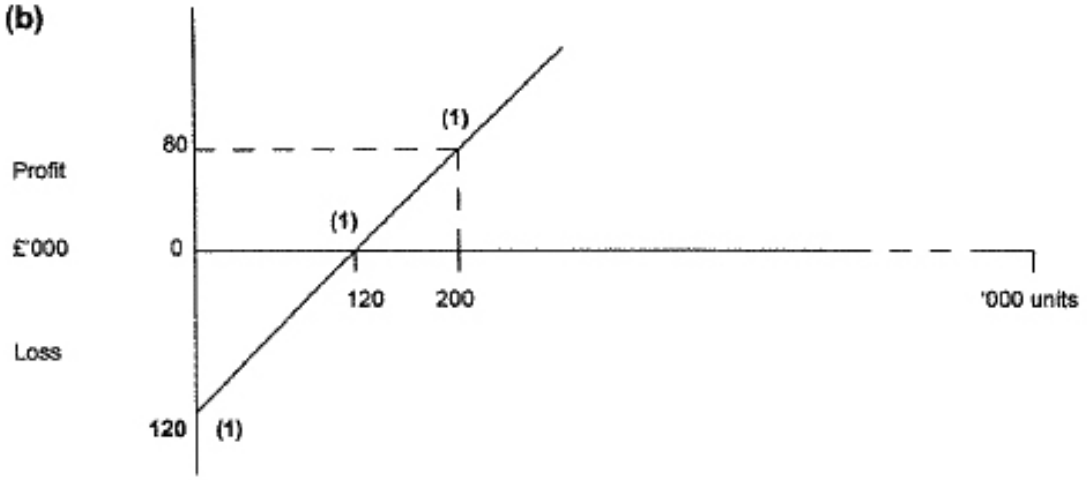
SP	6	(1)
VC	5	(1)
Cont	1	
X Qty	200,000	
	200,000	
- FC	120,000	(1)
Profit	80,000	(1)

[4]

(iii) MOS 200,000 (1) – 120,000 **(1of)** = 80,000

$\frac{80{,}000\ \textbf{(1of)}}{200{,}000\ (1)}$ = 40% **[4]**

(b)



Clarity / Axes **(1)** **[4]**

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2500 Jun 2002 S Piper Question 3 Mark scheme continued

(c)

	P5		P6					
SP	9.00		13.00					
VC	7.50		10.00					
Cont	1.50	(1)	3.00	(1)				
X Qty	50,000	(1)	30,000	(1)				
	75,000	(1)	90,000	(1)	=	165,000		
					+	200,000	(1)	
						365,000		
				FC		240,000	(1)	
				Profit		125,000	(2)(1of)	[10]

(d)

- Workforce currently at full capacity
- Additional employment opportunities
- Publicity/Industrial Relations
- Benefit to local community
- New building/greenfields site
- Increased pollution due to increased production
- Pressure/damage to the environment
- Local suppliers may benefit

(3 x 3 marks)
(1 for point plus up to 2 for development) **[9]**

Total [37]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2500 Jan 2002 Albert Ross Question 3

3 Albert Ross Limited produces a single product. Its costs and sales for the year ended 31 December 2001 were as follows:

Units sold	20 000
	£
Sales revenue	900 000
Direct wages	200 000
Direct materials	300 000
Variable overheads	120 000
Fixed costs	205 000

The selling price and all costs were at a constant rate throughout the year.

To improve profit for the year commencing 1 January 2002, the following changes are planned:

(i) Units to be sold to increase by 5%.

(ii) Selling price to be maintained at the 2001 price.

(iii) Wages to be increased by 3% per unit.

(iv) Materials costs to be reduced by 5% per unit, this being achieved by changing from a local supplier to an overseas supplier.

(v) Variable overheads to be reduced by £0.55 per unit.

(vi) Fixed costs to increase by £5000 per annum.

REQUIRED

(a) Calculate for the year commencing 1 January 2002:

(i) Break-even point in units and sales value

(ii) Profit for the year, showing the contribution per unit in your calculations

(iii) The margin of safety in units and sales value

(iv) The sales in units required to maintain the profit level of the year ended 31 December 2001.

[25]

(b) Evaluate the effects of the decision to change from a local to an overseas supplier. [12]

Total marks [37]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2500 Jan 2002 Albert Ross Question 3 Mark scheme

3 (a) (i) 210,000 **(1)** = 14,000 **(1)** units
45 **(1)** – 30 **(2)** x £45 **(1)** = £630,000 **(1)**

(ii)

Selling Price	45	
Variable Costs	30	
Contribution	15	**(2)**
X Quantity	21,000	
	315,000	
Fixed Costs	210,000	**(2)**
Profit	105,000	**(2)**

(iii) MOS 21,000 **(1)** – 14,000 = 7,000 **(1)** units

(1 of) (1)
7,000 x £45 = £315,000

(iv) Profit 2001:

Selling Price	45	
Variable Costs	31	
Contribution	14	
X Quantity	20,000	
	280,000	**(1)**
Fixed Costs	205,000	**(1)**
Profit	75,000	**(2)**

15Q **(1)** – 210,000 **(1)** = 75,000 **(1)**

Q = 19,000 **(1)** units **[25]**

(b) Local employer, may face redundancies
Industrial relations, adverse publicity
Impact on local community
Reliability of new supplier
Transport / communications
Price stability
(1 for point up to 3 for development)
(3 x 4 marks) **[12]**

[Total : 37]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2500 Jun 2001 Claret Question 1

1 Claret Limited manufactures a single product. Its sales and costs for the year ended 31 March 2001 were as follows:

Units sold	80,000
Selling price per unit	£20
Variable costs per unit	£8
Total fixed costs	£300,000

To improve profits in its next financial year the following options are being considered.

Option 1 Increase the selling price by £3 per unit, the loss in sales would be compensated by higher revenue. Costs would be unchanged.

Option 2 Reduce the selling price by 10% per unit, this leading to an increase in demand. Costs would be unchanged.

Option 3 Reduce part of the fixed salaries of the sales representatives and instead pay them a lower fixed salary plus a commission of £0.20 for each unit they sell. This would reduce fixed costs by £20,000. All other costs, selling price and quantity sold would be unchanged.

REQUIRED

(a) Calculate for the year ended 31 March 2001:

(i) Break-even point in units;

(ii) Profit, showing the contribution per unit in your calculations.

[6]

(b) Calculate, for each of the Options 1 and 2, the sales in units required to maintain the profit of the year ended 31 March 2001. [6]

(c) Calculate the profit for Option 3. [4]

(d) Break-even analysis may be presented graphically. Assess the usefulness of presenting financial information on a graph. [4]

Total marks [20]

Costing and Decision-making: Cost Behaviour and Cost-Volume-Profit-Analysis

2500 Jun 2001 Claret Question 1 Mark scheme

1 (a) (i) B/E = $\frac{300{,}000}{12}$ = 25,000 **(2)**

(ii)

Contribution	12	**(1)**
x Qty	80,000	
	960,000	
Fixed costs	300,000	**(1)**
Profit	660,000	**(2)**

[6]

(b)

SP 23, VC 8, Cont 15

15Q - 300,000 = 660,000

Q = $\frac{960{,}000}{15}$ **(1)** = 64,000 **(1)**

SP 18, VC 8, Cont 10

10Q - 300,000 = 660,000

Q = $\frac{960{,}000}{10}$ **(1)** = 96,000 **(1)**

[6]

(c)

SP	20	
VC	8.20	
Cont	11.80	
x Qty	80,000	**(1)**
	944,000	**(1)**
FC	280,000	**(1)**
Profit	664,000	**(1)**

[4]

(d) Information can be absorbed quickly
Easily understood by non-accountants
Main features emphasised

(1 mark for identification of point plus 1 for development)
(2 x 2 marks) **[4]**

[20]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

F014 Specimen Sandstone Question 3

3 Sandstone Limited manufactures three products A, B and C. Budgeted costs and selling prices for its next financial year are as follows:

Product	A	B	C
	£	£	£
Selling price per unit	65	64	82
Variable costs per unit:			
Direct wages:			
Machinists (£8 per hour)	24	16	32
Packers (£6 per hour)	6	6	9
Direct materials	12	10	15
Variable overheads	5	8	6
Expected sales (units)	12,000	16,000	18,000

The total annual fixed costs are £600,000.

Owing to a high demand in the local area for machinists, the directors of Sandstone Limited have forecast that only 100,000 machinists' hours will be available for its production for the next financial year. This will lead to a shortage of machinists' hours and the company is considering the following options.

Option 1

To utilise the existing machinists to produce the maximum profit available.

Option 2

To increase the hourly rate for machinists to £9 per hour. This would attract additional machinists and Sandstone Limited would be able to increase production to meet the expected sales. The rate would be payable to all machinists for the full financial year. No other changes would be made.

REQUIRED

(a) A statement to show the maximum profit Sandstone Limited could make in its next financial year under Option 1. Show the contribution per unit for each product, and the ranking of each product in your calculations. **[13]**

(b) A statement to show the maximum profit Sandstone Limited could make in its next financial year under Option 2. Show the contribution per unit for each product in your calculations. **[9]**

(c)* Evaluate the options being considered by Sandstone Limited. **[14]**

Total marks [36]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

F014 Specimen Sandstone Question 3 Mark scheme

3(a)

	A	B	C
Selling price	65	64	82
Variable cost	47	40	62
Contribution/unit	18 **[1]**	24 **[1]**	20 **[1]**
Contribution	18	24	20
Limiting factor	3	2	4
Ranking**[1]**	6 (2nd)	12 (1st)	5 (3rd)

Machinist hours available	100,000	
Product B x 16,000	(32,000)	**[1]**
	68,000	
Product A x 12,000	(36,000)	**[1]**
	32,000	
Product C x 8,000	(32,000)	**[2]**
Contribution B 16,000 x 24	384,000	**[1]**
Contribution A 12,000 x 18	216,000	**[1]**
Contribution C 8,000 x 20	160,000	**[1]**
Total contribution	760,000	
Fixed costs	600,000	**[1]**
Profit	160,000	**[1]**

[13]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

F014 Specimen Sandstone Question 3 Mark scheme continued

3(b)

	A		B		C	
Selling price	65		64		82	
Variable cost	50		42		66	
Contribution/unit	15	[1]	22	[1]	16	[1]
x Qty	12,000		16,000		18,000	
	180,000	[1 of]	352,000	[1 of]	288,000	[1 of]

Total contribution	820,000	[1]
Fixed costs	600,000	[1]
Profit	220,000	[1]

[9]

3(c)*

Option 1

Limits production of product C, which may lead to packers being laid off.

Unable to make full production and less profit generated.

Unable to meet customer demand for product C, which may lead to losing customers to competitors.

Impact of fewer employees and multiplier effect on local economy.

Reputation of business may suffer if it is not able to attract sufficient machinists.

Option 2

Employing additional machinists at higher rate will lead to increased production and profit.

Motivation issue and packers may also demand wage increases and reduce profit.

The company needs to consider long term demand before taking on permanent staff.

All figures are estimates and may not materialise.

Rather than take on extra machinists could packers be retrained to work as machinists.

Comparison and recommendation

Increasing the hourly rate for labour will lead to an increase in profit of £60,000. This is a 33.5% increase compared to maintaining the current labour rate.

Under option 2, the company is able to achieve full production, however under option 1, production of product C is reduced by 10,000 units. This is a 55.6% reduction on expected sales. Customer confidence may fall and have a multiplier impact on products A and B.

Whilst option 2 may lead to an adverse reaction from packers, it does lead to full production, maintaining employment and increasing profit. On this basis, option 2 would be preferred.

(Up to 4 marks for advantages and disadvantages of Option 1)

(Up to 4 marks for advantages and disadvantages of Option 2)

(Up to 4 marks for a comparison and recommendation)

NB Up to an additional two marks can be awarded for the candidate's quality of written communication (narrative responses) [14]

Total marks [36]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

2504 Jun 2007 Fairymead Question 2

2 Fairymead Pottery produces three ceramic products: mugs, plates and bowls. Each product is produced and sold in sets.

Initial budgeted costs and selling prices for the next financial year are as follows:

Product	Mugs	Plates	Bowls
	£	£	£
Variable costs per set			
Direct wages:			
Potters (£8 per hour)	12	12	8
Packers (£6 per hour)	2	1	1
Direct materials:			
China Clay (£2 per kilo)	8	4	4
Colouring	1	1	2
Glaze	1	2	1
Variable overheads	6	10	6
Selling price per set	43	38	36
	No. of sets	No. of sets	No. of sets
Expected sales	4 000	3 000	2 000

The total annual fixed costs for the business are £50 000.

Changed circumstances:
Since drafting this budget, Fairymead Pottery has learnt that several China Clay pits will cease production causing a shortage of China Clay and an increase in its price. The cost per kilo of China Clay will now rise by 50% and the maximum that can be obtained by Fairymead Pottery for its next financial year is estimated to be 25 000 kilos. No other changes in costs and selling prices are expected.

REQUIRED

(a) Using the **initial** budgeted costs and sales, calculate:

(i) the contribution for **each** product; [8]

(ii) the total budgeted profit for the next financial year. [2]

(b) Given the changed circumstances, calculate the contribution per unit for each product and the maximum profit that Fairymead Pottery can now earn in the next financial year. [16]

(c) A business has two products which are not performing well. Explain what action the business management should take in the case of a product:

(i) which is providing a small positive contribution; [4]

(ii) which has a negative contribution. [4]

Total marks [34]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

2504 Jun 2007 Fairymead Question 2

2 (a) (i)

	Mugs		Plates		Bowls	
Selling price per set	43		38		36	
Variable costs per set	30	**(1)**	30	**(1)**	22	**(1)**
Contribution per unit (set) **(1)**	13	**(2)**	8	**(1)**	14	**(1)**
Expected Sales	4,000		3,000		2,000	
Total contribution per product	52,000		24,000		28,000	

[8]

(ii)

Total contribution (52,000 + 24,000 + 28,000)	104,000	
Less fixed costs	50,000	
Total budgeted profit	54,000	**(2) (1of)**

[2]

(b)

	Mugs		Plates		Bowls	
Selling price per set	43		38		36	
Variable costs per set	34		32		24	
Contribution per unit	9	**(1)**	6	**(1)**	12	**(1)**
Contribution per limiting factor	9/4		6/2		12/2	
	2.25	**(1)**	3		6	**(1)**
Ranking	3rd	**(1)**	2nd		1st	**(1)**

Kilos of China Clay available	25,000	
Bowls (2 000 x 2)	(4,000)	**(1)**
	21,000	
Plates (3 000 x 2)	(6,000)	**(1)**
	15,000	
Mugs (3 750 x 4)	(15,000)	**(2)**
Contribution Bowls 12 x 2,000	24,000	**(1of)**
Contribution Plates 6 x 3,000	18,000	**(1of)**
Contribution Mugs 9 x 3,750	33,750	**(1of)**
Total Contribution	75,750	
Fixed costs	50,000	**(1)**
Profit	25,750	**(1)**

[16]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

2504 Jun 2007 Fairymead Question 2 continued

(c) (i)

The product providing a small positive contribution:
is helping the business to cover its fixed costs, therefore the business may decide to continue producing the product;
if the business discontinued this product, fixed costs would not change and would still have to be met, therefore profit would fall;
the business should only discontinue this product when it has introduced a replacement product which provides a higher contribution.

(2 x 2 marks) (1 for point plus 1 for development) **[4]**

(ii)

The product which has a negative contribution:
is failing to cover even variable costs such as direct materials and direct labour immediately discontinuing this product would increase profits;
it is making no contribution towards fixed costs;
the business should only consider continuing production of this product if it is seen as strategically important or if this business has a realistic plant to improve its performance eg reducing variable costs.

(2 x 2 marks) (1 for point plus 1 for development) **[4]**

Total marks **[34]**

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

2504 Jun 2006 Mallet and Meyer Question 3

3 Mallet and Meyer plc manufactures industrial workwear. The company's budgeted costs and selling prices for the year ending 30 September 2007 are as follows:

Product		Female workwear		Male workwear	
		£	£	£	£
Selling price per unit			30		40
Variable costs per unit:					
Direct wages			10		16
Direct materials	– cloth	6		8	
	– other	2		2	
			8		10
Expected sales		10000 units		12000 units	

The company allocates half of its annual fixed costs of £84000 to each product.

REQUIRED

(a) Calculate the break-even output in units and sales value for female workwear. [3]

(b) Prepare a contribution to sales graph for male workwear. [3]

(c) Calculate the total budgeted profit for Mallet and Meyer plc assuming the expected sales volume is achieved. [3]

(d) Since preparing the budget, Mallet and Meyer plc has been informed that there is a world shortage in the supply of the cloth used in the manufacture of workwear. It has now forecast that there will be cloth only to the value of £130000 available during the year ending 30 September 2007.

Calculate the maximum profit the company could now make during the budgeted year. [12]

(e) Evaluate the usefulness of break-even analysis for decision making. [10]

(f) Discuss three uses of marginal costing in decision making. [9]

Total marks [40]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

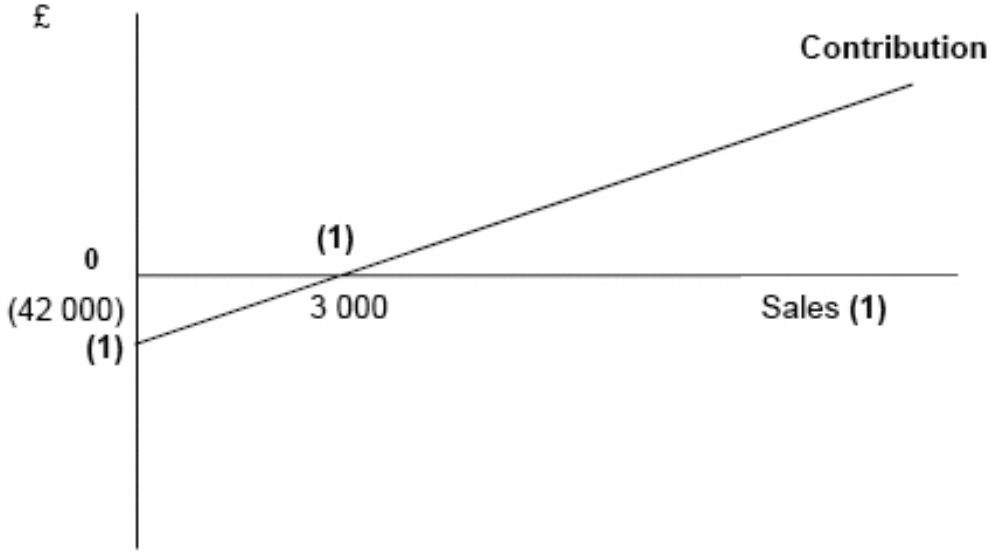
2504 Jun 2006 Mallet and Meyer Question 3 Mark scheme

3 **(a)** Female workwear contribution per unit: 30 – (10 + 8) = 12 **(1)**

Break-even - units: 42 000/12 = 3 500 **(1)**
- sales revenue: 3 500 x 30 = 105 000 **(1)**

[3]

(b) Contribution to sales graph for male workwear:



[3]

(c)

	Female workwear	Male workwear	Total
Sales per unit	30	40	
Less variable costs per unit	18	26	
Contribution per unit	12	14	
x expected sales volume	10 000	12 000	
Total contribution	120 000 **(1)**	168 000 **(1)** =	288 000
Less fixed costs			84 000
Profit			204 000 **(1)**

[3]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

2504 Jun 2006 Mallet and Meyer Question 3 Mark scheme cont

(d)

	Female workwear	Male workwear
Contribution per unit	12	14
Contribution to limiting factor	12/6 = 2 **(2)**	14/8 = 1/75 **(2)**
Ranking	1 **(2)**	2
Cloth available	130 000	
Female workwear (10 000 x 6)	60 000 **(1)**	
	70 000	
Male workwear (8 750 **(1)** x 8)	70 000	
Contribution:		
Female workwear (12 x 10 000)	120 000 **(1)**	
Male workwear (14 x 8 750)	122 500 **(1)**	
Total contribution	242 500	
Less fixed costs	84 000 **(1)**	
Profit	158 500 **(1of)**	

[12]

(e) Advantages:

Simple to construct and interpret
Easy to explain to non-accountants
Facilitates 'what – if' analysis
Useful for comparison with actual performance
Useful for setting production targets and for pricing decisions

Limitations:

Over-simplified
Cost and revenue curves may in reality not be linear
Fixed costs may be stepped
Some costs may not be easily categorised as either fixed or variable (semi-variable costs)

(1 + 1 for development) x 2 for advantages
(1 + 1 for development) x 2 for limitations
Up to 2 for conclusion

[10]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

2504 Jun 2006 Mallet and Meyer Question 3 Mark scheme cont

(f) Uses of marginal costing for decision making:

Limiting factor, maximising contribution from restricted inputs
Acceptance of special orders
Make or buy
Discontinuing a product or service, based on contribution

(3 x 3 mark)
(1 + up to 2 for development) **[9]**

Total marks [40]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

2504 Jun 2003 Mumbles Question 3

3 Mumbles Limited manufactures three products A, B and C. Budgeted costs and selling prices for its next financial year are as follows:

Product	A	B	C
	£	£	£
Selling price per unit	65	64	82
Variable costs per unit:			
Direct wages:			
Machinists (£8 per hour)	24	16	32
Packers (£6 per hour)	6	6	9
Direct materials	12	10	15
Variable overheads	5	8	6
Expected sales (units)	12 000	16 000	18 000

The total annual fixed costs are £600 000.

Owing to a high demand in the local area for machinists, the directors of Mumbles Limited have forecast that only 100 000 machinists' hours will be available for its production for the next financial year. This will lead to a shortage of machinists' hours and the company is now considering the following options.

Option 1
To utilise the existing machinists to produce the maximum profit available.

Option 2
To increase the hourly rate for machinists to £9 per hour. This would attract additional machinists and Mumbles Limited would be able to increase production to meet the expected sales. The rate would be payable to all machinists for the full financial year. No other changes would be made.

REQUIRED

(a) A statement to show the maximum profit Mumbles Limited could make in its next financial year under Option 1. Show the contribution per unit for each product, and the ranking of each product in your calculations. [17]

(b) A statement to show the maximum profit Mumbles Limited could make in its next financial year under Option 2. Show the contribution per unit for each product in your calculations. [12]

(c) Evaluate the options being considered by Mumbles Limited. [12]

Total marks [41]

Costing and Decision-making: Marginal Costing and Accounting for Decision-making

2504 Jun 2003 Mumbles Question 3 Mark scheme

3 (a)

	A		B		C	
Selling Price	65		64		82	
Variable Cost	47		40		62	
Cont/Unit **(1)**	18	**(1)**	24	**(1)**	20	**(1)**
Contribution	18		24		20	
Limiting Factor	3		2		4	
Ranking	6 (2^{nd})	**(1)**	12 (1^{st})	**(1)**	5 (3^{rd})	**(1)**

Machinist Hours Available	100,000	
Product B 2 x 16,000	(32,000)	**(1)**
	68,000	
Product A 3 x 12,000	(36,000)	**(1)**
	32,000	
Product C 4 x 8,000	(32,000)	**(2)**
Contribution B 16,000 x 24	384,000	**(1)**
Contribution A 12,000 x 18	216,000	**(1)**
Contribution C 8,000 x 20	160,000	**(2) (1of)**
Total Contribution	760,000	
Fixed Costs	600,000	**(1)**
Profit	160,000	**(1of)**

[17]

(b)

	A		B		C	
Selling Price	65		64		82	
Variable Cost	50		42		66	
Contribution / Unit	15	**(2)**	22	**(2)**	16	**(2)**
x Qty	12,000		16,000		18,000	
	180,000	**(1of)**	352,000	**(1of)**	288,000	**(1of)**
Total Contribution					820,000	
Fixed Costs					600,000	**(1)**
Profit					220,000	**(2)(1of)**

[12]

Costing and Decision-making: Absorption (Total) Costing

Costing and Decision-making: Absorption (Total) Costing

F014 Specimen Monarch Question 4

4 Monarch plc had estimated the following factory indirect costs for its financial year ended 31 December 2006.

	£
Indirect wages	610,000
Repairs and maintenance	95,600
Canteen	35,200
Insurance of machinery	27,000
Insurance of premises	24,000
Heating and lighting	32,500
Consumables	4,900
	829,200

The company calculated a suitable overhead absorption rate for each of the two production departments using the following information.

	Production Departments		Service Departments	
	Machining	Assembly	Maintenance	Canteen
Machine cost (£)	375,000	125,000	-	-
Direct machine hours	270,000	30,000	-	-
Direct labour hours	75,000	303,000	-	-
Premises area (square metres)	7,200	6,400	1,600	800
Number of employees	48	81	15	6
Consumables (£)	821	1,382	1,330	1,367

The proportion of work done by each service department was:

	Machining	Assembly	Maintenance	Canteen
Maintenance (%)	75	25	-	-
Canteen (%)	30	55	15	-

The actual results for the year ended 31 December 2006 were as follows:

	Machining	Assembly
Factory indirect costs (£)	397,100	412,600
Direct machine hours	275,000	29,500
Direct labour hours	78,000	290,000

Costing and Decision-making: Absorption (Total) Costing

F014 Specimen Monarch Question 4 Mark scheme

4(a)

Cost	Basis	Mach		Assy		Maint	Canteen	
Ind wages	Employers	195,200	[1]	329,400		61,000	24,400	
Rep/maint	Mach hrs	86,040	[1]	9,560		-	-	
Canteen	Employees	11,264	[1]	19,008		3,520	1,408	
Ins mach	Mach cost	20,250	[1]	6,750		-	-	
Ins prem	Area	10,800	[1]	9,600		2,400	1,200	
Heat/light	Area	14,625	[1]	13,000		3,250	1,625	
Consum	Allocated	821	[1]	1,382		1,330	1,367	
							30,000	
							(30,000)	[1]
Reapportion	Canteen	9,000	[1]	16,500		4,500	Nil	
						76,000	[1]	
	Maint	57,000	[1]	19,000		(76,000)		
		405,000	[1]	424,200	[1]	Nil		
		405,000	[1of]	424,000	[1of]			
		270,000	[1]	303,000	[1]			
		£1.50 DMH	[1]	£1.40 DLH	[1]			[19]

4(b)

	Mach		
Actual overhead	397,100		
Absorbed overhead (£1.50 x 275,000)	412,500		
over	15,400	[2][1 of]	
	Assy		
Actual overhead	412,600		
Absorbed overhead (£1.40 x 290,000)	406,000		[4]
under	6,600	[2][1 of]	

4(c)

Use of estimated data, which could be inaccurate, leading to under/over absorption.
Over absorption, too much overhead charged to production, overpriced and uncompetitive, fall in demand and subsequent loss of revenue/reduction in profit.
Under absorption, insufficient overhead charged to production, lower price to customer, costs not covered and subsequent reduction in profits.
(3 x 2 marks)
(1 for point plus 1 for development) [6]

Total marks [29]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2007 Innisfail Question 3

3 Innisfail Enterprises Ltd is a manufacturing business. It currently absorbs its overheads using the following methods.

Production Department A: Direct machine hours for Department A.
Production Department B: Percentage direct labour cost for Department B.

Innisfail Enterprises Ltd had estimated the following factory indirect costs for the year ended 30 April 2007.

	£
Indirect wages	900 000
Machinery repairs	200 000
Machinery insurance	60 000
Machinery depreciation	180 000
Premises insurance	80 000
Heat and light	220 000
Catering	150 000
Sundries	19 000

The following additional information is available:

	Production Departments		Service Departments	
	A	B	Repairs	Catering
Machine cost (£)	1 000 000	600 000	–	–
Direct machine hours	600 000	200 000	–	–
Direct labour hours	46 200	107 800	–	–
Direct labour cost (£)	750 000	1 500 000	–	–
Floor area (square metres)	8 400	7 000	700	1 400
Number of employees	36	66	6	12
Sundries (£)	6 070	930	8 000	4 000

The proportion of work carried out by the service departments is:

Departments:	A	B	Repairs	Catering
Repairs (%)	75	25	–	–
Catering (%)	29	65	6	–

The actual results for the year ended 30 April 2007 were as follows:

	Production Departments	
	A	B
Factory indirect costs (£)	899 000	910 000
Direct machine hours	580 000	220 000
Direct labour hours	45 000	112 000
Direct labour cost (£)	765 000	1 580 000

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2007 Innisfail Question 3 continued

REQUIRED

(a) Calculate the overhead absorption rate for each production department, stating and using suitable bases for apportioning the factory indirect costs. [22]

(b) For each production department:

(i) Calculate the over or under absorption of overheads which has occurred in the year ended 30 April 2007. [6]

(ii) Assess the implications for Innisfail Enterprises Ltd of the over or under absorption of overheads in the year ended 30 April 2007. [6]

(c) Why do accountants generally prefer to use direct labour hours rather than a percentage of direct labour cost as a basis for absorbing overheads? [3]

(d) Discuss why Activity Based Costing is a more appropriate method for apportioning overheads in the service sector. [6]

Total marks [43]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2007 Innisfail Question 3 Mark scheme

3 Innisfail Enterprises Ltd is a manufacturing business. It currently absorbs its overheads using the following methods.

Production Department A: Direct machine hours for Department A.
Production Department B: Percentage direct labour cost for Department B.

Innisfail Enterprises Ltd had estimated the following factory indirect costs for the year ended 30 April 2007.

	£
Indirect wages	900 000
Machinery repairs	200 000
Machinery insurance	60 000
Machinery depreciation	180 000
Premises insurance	80 000
Heat and light	220 000
Catering	150 000
Sundries	19 000

The following additional information is available:

	Production Departments		Service Departments	
	A	B	Repairs	Catering
Machine cost (£)	1 000 000	600 000	–	–
Direct machine hours	600 000	200 000	–	–
Direct labour hours	46 200	107 800	–	–
Direct labour cost (£)	750 000	1 500 000	–	–
Floor area (square metres)	8 400	7 000	700	1 400
Number of employees	36	66	6	12
Sundries (£)	6 070	930	8 000	4 000

The proportion of work carried out by the service departments is:

Departments:	A	B	Repairs	Catering
Repairs (%)	75	25	–	–
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The actual results for the year ended 30 April 2007 were as follows:

	Production Departments	
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Factory indirect costs (£)	899 000	910 000
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Direct labour hours	45 000	112 000
Direct labour cost (£)	765 000	1 580 000

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2007 Innisfail Question 3 Mark scheme continued

(ii) Implications:
Department A: Under absorption of overheads means that the business has under-priced its products and consequently the under absorption will be charged to the Profit and Loss Account, reducing profit.

Department B: Over absorption of overheads means that this department has contributed to increasing profits on the sales made. However the higher price charged to customers may have reduced the potential number of units sold.

(2 x 3 marks) (1 for point plus up to 2 for development) **[6]**

(c) Overheads tend to be related to time rather than direct cost.
Using direct labour hours links overhead absorption to time, percentage direct labour cost does not.

(3 x 1 mark) (1 mark but allow development) **[3]**

(d) Traditional methods are more suited to firms that produce a narrow product range.
Traditional methods assume that direct material and direct labour are the dominant costs and that fixed production overheads are relatively small.
Traditional methods tend to allocate too great a proportion of overheads to high volume production.
Service sector businesses tend to have a much smaller proportion of direct costs relative to higher overheads therefore Activity Based Costing is more suitable.
With Activity Based Costing overheads charged on basis of use of activity.
Key features of Activity Based Costing: major activities identified, cost drivers determined, costs collected into cost pools.

(3 x 2 marks) (1 for point plus up to 1 for development) **[6]**

Total marks **[43]**

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2006 Garratt Question 2

2 Garratt Ltd manufactures metal components for the motor vehicle industry. It has prepared the following budget for the year ending 30 September 2007.

			£	£
Direct materials				1150000
Direct labour:				
	Cutting department	(38000 hours)	250800	
	Pressing department	(36000 hours)	225000	
	Forming department	(52000 hours)	351000	
	Assembling department	(22000 hours)	132000	
				958800
Prime cost				2108800
Factory overheads:				
	Cutting department		182400	
	Pressing department		219600	
	Forming department		254800	
	Assembling department		116600	
				773400
Cost of production				2882200
Administration costs				576440
Total Costs				3458640

Factory overheads are absorbed by departmental direct labour hour rates. Administration costs are absorbed by a percentage of the cost of production.

An enquiry, reference NGG16, has been received by Garratt Ltd for a supply of components. The following direct costs have been estimated:

		£	£
Direct materials			70078
Direct labour:			
	Cutting department	6600	
	Pressing department	4500	
	Forming department	8100	
	Assembling department	3000	
			22200
Prime cost			92278

The direct labour costs are based on budgeted hourly rates.

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2006 Garratt Question 2 continued

REQUIRED

(a) Calculate for **each** department:

(I) the budgeted direct labour cost per hour; [4]

(II) the budgeted direct overhead absorption rate per direct labour hour. [4]

(b) Prepare a detailed statement showing the total cost for enquiry NGG16. [12]

(c) The selling prices of Garratt Ltd are based on a 25% net profit to sales percentage. Calculate the selling price for enquiry NGG16. [3]

(d) Discuss why Garratt Ltd may have chosen to base and apply its overhead absorption using direct labour hours. [4]

(e) **(I)** State **two** alternative methods the business could have used to absorb its overheads. [2]

(II) Explain the circumstances in which **each** method would have been appropriate. [4]

Total marks [33]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2006 Garratt Question 2 Mark scheme

2 **(a)** **(i)** Budgeted direct labour cost per hour.

Cutting	250,800/38,000 = £6.60 **(1)**
Pressing	225,000/36,000 = £6.25 **(1)**
Forming	351,000/52,000 = £6.75 **(1)**
Assembling	132,000/22,000 = £6.00 **(1)**

(ii) Budgeting direct overhead absorption rate:

Cutting	182,400/38,000 = £4.80 per DLH **(1)**
Pressing	219,600/36,000 = £6.10 per DLH **(1)**
Forming	254,800/52,000 = £4.90 per DLH **(1)**
Assembly	116,600/22,000 = £5.30 per DLH **(1)**

(b) Statement to show total cost for enquiry NGG16

Direct material			70 078 **(1)**
Direct labour:			
	Cutting	6 600	
	Pressing	4 500	
	Forming	8 100	
	Assembling	3 000	
			22 200 **(1)**
Prime cost			92 278
Factory overheads:			
	Cutting	6 600/6.60 = 1 000 **(1)** x 4.80 **(1)**	4 800
	Pressing	4 500/6.25 = 720 **(1)** x 6.10 **(1)**	4 392
	Forming	8 100/6.75 = 1 200 x **(1)** 4.90 **(1)**	5 880
	Assembling	3 000/6.00 = 500 **(1)** x 5.30 **(1)**	2 650
			17 722
Cost of production			110 000**(1of)**
Administration (20%)			22 000**(1of)**
Total cost			132 000

[12]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2006 Garratt Question 2 Mark scheme continued

(c) Selling price = 132 000 **(1 of)** x 100/75 **(2)** = £176 000 **[3]**

(d) Overheads tend to be related to time
The company may be labour intensive
Using a departmental labour hour rate is appropriate if different grades of labour are used in each department.

(2 x 2 marks)
(1 for point, plus 1 for development) **[4]**

(e) **(i)** Single factory rate, machine hour rate, unit cost, % prime cost, % direct labour cost, % direct material cost, activity based costing.
(2 x 1 mark) **[2]**

(ii)

Single factory rate	- if standardised product and labour grades used.
Machine hour rate	- if business or departments are capital intensive.
Unit cost	- if similar units are produced.
% prime cost	- materials of equal price, units produced are similar, labour is uniformly paid.
% direct labour cost	- similar units, labour uniformly paid.
% direct material cost	- material of uniform value, production time proportionate to material usage, similar equipment used in production.
Activity based costing	- used when traditional absorption methods are not suitable e.g. for a service sector business.

(2 x 2 marks) **[4]**

(1 for point, plus 1 for development) **Total marks [33]**

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2005 Manifold Question 2

2 Manifold Gaskets Ltd produces components for diesel engines. Currently the business uses a single factory overhead rate which is a percentage of total direct labour costs. This is calculated from the following budgeted data.

Department	Factory overheads	Direct labour costs	Direct labour hours	Machine hours	Direct material cost
	£	£			£
A	451 000	490 000	70 000	220 000	196 000
B	340 375	390 000	65 000	12 500	160 000
C	350 875	800 000	100 000	7 500	170 000
D	270 000	337 500	45 000	190 000	140 625

The following information relates to an order from a customer, which has been given the job reference LM264T.

Department	Direct labour costs	Direct labour hours	Direct material costs
	£		£
A	38 500	5 500	15 000
B	37 800	6 300	15 500
C	64 000	8 000	13 000
D	26 250	3 500	11 000

General administration expenses of 20% are added to the factory cost. The selling price to the customer is based on a 40% net profit margin.

REQUIRED

(a) (i) Calculate the current factory overhead rate for Manifold Gaskets Ltd. [3]

(ii) Using the rate calculated in **(i)**, produce a detailed job cost sheet for job LM264T. [6]

(iii) From the detailed job cost sheet in **(ii)**, calculate the selling price for job LM264T. [3]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2005 Manifold Question 2 continued

(b) Using the budgeted data, calculate overhead absorption rates (to two decimal places) fo Department A using the following methods:

(i) percentage of direct labour cost; [1

(ii) percentage of direct material cost; [1

(iii) percentage of prime cost; [1

(iv) direct labour hour rate; [1

(v) machine hour rate. [1

(c) Based on your calculations for **(b)** above and information provided in the question recommend and justify to the management of Manifold Gaskets Ltd which method would be:

(i) best suited for absorbing overheads for Department A; [3

(ii) least suited for absorbing overheads for Department A. [3

(d) Manifold Gaskets Ltd currently pays its workforce using hourly rates. In an attempt to increase productivity (output per worker), the management is considering introducing a piece rate system.

(i) Explain one advantage and one disadvantage of each of the two pay systems. [8]

(ii) Evaluate which pay system would be the most suitable for Manifold Gaskets Ltd. [4]

Total marks [35]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2005 Manifold Question 2 Mark scheme

2 (a) (i) 1 412 250 **(1)** x 100 = 70% **(1)**
2 017 500 **(1)** **[3]**

(ii)

Job LM264T
Cost Sheet

Direct materials	54 500	**(1)**
Direct labour	166 550	**(1)**
Prime Cost	221 050	
Factory overhead (166 550 x 70%)	116 585	**(1 of)**
Factory cost	337 635	**(1 of)**
General administration (337 635 x 20%)	67 527	**(1 of)**
Total cost	405 162	**(1)**

[6]

(iii) Selling price: 405 162 **(1of)** x 100 **(1)** = 675 270
60 **(1)**

[3]

(b) (i) (451 000/490 000) x 100 = 92.04% **(1)**

(ii) (451 000/196 000) x 100 = 230.10% **(1)**

(iii) [451 000/(490 000 + 196 000)] x 100 = 65.74% **(1)**

(iv) 451 000/70 000 = £6.44 per DLH **(1)**

(v) 451 000/220 000 = £2.05 per MH **(1)** **[5]**

(c) (i) Best suited: Machine Hour

Low overhead rate per hour
Dept. A has significantly more machine hours relative to direct labour hours.

(1 mark for choice plus up to 2 for development) **[3]**

(ii) Least suited: Either % Direct Material Cost or % of Prime Cost

Unlikely to be any link between material or prime cost and overheads.
Overheads tend to be time rather than direct cost related.

(1 mark for choice plus up to 2 for development)

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2005 Manifold Question 2 Mark scheme continued

(d) (i) Advantage: Time Rate **(2)**

Work not likely to be rushed.
Employees and employers know how much will be paid.

Disadvantage: Time Rate **(2)**

No incentive to work harder
Overtime may need to be paid to complete work.
Both fast and slower works receive the same wage rate.

Advantage: Piece Rate **(2)**

Incentive to work harder
Faster workers rewarded

Disadvantage: Piece Rate **(2)**

Rushed to work.
Risk of poorer quality.
Need for quality inspection.
(4 x 2 marks)
(1 for point plus 1 for development) **[8]**

(ii) Evaluation: Piece rate system may improve productivity, subject to checking and control procedures being in place, but there is a risk of poorer quality work.

(2 x 2 marks)
(1 for point plus up to 1 for development) **[4]**

Total marks [35]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2004 Spooner Question 3

3 Spooner Ltd estimated the following factory indirect costs for the year ending 31 March 2005:

	£
Indirect wages	550 000
Machinery repairs	380 000
Machinery insurance	210 000
Premises insurance	260 000
Catering	170 000
Heat and light	310 000
Machinery depreciation	425 000
Sundries	8000

The company wishes to calculate a suitable overhead absorption rate for each of its two production departments and the following information is available:

	Production Departments		Service Departments	
	Machining	Finishing	Repairs	Catering
Machine cost (£)	1 600 000	900 000	–	–
Direct machine hours	430 050	143 350	–	–
Direct labour hours	206 000	511 425	–	–
Floor area (square metres)	7500	6000	900	600
Number of employees	30	56	6	8
Sundries (£)	2300	1400	3200	1100

The proportion of work carried out by the service departments is:

	Machining	Finishing	Repairs	Catering
Repairs (%)	80	20	–	–
Catering (%)	30	60	10	–

REQUIRED

(a) Calculate an appropriate overhead absorption rate for each production department, **stating** and using suitable bases for apportioning the factory indirect costs. [22]

(b) Traditional methods of overhead absorption are sometimes criticised and in their place some businesses have introduced a system known as Activity Based Costing (ABC).

(I) Explain **two** of the criticisms of traditional overhead absorption techniques. [4]

(II) Explain what is meant by Activity Based Costing using appropriate terminology. [4]

Total marks [30]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2004 Spooner Question 3 Mark scheme

3 (a)

Cost	Basis	Total	Machining		Finishing	Repairs	Catering
Ind. Wages	Employees **(1)**	550,000	165,000	**(1)**	308,000	33,000	44,000
Machine Rep.	Machine hours **(1)**	380,000	285,000	**(1)**	95,000	–	–
Machine Ins.	Machine cost **(1)**	210,000	134,400	**(1)**	75,600	–	–
Prem. Ins.	Floor area **(1)**	260,000	130,000	**(1)**	104,000	15,600	10,400
Catering	Employees **(1)**	170,000	51,000	**(1)**	95,200	10,200	13,600
Heat & Light	Floor area **(1)**	310,000	155,000	**(1)**	124,000	18,600	12,400
Mach. Depn.	Machine cost	425,000	272,000	**(1)**	153,000	–	–
Sundries	Allocation	8,000	2,300	**(1)**	1,400	3,200	1,100
		2,313,000	1,194,700		956,200	80,600	81,500
Reapportion:	Catering		24,450	**(1)**	48,900	8,150	(81,500)
						88,750	
	Repairs		71,000	**(1)**	17,750	(88,750)	
			1,290,150		1,022,850		
			1,290,150	**(1 of)**	1,022,850	**(1 of)**	
			430,050	**(1)**	511,425	**(1)**	
			£3.00 per Direct Machine Hour **(1)**		£2.00 per Direct Labour Hour **(1)**		

[22]

(b) (i) Only suited to firms producing a narrow product range.
Based on assumption that direct material and direct labour are the dominant factory costs and that fixed production overheads are relatively small.
Inappropriate for some firms particularly in the service sector.
Tends to allocate too great a proportion of overheads to high volume production and too little to low volume production.

(2 x 2 marks)
(1 for point and 1 for development) **[4]**

(ii) Major activities identified and cost drivers determined.
Costs collected into cost pools and overheads charged on basis of use of activity.

(2 x 2 marks)
(1 for point and 1 for development) **[4]**

Total marks [30]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2003 Sker Question 2

2 Sker Limited has prepared the following budgeted data for its next financial year.

	£	£
Sales		2 000 000
Direct materials	250 000	
Direct labour	375 000	
Production overhead	750 000	
Production cost		1 375 000
Gross Profit		625 000

Output in units	200 units
Labour hours	30 000 hours
Machine hours	50 000 hours

Job 131190 has recently been completed and the cost sheet shows the following details:

Direct materials	£1200
Direct labour	£1600
Labour hours used	136
Machine hours used	220

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2003 Sker Question 2 continued

REQUIRED

(a) Calculate overhead absorption rates for the **company** by **each** of the following methods:

Percentage of direct materials
Percentage of direct labour
Percentage of prime cost
Per unit
Labour hour rate
Machine hour rate [6]

(b) Evaluate the appropriateness of **each** of the following methods for the recovery of production overheads:

Percentage of direct materials
Labour hour rate
Machine hour rate [12]

(c) Using the appropriate overhead absorption rates calculated in **(a)**, calculate the production cost of **Job 131190** using **each** of the following methods:

Labour hour rate
Machine hour rate [5]

(d) Explain **two** problems associated with using predetermined overhead absorption rates. [4]

(e) Using suitable examples, distinguish between **allocation** and **apportionment** of overheads. [6]

Total marks [33]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2003 Sker Question 2 Mark scheme

2 (a)

% DM	$\frac{750,000}{250,000}$	= 300%
% DL	$\frac{750,000}{375,000}$	= 200%
% PC	$\frac{750,000}{625,000}$	= 120%
Per Unit	$\frac{750,000}{200}$	£3,750
LHR	$\frac{750,000}{30,000}$	£25 LHR
MHR	$\frac{750,000}{50,000}$	£15 MHR

(6 x 1 mark) **[6]**

(b) % DM
- usually no relationship between materials and overhead
- a job requiring expensive material will be charged more overhead than a job requiring cheaper material, even though overhead incurred could be the same
- to be accurate only one product is to be made, using same material, time and equipment

LHR
- preferred if labour is the main factor e.g. packing
- time based and most overheads (e.g. rent, rates, insurance, depreciation) are related to time

MHR
- preferred if machining is the main factor e.g. machine shop
- time based and most overheads (e.g. rent, rates, insurance, depreciation) are related to time

(Each section 2 x 2 marks)
(1 for point plus 1 for development) **[12]**

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2003 Sker Question 2 Mark scheme continued

(c)

LHR		
Direct materials	1,200	
Direct labour	1,600	
Prime cost	2,800	**(1)**
Overhead	3,400	**(1)**
Production cost	6,200	**(1of)**
MHR		
Direct materials	1,200	
Direct Labour	1,600	
Prime Cost	2,800	
Overhead	3,300	**(1)**
Production cost	6,100	**(1of)**

[5]

(d) Use of estimated data to recover overheads
Actual figures may differ leading to under / over absorption
Prices charged to customers may be unrealistic
(2 x 2 marks)

(1 for point plus 1 for development) **[4]**

(e) Allocation – overheads charged to one department

Apportionment – overheads charged to more than one department

Illustration – wages of storeman allocated to stores department, rent and rates apportioned to various departments

(3 x 2 marks)
(1 for point plus 1 for development) **[6]**

Total marks [33]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2002 Margam Question 2

2 Margam plc has estimated the following factory indirect costs for its next financial year.

	£
Indirect wages	610 000
Repairs and maintenance	95 600
Canteen	35 200
Insurance of machinery	27 000
Insurance of premises	24 000
Heating and lighting	32 500
Consumables	4 900
	829 200

The management accountant wishes to calculate a suitable overhead absorption rate for each of the two production departments and the following information is available:

	Production Departments		Service Departments	
	Machining	Assembly	Maintenance	Canteen
Machine cost (£)	375 000	125 000	–	–
Direct machine hours	270 000	30 000	–	–
Direct labour hours	75 000	303 000	–	–
Premises area (square metres)	7 200	6 400	1 600	800
Number of employees	48	81	15	6
Consumables (£)	821	1 382	1 330	1 367

The proportion of work carried out by service departments is:

	Machining	Assembly	Maintenance	Canteen
Maintenance (%)	75	25	–	–
Canteen (%)	30	55	15	–

The actual results for the year were as follows:

	Machining	Assembly
Factory indirect costs (£)	397 100	412 600
Direct machine hours	275 000	29 500
Direct labour hours	78 000	290 000

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2002 Margam Question 2 continued

REQUIRED

(a) Calculate, using appropriate bases, the overhead absorption rate for each of the production departments. [23]

(b) Calculate the amount of overhead that would be over or under absorbed by each production department, using the actual figures provided. [6]

(c) Discuss the problems associated with using predetermined overhead absorption rates, indicating how an inaccurate rate of overhead absorption can adversely affect the profits of a business. [9]

Total marks [38]

Costing and Decision-making: Absorption (Total) Costing

2504 Jun 2002 Margam Question 2 Mark scheme

2 (a)

Basis	Cost	Mach		Assy		Maint		Canteen	
Employees	Indirect wages	195,200	(1)	329,400	(1)	61,000	(1)	24,400	(1)
Mach hrs	Rep of maint	86,040	(1)	9,560		–		–	
Employees	Canteen	11,264	(1)	19,008		3,520		1,408	
Mach cost	Ins mach	20,250	(1)	6,750		–		–	
Prem area	Ins prem	10,800	(1)	9,600		2,400		1,200	
Prem area	Heat & Light	14,625	(1)	13,000	(1)	3,250	(1)	1,625	(1)
Allocated	Consumables	821	(1)	1,382		1,330		1,367	
								30,000	
								(30,000)	
Reapportion	Canteen	9,000	(2)(1of)	16,500		4,500		Nil	
						76,000			
	Maint	57,000	(2)(1of)	19,000		(76,000)			
		405,000		424,200		Nil			
		405,000	(1 of)	424,200	(1 of)				
		270,000	(1)	303,000	(1)				
		£1.50 per DMH	(1)	£1.40 per DLH	(1)				

[23]

(b)

	Mach	
Actual overhead	397,100	
Absorbed overhead [£1.50(**1 of**) x 275,000 (**1**)]	412,500	
	15,400	over **(1 of)**

	Assy	
Actual overhead	412,600	
Absorbed overhead [£1.40 **(1 of)** x 290,000 **(1)**]	406,000	
	6,600	under **(1 of)**

[6]

(c)

- Use of estimated data, which could be inaccurate, leading to under/over absorption.
- Over absorption, too much overhead charged to product overpriced and uncompetitive, fall in demand and subsequent loss of revenue/reduction in profit.
- Under absorption, insufficient overhead charged to product, lower price to customer, costs not covered and subsequent reduction of profits.

(3 x 3 marks)
(1 for point plus up to 2 for development) **[9]**

Total [38]

Costing and Decision-making: Activity-based Costing

Costing and Decision-making: Activity-based Costing

2504 Jun 2007 Innisfail Question 3

3 Innisfail Enterprises Ltd is a manufacturing business. It currently absorbs its overheads using the following methods.

Production Department A: Direct machine hours for Department A.
Production Department B: Percentage direct labour cost for Department B.

Innisfail Enterprises Ltd had estimated the following factory indirect costs for the year ended 30 April 2007.

	£
Indirect wages	900 000
Machinery repairs	200 000
Machinery insurance	60 000
Machinery depreciation	180 000
Premises insurance	80 000
Heat and light	220 000
Catering	150 000
Sundries	19 000

The following additional information is available:

	Production Departments		Service Departments	
	A	B	Repairs	Catering
Machine cost (£)	1 000 000	600 000	–	–
Direct machine hours	600 000	200 000	–	–
Direct labour hours	46 200	107 800	–	–
Direct labour cost (£)	750 000	1 500 000	–	–
Floor area (square metres)	8 400	7 000	700	1 400
Number of employees	36	66	6	12
Sundries (£)	6 070	930	8 000	4 000

The proportion of work carried out by the service departments is:

Departments:	A	B	Repairs	Catering
Repairs (%)	75	25	–	–
Catering (%)	29	65	6	–

The actual results for the year ended 30 April 2007 were as follows:

	Production Departments	
	A	B
Factory indirect costs (£)	899 000	910 000
Direct machine hours	580 000	220 000
Direct labour hours	45 000	112 000
Direct labour cost (£)	765 000	1 580 000

Costing and Decision-making: Activity-based Costing

2504 Jun 2007 Innisfail Question 3 continued

REQUIRED

(a) Calculate the overhead absorption rate for each production department, stating and using suitable bases for apportioning the factory indirect costs. [22]

(b) For each production department:

(i) Calculate the over or under absorption of overheads which has occurred in the year ended 30 April 2007. [6]

(ii) Assess the implications for Innisfail Enterprises Ltd of the over or under absorption of overheads in the year ended 30 April 2007. [6]

(c) Why do accountants generally prefer to use direct labour hours rather than a percentage of direct labour cost as a basis for absorbing overheads? [3]

(d) Discuss why Activity Based Costing is a more appropriate method for apportioning overheads in the service sector. [6]

Total marks [43]

Costing and Decision-making: Activity-based Costing

2504 Jun 2007 Innisfail Question 3 Mark scheme

3 (a)

Factory indirect cost	Basis of apportionment	Production Depts. A		Production Depts. B	Service Depts. Repairs	Service Depts. Catering
Indirect wages	No of employees **(1)**	270,000		495,000	45,000	90,000
Mach. repairs	Machine hours **(1)**	150,000	**(1)**	50,000		
Mach. insurance	Machine cost **(1)**	37,500		22,500		
Mach. depreciation	Machine cost **(1)**	122,500	**(1)**	67,500		
Premises insurance	Floor area **(1)**	38,400		32,000	3,200	6,400
Heat and light	Floor area **(1)**	105,600	**(1)**	88,000	8,800	17,600
Catering	No of employees **(1)**	47,500	**(1)**	82,500	7,500	15,000
Sundries	Allocation	6,070	**(1)**	930	8,000	4,000
	Sub total:	765,070		838,430	72,500**(1)**	133,000
Re-allocation	Catering:	38,570	**(1)**	86,450**(1)**	7,980**(1)**	(133,000)
	Sub total:	803,640		924,880	80,480	-
Re-allocation	Repairs:	60,360	**(1)**	20,120**(1)**	(80,480)	-
	Total:	864,000		945,000	-	-

Overhead absorption rates:
Department A: 864,000/600,000 £1.44 **(2)(1of)** per direct machine hour
Department B: (945,000/1,500,000) x 100 63.00% **(2)(1of)** direct labour cost

[22]

(b) (i)

Department	A		B
Overhead absorbed: 1.44 **(1of)** x 580,000 **(1)**	835,200	1,580,000 **(1)** x 63/100 **(1of)**	995,400
Actual overhead	899,000		910,000
Over (Under) absorption	(63,800) **(1)**		85,400 **(1)**

[6]

Costing and Decision-making: Activity-based Costing

2504 Jun 2007 Innisfail Question 3 Mark scheme continued

(ii) Implications:
Department A: Under absorption of overheads means that the business has under-priced its products and consequently the under absorption will be charged to the Profit and Loss Account, reducing profit.

Department B: Over absorption of overheads means that this department has contributed to increasing profits on the sales made. However the higher price charged to customers may have reduced the potential number of units sold.

(2 x 3 marks) (1 for point plus up to 2 for development) **[6]**

(c) Overheads tend to be related to time rather than direct cost.
Using direct labour hours links overhead absorption to time, percentage direct labour cost does not.

(3 x 1 mark) (1 mark but allow development) **[3]**

(d) Traditional methods are more suited to firms that produce a narrow product range.
Traditional methods assume that direct material and direct labour are the dominant costs and that fixed production overheads are relatively small.
Traditional methods tend to allocate too great a proportion of overheads to high volume production.
Service sector businesses tend to have a much smaller proportion of direct costs relative to higher overheads therefore Activity Based Costing is more suitable.
With Activity Based Costing overheads charged on basis of use of activity.
Key features of Activity Based Costing: major activities identified, cost drivers determined, costs collected into cost pools.

(3 x 2 marks) (1 for point plus up to 1 for development) **[6]**

Total marks **[43]**

Costing and Decision-making: Activity-based Costing

2504 Jun 2004 Spooner Question 3

3 Spooner Ltd estimated the following factory indirect costs for the year ending 31 March 2005:

	£
Indirect wages	550 000
Machinery repairs	380 000
Machinery insurance	210 000
Premises insurance	260 000
Catering	170 000
Heat and light	310 000
Machinery depreciation	425 000
Sundries	8000

The company wishes to calculate a suitable overhead absorption rate for each of its two production departments and the following information is available:

	Production Departments		Service Departments	
	Machining	Finishing	Repairs	Catering
Machine cost (£)	1 600 000	900 000	–	–
Direct machine hours	430 050	143 350	–	–
Direct labour hours	206 000	511 425	–	–
Floor area (square metres)	7500	6000	900	600
Number of employees	30	56	6	8
Sundries (£)	2300	1400	3200	1100

The proportion of work carried out by the service departments is:

	Machining	Finishing	Repairs	Catering
Repairs (%)	80	20	–	–
Catering (%)	30	60	10	–

REQUIRED

(a) Calculate an appropriate overhead absorption rate for each production department, **stating** and using suitable bases for apportioning the factory indirect costs. [22]

(b) Traditional methods of overhead absorption are sometimes criticised and in their place some businesses have introduced a system known as Activity Based Costing (ABC).

(I) Explain **two** of the criticisms of traditional overhead absorption techniques. [4]

(II) Explain what is meant by Activity Based Costing using appropriate terminology. [4]

Total marks [30]

Costing and Decision-making: Activity-based Costing

2504 Jun 2004 Spooner Question 3 continued

3 (a)

Cost	Basis	Total	Machining		Finishing	Repairs	Catering
Ind. Wages	Employees **(1)**	550,000	165,000	**(1)**	308,000	33,000	44,000
Machine Rep.	Machine hours **(1)**	380,000	285,000	**(1)**	95,000	–	–
Machine Ins.	Machine cost **(1)**	210,000	134,400	**(1)**	75,600	–	–
Prem. Ins.	Floor area **(1)**	260,000	130,000	**(1)**	104,000	15,600	10,400
Catering	Employees **(1)**	170,000	51,000	**(1)**	95,200	10,200	13,600
Heat & Light	Floor area **(1)**	310,000	155,000	**(1)**	124,000	18,600	12,400
Mach. Depn.	Machine cost	425,000	272,000	**(1)**	153,000	–	–
Sundries	Allocation	8,000	2,300	**(1)**	1,400	3,200	1,100
		2,313,000	1,194,700		956,200	80,600	81,500
Reapportion:	Catering		24,450	**(1)**	48,900	8,150	(81,500)
						88,750	
	Repairs		71,000	**(1)**	17,750	(88,750)	
			1,290,150		1,022,850		
			1,290,150	**(1 of)**	1,022,850	**(1 of)**	
			430,050	**(1)**	511,425	**(1)**	
			£3.00 per Direct Machine Hour **(1)**		£2.00 per Direct Labour Hour **(1)**		

[22]

(b) (i) Only suited to firms producing a narrow product range.
Based on assumption that direct material and direct labour are the dominant factory costs and that fixed production overheads are relatively small.
Inappropriate for some firms particularly in the service sector.
Tends to allocate too great a proportion of overheads to high volume production and too little to low volume production.

(2 x 2 marks)
(1 for point and 1 for development) **[4]**

(ii) Major activities identified and cost drivers determined.
Costs collected into cost pools and overheads charged on basis of use of activity.

(2 x 2 marks)
(1 for point and 1 for development) **[4]**

Total marks [30]

Costing and Decision-making: Comparison of Costing Methods

Costing and Decision-making: Comparison of Costing Methods

2504 Jun 2007 Moreton Question 1

1 Moreton Machines Ltd commenced business on 1 January 2005. The following information is available for its first two years of trading.

	2005 £	2006 £
Total fixed factory overheads	70 000	80 000
Direct materials per unit	16	18
Direct labour per unit	8	9
Variable overheads per unit	4	5
Selling price per unit	58	60

The production and sales quantities during the two years were:

	2005 units	2006 units
Production	9 000	10 000
Sales	8 100	9 000

REQUIRED

(a) A statement showing the gross profit for **each** of the two years under the FIFO basis of valuing stock, if the company used:

(i) the absorption costing approach to valuing stock; [11]

(ii) the marginal costing approach to valuing stock. [6]

(b) Explain why companies are required to use absorption costing and **not** marginal costing when preparing published accounts. [6]

Total marks [23]

Costing and Decision-making: Comparison of Costing Methods

2504 Jun 2007 Moreton Question 1 Mark scheme

1 (a) (i)

	2005		2006	
Sales		469,800 **(1)**		540,000
Opening stock	0		32,200 **(1of)**	
Direct materials	144,000 **(1)**		180,000	
Direct labour	72,000		90,000 **(1)**	
Variable ohds	36,000 **(1)**		50,000	
Fixed factory ohds	70,000		80,000 **(1)**	
	322,000 **(1)**		432,200	
Closing stock	32,200 **(1)**		76,000 **(1)**	
		289,800		356,200
Gross profit		180,000 **(1)**		183,800 **(1)**

[11]

(ii)

	2005		2006	
Sales		469,800		540,000
Opening stock	0		25,200 **(1of)**	
Direct materials	144,000		180,000	
Direct labour	72,000		90,000	
Variable ohds	36,000		50,000	
	252,000		345,200	
Closing stock	25,200 **(1)**		60,800 **(1)**	
		226,800		284,400
		243,000		255,600
Fixed factory ohds		70,000		80,000
Gross profit		173,000 **(1)**		175,600 **(2) (1c**

[6]

(b)

Closing stock must carry a fair share of production overhead (ie fixed cost).
Absorption costing is acceptable as it includes fixed costs within closing stock.
Marginal costing treats fixed costs as a period cost and therefore excludes them from closing stock.
Accruals concept (revenues and costs should be matched in the period to which they relate).
Requirement of SSAP 9.

(3 x 2 marks) (1 for point plus 1 for development) **[6]**

Total marks [23]

Costing and Decision-making: Comparison of Costing Methods

2504 Jun 2002 Tollgate Question 3

3 Tollgate Manufacturing started in business on 1 January 2000, and the following information is available for its first two years in business.

	2000 £	2001 £
Total fixed factory overheads	25 000	28 000
Direct materials per unit	16	17
Direct labour per unit	7	7
Variable overheads per unit	3	4
Sales price per unit	50	45

The production and sales quantities during the two years were:

	2000 units	2001 units
Production	8 000	8 000
Sales	6 800	8 400

REQUIRED

(a) Prepare a statement showing the gross profit for **each** of the two years under the FIFO basis of valuing issues, if the company used:

(i) the marginal costing approach to valuing stock; [11]

(ii) the absorption costing approach to valuing stock. [8]

(b) Assess the sales pricing policy and its impact on profit and stock. [6]

(c) Give reasoned advice to a company on which method (marginal costing or absorption costing) should be used in its published accounts. [5]

Total marks [30]

Costing and Decision-making: Comparison of Costing Methods

2504 Jun 2002 Tollgate Question 3 Mark scheme

3 (a) Marginal Costing

			2000				2001	
Sales			340,000	(1)			378,000	(1)
Opening Stock	–				31,200			
Direct materials	128,000	(1)			136,000			
Direct labour	56,000				56,000			
Variable overheads	24,000	(1)			32,000			
	208,000				255,200			
Less closing stock	31,200	(2)			22,400	(1)		
			176,800				232,800	
			163,200				145,200	
Fixed costs			25,000	(1)			28,000	(1)
Gross profit			138,200	(1 of)			117,200	(1 of)

[11]

Absorption Costing

			2000				2001	
Sales			340,000				378,000	
Opening stock	–				34,950	(1 of)		
Direct materials	128,000				136,000			
Direct labour	56,000				56,000			
Variable overheads	24,000				32,000			
Fixed costs	25,000	(1)			28,000	(1)		
	233,000				286,950			
Less closing stock	34,950	(2)			25,200	(1)		
			198,050				261,750	
Gross profit			141,950	(1 of)			116,250	(1 of)

[8]

Costing and Decision-making: Comparison of Costing Methods

2504 Jun 2002 Tollgate Question 3 Mark scheme continued

(b)

- Year one, sales price too high to sell full production.
- Price reduced year two, leading to increase in demand.
- Decrease in price not compensated by sufficient increase in demand to generate increased profit.
- Closing stock high year one, consistent production year two and closing stock reduced.
- Material and Variable overhead costs have risen contributing to a reduction in profit in 2001.
- Fixed costs have increased, reducing profit.

(3 x 2 marks)
(1 for point plus 1 for development) **[6]**

(c)

- SSAP 9 **(1)** – absorption costing **(1).**
- Stock value should include a fair share of production overhead (i.e. FC + VC) **(2).**
- This is not the case with marginal costing which excludes any FC element **(2).**

[Max 5]

Total [30]

Costing Applications: Contract Costing

Costing Applications: Contract Costing

F014 Specimen Clearwater Question 2

2 Clearwater Construction plc is the contractor for the building of a replacement high technology factory for a multinational company. The total value of the contract is £8,500,000 over a three year period. The contract commenced on 1 January 2006, and the following details are available as at 31 December 2006.

	£
Material purchased	848,200
Materials transferred out to another site	8,000
Materials on site not yet used	38,000
Direct labour	448,000
Direct labour accrued	19,500
Indirect labour	63,000
Indirect labour accrued	2,400
Plant delivered to site	120,000
Head office charges	48,000
Cost of work not yet certified	86,000

Clearwater Construction plc has received payment of £1,555,500 which represents work certified as completed by the architects as at 31 December 2006, less a 15% retention.

The plant is estimated to last the life of the contract, and no residual value is expected. The company uses the straight line method of depreciation.

The attributable profit formula used by the company is:

$$\text{apparent (notional) profit} \times \frac{2}{3} \times \frac{\text{cash received}}{\text{work certified}}$$

REQUIRED

(a) The Contract Account for the year ended 31 December 2006. **[16]**

(b) State and briefly explain the accounting concept involved in the calculation of profit to be credited to the accounts for the year ended 31 December 2006. **[3]**

(c) It is intended that the new factory be fully automated with the consequence of a number of redundancies amongst existing employees. From the social responsibility viewpoint, what factors should the business consider, and what assistance could it give to employees who will eventually be made redundant at the site (the majority of whom it is anticipated will be taking early retirement)? **[9]**

Total marks [28]

Costing Applications: Contract Costing

F014 Specimen Clearwater Question 2 Mark scheme

2(a)

Contract Account

Materials Purchased		848,200	[1]	Materials trfs out	8,000	[1]
Direct lab	448,000			Materials c/d	38,000	[1]
Dir lab c/d	19,500	467,500	[1]	Plant c/d	80,000	[1]
Indirect lab	63,000			Cost to date c/d	1,423,100	
Ind lab c/d	2,400	65,400	[1]			
Plant		120,000	[1]			
Head office charges		48,000	[1]			
		1,549,100			1,549,100	
Cost to date b/d		1,423,100		Work certified	1,830,000	[1]
Notional profit c/d		492,900	[1]	Work not certified c/d	86,000	[1]
		1,916,000			1,916,000	
Profit and loss		279,310	[2]	Notional profit b/d	492,900	
Profit provision c/d		213,590				
		492,900			492,900	
Materials b/d		38,000		Profit provision b/d	213,590	
Plant b/d		80,000	[1]	Direct lab b/d	19,500	[1]
Work not cert b/d		86,000	[1]	Indirect lab b/d	2,400	

Work cert: 1,555,500 x $\frac{100}{85}$ = 1,830,000

P&L: 492,900 x $\frac{2}{3}$ x $\frac{1,555,500}{1,830,000}$ = 279,310

[16]

2(b)

Prudence.
Reduction of profit by 2/3 multiplier.
Reduction of profit by $\frac{\text{cash received}}{\text{work certified}}$ multiplier.

(3 x 1 mark)
(1 for concept, 1 reduction of profit, 1 for either multiplier)

[3]

Total marks [28]

F014 Specimen Clearwater Question 2 Mark scheme continued

2(c)	Replacing labour by automation could lead to conflict with unions. A consultation process should take place to ensure any grievances are discussed, and if not resolved the consequences are considered. Redundancies could lead to industrial action and adverse publicity. Customers could purchase from other sources and there could be a general loss of goodwill in the company. If the company is part of a larger group or has other departments, it could consider retraining or redeploying employees. Redundant employees in an area of high unemployment could lead to a consequent loss of purchasing power in the community. This in turn could lead to additional adverse publicity for the company. The company could consider redundancy compensation and enhanced pensions for employees. Education for social and cultural activities during retirement could be provided and social events arranged for retired employees. *(3 x 3 marks)* *(1 for point plus up to 2 for development)* **Total marks**	**[9]** **[28]**

Costing Applications: Contract Costing

2504 Jun 2006 Heisler Question 1

1 Heisler Construction Ltd had a two year contract to build a new health centre. The contract commenced on 1 April 2004. At the end of the first year of trading, Heisler Construction Ltd had failed to make a profit. This resulted in no profit provision being available to be carried down to year two. At 31 March 2005 the following balances were remaining on the contract account:

	£
Materials	300 000
Plant hire prepaid	60 000
Direct labour accrued	175 000
Plant	400 000
Sub contract charges accrued	70 000

In addition to the above, the following costs were incurred during the second year of trading:

	£
Materials	320 000
Plant hire	150 000
Direct labour	400 000
Sub contract charges	300 000
Head office charge	120 000

At 31 March 2006 there were no accruals or prepayments outstanding and plant had no residual value. The value of work not certified at that date was £200 000.

The contract allows Heisler Construction Ltd to receive payment for work certified by the architect less a 10% retention. Payments received during the year ended 31 March 2006 amounted to £1 350 000, this being the exact amount due for the work certified.

REQUIRED

(a) The Contract Account for the year ended 31 March 2006 (i.e. for the second year of the contract). [18]

(b) Identify and explain, with an example of each, **two** accounting concepts you have applied in answering part **(a)** above. [6]

(c) Explain the purpose of the 10% retention on this contract. [3]

Total marks [27]

Costing Applications: Contract Costing

2504 Jun 2006 Heisler Question 1 Mark scheme

1 (a) Heisler Construction Ltd
Contract Account for the year ended 31 March 2006

Plant hire prepaid **(1)**	60,000 **(1)**	Direct labour accrued	175,000 **(1)**
Materials b/d	300,000 **(1)**	Sub contract accrued	70,000 **(1)**
Plant b/d	400,000 **(1)**	Cost to date c/d	1,805,000 **(1)**
Materials	320,000 **(1)**		
Plant hire	150,000 **(1)**		
Direct labour	400,000 **(1)**		
Sub contract	300,000 **(1)**		
Head office charge	120,000 **(1)**		
	2,050,000		2,050,000
Cost to date b/d	1,805,000	Work certified	1,500,000 **(1)**
		Work yet certified c/d	200,000 **(1)**
		Notional loss c/d	105,000
	1,805,000		1,805,000
Notional loss b/d	105,000	Profit and Loss **(2)**	105,000 **(2)(1of)**
Work not yet certified b/d	200,000		

[18]

(b) Prudence **(1)**, whole loss **(1)**, written off to Profit and Loss **(1)** in the year incurred **(1)**.

Accruals **(1).** + suitable explanation **(1)** and example **(1),** e.g. plant hire prepaid brought into current year costs, direct labour accrued included in previous years costs.

(1 for identification, 1 for explanation, 1 for example) **[6]**

(c) Puts the customer in a position of strength **(1)** should work subsequently be found to be faulty **(1).**
Incentive for the contractor to complete the contract **(1)** and to a good standard **(1).**

(3 x 1 mark) **Max [3]**

Total marks [27]

Costing Applications: Contract Costing

2504 Jun 2005 Waterhouses Question 3

3 Waterhouses Construction plc is currently working on a contract to build a new small factory unit. The total value of the contract is £4 500 000 over a two year period. The contract commenced on 1 April 2004 and the following details are available as at 31 March 2005.

	£
Materials purchased	1 100 000
Materials transferred in from another site	200 000
Materials transferred out to another site	250 000
Materials on site, not yet used	175 000
Direct labour	460 000
Direct labour accrued	90 000
Indirect labour	55 000
Indirect labour accrued	8 000
Plant hired	140 000
Plant hired accrued	25 000
Plant delivered to site on 1 April 2004	320 000
Head office charges	70 000
Cost of work not yet certified	133 000

Waterhouses Construction plc has received payment of £1 800 000 which represents work certified as completed by the architects as at 31 March 2005, less a 10% retention. The attributable profit formula used by the company is:

$$\text{Apparent (notional) profit} \times 2/3 \times \frac{\text{cash received}}{\text{work certified}}$$

The plant is estimated to last the life of the contract with no residual value. Included in the plant delivered to site on 1 April 2004 was one item which cost £80 000. This item was transferred to another contract on 30 September 2004. The value at which this transfer took place reflected the reduction in the plant's value to 30 September 2004. The company uses the straight line method of depreciation with the charge being applied for each part of the year.

REQUIRED

(a) The Contract Account for the year ended 31 March 2005. The balances brought down at 1 April 2005 should be shown in the Contract Account. [23]

(b) In the event of a loss being made on this contract, explain how this should be dealt with in the accounts, and state which accounting concept is involved. [4]

(c) Companies have responsibilities to various groups in society and within the business. State two groups (other than customers or shareholders) to which a construction company might have responsibilities and explain for each group what these responsibilities might be. [6]

Total marks [33]

2504 Jun 2005 Waterhouses Question 3 Mark scheme

3 (a) Waterhouses Construction plc
Contract Account for the year ended 31 March 2005

Materials purchased		1 100 000	(1)	Materials transferred out	250 000	(1)
Materials transferred in		200 000		Materials c/d	175 000	(1)
Direct labour	460 000			Plant transferred	60 000	(1)
Direct labour accrued c/d	90 000			Plant c/d	120 000	(2)
		550 000	(1)	Cost to date c/d	1 863 000	
Indirect labour	55 000					
Ind labour accrued c/d	8 000					
		63 000	(1)			
Plant hired	140 000					
Plant hired accrued b/d	25 000					
		165 000	(1)			
Plant delivered to site		320 000	(1)			
Head office charges		70 000				
		2 468 000			2 468 000	
Cost to date b/d		1 863 000		Work certified	2 000 000	(1)
Notional profit c/d **(1)**		270 000		Work not yet cert c/d	133 000	
		2 133 000			2 133 000	
Profit and Loss **(1)**		162 000	(2)	Notional profit b/d	270 000	
Profit provision c/d		108 000				
		270 000			270 000	
Materials b/d		175 000	(1)	Direct lab accrued b/d	90 000	(1)
Plant b/d		120 000	(1of)	Ind labour accrued b/d	8 000	(1)
Work not yet certified b/d		133 000	(1)	Plant hire accrued b/d	25 000	(1)
				Profit provision b/d **(1)**	108 000	(1of)

[23]

(b) Whole loss, written off against profit in the year incurred
Concept: Prudence
(4 x 1 mark) **[4]**

(c)

Workforce:	- Safe working environment
Local community:	- Safe worksite - Secure fencing - Minimal disruption/noise
Local economy:	- Employment of local labour force - Purchase of materials or plant hire from local businesses

(1 x 2) for identifying groups, up to (2 x 2) for explanations **[6]**

Costing Applications: Contract Costing

2504 Jun 2004 Fairlie Question 2

2 Fairlie Construction Ltd is engaged on a three year building contract. Information for the first year of the contract which ended on 31 December 2003 is as follows:

	£
Materials transferred to site on 1 January 2003	35 000
Materials purchased	2 350 000
Materials returned to suppliers	12 000
Materials on site as at 31 December 2003, not yet used	350 000
Plant purchased and delivered to site on 1 January 2003	1 800 000
Plant transferred to another contract on 1 July 2003 (at cost price)	600 000
Plant hire paid	470 000
Direct wages paid	615 000
Paid to sub-contractors	370 000
Architects fees paid	43 000
Payment received from customer	4 050 000
Work not yet certified	407 000

Additional information available:

(i) At 31 December 2003 the following were outstanding:
- direct wages £51 000
- sub-contractor payments £35 000

(ii) Plant purchased at the start of the contract is assumed to have no residual value at the end of the contract. A full year's depreciation is calculated on plant remaining on site at each year end. No depreciation is charged during the year on any plant transferred to other contracts. The straight line method of depreciation is used.

(iii) The payment received from the customer represents payment for all work certified by the architect, less a 10% retention.

(iv) Company policy is to charge head office expenses to the contract each year at a rate of 8% of the value of the work certified by the architect during the year.

(v) The attributable profit formula used by the company is:

$$\text{apparent (notional) profit} \times 2/3 \times \frac{\text{cash received}}{\text{work certified}}$$

2504 Jun 2004 Fairlie Question 2 continued

REQUIRED

(a) The Contract Account for the year ended 31 December 2003, showing all appropriate balances brought down as at 1 January 2004. [22]

(b) The value of work in progress as at 31 December 2003. [3]

(c) Explain, with reference to **two** accounting concepts, why profit taken by Fairlie Construction Ltd is reduced using the formula stated in **(v)** above. [6]

(d) Explain **two** reasons why a business might wish to produce separate accounts for each of its contracts. [4]

Total marks [35]

Costing Applications: Contract Costing

2504 Jun 2004 Fairlie Question 2 Mark scheme

2 (a) Fairlie Construction Ltd
Contract account for the year ended 31 December 2003

Materials transferred to site		35,000	(1)	Materials returned		12,000	(1)
Materials purchased		2,350,000		Materials on site c/d		350,000	(1)
Plant		1,800,000	(1)	Plant transferred		600,000	(1)
Plant hire		470,000		Plant c/d		800,000	(1)
Direct Labour	615,000			Cost to date c/d		4,367,000	
Accrued c/d	51,000	(1)					
		666,000					
Sub-contractors	370,000						
Accrued c/d	35,000	(1)					
		405,000					
Architects fees		43,000	(1)				
Head office expenses		360,000	(1)				
		6,129,000				6,129,000	
Cost to date b/d		4,367,000	(1 of)	Work certified		4,500,000	(2)(1of)
Notional profit		540,000		Work not certified c/d		407,000	(1)
		4,907,000				4,907,000	
Profit and Loss		324,000	(2)(1of)	Notional profit		540,000	
Profit provision c/d		216,000					
		540,000				540,000	
Materials b/d		350,000	(1)	Direct labour b/d		51,000	(1)
Plant b/d		800,000	(1 of)	Sub-contract b/d		35,000	(1)
Work not certified b/d		407,000	(1)	Profit provision b/d		216,000	(1 of)

[22]

(b)

Cost to date	4,367,000	(1 of)
Add P&L	324,000	(1 of)
	4,691,000	
Less Payments received	4,050,000	(1)
Work in Progress	641,000	

[3]

(c) Prudence - formula reduces profit to allow for unforeseen problems/costs.
Realisation - conflict between profit when earned v uncertainty over final outcome.

(2 x 3 marks)
(1 for concept, plus up to 2 for development) **[6]**

(d) Visibility of costs/potential profits or losses.
Management information.
Contracts may span more than one financial year.

(2 x 2 marks)
(1 for point, plus 1 for development) **[4]**

Total marks [35]

Costing Applications: Contract Costing

2504 Jun 2002 Loyal Question 1

1 Loyal Construction plc commenced a new long term contract on 1 April 2001. At the financial year end, 31 March 2002, the following details are available.

	£
Plant purchased and delivered to site on 1 April 2001	94 000
Materials purchased to site	968 000
Materials returned to suppliers	7 500
Materials on site as at 31 March 2002 not yet used	15 300
Direct labour paid	471 000
Plant hire paid	52 600
Paid to sub-contractors	102 300
Architect's fees paid	31 700
Cost of work not yet certified	136 000
Payment received from customer	1 800 000

Additional information available:

(i) Direct labour accrued as at 31 March 2002 amounted to £19 200.

(ii) The plant purchased on 1 April 2001 is estimated to last three years from the date of purchase, with a residual value of £4000. The company uses the straight line method of depreciation.

(iii) The payment received from the customer represents payment for all work certified by the architect, less a 10% retention.

(iv) The company policy is to charge head office expenses to the Contract Account each year at a rate of 8% of the value of work certified by the architect for the year.

(v) The attributable profit formula used by the company is:

$$\text{apparent (notional) profit} \times \frac{2}{3} \times \frac{\text{cash received}}{\text{work certified}}$$

Costing Applications: Contract Costing

2504 Jun 2002 Loyal Question 1 continued

REQUIRED

(a) The Contract Account for the year ended 31 March 2002, showing all appropriate balances brought down as at 1 April 2002. [21]

(b) The value of the work in progress as at 31 March 2002. [2]

(c) Briefly explain the purpose of the 10% retention in note **(iii)**. [3]

(d) **(i)** State and briefly explain the accounting concept involved in the calculation of profit to be credited to the accounts for the year ended 31 March 2002. [3]

(ii) In the event of a loss being made, how would this be dealt with in the accounts? [3]

Total marks [32]

Costing Applications: Contract Costing

2504 Jun 2002 Loyal Question 1 Mark scheme

1 (a)

Contract Account

Plant		94,000	(1)	Material returns	7,500	(1)
Materials		968,000	(1)	Materials c/d	15,300	(1)
Direct labour	471,000			Plant c/d	64,000	(2)
Bal c/d	19,200			Cost to date c/d	1,812,000	
		490,200	(1)			
Plant hire		52,600	(1)			
Sub contractors		102,300	(1)			
Architects fees		31,700	(1)			
Head office		160,000	(1)			
		1,898,800			1,898,800	
Cost to date b/d		1,812,000		Work cert	2,000,000	(2)
Notional profit c/d		324,000		Work not cert c/d	136,000	(1)
		2,136,000			2,136,000	
Profit and Loss		194,400	(2)(1of)	Notional profit b/d	324,000	
Profit provision c/d		129,600				
		324,000			324,000	
Materials b/d		15,300	(1 of)	Profit provision b/d	129,600	(1 of)
Plant b/d		64,000	(1 of)	Dir labour b/d	19,200	(1)
Work not cert b/d		136,000	(1)			

[21]

(b)

Cost to date	1,812,000	
less payments	1,800,000	
	12,000	
Profit and Loss	194,400	
Work in progress	206,400	(2)(1 of)

[2]

2504 Jun 2002 Loyal Question 1 Mark scheme continued

(c) Incentive to complete work to a satisfactory standard.
Customer in favourable position.
If faulty work subsequently discovered.
Possible later problems in type of industry.
(3 x 1 mark) **[3]**

(d) **(i)** Prudence.
Reduction of profit by 2/3 multiplier.
Reduction of profit by $\frac{\text{cash received}}{\text{work certified}}$ multiplier
(3 x 1 mark) **[3]**

(ii) Whole loss.
Should be written off.
Against profit.
In the year incurred.
(3 x 1 mark) **[3]**

Total [32]

Social Responsibility: The Social implications of Decision-making

Social Responsibility: The Social implications of Decision-making

2503 Jun 2006 Layla Question 2

2 Layla Ltd is a major employer in a rural area. The directors are replacing the main production line. The directors can choose between System A or System B.

Details of the two systems are as follows:

	System A	System B
System cost at start	£320 000	£375 000
Estimated useful life	4 years	4 years
Scrap value at end of year 4	£16 000	£32 000

Layla Ltd depreciates its fixed assets using the straight line method.
System A produces slightly toxic waste which would be taken by lorry through the local town for disposal elsewhere. System B would require fewer production staff.

Estimated receipts and costs (excluding depreciation) are as follows:

Receipts

	System A £000	System B £000
Year 1	224	280
Year 2	300	360
Year 3	400	400
Year 4	280	240

Costs (excluding depreciation)

	System A £000	System B £000
Year 1	124	167
Year 2	188	196
Year 3	273	268
Year 4	152	116

All receipts and payments of costs take place at the end of the year.
Layla Ltd's cost of capital is 9% per annum.

Extract from present value tables of £1 at 9%:

Year 1	0.917
Year 2	0.842
Year 3	0.772
Year 4	0.708

Social Responsibility: The Social implications of Decision-making

2503 Jun 2006 Layla Question 2 continued

REQUIRED

(a) Calculate for each system (work to two decimal places where appropriate):

- **(I)** net cash flows for each year; [4]
- **(II)** payback; [2]
- **(III)** net present value; [8]
- **(IV)** the accounting rate of return (defined by the company as average profit to initial capital outlay). [8]

(b) Evaluate the financial implications of each system. [6]

(c) Discuss **three** non-financial factors Layla Ltd needs to consider before buying either system. [9]

Total marks [37]

Social Responsibility: The Social implications of Decision-making

2503 Jun 2006 Layla Question 2 Mark scheme

2 (a) (i) Net cash flows

	System A	£000		System B	£000	
Year 1	224 – 124	100		280 – 167	113	
Year 2	300 – 188	112	**(1)**	360 – 196	164	**(1)**
Year 3	400 – 273	127		400 – 268	132	
Year 4	280 + 16 – 152	144	**(1)**	240 + 32 – 116	156	**(1)**

[4

(ii) Payback

System A 2.85 years **(1)**

System B 2.74 years **(1)**

[2

(iii) Net present value

System A

Year	Net cash flow	Discount factor **(1)** (all 4)	Present Value	
1	100 000	0.917	91 700	**(1 of)**
2	112 000	0.842	94 304	**(1 of)**
3	127 000	0.772	98 044	**(1 of)**
4	128 000	0.708	90 624	
4	16 000	0.708	11 328	
			386 000	
		Capital cost	320 000	**(1)**
		NPV	66 000	**(1 of)**

System B

Year	Net cash flow	Discount factor	Present Value	
1	113 000	0.917	103 621	
2	164 000	0.842	138 088	
3	132 000	0.772	101 904	
4	124 000	0.708	87 792	
4	32 000	0.708	22 656	
			454 061	
			375 000	**(1)**
		NPV	79 061	**(1 of)**

[8]

Social Responsibility: The Social implications of Decision-making

2503 Jun 2006 Layla Question 2 Mark scheme continued

(iv) Accounting rate of return

System A	System B
163 000 **(1)** / 4 = 40750 **(1)**	190 000 **(1)** / 4 = 47 500 **(1)**
40750 / 320 000 **(1)**	47 500 / 375 000 **(1)**
= 12.73% **(1 of)**	= 12.67% **(1 of)**

[8]

(b) B has shorter payback
A has smaller capital outlay
A has slightly better ARR
Both have positive NPV
(up to 3 marks for identification)

Availability of finance
Little difference in payback or ARR
System B gives more overall sales and profits
B depends more on scrap value being realised
(up to 3 marks for identification)

[6]

(c) Local community – effects of noise and congestion in A / loss of jobs in B / impact on house prices under both
Workforce – is health and safety being put at risk in A? / training / effects on morale if jobs lost in B
Environment – effects of disposing of waste / how toxic? /
Public relations – negative publicity to do with toxic waste / loss of jobs

(3 x 3 marks)
(1 for point plus up to 2 for development) **[9]**

Total marks [37]

Social Responsibility: The Social implications of Decision-making

2503 Jun 2005 Waterhouses Question 3

3 Waterhouses Construction plc is currently working on a contract to build a new small factory unit. The total value of the contract is £4 500 000 over a two year period. The contract commenced on 1 April 2004 and the following details are available as at 31 March 2005.

	£
Materials purchased	1 100 000
Materials transferred in from another site	200 000
Materials transferred out to another site	250 000
Materials on site, not yet used	175 000
Direct labour	460 000
Direct labour accrued	90 000
Indirect labour	55 000
Indirect labour accrued	8 000
Plant hired	140 000
Plant hired accrued	25 000
Plant delivered to site on 1 April 2004	320 000
Head office charges	70 000
Cost of work not yet certified	133 000

Waterhouses Construction plc has received payment of £1 800 000 which represents work certified as completed by the architects as at 31 March 2005, less a 10% retention. The attributable profit formula used by the company is:

$$\text{Apparent (notional) profit} \times 2/3 \times \frac{\text{cash received}}{\text{work certified}}$$

The plant is estimated to last the life of the contract with no residual value. Included in the plant delivered to site on 1 April 2004 was one item which cost £80 000. This item was transferred to another contract on 30 September 2004. The value at which this transfer took place reflected the reduction in the plant's value to 30 September 2004. The company uses the straight line method of depreciation with the charge being applied for each part of the year.

REQUIRED

(a) The Contract Account for the year ended 31 March 2005. The balances brought down at 1 April 2005 should be shown in the Contract Account. [23]

(b) In the event of a loss being made on this contract, explain how this should be dealt with in the accounts, and state which accounting concept is involved. [4]

(c) Companies have responsibilities to various groups in society and within the business. State two groups (other than customers or shareholders) to which a construction company might have responsibilities and explain for each group what these responsibilities might be. [6]

Total marks [33]

Social Responsibility: The Social implications of Decision-making

2503 Jun 2005 Waterhouses Question 3 Mark scheme

3 (a) Waterhouses Construction plc
Contract Account for the year ended 31 March 2005

Materials purchased		1 100 000	(1)	Materials transferred out	250 000	(1)
Materials transferred in		200 000		Materials c/d	175 000	(1)
Direct labour	460 000			Plant transferred	60 000	(1)
Direct labour accrued c/d	90 000			Plant c/d	120 000	(2)
		550 000	(1)	Cost to date c/d	1 863 000	
Indirect labour	55 000					
Ind labour accrued c/d	8 000					
		63 000	(1)			
Plant hired	140 000					
Plant hired accrued b/d	25 000					
		165 000	(1)			
Plant delivered to site		320 000	(1)			
Head office charges		70 000				
		2 468 000			2 468 000	
Cost to date b/d		1 863 000		Work certified	2 000 000	(1)
Notional profit c/d **(1)**		270 000		Work not yet cert c/d	133 000	
		2 133 000			2 133 000	
Profit and Loss **(1)**		162 000	(2)	Notional profit b/d	270 000	
Profit provision c/d		108 000				
		270 000			270 000	
Materials b/d		175 000	(1)	Direct lab accrued b/d	90 000	(1)
Plant b/d		120 000	(1of)	Ind labour accrued b/d	8 000	(1)
Work not yet certified b/d		133 000	(1)	Plant hire accrued b/d	25 000	(1)
				Profit provision b/d **(1)**	108 000	(1of)

[23]

(b) Whole loss, written off against profit in the year incurred
Concept: Prudence
(4 x 1 mark) **[4]**

(c)

Workforce:
- Safe working environment

Local community:
- Safe worksite
- Secure fencing
- Minimal disruption/noise

Local economy:
- Employment of local labour force
- Purchase of materials or plant hire from local businesses

(1 x 2) for identifying groups, up to (2 x 2) for explanations **[6]**

Total marks [33]

Social Responsibility: The Social implications of Decision-making

2503 Jun 2004 Triffid Question 2

2 Trifid Ltd has £200,000 available for investment. Two new projects are being considered. Both projects are to be appraised over a four year life.

Project X11 involves the production of a disease resistant cereal crop. Project X12 involves the production of a powerful pesticide.

Details of each project are given below.

	Project X11	Project X12
Fixed asset cost at commencement of project:	200,000	180,000
Sales:		
Year 1	240,000	180,000
Year 2	290,000	210,000
Year 3	120,000	180,000
Year 4	50,000	150,000
	700,000	720,000

Net profit as a percentage of sales is forecast to be 15% of sales for each project and the fixed asset cost is to be depreciated on the straight line basis assuming a nil residual value at the end of year four.

Other than the cost of new equipment, which would be purchased immediately, all receipts and payments take place at the end of each year.

The company's cost of capital is 6% per annum.

Extract from present value tables of £1 at 6%:

Year 1	0.943
Year 2	0.890
Year 3	0.840
Year 4	0.792

Social Responsibility: The Social implications of Decision-making

2503 Jun 2004 Triffid Question 2 continued

REQUIRED:

(a) Calculate the annual cash inflows for each project. [8]

(b) Calculate for each project (work to one decimal place where appropriate):

(I) payback; [2]

(II) accounting rate of return (defined by the company as average net profit to initial capital outlay); [8]

(III) net present value. [12]

(c) Briefly evaluate the financial implications of each project. [6]

(d) Discuss **two** non-financial factors Trifid Ltd should consider before making this capital investment decision. [6]

Total marks [42]

Social Responsibility: The Social implications of Decision-making

2503 Jun 2004 Triffid Question 2 Mark scheme

2 (a)

Annual cash inflows
Project X11

	Year 1	Year 2	Year 3	Year 4
Sales	240,000	290,000	120,000	50,000
Net profit	36,000	43,500	18,000	7,500
Depreciation	50,000	50,000	50,000	50,000
Cash flow	86,000	93,500	68,000	57,500

(4 x 1 mark)

Project X12

Sales	180,000	210,000	180,000	150,000
Net profit	27,000	31,500	27,000	22,500
Depreciation	45,000	45,000	45,000	45,000
Cash flow	72,000	76,500	72,000	67,500

(4 x 1 mark)

[8]

(b) (i) Payback

X11
2.3 years **(1)**

X12
2.4 years **(1)**

(ii) ARR

X11
Average profit $\frac{105{,}000\ \textbf{(1)}}{4} = 26{,}250$

$\frac{26{,}250\ \textbf{(1 of)}}{200{,}000\ \textbf{(1)}} = 13.1\%$ **(1 of)**

X12
$\frac{108{,}000\ \textbf{(1)}}{4} = 27{,}000$

$\frac{27{,}000\ \textbf{(1 of)}}{180{,}000\ \textbf{(1)}} = 15.0\%$ **(1 of)**

Social Responsibility: The Social implications of Decision-making

2503 Jun 2004 Triffid Question 2 Mark scheme continued

(iii) Net present value

X11

Year	Cash flow	DF	PV	
1	86,000 **(1)**	0.943	81,098	
2	93,500 **(1)**	0.89	83,215	
3	68,000 **(1)**	0.84	57,120	
4	57,500 **(1)**	0.792	45,540	
			266,973	
	Capital cost		(200,000)	**(1)**
	NPV		66,973	**(1 of)**

X12

Year	Cash flow	DF	PV	
1	72,000	0.943	67,896	**(1)**
2	76,500	0.89	68,085	**(1)**
3	72,000	0.84	60,480	**(1)**
4	67,500	0.792	53,460	**(1)**
			249,921	
	Capital cost		(180,000)	**(1)**
	NPV		69,921	**(1 of)**

[22]

(c) X11 has shorter payback/little difference in capital cost
X12 costs £20,000 less/could this be invested profitably elsewhere?
Both projects give positive NPV, X12 has higher NPV
X12 gives better ARR, higher overall sales and profits.
Overall X12 appears less risky and should be chosen.

(3 x 2 marks)
(1 for point plus 1 for development) **[6]**

(d) Health and safety - are any hazardous materials or processes involved?/need for consultation with workforce.
Environmental effects - could the crops and pesticides cause environmental damage?
Public relations - e.g. ecologic and anti GM crop groups may oppose new products/effects on trade if company receives bad press.

(2 x 3 marks)
(1 for point plus up to 2 for development) **[6]**

Total marks [42]