Preparing for the Assessment

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This chapter is intended for use when you are ready to start revising for your assessment. It contains:

- Details of the format of the assessment.
- A summary of useful revision techniques.
- Guidance on how to tackle the assessment.
- A bank of assessment-standard revision questions and suggested solutions.
- Two mock assessments. These should be attempted when you consider yourself to be ready for the assessment, and you should simulate assessment conditions when you attempt them.

Format of the assessment

The assessment for *Fundamentals of Management Accounting* is a two hour computer-based assessment (CBA) comprising 50 objective test questions with one or more parts. There will be no choice of questions and all questions should be attempted if time permits. There is no penalty for incorrect answers.

Objective test questions are used. The most common type is multiple choice, where the candidate is required to select the correct answer from a list of possible options. Other types of objective test questions that may be used include true/false questions, matching pairs of text and graphic, sequencing and ranking, labelling diagrams and single and multiple numeric entry. Candidates answer the questions by pointing and clicking the mouse, moving objects around the screen, typing numbers, or a combination of these responses.

CIMA are continuously developing the question styles within the cba system and you are strongly advised to try the online demo at www.cimaglobal.com/cba. This will enable you to gain familiarity with the assessment software and to keep track of the latest style of questions being used. You are also advised to keep an eye on the articles in the 'Study Notes' section of *Financial Management* magazine which will forewarn of any changes in question styles.

Revision technique

Planning

The first thing to say about revision is that it is an addition to your initial studies, not a substitute for them. In other words, don't coast along early in your course in the hope

of catching up during the revision phase. On the contrary, you should be studying and revising concurrently from the outset. At the end of each week, and at the end of each month, get into the habit of summarising the material you have covered to refresh your memory of it.

As with your initial studies, planning is important to maximise the value of your revision work. You need to balance the demands for study, professional work, family life and other commitments. To make this work, you will need to think carefully about how to make best use of your time.

Begin by comparing the estimated hours you will need to devote to revision with the hours available to you in the weeks leading up to the assessment. Prepare a written schedule setting out the areas you intend to cover during particular weeks, and break that down further into topics for each day's revision. To help focus on the key areas try to establish which areas you are weakest on, so that you can concentrate on the topics where effort is particularly needed.

Do not forget the need for relaxation, and for family commitments. Sustained intellectual effort is only possible for limited periods, and must be broken up at intervals by lighter activities. And do not continue your revision timetable right up to the moment when you enter the assessment room; you should aim to stop work a day or even two days before the assessment. Beyond this point, the most you should attempt is an occasional brief look at your notes to refresh your memory.

Getting down to work

By the time you begin your revision you should already have settled into a fixed work pattern: a regular time of day for doing the work, a particular location where you sit, particular equipment that you assemble before you begin and so on. If this is not already a matter of routine for you, think carefully about it now in the last vital weeks before the assessment.

You should have notes summarising the main points of each topic you have covered. Begin each session by reading through the relevant notes and trying to commit the important points to memory.

Usually this will be just your starting point. Unless the area is one where you already feel very confident, you will need to track back from your notes to the relevant chapter(s) in the *Learning System.* This will refresh your memory on points not covered by your notes and fill in the detail that inevitably gets lost in the process of summarisation.

When you think you have understood and memorised the main principles and techniques, attempt some assessment questions. At this stage of your studies, you should normally be expecting to complete the questions in something close to the actual time allocation allowed in the assessment. After completing your effort, check the solution provided and add to your notes any extra points it reveals.

Tips for the final revision phase

As the assessment looms closer, consider the following list of techniques and make use of those that work for you:

- Summarise your notes into a more concise form, perhaps on index cards that you can carry with you for revision on the way to work.
- Go through your notes with a highlighter pen, marking key concepts and definitions.

- Summarise the main points in a key area by producing a wordlist, mind map or other mnemonic device.
- On areas that you find difficult, rework questions that you have already attempted, and compare your answers with those provided in the *Learning System.*
- Rework questions you attempted earlier in your studies with a view to completing them within the time limits.
- In the week preceding the assessment, quickly go through any recent articles in the 'Study Notes' section of *Financial Management* magazine, paying particular attention to those relevant to your subject.
- Avoid late-night study, as your assessment is based on daytime performance, not night-time performance.
- Make sure that you cover the whole syllabus in your revision, as all questions in the assessment are compulsory.

How to tackle the assessment

Assessment day

- Before leaving for the assessment you should ensure that you know where you are going: plan your route and ensure that you have the necessary documentation and your calculator with you. It is advisable to bring a second calculator and some spare batteries!
- Arrive early and settle into your assessment environment. You will have enough nerves on the day without compounding them by arriving late.

The assessment

Multiple-choice questions

Multiple-choice questions (MCQs) are broken down into two parts; the problem or task to be solved, and the options you must choose from. There is only ever one correct answer: the other options are known as distractors.

Your approach to MCQs should be as follows:

- For numerical MCQs, in the majority of cases you will need to do some rough workings.
- Never rush to select your answer; some options might *initially* look plausible, but on closer scrutiny turn out to be distractors. Unless you are certain of the answer, look carefully at *all* the options before choosing.
- If you are finding the MCQ difficult and you are taking up too much time, move on to the next one.
- Time permitting, revisit those MCQs which you left unanswered and refer to your original workings.
- Remember: you must *never* omit to answer any question in the assessment as there is no penalty for an incorrect answer.

Other types of question

- Prepare neat workings where necessary *for your own benefit.* Only your final answers will be marked, not workings, methods or justifications. However, your workings will help you to achieve the necessary 100 per cent accuracy.
- Check your answer carefully. If you have typed in your answer, check the figures are typed correctly.
- *Never* omit to answer a question. There is no penalty for an incorrect answer.

Revision Questions

The following table indicates the main learning outcome covered by each question in the bank that follows. Once you have revised each topic you can attempt the relevant question(s). However you should be aware that some questions relate to more than one learning outcome.

Learning outcome	**Question number(s)**
Explain why organizations need to know how much products, processes and services cost and why they need costing systems;	5
Explain the idea of a cost object;	5
Explain the concept of a direct cost and an indirect cost;	6,13
Explain why the concept of cost needs to be qualified as direct, full, marginal, etc. in order to be meaningful;	7
Distinguish between the historical cost of an asset and the economic value of an asset to an organisation;	11
Apply first-in-first-out (FIFO), last-in-first-out (LIFO) and average cost (AVCO) methods of accounting for stock, calculating stock values and related gross profit;	8, 9, 10, 12
Explain why FIFO is essentially a historical cost method, while LIFO approximates economic cost;	11
Prepare cost statements for allocation and apportionment of overheads, including between reciprocal service departments;	14,18,19
Calculate direct, variable and full costs of products, services and activities using overhead absorption rates to trace indirect costs to cost units;	14, 15, 16, 17, 18, 19, 20, 53
Explain the use of cost information in pricing decisions, including marginal cost pricing and the calculation of 'full cost' based prices to generate a specified return on sales or investment;	21, 53, 54
Explain how costs behave as product, service or activity levels increase or decrease;	1, 2, 4
Distinguish between fixed, variable and semi-variable costs;	1, 4

Explain step costs and the importance of time-scales in their treatment as either variable or fixed;	2
Compute the fixed and variable elements of a semi-variable cost using the high-low method and 'line of best fit' method;	3
Explain the contribution concept and its use in Cost–Volume–Profit (CVP) analysis;	22, 23, 24
Calculate and interpret the breakeven point, profit target, margin of safety and profit/volume ratio for a single product or service;	22, 23, 24, 27, 28
Prepare breakeven charts and profit/volume graphs for a single product or service;	25, 26, 29
Calculate the profit maximising sales mix for a multi-product company that has limited demand for each product and one other constraint or limiting factor;	30, 31
Explain the difference between ascertaining costs after the event and planning by establishing standard costs in advance;	32
Explain why planned standard costs, prices and volumes are useful in setting a benchmark for comparison and so allowing managers' attention to be directed to areas of the business that are performing below or above expectation;	32
Calculate standard costs for the material, labour and variable overhead cost elements of cost of a product or service;	33
Calculate variances for material, labour, variable overhead, sales prices and sales volumes;	34, 35, 36, 37, 38, 39, 40
Prepare a statement that reconciles budgeted contribution with actual contribution;	41
Interpret statements of variances for variable costs, sales prices and sales volumes including possible inter-relations between cost variances, sales price and volume variances, and cost and sales variances;	42, 43
Discuss the possible use of standard labour costs in designing incentive schemes for factory and office workers;	44
Explain the principles of manufacturing accounts and the integration of the cost accounts with the financial accounting system;	45, 46, 47, 48
Prepare a set of integrated accounts, given opening balances and appropriate transactional information, and show standard cost variances;	49, 50
Compare and contrast job, batch, contract and process costing;	18, 51
Prepare ledger accounts for job, batch and process costing systems;	52, 53, 54, 56, 57, 58, 59
Prepare ledger accounts for contract costs;	55
Explain the difference between subjective and objective classifications of expenditure and the importance of tracing costs both to products/services and to responsibility centres;	60
Construct coding systems that facilitate both subjective and objective classification of costs;	61
Prepare financial statements that inform management;	62
Explain why gross revenue, value added, contribution, gross margin, marketing expense, general and administration expense, etc. might be highlighted in management reporting;	63

Compare and contrast management reports in a range of organisations including commercial enterprises, charities and public sector undertakings;	6, 62, 64
Explain why organisations set out financial plans in the form of budgets, typically for a financial year;	65
Prepare functional budgets for material usage and purchase, labour and overheads, including budgets for capital expenditure and depreciation;	68, 69, 70, 73
Prepare a master budget: income statement, balance sheet and cash flow statement, based on the functional budgets;	66, 67, 71, 74
Interpret budget statements and advise managers on financing projected cash shortfalls and/or investing projected cash surpluses;	76
Prepare a flexed budget based on the actual levels of sales and production and calculate appropriate variances;	75
Compare and contrast fixed and flexed budgets;	72
Explain the use of budgets in designing reward strategies for managers.	77

Question 1 Cost behaviour

The following data have been collected for four cost types – W, X, Y, Z – at two activity levels:

Cost type	*Cost 100 units* £	*Cost 140 units* £
W	8,000	10,560
X	5,000	5,000
Y	6,500	9,100
Z	6,700	8,580

Where V = variable, SV = semi-variable and F = fixed, assuming linearity, the four cost types W, X, Y and Z are, respectively:

	W	*X*	*Y*	*Z*
(A)	V	F	SV	V
(B)	SV	F	V	SV
(C)	V	F	V	V
(D)	SV	F	SV	SV

Question 2 Step fixed costs

Which of the following costs would be classified as step costs (tick all that apply)?

(i) The cost of materials is £3 per kg for purchases up to 10,000 kg. From 10,001 kg to 15,000 kg the cost is £2.80 per kg. Thereafter the cost is £2.60 per kg. ☐

(ii) The cost of supervisory labour is £18,000 per period for output up to 10,000 units. From 10,001 units to 15,000 units the cost is £37,000 per period. Thereafter the cost is £58,000 per period. ☐

(iii) The cost of machine rental is £4,500 per period for output up to 3,000 units. From 3,001 units to 6,000 units the cost is £8,700 per period. Thereafter the cost is £12,200 per period. ☐

(iv) The mileage charge for a rental car is £0.05 per mile up to 400 miles. From 401 miles to 700 miles the charge is £0.07 per mile. Thereafter the cost is £0.08 per mile. ☐

Question 3 High–low method

The following data relate to the overhead expenditure of a contract cleaner at two activity levels:

Square metres cleaned	12,750	15,100
Overheads	£73,950	£83,585

What is the estimate of the overheads if 16,200 square metres are to be cleaned?

(A) £88,095
(B) £89,674
(C) £93,960
(D) £98,095.

Question 4 Cost behaviour patterns

Select the correct equation below.

AG Ltd rents an office photocopier for £300 per month. In addition, the cost incurred per copy taken is 2 pence. If £ y = total photocopying cost for the month and x = the number of photocopies taken, the total photocopying cost for a month can be expressed as:

$y = 300 + 2x$ ☐
$y = 300x + 2$ ☐
$y = 300 + 0.02x$ ☐

Question 5 Cost object

Which of the following could be used as a cost object in an organisation's costing system (tick all that apply)?

(i) Customer number 879 ☐
(ii) Department A ☐
(iii) The finishing process in department A ☐

(iv) Product H ☐
(v) Employee number 776 ☐
(vi) Order processing activity ☐

Question 6 Direct cost and indirect cost

Which of the following costs would a local council classify as a direct cost of providing a door-to-door refuse collection service (tick all that apply)?

(i) Depreciation of the refuse collection vehicle ☐
(ii) Wages paid to refuse collectors ☐
(iii) Cost of leaflets sent to customers to advertise refuse collection times and dates ☐
(iv) Employer's liability insurance premium to cover all council employees ☐

Question 7 Full cost

Is the following statement true or false?

'The only cost that is really useful in setting a selling price for a particular service to be provided is the full cost'.

True ☐ False ☐

Question 8 Inventory valuation

ABC Ltd had an opening inventory value of £880 (275 units valued at £3.20 each) on 1 April.

The following receipts and issues were recorded during April:

8 April	Receipts 600 units	£3.00 per unit
12 April	Issues 200 units	
15 April	Receipts 400 units	£3.40 per unit
30 April	Issues 925 units	

Using the FIFO or LIFO method, what was the total value of the issues on 30 April?

	FIFO	*LIFO*
(A)	£2,850	£2,935
(B)	£2,850	£2,960
(C)	£2,890	£2,935
(D)	£2,890	£2,960

Question 9 Inventory valuation

The effect of using the last in, first out (LIFO) method of inventory valuation rather than the first in, first out (FIFO) method in a period of rising prices is

(A) to report lower profits and a lower value of closing inventory.
(B) to report higher profits and a higher value of closing inventory.
(C) to report lower profits and a higher value of closing inventory.
(D) to report higher profits and a lower value of closing inventory.

Question 10 Inventory valuation

Is the following statement *true* or *false?*

With all average price systems where it is required to keep prices up to date, the average price must be recalculated each time an issue is made from inventory. True ☐ False ☐

Question 11 Economic value

The R Organisation is experiencing rapid inflation in its raw material prices. Which of the following inventory valuation methods is most likely to ensure that the prices at which material issues are charged to cost of production approximate the economic cost of the materials?

First In, First Out (FIFO) ☐
Last In, Last Out (LIFO) ☐
Average cost (AVCO) ☐

Question 12 Inventory valuation methods

The following extract is taken from the stores ledger record for material M:

Date		*Receipts*			*Issues*			*Balance*	
September	*Qty*	*Price*	*£*	*Qty*	*Price*	*£*	*Qty*	*Price*	*£*
1							12		18.00
3	6	2.10	12.60				18		30.60
7	8	2.35	18.80				26		49.40
12				5		**A**			
14				8		**B**			**C**

The values that would be entered on the stores ledger record as A, B and C are:

(a) Using FIFO:
A £ ☐
B £ ☐
C £ ☐

(b) Using LIFO:
A £ ☐
B £ ☐
C £ ☐

(c) Using weighted average (AVCO):
A £ ☐
B £ ☐
C £ ☐

Question 13 Direct cost

Wages paid to which of the following would be classified as direct labour costs of the organisation's product or service (tick all that apply):

A driver in a taxi company ☐
A carpenter in a construction company ☐
An assistant in a factory canteen ☐
A hair stylist in a beauty salon. ☐

Question 14 Cost attribution

A method of accounting for overheads involves attributing them to cost units using predetermined rates. This is known as

(A) overhead allocation.
(B) overhead apportionment.
(C) overhead absorption.
(D) overhead analysis.

Question 15 Overhead absorption

A company absorbs overheads on standard machine hours which were budgeted at 11,250 with overheads of £258,750. Actual results were 10,980 standard machine hours with overheads of £254,692.

Overheads were:

(A) under-absorbed by £2,152.
(B) over-absorbed by £4,058.
(C) under-absorbed by £4,058.
(D) over-absorbed by £2,152.

Question 16 Overhead absorption rates

XX Ltd absorbs overheads based on units produced. In one period, 23,000 units were produced, actual overheads were £276,000 and there was £46,000 under absorption.

The budgeted overhead absorption rate per unit was:

(A) £10
(B) £12
(C) £13
(D) £14.

Question 17 Overhead absorption

Tick the box to indicate whether the overhead was over- or under-absorbed, and insert the value of the under- or over-absorption.

XY operates a standard absorption costing system. Data for last period are as follows:

Budgeted labour hours	48,500
Actual standard labour hours	49,775
Budgeted overheads	£691,125
Actual overheads	£746,625

To the nearest whole number, the overhead for the period was £ ☐

under-absorbed ☐
over-absorbed. ☐

Question 18 Overhead analysis

TRI-D Ltd has three production departments – Extrusion, Machining and Finishing – and a service department known as Production Services which works for the production departments in the ratio of 3:2:1.

The following data, which represent normal activity levels, have been budgeted for the period ending 31 December 20X6:

	Extrusion	*Machining*	*Finishing*	*Production Services*	*Total*
Direct labour hours	7,250	9,000	15,000		31,250
Machine hours	15,500	20,000	2,500	2,000	40,000
Floor area (m^2)	800	1,200	1,000	1,400	4,400
Equipment value	£160,000	£140,000	£30,000	£70,000	£400,000
Employees	40	56	94	50	240

Requirements

(a) The template being used by the management accountant to analyse the overheads for the period is shown below:

Cost allocated	*Basis*	*Extrusion* £	*Machining* £	*Finishing* £	*Production Services* £	*Total* £
Indirect wages	Allocated					102,000
Apportioned						
Depreciation	Equipment value		**A**			84,000
Rates	Floor area	**B**				22,000
Power				**C**		180,000
Personnel					**D**	60,000
Other						48,000
					109,600	
Production services		**E**			(109,600)	
					–	496,000

The values that would be entered on the overhead analysis sheet at A to E are:

A ☐
B ☐
C ☐
D ☐
E ☐

(b) After completion of the allocation, apportionment and reapportionment exercise, the total departmental overheads are:

Extrusion	*Machining*	*Finishing*
£206,350	£213,730	£75,920

Calculate appropriate overhead absorption rates (to two decimal places) for the period ending 31 December 20X6 and tick the box to indicate in each case whether labour hours or machine hours are to be used as the absorption basis:

(i) Extrusion department:	£ ☐	for each: labour hour	☐
		machine hour	☐
(ii) Machining department:	£ ☐	for each: labour hour	☐
		machine hour	☐
(iii) Finishing department:	£ ☐	for each: labour hour	☐
		machine hour	☐

(c) Which of the following are specific order costing systems:

(i) Contract costing ☐
(ii) Batch costing ☐
(iii) Process costing ☐
(iv) Job costing. ☐

Question 19 Overhead analysis

(a) The management accountant of X Ltd is preparing the budgeted overhead analysis sheet for the year 20X2/X3. The company has two production cost centres (Machining and Assembly) and two service departments (Stores and Maintenance). The directly attributable production overheads have already been allocated to the cost centres but other costs need to be apportioned. A section of the template being used by the management accountant and other information are shown below:

Overhead analysis sheet 20X2/3

Costs	*Basis of apportionment*	*Machining* £	*Assembly* £	*Stores* £	*Maintenance* £	*Total* £
Various	Allocated	1,105,000	800,000	90,000	350,000	2,345,000
Rent	Area occupied		**A**			750,000
Personnel dept			**B**			60,000
Equipment dep'n		**C**				200,000

Other information

	Departments			
	Machining	*Assembly*	*Stores*	*Maintenance*
Employees	75	210	25	40
Area occupied (square metres)	10,000	6,000	3,000	1,000
Cost of equipment £	1,200,000	150,000	50,000	200,000
Machine hours	500,000	50,000		
Direct labour hours	30,000	120,000		

The values that would be entered on the overhead analysis sheet in the boxes A, B and C are:

A £ ☐
B £ ☐
C £ ☐

(b) When the allocation and apportionment exercise had been completed by the management accountant, the analysis showed:

	Machining	*Assembly*	*Stores*	*Maintenance*	*Total*
	£	£	£	£	£
Total	2,250,000	1,900,000	250,000	800,000	5,200,000

The management accountant has now established the workloads of the service departments. The service departments provide services to each other as well as to the production departments as shown below:

	Machining	*Assembly*	*Stores*	*Maintenance*
Stores	30%	30%	–	40%
Maintenance	45%	30%	25%	–

After the apportionment of the service department overheads to the production departments (and acknowledging the reciprocal servicing), the total overhead for the machining department will be £ ☐ (to the nearest £000).

Question 20 Elements of cost

Data concerning one unit of product B produced last period are as follows.

Direct material 3 kg @ £9 per kg
Direct labour: department A 4 hours @ £14 per hour
department B 6 hours @ £11 per hour
Machine hours: department A 3 hours
department B 2 hours

Production overhead is absorbed at a rate of £7 per direct labour hour in department A and £6 per machine hour in department B.

(a) The direct cost per unit of product B is £ ☐
(b) The full production cost per unit of product B is £ ☐

Question 21 Pricing to achieve a specified return on investment

Data for product Q are as follows.

Direct material cost per unit	£54
Direct labour cost per unit	£87
Direct labour hours per unit	11hours
Production overhead absorption rate	£7 per direct labour hour
Mark-up for non-production overhead costs	3%

10,000 units of product Q are budgeted to be sold each year. Product Q requires an investment of £220,000 and the target rate of return on investment is 14 per cent per annum.

The selling price for one unit of product Q, to the nearest penny is £ ☐.

Question 22 Breakeven analysis

Data for questions 22 and 23

JJ Ltd manufactures a product which has a selling price of £14, a variable cost of £6 per unit. The company incurs annual fixed costs of £24,400. Annual sales demand is 8,000 units.

New production methods are under consideration, which would cause a 30 per cent increase in fixed costs and a reduction in variable cost to £5 per unit. The new production methods would result in a superior product and would enable sales to be increased to 8,500 units per annum at a price of £15 each.

If the change in production methods were to take place, the breakeven output level would be:

(A) 122 units higher
(B) 372 units higher
(C) 610 units lower
(D) 915 units higher

Question 23 Breakeven analysis

If the organisation implements the new production methods and wishes to achieve the same profit as that under the existing method, how many units would need to be produced and sold annually to achieve this?

(A) 7,132 units
(B) 8,000 units
(C) 8,500 units
(D) 9,710 units

Question 24 Breakeven analysis

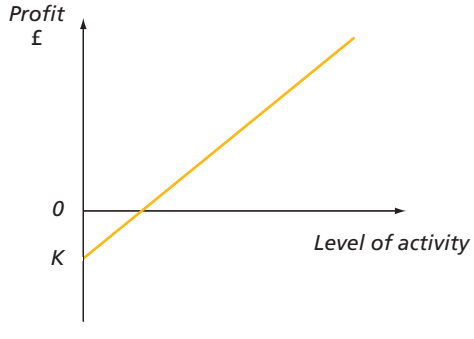
X Ltd produces and sells a single product, which has a contribution to sales ratio of 30 per cent. Fixed costs amount to £120,000 each year.

The number of units of sale required each year to break even:

(A) is 156,000.
(B) is 171,428.
(C) is 400,000.
(D) cannot be calculated from the data supplied.

Question 25 Breakeven graph

The following graph relates to questions 25 and 26



Point K on the graph indicates the value of:

(A) semi-variable cost.
(B) total cost.
(C) variable cost.
(D) fixed cost.

Question 26 Breakeven graph

This graph is known as a:

(A) conventional breakeven chart.
(B) contribution breakeven chart.
(C) semi-variable cost chart.
(D) profit–volume chart.

Question 27 Cost analysis

A company makes a single product which generates a contribution to sales ratio of 30 per cent. In a period when fixed costs were £30,000 the net profit was £56,400. Direct wages are 20 per cent of variable costs.

The direct wages cost for the period was £ ☐.

Question 28 Breakeven analysis

Tick the correct boxes.

A company makes and sells a single product. If the fixed costs incurred in making and selling the product increase:

	Increase	*Decrease*	*Stay the same*
(a) the breakeven point will	☐	☐	☐
(b) the contribution to sales ratio will	☐	☐	☐
(c) the margin of safety will	☐	☐	☐

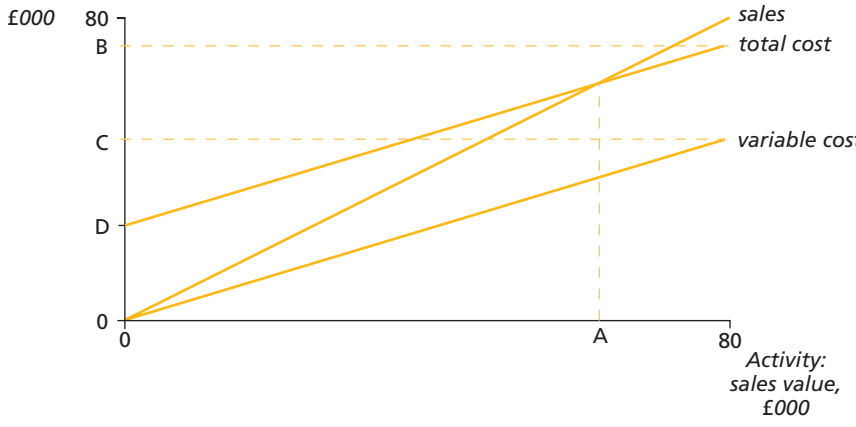
Question 29 Cost behaviour/breakeven chart

Z plc operates a single retail outlet selling direct to the public. Profit statements for August and September are as follows:

	August £	*September* £
Sales	80,000	90,000
Cost of sales	50,000	55,000
Gross profit	30,000	35,000
Less:		
Selling and distribution	8,000	9,000
Administration	15,000	15,000
Net profit	7,000	11,000

The data for August has been used to draw the following breakeven chart:

Contribution breakeven chart



Requirements

The values of A–D read from the chart would be:

A £ ☐
B £ ☐
C £ ☐
D £ ☐.

Question 30 Limiting factor

The following budgeted information is available for a company that manufactures four types of specialist paints:

	Product W per batch £	*Product X per batch* £	*Product Y per batch* £	*Product Z per batch* £
Selling price	20.00	15.00	15.00	17.50
Variable overhead	9.60	6.00	9.60	8.50
Fixed overhead	3.60	3.00	2.10	2.10
Profit	6.80	6.00	3.30	6.90
Machine hours per batch	12	9	6	11

All four products use the same machine.

In a period when machine hours are in short supply, the product that makes the most profitable use of machine hours is:

(A) Product W
(B) Product X
(C) Product Y
(D) Product Z.

Question 31 Limiting factor decision-making

Triproduct Ltd makes and sells three types of electronic security systems for which the following information is available:

Standard cost and selling prices per unit

	Product		
	Day scan	*Night scan*	*Omni scan*
	£	£	£
Materials	70	110	155
Manufacturing labour	40	55	70
Installation labour	24	32	44
Variable overheads	16	20	28
Selling price	250	320	460

Fixed costs for the period are £450,000 and the installation labour is available for 25,000 hours only in a period and is paid £8 per hour.

Both manufacturing and installation labour are variable costs.

The maximum demand for the products is:

Day scan	2,000 units
Night scan	3,000 units
Omni scan	1,800 units

Requirements

(a) The shortfall in hours of installation labour each period is ☐ hours.

(b) In order to maximise profits for the next period, the optimum production plan is:

Day scan	☐ units
Night scan	☐ units
Omni scan	☐ units.

Question 32 Standard costing

Which of the following are *not* provided by a system of standard costing and variance analysis?

(A) Unit standard costs as a benchmark for comparison.

(B) Variances to direct managers' attention where control action will be most worthwhile.

(C) Actual unit costs to be incurred in the future.

(D) Unit standard costs for budgetary planning.

Question 33 Standard cost

JR Limited produces product H. The standard cost card indicates that each unit of H requires 4 kg of material W and 2 kg of material X at a standard price of £1 and £5 per kg, respectively.

Standard direct labour hours required per unit are 14 at a standard rate of £8 per hour. Variable production overheads are absorbed at a rate of £4 per direct labour hour.

The standard variable production cost of one unit of product H is £ ☐.

Question 34 Variance analysis

Data for questions 34–36

PP Ltd has prepared the following standard cost information for one unit of product X:

Direct materials	2 kg @ £13/kg	£26.00
Direct labour	3.3 hours @ £12/hour	£39.60
Variable overheads	3.3 hours @ £2.50	£8.25

Actual results for the period were recorded as follows:

Production	12,000 units
Materials – 26,400 kg	£336,600
Labour – 40,200 hours	£506,520
Variable overheads	£107,250

All of the materials were purchased and used during the period.

The direct material price and usage variances are:

	Material price	*Material usage*
(A)	£6,600F	£31,200A
(B)	£6,600F	£31,200F
(C)	£31,200F	£6,600A
(D)	£31,200A	£6,600A

Question 35 Variance analysis

The direct labour rate and efficiency variances are:

	Labour rate	*Labour efficiency*
(A)	£24,120F	£7,200F
(B)	£24,120A	£7,200A
(C)	£24,120A	£7,560A
(D)	£31,320A	£7,200A

Question 36 Variance analysis

The variable overhead expenditure and efficiency variances are:

	Expenditure	*Efficiency*
(A)	£6,750A	£1,500A
(B)	£6,750A	£1,500F
(C)	£8,250A	£1,500A
(D)	£8,250F	£1,500F

Question 37 Materials variances

In a period, 11,280 kg of material were used at a total standard cost of £46,248. The material usage variance was £492 adverse. What was the standard allowed weight of material for the period?

(A) 11,520 kg
(B) 11,280 kg
(C) 11,394 kg
(D) 11,160 kg.

Question 38 Labour variances

In a period, 6,500 units were made and there was an adverse labour efficiency variance of £26,000. Workers were paid £8 per hour, total wages were £182,000 and there was a nil rate variance.

How many standard labour hours were allowed per unit?

(A) 3
(B) 3.5
(C) 4
(D) They cannot be calculated without more information.

Question 39 Variance analysis

During a period, 25,600 labour hours were worked at a standard rate of £7.50 per hour. The direct labour efficiency variance was £8,250 adverse.

The number of standard hours produced was _____.

Question 40 Sales variances

Budgeted sales of product V are 4,800 units per month. The standard selling price and variable cost of product V are £45 per unit and £22 per unit respectively.

During June the sales revenue achieved from actual sales of 4,390 units of product V amounted to £231,900.

(a) The sales price variance for product V for June was £ _____ adverse/favourable (delete as appropriate).
(b) The sales volume contribution variance for product V for June was £ _____ adverse/favourable (delete as appropriate).

Question 41 Profit reconciliation

The following variances have been calculated for the latest period:

	£
Sales volume contribution variance	11,245 (F)
Material usage variance	6,025 (F)
Labour rate variance	3,100 (A)
Variable overhead expenditure variance	2,415 (A)

All other variances were zero. The budgeted contribution for the period was £48,000. The actual contribution reported for the period was £ ☐.

Question 42 Variance interpretation I

The direct labour efficiency variance for the latest period was adverse. Which of the following reasons could have contributed to this variance? (tick all that apply).

(a) Output was higher than budgeted ☐
(b) The purchasing department bought poor quality material which was difficult to process ☐
(c) The original standard time for the output was set too low ☐
(d) The hourly labour rate was higher than had been expected when the standard was set ☐
(e) Employees were more skilled than specified in the standard ☐

Question 43 Variance interpretation II

The sales volume contribution variance for the latest period was favourable. Which of the following reasons could have contributed to this variance? (tick all that apply).

(a) A lower selling price was charged than standard ☐
(b) The variable cost per unit was lower than standard, which led to a higher actual contribution per unit than standard ☐
(c) Demand for the product was greater than had been expected ☐

Question 44 Labour incentive scheme

A company operates a premium bonus system by which employees receive a bonus of 75 per cent of the time saved compared with a standard time allowance (at the normal hourly rate).

Details relating to employee X are shown below:

Actual hours worked	42
Hourly rate of pay	£10
Output achieved	400 units of product Y
Standard time allowed per unit of Y	7 minutes

The bonus payable to employee X (to the nearest £) is:

(A) £35
(B) £47
(C) £70
(D) £82.

Question 45 Integrated accounts

A company operates an integrated cost and financial accounting system. The accounting entries for the return to stores of unused direct materials from production would be:

	Debit	*Credit*
(A)	Work in progress account	Stores control account
(B)	Stores control account	Work in progress account
(C)	Stores control account	Finished goods account
(D)	Cost of sales account	Work in progress account

Question 46 Integrated accounts

ABC Ltd operates an integrated cost accounting system. The production overhead control account at 31 July, which is ABC Ltd's year-end, showed the following information:

Production overhead control account

	£		£
Trade payables	50,000	Work in progress	120,000
Bank	20,000	?	5,000
Depreciation	5,000		
Salaries	40,000		
Materials	10,000		
	125,000		125,000

The £5,000 credit entry represents the value of the transfer to:

(A) the income statement for the under-recovery of production overheads.
(B) the income statement for the over-recovery of production overheads.
(C) the work in progress account for the under-recovery of production overheads.
(D) the following period.

Question 47 Integrated accounts

Wages incurred last period amounted to £33,400, of which £27,400 were direct wages and £6,000 were indirect production wages. Wages paid in cash were £31,700.

Which of the following entries would arise as a result of these transactions? (Tick all that are correct.)

			£	
(a)	Debit	Wages control account	33,400	☐
(b)	Debit	Wages control account	31,700	☐
(c)	Debit	Work in progress account	27,400	☐
(d)	Debit	Production overhead control account	6,000	☐
(e)	Credit	Wages control account	33,400	☐
(f)	Credit	Wages control account	31,700	☐
(g)	Credit	Work in progress account	27,400	☐
(h)	Credit	Production overhead control account	6,000	☐

Question 48 Integrated accounting system

WYZ Limited operates an integrated accounting system.

The following information was available for period 7:

	£
Cost of finished goods produced	1,241,500
Direct wages	173,400
Direct material issues	598,050
Indirect material issues	32,800
Direct material purchases on credit	617,300
Production overheads (actual expenditure)	359,725
Depreciation of production machinery	35,000

At the beginning of the period, the relevant account balances were:

Account	£
Work in progress control	125,750
Direct material stores control	48,250

Production overheads are absorbed on the basis of 280 per cent of direct wages cost. Any production overheads under- or over-absorbed for the period are transferred to the income statement at the end of the period.

Requirements

(a)

Direct material stores control account (extract)

	£		£
Balance b/f	**A**	Work in progress	**B**
Payables	**C**	Production overhead control	**D**

The values that would be entered as A–D in the above account extract are:

A £ ☐

B £ ☐

C £ ☐

D £ ☐

(b) (i) The production overheads for the period were:

under-absorbed ☐
over-absorbed ☐

(ii) The value of the under-/over-absorption was £ ☐

(iii) This amount will be transferred as a:

credit ☐
debit ☐

in the income statement at the end of the period.

Question 49 Standard cost bookkeeping

A company uses standard costing and an integrated accounting system. The double entry to record a favourable labour rate variance is:

	Debit	*Credit*
(A)	Work in progress account	Labour rate variance account
(B)	Labour rate variance account	Work in progress account
(C)	Wages control account	Labour rate variance account
(D)	Labour rate variance account	Wages control account

Question 50 Standard cost bookkeeping

STD Ltd operates an integrated standard costing system for its single product. All inventories are valued at standard price.

During a period the following variances were recorded:

	Favourable £	*Adverse* £
Material price		3,950
Material usage	1,925	
Labour rate		1,325
Labour efficiency	1,750	

(a) Tick the correct boxes to show the entries that will be made to record the material price variance.

	Debit	*Credit*	*No entry in this account*
Materials control account	☐	☐	☐
Material price variance account	☐	☐	☐
Work in progress account	☐	☐	☐

(b) Tick the correct boxes to show the entries that will be made to record the material usage variance.

	Debit	*Credit*	*No entry in this account*
Materials control account	☐	☐	☐
Material usage variance account	☐	☐	☐
Work in progress account	☐	☐	☐

(c) The labour force was paid at a:

higher hourly rate than standard ☐
lower hourly rate than standard ☐.

(d) Tick the correct boxes to show the entries that will be made to record the labour efficiency variance.

	Debit	*Credit*	*No entry in this account*
Wages control account	☐	☐	☐
Labour efficiency variance account	☐	☐	☐
Work in progress account	☐	☐	☐

Question 51 Specific order costing

PZ Ltd undertakes work to repair, maintain and construct roads. When a customer requests the company to do work, PZ Ltd supplies a fixed price to the customer, and allocates a works order number to the customer's request. This works order number is used as a reference number on all documentation to enable the costs of doing the work to be collected.

PZ Ltd's financial year ends on 31 December. At the end of December 20X1, the data shown against four of PZ Ltd's works orders were as follows:

Works order number	*488*	*517*	*518*	*519*
Date started	1.11.X0	1.10.X1	14.11.X1	20.11.X1
Estimated completion date	28.2.X2	30.7.X2	31.1.X2	31.1.X2
Selling price	£450,000	£135,000	£18,000	£9,000

The most appropriate costing method for accounting for each of the four works order numbers is:

Works order number	*Contract costing*	*Job costing*
(i) 488	☐	☐
(ii) 517	☐	☐
(iii) 518	☐	☐
(iv) 519	☐	☐

Question 52 Job costing

An accountant is to set up in private practice. She anticipates working a 35-hour week and taking four weeks' holiday per year. General expenses of the practice are expected to be £20,000 per year, and she has set herself a target of £40,000 a year salary.

Assuming that only 75 per cent of her time worked will be chargeable to clients, what should she quote (to the nearest £) for a job anticipated to take 50 hours?

(A) £1,587
(B) £1,786
(C) £2,381
(D) £2,976.

Question 53 Job costing

A company has been asked to quote for a job. The company aims to make a net profit of 30 per cent on sales. The estimated cost for the job is as follows:

Direct materials	10 kg @ £10 per kg
Direct labour	10 hours @ £10 per hour

Variable production overheads are recovered at the rate of £4 per labour hour.

Fixed production overheads for the company are budgeted to be £200,000 each year and are recovered on the basis of labour hours. There are 10,000 budgeted labour hours each year.

Other costs in relation to selling, distribution and administration are recovered at the rate of £50 per job.

The company quote for the job should be:

(A) £572
(B) £637
(C) £700
(D) £833.

Question 54 Job/batch costing

Acme Electronics Ltd makes specialist electronic equipment to order. There are three main departments: Preparation, Etching and Assembly. Preparation and Etching are departments which use a considerable amount of machinery while Assembly is mainly a manual operation using simple hand tools.

For period 7, the following budgets have been prepared:

	Production overheads	
Department	£	*Activity*
Preparation	165,000	3,000 machine hours
Etching	98,000	1,400 machine hours
Assembly	48,600	1,800 labour hours

During the period, an enquiry is received for a batch of 200 control units for which the following estimates have been made:

Total direct materials	£26,500
Preparation	260 machine hours
	90 labour hours at £8 per hour
Etching	84 machine hours
	130 labour hours at £7 per hour
Assembly	180 labour hours at £6 per hour

Requirements

(a) (i) The prime cost of the batch of 200 control units is £ ☐

(ii) The production overhead cost of the batch of 200 control units is:

Preparation Department overheads: £ ☐
Etching Department overheads: £ ☐
Assembly Department overheads: £ ☐

(b) After an addition has been made to the batch cost to cover administrative overheads, the total cost of the batch of 200 control units is £65,100.

If the company wishes to achieve a 30 per cent profit margin on sales, the price per control unit which should be quoted is £ [ ].

Question 55 Specific order costing

SS Developments Ltd is currently converting a former hospital into residential apartments.

The contract commenced on 1 March 20X0 and is expected to take a year and a half to complete. The contract value is £10 million. SS Developments Ltd's financial year runs from 1 January to 31 December.

The contract account for the building of the apartments includes the following data at 31 December 20X0:

	£000
Materials delivered direct to site	1,200
Materials issued from head office stores	200
Plant delivered to site at cost	900
Estimated costs to completion	2,640

Depreciation on plant is to be provided at the rate of 20 per cent on cost each year. The estimated value of the materials on site at 31 December 20X0 was £180,000.

The company recognises profit on contracts according to the proportion of the total estimated contract cost that is represented by the cost incurred to date.

Requirements

(a) The total materials cost of the contract to 31 December 20X0 is £ [ ].
(b) The net book value of the plant on site at 31 December 20X0 is £ [ ].
(c) The total cost incurred to date, including the cost of materials and plant depreciation, is £3,360,000. The profit to be recognised on the contract is £ [ ].

Question 56 Process costing

Data for sub-questions 56.1–56.3

A company produces a single product that passes through two processes. The details for process 1 are as follows:

Materials input	20,000 kg at £2.50 per kg
Direct labour	£15,000
Production overheads	150 per cent of direct labour

Normal losses are 15 per cent of input in process 1 and without further processing any losses can be sold as scrap for £1 per kg.

The output for the period was 18,500 kg from process 1.

There was no work in progress at the beginning or at the end of the period.

56.1 What value (to the nearest £) will be credited to the process 1 account in respect of the normal loss?

(A) Nil
(B) £3,000
(C) £4,070
(D) £5,250.

56.2 What is the value (to the nearest £) of the abnormal loss/gain for the period in process 1?

(A) £6,104
(B) £6,563
(C) £7,257
(D) £7,456.

56.3 What is the value (to the nearest £) of the output to process 2?

(A) £88,813
(B) £90,604
(C) £91,956
(D) £94,063.

Question 57 Process costing

A cleansing detergent is manufactured by passing raw material through two processes. The details of the process costs for Process 1 for April were as follows:

Opening work in progress	5,000 litres valued as follows:	
	Material cost	£2,925
	Conversion costs	£6,600
Raw material input	50,000 litres valued at a cost of	£37,500
Conversion costs		£62,385

Normal loss is 3% of the input during the period and has a scrap value of £0.20 per litre. It is company policy to deduct the income from the sale of normal loss from that period's materials cost.

Actual output to Process 2	49,000 litres
Closing work in progress	4,000 litres, which were 100% complete for materials and 40% complete for conversion costs.

A template that could be used to calculate the cost of the output from Process 1 is shown below. The template has been partially completed.

	Costs		*Equivalent litres*		*Cost per equivalent litre*
	OWIP + Period = Total		Transfer out + Abnormal loss + CWIP = Total		
Materials	£2,925 + A		500		£0.75
Conversion		= £68,985		= 51,100	£1.35

OWIP = Opening work in progress
CWIP = Closing work in progress

(a) The value to be inserted in the table at **A** is £ ☐
(b) The total value of the transfers to process 2 is £ ☐
(c) The value of the abnormal loss is £ ☐
(d) The value of the closing work in progress is £ ☐.

Question 58 Process costing

Industrial Solvents Ltd mixes together three chemicals – A, B and C – in the ratio 3:2:1 to produce Allklean, a specialised anti-static fluid. The chemicals cost £8, £6 and £3.90 per litre, respectively.

In a period, 12,000 litres in total were input to the mixing process. The normal process loss is 5 per cent of input and in the period there was an abnormal loss of 100 litres, while the completed production was 9,500 litres. There was no opening work in progress (WIP) and the closing WIP was 100 per cent complete for materials and 40 per cent complete for labour and overheads. Labour and overheads were £41,280 in total for the period. Materials lost in production are scrapped.

Requirements

(a) The number of equivalent litres of labour and overhead produced during the period was ☐ equivalent litres.
(b) The cost per equivalent litre of materials produced was £ ☐.

Question 59 Process costing

A company manufactures a variety of liquids which pass through a number of processes. One of these products, P, passes through processes 1, 2 and 3 before being transferred to the finished goods warehouse.

The following process 3 data is available for October:

	£
Work in process at 1 October is 6,000 units, valued as:	
Transfer from process 2	14,400
Materials added	2,160
Wages and overhead	2,880
	19,440
Transfer from process 2 during October:	
48,000 units	110,400
Transferred to finished goods: 46,500 units	
Costs incurred:	
Materials added	27,180
Wages and overhead	54,720
Work in process at 31 October: 4,000 units	
Degree of completion:	
Materials added: 50%	
Wages and overhead: 30%	

Normal loss in process: 6% × (units in opening WIP *plus* transfers from process 2 *less* closing WIP)

At a certain stage in the process, it is convenient for the quality control inspector to examine the product and, where necessary, to reject it. Rejected products are sold for £0.80 per unit. During October an actual loss of 7 per cent was incurred, with product P having reached the following stage of production:

Direct materials added: 80%
Wages and overhead: 60%

Requirements

The cost per equivalent unit produced was:

(a) process 2 input: £ ☐ per equivalent unit
(b) material added: £ ☐ per equivalent unit
(c) wages and overhead: £ ☐ per equivalent unit.

Question 60 Subjective classification

Tick the relevant box to indicate whether the following statement is true or false.

'The classification of expenditure items according to the cost centre or cost unit to be charged is known as subjective classification'.

True ☐ False ☐

Question 61 Code number

In the composite code number 544.221, the first three digits indicate the nature of the expenditure and the last three digits indicate the cost object to be charged with the expenditure.

Delete as appropriate in the following statements.

(a) 544 indicates the **objective/subjective** classification of the expenditure item.
(b) 221 indicates the **objective/subjective** classification of the expenditure item.

Question 62 Managerial reporting in a service organisation

Speedee Ltd has three main divisions – a motor-cycle courier service, a domestic parcel delivery service, and a bulk parcel service for industry.

The following information is available for a period:

	Courier service	*Domestic parcels*	*Bulk parcels*
Sales (£000)	205	316	262
Distance travelled (000 km)	168	82	54

Variable costs vary both with the distance travelled and also the type of vehicle used, and are £307,800 for the company as a whole. A technical estimate shows that the various vehicles used for the three services incur variable costs per kilometre in the ratio of 1:3:5, respectively, for the courier service, domestic parcels and bulk parcels.

Requirements

The contribution for each service for the period is:

(a) courier service: £ ☐
(b) domestic parcels: £ ☐
(c) bulk parcels: £ ☐.

Question 63 Value added

An extract from the performance report of the F Division for the latest period is as follows.

	£	£
Sales revenue		289,500
Cost of goods sold		
Material costs	89,790	
Labour costs	72,340	
Production overhead	54,030	
		216,160
Gross margin		73,340
Marketing overhead	21,890	
General and administration overhead	38,120	
		60,010
Net profit		13,330

The following salary costs are included within the overhead costs.

	Salary cost included
Production overhead	£10,710
Marketing overhead	£14,560
General and administration overhead	£21,330

For the F Division for the latest period, the value added was £ ☐.

Question 64 Managerial reporting in a charity

As part of its fundraising and awareness-raising activities a charity operates a number of retail shops, selling new and donated second-hand goods.

Data for the latest period for the Southmere shop are as follows.

	£
Sales income	
New goods	6,790
Donated goods sold to customers	4,880
Purchase cost of new goods	3,332
Cost of laundering and cleaning selected donated goods	120
Delivery cost paid for new goods	290
Other income: low-quality donated goods sold for recycling	88
Salary costs	810
Amount paid to valuer to assess selected donated items	30
General overhead costs	1,220

(a) The gross margin generated by second-hand donated goods sold was £ ☐
(b) The gross margin generated by new goods sold was £ ☐

Question 65 The role of budgets

Which of the following is *not* a main role of a budget?

(A) A budget gives authority to budget managers to incur expenditure in their area of responsibility.
(B) A budget provides a means for an organisation to expand its activities.
(C) A budget coordinates the activities of various parts of the organisation.
(D) A budget acts as a comparator for current performance.

Question 66 Principal budget factor

A principal budget factor is:

(A) the highest value item of cost.
(B) a factor which limits the activities of an undertaking.
(C) a factor common to all budget centres.
(D) a factor controllable by the manager of the budget centre.

Question 67 IT in the budget process

Which of the following are benefits of using a computerised budget system as opposed to a manual one (tick all that are correct):

(a) ☐ data used in drawing up the budget can be processed more quickly.
(b) ☐ budget targets will be more acceptable to the managers responsible for their achievement.
(c) ☐ changes in variables can be incorporated into the budget more quickly.
(d) ☐ the principal budget factor can be identified before budget preparation begins.
(e) ☐ continuous budgeting is only possible using a computerised system.

Question 68 Production budget

AB Ltd is currently preparing its production budget for product Z for the forthcoming year. The sales director has confirmed that he requires 120,000 units of product Z. Opening inventory is estimated to be 13,000 units and the company wishes to reduce inventory at the end of the year by 50 per cent. How many units of product Z will need to be produced?

(A) 113,500 units
(B) 120,000 units
(C) 126,500 units
(D) 133,000 units.

Question 69 Material budget

A company is currently preparing a material usage budget for the forthcoming year for material Z that will be used in product XX. The production director has confirmed that the production budget for product XX will be 10,000 units.

Each unit of product XX requires 4 kg of material Z. Opening inventory of material Z is budgeted to be 3,000 kg and the company wishes to reduce inventory at the end of the year by 25 per cent.

What is the *usage* budget for material Z for the forthcoming year?

(A) 34,750 kg
(B) 39,250 kg
(C) 40,000 kg
(D) 40,750 kg.

Question 70 Functional budgets

Budgeted sales of product P for next month are 4,000 units. Each unit of P requires 2 kg of raw material. Other budget information for next month is as follows:

Raw materials	
Opening inventories	3,000 kg
Closing inventories	4,500 kg
Finished product P	
Opening inventories	2,400 units
Closing inventories	1,800 units

The budgeted purchases of raw material for next month should be:

(A) 8,000 kg
(B) 8,300 kg
(C) 9,500 kg
(D) 12,500 kg.

Question 71 Cash budget

The following details have been extracted from the receivables collection records of X Ltd:

Invoices paid in the month after sale	60%
Invoices paid in the second month after sale	20%
Invoices paid in the third month after sale	15%
Bad debts	5%

Credit sales for June to August are budgeted as follows:

June	£100,000
July	£150,000
August	£130,000

Customers paying in the month after sale are entitled to deduct a 2 per cent settlement discount. Invoices are issued on the last day of the month. The amount budgeted to be received in September from credit sales is

(A) £115,190
(B) £116,750
(C) £121,440
(D) £123,000.

Question 72 Budgetary control

Tick the correct box.

A budget which is designed to show the allowed expenditure for the actual level of activity achieved is known as

a rolling budget ☐
a flexible budget ☐
a fixed budget ☐

Question 73 Functional budgets

RD Ltd is in the process of preparing its budgets for 20X2. The company produces and sells a single product, Z, which currently has a selling price of £100 for each unit.

The budgeted sales units for 20X2 are expected to be as follows:

J	*F*	*M*	*A*	*M*	*J*	*J*	*A*	*S*	*O*	*N*	*D*
5,000	5,500	6,000	6,000	6,250	6,500	6,250	7,000	7,500	7,750	8,000	7,500

The company expects to sell 7,000 units in January 20X3.

The selling price for each unit will be increased by 15 per cent with effect from 1 March 20X2.

A total of 1,000 units of finished goods are expected to be in inventory at the end of 20X1. It is company policy to hold a closing inventory balance of finished goods equal to 20 per cent of the following month's sales.

Each unit of Z produced requires 3 kg of material X, which currently costs £5 per kg. This price is expected to increase by 10 per cent on 1 June 20X2.

Inventory of raw material at the end of 20X1 is expected to be 3,750 kg. The company requires the closing inventory of raw materials to be set at 20 per cent of the following month's production requirements.

The production of each unit of Z requires 4 hours of skilled labour and 2 hours of unskilled labour.

Requirements

(a) The sales budget for quarter 1 is £ ☐.
(b) The production budget for quarter 4 is ☐ units.
(c) The material usage budget for quarter 2 is ☐ kg.
(d) The material purchase budget for quarter 1 is £ ☐.
(e) The direct labour budget for quarter 3 is ☐ hours.

Question 74 Cash budget

The following data and estimates are available for ABC Limited for June, July and August:

	June	*July*	*August*
	£	£	£
Sales	45,000	50,000	60,000
Wages	12,000	13,000	14,500
Overheads	8,500	9,500	9,000

The following information is available regarding direct materials:

	June	*July*	*August*	*September*
	£	£	£	£
Opening inventory	5,000	3,500	6,000	4,000
Material usage	8,000	9,000	10,000	

Notes

1. Ten per cent of sales are for cash: the balance is received the following month.
2. Wages are paid in the month in which they are incurred.
3. Overheads include £1,500 per month for depreciation. Overheads are settled in the month following.
4. Purchases of direct materials are paid for in the month purchased.

Requirements

(a) The budget value of direct materials purchases is:

June: £ ☐
July: £ ☐
August: £ ☐.

(b) The budgeted cash receivable from customers in August is £ ☐.

(c) The budgeted cash payable for wages and overhead in July is £ ☐.

Question 75 Flexible budgets

S Ltd makes a single product for which the budgeted costs and activity for a typical month are as follows:

Budgeted production and sales	15,000 units
Budgeted unit costs	£
Direct labour	46
Direct materials	30
Variable overheads	24
Fixed overheads	80
	180

The standard selling price of the product is £220 per unit.

Requirements

(a) During October, only 13,600 units were produced. The total budget cost allowance contained in the flexed budget for October is £ ☐.

(b) During November, 14,500 units were produced and sold at the standard selling price, and the following actual costs were incurred:

	£
Direct labour	658,000
Direct materials	481,400
Variable overheads	334,600
Fixed overheads	1,340,000
	2,814,000

(i) The sales volume contribution variance for November was £ ☐

adverse ☐
favourable ☐.

(ii) The total expenditure variance for November was £ ☐

adverse ☐
favourable ☐.

Question 76 Interpreting cash budgets

CB Ltd's cash budget forewarns of a short-term cash deficit. Which of the following would be appropriate actions to take in this situation (tick all that apply)?

(a) Arrange a bank overdraft ☐
(b) Reduce receivables ☐
(c) Increase inventories ☐
(d) Sell more shares in the company ☐

Question 77 Using budgets in management reward strategies

The maintenance manager is paid a bonus of 5 per cent of any savings he achieves against the flexible budget cost allowance for maintenance costs in the period.

The flexible budget cost allowance for the latest two periods was as follows.

	Activity level	*Budget cost allowance*
	Machine hours	£
Period 4	3,800	11,040
Period 5	4,320	11,976

During period 6, the actual maintenance expenditure was £10,990 and 4,090 machine hours were worked.

The bonus paid to the maintenance manager in period 6 is (to the nearest penny) £ ☐.

Solutions to Revision Questions

Solution 1

- Cost type X is clearly fixed for this range of activity levels.
- For the other costs, divide the total cost by the number of units at the head of the column. Variable costs result in a constant amount per unit of output. Semi-variable costs result in a varying amount per unit of output.

Answer: (B)

Cost type	*Cost per unit @ 100 units* £	*Cost per unit @ 140 units* £	
W	80	75.43	semi-variable
Y	65	65.00	variable
Z	67	61.29	semi-variable

Solution 2

- It might help to actually draw a rough sketch graph of each cost described. Then tick the boxes of the costs whose behaviour patterns resemble a flight of stairs.

Costs (ii) and (iii) are step costs. The total expenditure on these costs remains constant for a range of activity levels until a critical activity level is reached. At this point, the cost increases to a new level and then remains constant for a further range of activity levels.

Costs (i) and (iv) are non-linear variable costs. The gradient of a graph of cost (i) will become less steep as activity increases. The gradient of a graph of cost (iv) will become more steep as activity increases.

Solution 3

- You need to be completely familiar with the high–low method. The data shows that the technique can be applied in service situations as well as in manufacturing.
  Answer: (A)

1. Find the variable overheads per square metre:

   Extra m^2 cleaned = 15,100 − 12,750 = 2,350
   Extra overhead cost = £83,585 − £73,950 = £9,635
   Variable overhead per m^2 = £9,635/2,350 = £4.10

2. Find the fixed overhead:

	£
Total overheads of cleaning 12,750 m^2	= 73,950
Variable overheads = 12,750 × £4.10	= 52,275
Fixed overhead	= 21,675

3. Total overheads for 16,200 m^2:

	£
Variable overhead = 16,200 × £4.10	= 66,420
Fixed overhead	= 21,675
	88,095

Solution 4

- Do not be confused by the use of the y and x notation. You simply need to think through how to calculate the total cost of a semi-variable cost.
- Total semi-variable cost = fixed cost + (variable cost per unit × no. of units)

Answer: $y = 300 + 0.02x$

Solution 5

- An organisation's costing system is designed to provide the basic cost information that managers need in order to make operational and strategic planning and control decisions. For this purpose they may need to know the cost of a wide variety of items, ranging from a particular product or service to an individual customer.

All of the items described could be used as a cost object.

The CIMA *Terminology* provides the following description of a cost object: 'for example a product, service, centre, activity, customer or distribution channel in relation to which costs are ascertained'.

Solution 6

- A direct cost is a cost which can be specifically attributed to a single cost object without the need for any potentially arbitrary apportionments.

Costs (i), (ii) and (iii) are direct costs of the service because they can be specifically attributed to the service provided.

Cost (iv) is an indirect cost of the service because it applies to all council employees, not only to those who are providing the refuse collection service.

Solution 7

- Think carefully before you answer a true/false question like this. For a statement to be true it must apply in all circumstances.

The statement is false.

Although the full cost, which includes absorbed overhead, shows the long run average cost that will be incurred per unit of service provided, it might be necessary to consider the marginal or incremental cost when making a special, one-off pricing decision.

Solution 8

- You will need to produce some clear workings for your own benefit, since workings will not be awarded marks. You might like to draw up full inventory records to ensure greater accuracy.

Answer: (D)

Under FIFO the 200 units issued on 12 April would have been priced at £3.20 from the opening inventory. Therefore the remaining 75 units from the opening inventory make up the first part of the batch issued on 30 April:

	£
75 units at £3.20	240
600 units at £3.00	1,800
250 units at £3.40	850
925	2,890 (FIFO)

Under LIFO, the 200 units issued on 12 April would have been priced at £3.00 from the latest batch in inventory at that date (received 8 April). Therefore, the 400 units remaining from the £3.00 batch received on 8 April will be a part of the issues made on 30 April:

	£
400 units at £3.40	1,360
400 units at £3.00	1,200
125 units at £3.20	400
925	2,960 (LIFO)

Solution 9

- Read the question carefully to ascertain whether prices are rising or falling

Answer: (A)

The issues to production will have been charged at the most recent, higher prices–lower profit figure.

The remaining inventory will be valued at the earlier, cheaper prices–lower inventory value.

Solution 10

- Think before you answer! An issue from inventory at the average price will not alter the average price of the items remaining in inventory.

False. The average price must be recalculated each time a purchase is made at a different price.

Solution 11

- You should appreciate that, although the LIFO method results in issues from stores being valued at the most recent prices paid, the costs used are still historical costs.

Since the LIFO method uses the most recent prices to value issues from inventory it is most likely to ensure that the prices charged to cost of production approximate the economic cost of the materials.

Solution 12

- Remember the need for total accuracy. Prepare as many workings as you need to help you, but note that workings will not be awarded any marks. Our workings will help you to detect any errors you may have made.

(a)

		£
A	5 units × £1.50 (from opening inventory)	**7.50**
B	7 units × £1.50 (remaining units from opening inventory)	10.50
	1 unit × £2.10 (from September 3 receipts)	2.10
	8	**12.60**
C	5 units × £2.10 (remaining units from September 3)	10.50
	8 units × £2.35 (September 7 receipts)	18.80
		29.30

(b)

		£
A	5 units × £2.35 (from September 7 receipts)	**11.75**
B	3 units × £2.35 (remaining units from September 7)	7.05
	5 units × £2.10 (from September 3 receipts)	10.50
	8	**17.55**
C	1 unit × £2.10 (remaining unit from September 3)	2.10
	12 units × £1.50 (opening inventory)	18.00
		20.10

(c) Weighted average price of inventory on 7 September $= £\frac{49.40}{26} = £1.90$

A 5 units × £1.90 = £**9.50**
B 8 units × £1.90 = £**15.20**
C 83 units × £1.90 = £**24.70**.

Solution 13

- Direct wages are those paid to employees working directly on the organisation's output. Their wages can be traced to specific cost units.

The wages paid to the driver, carpenter and hair stylist are all direct labour costs. The wages paid to the canteen assistant are indirect wages because the assistant is not working directly on the organisation's output.

Solution 14

- Take your time and read all the options. This is not a difficult question but it would be easy to rush and select the wrong answer.

Answer: (C)

Overhead allocation is the allotment of whole items of cost to cost units or cost centres. Overhead apportionment is the sharing out of costs over a number of cost centres according to the benefit used. Overhead analysis refers to the whole process of recording and accounting for overheads.

Solution 15

- First you need to calculate the overhead absorption rate per standard machine hour. Remember that this is always based on the budgeted data.
- Next you must use the absorption rate to calculate the overhead absorbed, and then compare this with the overhead incurred to determine the over- or under-absorption.

Answer: (A)

$$\text{Overhead absorption rate} = \frac{£258{,}750}{11{,}250} = £23 \text{ per standard machine hour}$$

	£
Overhead absorbed = 10,980 std. hours × £23	252,540
Overhead incurred	254,692
Under absorption	2,152

Solution 16

- Use the under-absorption to adjust the actual overhead incurred, to determine the overhead absorbed. Since there was an under absorption, the actual overhead incurred must be greater than the overhead absorbed.
- Lastly, divide the overhead absorbed by the number of units produced.

Answer: (A)

	£000
Actual incurred	276
Under absorption	46
Absorbed	230
No. of units	23,000

Rate per unit = £230,000/23,000 = £10.

Solution 17

- Remember that the overhead absorption rate (OAR) is based on the budgeted data.
- Overheads absorbed for the period = OAR × actual standard labour hours achieved.

$$\text{OAR} = \frac{£691{,}125}{48{,}500} = £14.25$$

	£	
Overhead absorbed during period		
49,775 × £14.25	709,293.75	
Overhead incurred	746,625.00	
Overhead under-absorbed	37,331	(to nearest whole number).

Solution 18

- The basic data on labour and machine hours seems to indicate that the Extrusion and Machining departments are machine-intensive, so a machine hour rate would be most appropriate. The Finishing department appears to be labour-intensive, so a labour hour rate would be more suitable.

(a) A: $\frac{£140{,}000}{£400{,}000} \times £84{,}000 = \mathbf{£29{,}400}$

B: $\frac{800}{4{,}400} \times £22{,}000 = \mathbf{£4{,}000}$

C: $\frac{2{,}500}{40{,}000} \times £180{,}000 = \mathbf{£11{,}250}$

D: $\frac{50}{240} \times £60{,}000 = \mathbf{£12{,}500}$

E: $\frac{3}{(3+2+1)} \times £109{,}600 = \mathbf{£54{,}800}.$

(b) **Overhead absorption rates**

$$\text{Extrusion } \frac{£206{,}350}{15{,}500 \text{ machine hours}} = \textbf{£13.31 for each machine hour}$$

$$\text{Machining } \frac{£213{,}730}{20{,}000 \text{ machine hours}} = \textbf{£10.69 for each machine hour}$$

$$\text{Finishing } \frac{£75{,}920}{15{,}000 \text{ labour hours}} = \textbf{£5.06 for each labour hour.}$$

(c) (i) Contract costing
(ii) Batch costing
(iii) Job costing

Solution 19

- You will need a systematic approach in part (b), with neat workings to help you achieve 100 per cent accuracy.

(a) A: Rent cost apportioned to Assembly Department $= \frac{6{,}000}{20{,}000} \times £750{,}000 = \textbf{£225,000}$

B: Personnel cost apportioned to Assembly Department $= \frac{210}{350} \times £60{,}000 = \textbf{£36,000}$

C: Using an apportionment basis of cost of equipment, depreciation cost apportioned to Machining Department $= \frac{1{,}200{,}000}{1{,}600{,}000} \times £200{,}000 = \textbf{£150,000}$

(b) £**2,850,000** (to the nearest 000)

Workings:

	Machining £	*Assembly* £	*Stores* £	*Maintenance* £
Initial allocation	2,250,000	1,900,000	250,000	800,000
Apportion stores	75,000	75,000	(250,000)	100,000
Apportion maintenance	405,000	270,000	225,000	(900,000)
Apportion stores	67,500	67,500	(225,000)	90,000
Apportion maintenance	40,500	27,000	22,500	(90,000)
Apportion stores	6,750	6,750	(22,500)	9,000
Apportion maintenance	4,050	2,700	2,250	(9,000)
Apportion stores	675	675	(2,250)	900
Apportion maintenance	405	270	225	(900)
Apportion stores	68	67	(225)	90
Apportion maintenance	40	27	23	(90)
Total apportioned	2,849,988			

Solution 20

- The full production cost includes production overheads absorbed using the predetermined rates provided in the question

(a) The direct cost per unit of product B is £149
(b) The full production cost per unit of product B is £189

Working	£	£
Direct material (3 kg × £9)		27
Direct labour		
Department A (4 hours × £14)	56	
Department B (6 hours × £11)	66	
		122
Total direct cost		149
Production overhead		
Department A (4 labour hours × £7)	28	
Department B (2 machine hours × £6)	12	
		40
Full production cost		189

Solution 21

- Remember to add on the target return for one unit of Q and not the total required return from all 10,000 units.

The selling price for one unit of product Q, to the nearest penny, is £227.62

	£ *per unit*
Direct material cost	54.00
Direct labour cost	87.00
Total direct cost	141.00
Production overhead absorbed = 11 hours × £7	77.00
Total production cost	218.00
Mark-up for non-production costs = 3% × £218.00	6.54
Full cost	224.54
Profit mark-up (see working)	3.08
Selling price	227.62

Working:

Target return on investment in product Q = £220,000 × 14% = £30,800
Target return per unit of product Q = £30,800/10,000 units = £3.08.

Solution 22

- Calculate the breakeven point before and after the change in production methods, using the formula:

$$\text{Breakeven point in units} = \frac{\text{Fixed costs}}{\text{Contribution per unit}}$$

Answer: (A)

Existing situation:

$$\text{Breakeven point} = \frac{£24{,}400}{£8} = 3{,}050 \text{ units}$$

Working:

Contribution per unit	£
Selling price	14
Variable cost	(6)
Contribution	8

New production methods:

$$\text{Breakeven point} = \frac{£24{,}400 \times 1.3}{£10} = 3{,}172 \text{ units}$$

Working:

Contribution per unit	£
Selling price	15
Variable cost	(5)
Contribution	10

Increase in number of units: 3,172 − 3,050 = 122.

Solution 23

- First calculate the existing profit level.
- Using the new cost and selling price, calculate the required sales volume using the formula:

$$\text{Required sales volume} = \frac{(\text{Fixed costs} + \text{required profit})}{\text{Contribution per unit}}$$

Answer: (A)

$$\frac{£31{,}720 + £39{,}600}{£15 - £5} = 7{,}132 \text{ units}$$

(Working for existing profit: 8,000 units × £8 = £64,000 contribution less fixed costs £24,400 = £39,600.)

Solution 24

- Do not rush this question. You can probably easily calculate the breakeven point in terms of sales value, but then you will need to stop and think carefully.

Answer: (D)

$$\text{Breakeven point in terms of sales value} = \frac{£120{,}000}{0.3} = £400{,}000.$$

This must now be divided by the selling price.

The breakeven point in terms of units cannot be derived because we do not know the unit selling price.

Solution 25

- The single line drawn on the graph represents profits or losses earned for a range of activity levels.

Answer: (D)

Point K indicates the loss incurred at zero activity. At this point, the loss incurred is equal to the fixed cost.

Solution 26

- Profit-volume chart is the name given to a graph which indicates the profits or losses earned for a range of activity levels.

Answer: (D)

Charts A and B would include lines for costs and revenues. Chart C would be depicted by a single line, starting at a point above the origin on the vertical axis. This point represents the total fixed cost incurred at zero activity.

Solution 27

- Remember that contribution for a period is equal to the fixed costs plus the profit for the period.
- Once you have calculated the contribution you can use the C/S ratio to derive the sales value, and that will lead you to the variable costs and thus the direct wages for the period.

$$\text{Contribution} = £30{,}000 + £56{,}400 = £86{,}400$$

$$\frac{\text{Contribution}}{\text{Sales}} = 0.3$$

$$\text{Sales} = \frac{£86{,}400}{0.3} = £288{,}000$$

$$\text{Variable costs} = \text{sales value} - \text{contribution} = £288{,}000 - £86{,}400 = £201{,}600$$

$$\text{Direct wages} = 20\% \times £201{,}600 = £40{,}320.$$

Solution 28

- For a given level of sales, the margin of safety and the breakeven point will always move in the 'opposite direction' to each other. If one increases then the other decreases.
- The contribution to sales ratio is not affected by the level of fixed costs incurred.

(a) The breakeven point will *increase.*
(b) The contribution to sales ratio will *stay the same.*
(c) The margin of safety will *decrease.*

Solution 29

- You will need to use the contribution to sales (C/S) ratio in this question, in calculating the breakeven sales value. Once you have calculated the variable costs as a percentage of sales value you should be able to use this to determine the C/S ratio.
- The contribution breakeven chart that has been drawn shows the variable cost line instead of the fixed cost line. This means that contribution can be read directly from the chart.

Workings:

	August	*September*	*Change*
	£	£	£
Sales	80,000	90,000	10,000
Cost of sales	50,000	55,000	5,000
Selling and distribution	8,000	9,000	1,000
Administration	15,000	15,000	nil

(i) Cost of sales:
Variable £5,000/£10,000 = 50p/£1 of sales (50% of sales)
Fixed £50,000 − (50% × £80,000) = £10,000
(ii) Selling and distribution:
Fixed nil
Variable £1,000/£10,000 = 10p/£1 of sales (10% of sales)
(iii) Administration:
Fixed £15,000
Variable nil

A: Breakeven sales value $= \frac{\text{Fixed costs}}{\text{C/S ratio}^*} = \frac{£25{,}000}{0.4} =$ **£62,500**

*Variable costs have been calculated to be 60 per cent of sales. Therefore, the C/S ratio is 40 per cent.

B: Total cost of £80,000 sales value = £**73,000** (from original data).
C: Total variable cost for £80,000 sales value = £80,000 × 0.6 = £**48,000**.
D: Total fixed cost = cost of sales £10,000 + administration £15,000 = £**25,000**.

Solution 30

- The products must be ranked in order of their contribution per machine hour used.

Answer: (B)

	Product W	*Product X*	*Product Y*	*Product Z*
	£	£	£	£
Contribution per batch	10.40	9.00	5.40	9.00
Contribution per machine hour	10.40/12	9.00/9	5.40/6	9.00/11
=	0.8667	1.0000	0.9000	0.8182
Ranking	3rd	1st	2nd	4th

Solution 31

- The best production plan in part (b) is that which will maximise the contribution from the installation labour. The products must therefore be ranked in order of their contribution per hour.

(a) **2,900 hours**.

Workings:

Hours of installation labour required to satisfy maximum demand

	Hours
Day scan*: 2,000 units × 3 hours/unit	6,000
Night scan: 3,000 units × 4 hours/unit	12,000
Omni scan: 1,800 units × 5.5 hours/unit	9,900
	27,900
Available hours	25,000
Shortfall	2,900

* Hours of installation labour for Day scan $= \frac{£24}{£8} = 3$ hours.

(b) Day scan 2,000 units
Night scan 2,275 units
Omni scan 1,800 units

Workings:

	Day scan	*Night scan*	*Omni scan*
	£	£	£
Selling price	250	320	460
Variable costs			
Material	(70)	(110)	(155)
Manufacturing labour	(40)	(55)	(70)
Installation labour	(24)	(32)	(44)
Variable overheads	(16)	(20)	(28)
Contribution per unit	100	103	163
Installation hours required	3	4	5.5
Contribution per installation hour	£33.33	£25.75	£29.64
Production priority	1st	3rd	2nd

Best production plan

	Units		*Hours used*
Day scan to maximum demand	2,000	(×3.0)	6,000
Omni scan to maximum demand	1,800	(×5.5)	9,900

This leaves (25,000 − 6,000 − 9,900) = 9,100 installation labour hours for Night scan.

Therefore, production of Night scan $= \frac{9{,}100}{4} = 2{,}275$ units.

Solution 32

Answer: (C)

Although standard costs are based on estimates of what might happen in the future, a standard costing system does not provide actual future costs.

Solution 33

- This is a straightforward exercise in accumulating costs using the data provided.

The standard variable production cost of one unit of product H is £182

		£ per unit
Direct material W	(4 kg × £1)	4
Direct material X	(2 kg × £5)	10
Direct labour	(14 × £8)	112
Variable production overhead	(14 × £4)	56
Total variable production cost		182

Solution 34

- Remember that all the 'quantity' variances (material usage, labour efficiency and variable overhead efficiency) are valued at the standard rate rather than at the actual rate. Therefore the material usage variance in kg should be multiplied by the standard price per kg to determine the monetary value of the material usage variance.

Answer: (A)

Material price variance	£
Standard cost of materials used 26,400 kg × £13	343,200
Actual cost	336,600
	6,600 F

Material usage variance	*Kg*
Standard usage 12,000 units × 2 kg	24,000
Actual usage	26,400
	2,400 × £13/kg = £31,200 A

Solution 35

- Once again, remember to use the standard rate per hour to evaluate the labour efficiency variance.

Answer: (B)

Labour rate variance	£
Standard cost of hours used 40,200 × £12	482,400
Actual labour cost	506,520
	24,120 A

Labour efficiency variance	*Hours*
Standard time 12,000 units × 3.3 hours	39,600
Actual time	40,200
	600 × £12/hour = £7,200 A

Solution 36

- Remember that the variable overhead efficiency variance is directly related to the labour efficiency variance

Answer: (A)

Variable overhead expenditure variance	£	
40,200 hours of variable overhead should cost (×£2.50)	100,500	
But did cost	107,250	
	6,750	adverse

Variable overhead efficiency variance

Efficiency variance in hours, from labour efficiency variance	600	adverse
× standard variable overhead rate per hour	×£2.50	
	£1,500	adverse

Solution 37

- The usage must have been higher than standard because the usage variance is adverse.
- Remember that the usage variance is equal to the excess usage multiplied by the standard price per kg of material.

Answer: (D)

Standard price per kilogram of material: $\frac{£46{,}248}{11{,}280} = £4.10$

Number of kilograms excess usage: $\frac{£492}{£4.10} = 120\,\text{kg}.$

Standard usage: $11{,}280\,\text{kg} - 120\,\text{kg} = 11{,}160\,\text{kg}.$

Solution 38

- The adverse efficiency variance means that the actual time taken was higher than the standard allowance.
- Notice that there was a nil rate variance. This means that the actual rate per hour was the same as the standard rate per hour.
- There are a number of ways of calculating the correct solution. You might have used a different method – it does not matter as long as you arrive at the correct answer!

Answer: (A)

$$\text{Excess hours above standard time} = \text{efficiency variance/standard rate per hour}$$
$$= \frac{£26{,}000}{8} = 3{,}250 \text{ hours}$$
$$\text{Actual hours worked} = \frac{£182{,}000}{£8} = 22{,}750 \text{ hours}$$
$$\text{Standard hours for actual output} = 22{,}750 - 3{,}250$$
$$= 19{,}500 \text{ hours}$$
$$\text{Standard hours for one unit} = \frac{19{,}500}{6{,}500} = 3 \text{ hours}.$$

Solution 39

- 'Backwards' variance questions are a good way of testing whether you really understand the logic of the variance calculations.
- If you got this question wrong, go back and study variance analysis again to ensure that you can calculate all the required variances quickly and accurately.

Actual labour hours worked	25,600
Adverse efficiency variance in hours $\left(\frac{£8{,}250}{£7.50}\right)$	1,100
Standard hours expected for production achieved	**24,500**

Solution 40

- Remember that the sales volume contribution variance is evaluated using the standard contribution per unit.

(a) The sales price variance for product V for June was £34,350 favourable
(b) The sales volume contribution variance for product V for June was £9,430 adverse

	£	
4,390 units should sell for (×£45)	197,550	
But did sell for	231,900	
Sales price variance	34,350	favourable
Actual sales volume	4,390	units
Budget sales volume	4,800	units
Sales volume variance in units	410	adverse
× standard contribution per unit £(45 − 22)	×£23	
Sales volume contribution variance	£9,430	adverse

Solution 41

- Adverse variances are deducted from the budgeted contribution to derive the actual contribution. Favourable variances are added because they would increase the contribution above the budgeted level.

The actual contribution reported for the period was £**59,755**.

£48,000 + £(11,245 + 6,025 − 3,100 − 2,415) = £59,755.

Solution 42

Only (b) and (c) could have contributed to an adverse direct labour efficiency variance.

(a) Higher output would not in itself cause an adverse efficiency variance. In calculating the efficiency variance the expected labour hours would be flexed according to the actual output achieved.
(b) If material was difficult to process the number of labour hours taken might have been higher than standard. This would result in an adverse labour efficiency variance.
(c) If the original standard time was set too low then actual times are likely to be higher than standard, thus resulting in an adverse labour efficiency variance.
(d) A higher hourly labour rate would cause an adverse labour rate variance, not an adverse efficiency variance.
(e) Using employees who are more skilled than specified in the standard is more likely to result in a favourable direct labour efficiency variance.

Solution 43

- Reason (a) is an example of an inter-relationship between variances; the adverse sales price variance could have resulted in the favourable sales volume contribution variance.

Reasons (a) and (c) could have contributed to a favourable sales volume contribution variance. A lower sales price might encourage more customers to buy which, as with (c), might increase sales volumes above budget and a favourable sales volume contribution variance would result.

A higher actual contribution than the standard per unit (reason (b)) would not result in a favourable sales volume contribution variance, since the variance is evaluated at the standard contribution per unit.

Solution 44

- First calculate the standard time allowed and compare this with the time taken. You can convert all times to minutes or to hours, whichever you find easier.
- Next read the question carefully to determine the bonus. Every bonus scheme is different, so do not assume that this one is calculated in the same way as the last scheme you met!

Answer: (A)

Standard time allowed = 400 units × 7 minutes	2,800 minutes
Actual time taken = 42 hours × 60 minutes	2,520 minutes
Time saved against standard allowance	280 minutes

Bonus payable = 75% × (280/60) × £10 = £35.

Solution 45

- Remember: if you are reduced to guessing, then eliminate first the options that are obviously incorrect. For example, option D must be incorrect because direct materials returned to stores unused cannot yet have become part of cost of sales.

Answer: (B)

This is the reverse of the entries that would have been made when the direct materials were first issued to production.

Solution 46

- Ensure that you read the introduction to the question carefully. We need to know that this is the company's year-end, in order to be able to select the correct entry.

Answer: (A)

Since this is the year-end, the balance on the overhead control account would be transferred to the income statement, rather than carried forward to the following period.

The debit side of the account (the overhead incurred) is greater than the credit side of the account (the overhead absorbed into work in progress). Therefore, the overhead is under-recovered or under-absorbed.

Solution 47

- You might find it easiest to quickly sketch the T-accounts from the data provided, then you can simply pick out the correct journal entries and tick them.
- Wages incurred are higher than the wages paid, so there must be an accrual for the period, but you are not asked about the accounting entries for this element of the transactions.

The correct choices are:

(b) Debit wages control account: £31,700
Wages actually paid are debited to the wages control account and credited to the bank or cash account.

(c) Debit work in progress account: £27,400

(d) Debit production overhead control account: £6,000

(e) Credit wages control account: £33,400
Direct wages incurred are credited to the wages control account and debited to work in progress. Indirect wages incurred are credited to the wages control account and debited to the production overhead control account, pending their later absorption into work in progress.

Solution 48

- In part (b), you might like to draw up your own production overhead control account. Although you would not earn marks for this, it might help you to collect together all the information you need to calculate the under- or over-absorption.

(a) A £48,250
B £598,050 (direct materials issued to work in progress)
C £617,300
D £32,800 (indirect materials issued).

(b) The production overheads for the period were *over*-absorbed by £57,995. This amount will be transferred as a *credit* in the income statement at the end of the period.

Working:

Production overhead control account

	£		£
Payables	359,725	Work in progress (280% × £173,400)	485,520
Provision for depreciation	35,000		
Indirect materials	32,800		
Over-absorption	57,995		
	485,520		485,520

Solution 49

- A favourable variance is always credited to the relevant variance account, so you can easily eliminate options (B) and (D) as incorrect.

Answer: (C)

As a general rule, all variances are entered in the accounts at the point at which they arise. The labour rate variance is therefore recorded in the wages control account.

Solution 50

- Remember that adverse variances are always debited in the relevant variance account, and favourable variances are always credited in the variance account.

(a)

	Debit	*Credit*	*No entry in this account*
Materials control account		✓	
Material price variance account	✓		
Work in progress account			✓

(b)

	Debit	*Credit*	*No entry in this account*
Materials control account			✓
Material usage variance account		✓	
Work in progress account	✓		

(c) The labour force was paid at a *higher hourly rate than standard*. (Because the labour rate variance is adverse.)

(d)

	Debit	*Credit*	*No entry in this account*
Wages control account			✓
Labour efficiency variance account		✓	
Work in progress account	✓		

Solution 51

- Do not confuse the term 'works order number' with 'job number'. A reference number (in this case the works order number) is used in the recording of costs in any specific order costing system, whether it is a job, batch or contract system.
- After our answer we have included some discussion, so that you can understand the reasoning behind the answers, for revision purposes. You would not add any such discussion or workings in the actual assessment.

(i) Number 488 *contract* costing
(ii) Number 517 *contract* costing
(iii) Number 518 *job* costing
(iv) Number 519 *job* costing

Discussion

Works order 488. This should be accounted for as a long-term contract since it spans three accounting years, and because the sums of money involved in the contract are large.

Works order 517. This work spans a financial year-end with a significant sales value, so although the case for 'contract' status would not be as strong as for works order 488, this nevertheless would be appropriate.

Works orders 518 and 519. Both of these are of small value, and both have durations of approximately 2 months, although spanning a financial year-end. In neither case, would the apportionment of profit over the 2 financial years be worthwhile, any profit being most likely to be taken at the end of the work. Should a loss be expected, however, this should be brought forward into the accounts of the first financial period covered. Long-term contract status would not be appropriate, however, so they should be accounted for using job costing.

Solution 52

- Use the information provided to determine the number of chargeable hours each year.
- Calculate the hourly rate that the accountant needs to charge to cover her expenses and salary, based on the number of chargeable hours.
- Apply the hourly rate to the job in question.

Answer: (C)

Chargeable hours each year will be (52 − 4 weeks=) 48 weeks × 35 hours per week = 1,680 hours × 75% = 1,260 hours.

In these 1,260 hours, she must make £60,000 to cover her salary and general expenses. Therefore, her charge rate should be

$$\frac{£60{,}000}{1{,}260} = £47.62 \text{ per hour}$$

Thus, the quote for a 50-hour job should be £47.62/hour × 50 = £2,381.

Solution 53

- Read the question carefully. Profit is calculated as a percentage of sales, not as a percentage of cost.

Answer: (C)

	£	
Direct materials 10 × £10	100	
Direct labour 10 × £10	100	
Prime cost	200	
Variable production overheads 10 × £4	40	
Fixed production overheads 10 × £20*	200	
Total production cost	440	
Other costs	50	
Total cost	490	70%
Profit	210	30%
Quote for the job	700	100%

*£200,000 overheads/10,000 hours = £20 per hour.

Solution 54

- Be careful when you are adding the profit percentage to the total cost in part (b). The question states that the company wishes to achieve 30 per cent profit margin on sales. Do not make the common mistake of simply adding 30 per cent to cost. This will not produce 30 per cent profit margin on sales.

(a) (i) **£29,210**

Workings:

	£	£
Direct materials		26,500
Labour		
Preparation: 90 × £8	720	
Etching: 130 × £7	910	
Assembly: 180 × £6	1,080	
		2,710
		29,210

(ii)

Preparation Department overheads	£14,300
Etching Department overheads	£5,880
Assembly Department overheads	£4,860

Workings:

Overhead absorption rates:

$$\text{Preparation: } \frac{£165{,}000}{3{,}000} = £55 \text{ per machine hour}$$

$$\text{Etching: } \frac{£98{,}000}{1{,}400} = £70 \text{ per machine hour}$$

$$\text{Assembly: } \frac{£48{,}600}{1{,}800} = £27 \text{ per labour hour}$$

Overheads charged to batch

Preparation: 260 × £55	£14,300
Etching: 84 × £70	£5,880
Assembly: 180 × £27	£4,860

(b) **£465**

Workings:

	£
Batch cost	65,100
Profit (×30/70)	27,900
Sales value of batch	93,000
Selling price per unit (93,000/200)	**£465**

Solution 55

- When you are calculating the depreciation charge in part (b), don't forget that the contract has been in operation for only ten months.

(a) **£1,220,000**
(b) **£750,000**
(c) **£2,240,000**

Workings:

		£000
(a)	Materials delivered direct to site	1,200
	Materials issued from head office stores	200
		1,400
	Materials on site at 31 December 20X0	(180)
	Cost of material used on contract	1,220
(b)	Plant delivered to site at cost	900
	Depreciation $\left(900 \times 20\% \times \frac{10}{12}\right)$	150
	Net book value of plant at 31 December	750
(c)	Final contract value	10,000
	Cost incurred to date	3,360
	Cost to completion	2,640
	Estimated contract profit	4,000

Profit to be recognised on contract = £4,000,000 × (3,360,000/6,000,000 total cost)
= £2,240,000.

Solution 56

- You may be able to solve this question without producing a reconciliation of the input and output volumes. We have shown a reconciliation so that you can use it for revision purposes.

56.1 Answer: (B)

20,000 kg input × 15% = 3,000 kg normal loss × £1 = £3,000

56.2 Answer: (D)

Input	*Kg*	*Output*	*Kg*	*Kg to absorb cost*
Materials	20,000	To process 2	18,500	18,500
		Normal loss	3,000	–
		Abnormal gain	(1,500)	(1,500)
	20,000		20,000	17,000

Costs	£
Materials input	50,000
Direct labour	15,000
Production overheads	22,500
Scrap value normal loss	(3,000)
	84,500
Cost per kg £84,500/17,000	4.9706

Value of abnormal gain = 1,500 kg × £4.9706 = £7,456.

56.3 Answer: (C)

Value of output = 18,500 kg × £4.9706 = £91,956.

Solution 57

- Do not be put off by the slightly different layout of the working template.
- The question is in fact very straightforward. To perform the necessary valuations you simply need to use the unit rates supplied in the template.

(a) £37,200

Working:

	£
Raw material input	37,500
Less scrap value of normal loss (50,000 litres × 3% × £0.20)	(300)
Material cost for the period	37,200

(b) £102,900

Working:

Value of transfer to process 2 = 49,000 litres × (£0.75 + £1.35) = £102,900.

(c) £1,050

Working:

Value of abnormal loss = 500 litres × £(0.75 + 1.35) = £1,050.

(d) £5,160

Working:

Value of closing work in progress = (4,000 litres × £0.75)
+ [(4,000 × 40%) litres × £1.35]
= £3,000 + £2,160
= 5,160.

Solution 58

- The materials lost in production are scrapped. Therefore, no value is allocated to the normal loss. A common error would be to attempt to allocate a monetary value to the normal loss.

(a) 10,320 equivalent litres
(b) £7.00 per equivalent litre

Workings:

Material cost:		£
A	3/6 × 12,000 × £8.00	48,000
B	2/6 × 12,000 × £6.00	24,000
C	1/6 × 12,000 × £3.90	7,800
		79,800

Statement of equivalent litres

	Total	*Materials*	*Labour and overheads*
Completed production	9,500	9,500	9,500
Abnormal loss	100	100	100
Normal loss	600	–	–
Closing WIP:			
Material	1,800	1,800	–
Labour and overheads (40% × 1,800) − 720		–	720
Equivalent litres	12,000	11,400	10,320
Cost		£79,800	£41,280
Cost per equivalent litre	£11.00	£7.00	£4.00

Solution 59

- You will find process costing questions much quicker and easier to answer if you learn a pro-forma layout for your working papers, but remember that you will earn no marks for your workings.
- When you are carrying out your equivalent units calculation, remember that any units that are now in process 3 must be complete as regards process 2 input.

The cost per equivalent unit produced was:

(a) process 2 input: £2.40 per equivalent unit
(b) material added: £0.60 per equivalent unit
(c) wages and overhead: £1.20 per equivalent unit

Workings:

Input	*Units*	*Output*	*Units*	*Process 2 input*	*Material added*	*Wages and overhead*
Opening WIP	6,000	Finished goods	46,500	46,500	46,500	46,500
Process 2	48,000	Normal loss	3000[1]	–	–	–
		Abnormal loss	500[2]	500	400	300
		Closing WIP	4,000	4,000	2,000	1,200
	54,000		54,000	51,000	48,900	48,000
		Costs	£	£	£	£
		Opening WIP		14,400	2,160	2,880
		Input costs		110,400	27,180	54,720
		Normal loss value		(2,400)	–	–
				122,400	29,340	57,600
		Cost per unit	4.20	2.40	0.60	1.20

Notes:

1. Normal loss = 6% × (6,000 + 48,000 − 4,000) = 3,000 units.
2. The abnormal loss is found as a balancing figure in the input/output reconciliation.

Solution 60

The statement is false. It describes objective classification.

Subjective classification is the classification of expenditure items according to the nature of the expenditure.

Solution 61

(a) 544 indicates the ***subjective*** classification of the expenditure item.
(b) 221 indicates the ***objective*** classification of the expenditure item.

Solution 62

- We are told that the various vehicles incur variable costs per kilometre in the ratio 1:3:5. Therefore, we need to calculate a weighted total number of kilometres travelled, in order to fairly share out the total variable costs incurred. We cannot simply calculate the variable cost per kilometre as (costs incurred ÷ kilometres travelled), because a kilometre travelled by a motor-cycle costs less than a kilometre travelled by a bulk parcel van or lorry.

(a)	Courier service	£129,400
(b)	Domestic parcels	£205,300
(c)	Bulk parcels	£140,500

Workings:

Weighted total kilometres travelled

Weight	*Distance km*	*Weighted km*
1	168,000	168,000
3	82,000	246,000
5	54,000	270,000
		684,000

Total variable costs = £307,800

Therefore, variable costs per weighted km = $£\frac{307,800}{684,000}$ = £0.45 per weighted km

Variable cost per service is therefore:

	£
Courier service: 168,000 × 0.45	75,600
Domestic parcels: 246,000 × 0.45	110,700
Bulk parcels: 270,000 × 0.45	121,500
	307,800

Thus, contribution per service is:

	Courier £	*Domestic* £	*Bulk* £
Sales	205,000	316,000	262,000
Variable costs	(75,600)	(110,700)	(121,500)
Contribution	129,400	205,300	140,500

Solution 63

- Value added = sales revenue less materials costs and the cost of bought-in goods and services. Wages and salary costs are not bought-in costs and must be excluded from the overhead cost figures when calculating the value added.

For the F Division for the latest period, the value added was £132,270

	£	£	£
Sales revenue			289,500
Less materials cost		89,790	
Production overhead cost	54,030		
Less salaries included	10,710		
Bought-in production overhead cost		43,320	
Marketing overhead cost	21,890		
Less salaries included	14,560		
		7,330	
General and admin. overhead	38,120		
Less salaries included	21,330		
		16,790	
Total bought in goods and services			157,230
Value added			132,270

Solution 64

- The salary costs and general overhead costs cannot be specifically attributed to either type of goods therefore these costs should not be included in the calculation of gross margin.

(a) The gross margin generated by second-hand donated goods sold was £4,818
(b) The gross margin generated by new goods sold was £3,168

Second-hand donated goods	£	£
Sales income		
Sold to customers	4,880	
Sold for recycling	88	
		4,968
Cost of laundering, etc.	120	
Valuation costs	30	
		150
Gross margin		4,818

New goods	£	£
Sales income		6,790
Less: purchase cost	3,332	
delivery cost	290	
		3,622
Gross margin		3,168

Solution 65

- Only three of the budget roles are correct here, but there are others that are not mentioned including communication, planning, resource allocation and motivation.

Answer: (B)

A budget does not provide a means for expansion. In fact, an organisation can budget to reduce its level of activity.

Solution 66

- If you remember that the principal budget factor is sometimes referred to as the limiting factor, then you should not have too many problems in selecting the correct answer!

Answer: (B)

The principal budget factor is important because it must be identified at the start of the budgeting process. Once the budget for the limiting factor has been prepared, all other budgets must be coordinated with it.

Solution 67

- Although continuous budgeting is quicker and easier using a computerised system it can be accomplished with a manual system.

Options (a) and (c) are correct.

Solution 68

- Remember the formula to calculate budgeted production:

  Budgeted sales + Budgeted closing inventory − Budgeted opening inventory

Answer: (A)

	Units
Required by sales	120,000
Required closing inventory	6,500
Less opening inventory anticipated	(13,000)
Production level	113,500

Solution 69

- Did you read the question carefully and note that the material *usage* budget was required, not the material purchases budget?

Answer: (C)

10,000 units × 4 kg = 40,000 kg

Solution 70

- The first step is to calculate the required production volume, taking account of the budgeted change in finished goods inventories.
- Convert the production volume into material usage requirements, then adjust for the budgeted change in raw materials inventories to determine the budgeted purchases.

Answer: (B)

	Units
Budgeted sales of product P	4,000
Required decrease in finished goods inventory	600
Required production	3,400
	Kg
Raw materials usage budget (×2 kg)	6,800
Increase in raw materials inventories	1,500
Budgeted purchases of raw material	8,300

Solution 71

- Note that the 5 per cent bad debts will never be received in cash.
- Do not forget to allow for the 2 per cent settlement discount for those customers paying in September for August sales.

Answer: (C)

	£
Receipts in September from:	
June sales £100,000 × 15%	15,000
July sales £150,000 × 20%	30,000
August sales £130,000 × 60% less 2% settlement discount	76,440
Total receipts in September	121,440

Solution 72

- Make sure that you are completely familiar with the descriptions of all of the types of budgeting covered in this *Learning System*.

A budget which is designed to show the allowed expenditure for the actual level of activity achieved is known as a *flexible budget.* A fixed budget is prepared for a single level of activity and a rolling budget is a continuously updated budget.

Solution 73

- You will need to produce quite a few workings for your own benefit.

(a) **£1,740,000**

Quarter 1 *Sales Budget*

	January	*February*	*March*	*Total*
Sales (units)	5,000	5,500	6,000	
Selling price for each unit	£100	£100	£115	
Sales (£)	£500,000	£550,000	£690,000	£1,740,000

(b) **23,100 units**

Quarter 4 *Production Budget*	units	
Required sales units	23,250	(7,750 + 8,000 + 7,500)
Add:		
Required closing inventory	1,400	(20% × 7,000 − January 20X3 sales units)
Less:		
Opening inventory	(1,550)	(20% × 7,750 − October sales units)
Production budget	23,100	

(c) **56,400 kg**

Quarter 2 *Material Usage Budget*	
Quarter 2 production units	18,800*
Material usage for each unit	3 kg
Total quarter 2 material usage	56,400 kg

* It is calculated below as a result of the production budget.

Quarter 2 *Production Budget*	units	
Required sales units	18,750	(6,000 + 6,250 + 6,500)
Add:		
Required closing inventory	1,250	(20% × 6,250 − July sales units)
Less:		
Opening inventory	(1,200)	(20% × 6,000 − April sales units)
Production budget	18,800*	

(d) **£249,900**

Quarter 1 *Material Purchases Budget*		
Quarter 1 material usage	50,100 kg	(16,700* × 3 kg)
Add:		
Required closing inventory	3,630 kg	(6,050* × 3 kg × 20%)
Less:		
Opening inventory	(3,750) kg	
Purchases	49,980 kg	
Price of each kg	£5.00	
Total material purchases budget	£249,900	

Quarter 1 *Production Budget*	units	
Required sales units	16,500	(5,000 + 5,500 + 6,000)
Add:		
Required closing inventory	1,200	(20% × 6,000 − April sales units)
Less:		
Opening inventory	(1,000)	
Production budget	16,700*	

April *Production Budget*	units	
Required sales units	6,000	
Add:		
Required closing inventory	1,250	(20% × 6,250 − May sales units)
Less:		
Opening inventory	(1,200)	(20% × 6,000 − April sales units)
Production budget	6,050*	

(e) **126,300 hours**

Quarter 3 *Production Budget*	units	
Required sales units	20,750	
Add:		
Required closing inventory	1,550	(20% × 7,750 − October sales units)
Less:		
Opening inventory	(1,250)	(20% × 6,250 − July sales units)
Production budget	21,050	
Total skilled labour hours required	84,200 hours	(21,050 × 4 hours)
Total unskilled labour hours required	42,100 hours	(21,050 × 2 hours)
Total hours required	126,300 hours	

Solution 74

- Remember to exclude depreciation from your calculations of overhead cash payments. It is not a cash flow.

(a) June: £**6,500**
July: £**11,500**
August: £**8,000**

Workings:

	June	*July*	*August*
	£	£	£
Closing inventory	3,500	6,000	4,000
Material usage	8,000	9,000	10,000
	11,500	15,000	14,000
Less: opening inventory	5,000	3,500	6,000
Direct material purchases	6,500	11,500	8,000

(b) £51,000

(c) £20,000

Workings:

(b)

	£
Sales receipts in August:	
Cash sales (10% × £60,000)	6,000
Credit sales from July (90% × £50,000)	45,000
	51,000

(c)

Cash payments in July:	
Wages	13,000
Overheads (June £8,500 less depreciation)	7,000
	20,000

Solution 75

- The flexed budgets are reasonably straightforward to produce: all variable costs are multiplied by a factor of 13,600 and 14,500, respectively, and fixed overheads remain unaltered by the change in activity.

(a) **£2,560,000**

Workings:	£
Direct labour: £46 × 13,600 units	625,600
Direct material: £30 × 13,600 units	408,000
Variable overheads: £24 × 13,600 units	326,400
Fixed overheads: original budget (£80 × 15,000 units)	1,200,000
	2,560,000

(b) (i) **£60,000** adverse

(ii) **£164,000** adverse

Workings:	£	£
Actual cost		2,814,000
Budget cost allowance:		
Labour, materials and variable o/h £(46 + 30 + 24) × 14,500	1,450,000	
Fixed overhead – original budget	1,200,000	
		2,650,000
Expenditure variance		164,000 (A)

Sales volume contribution variance = volume shortfall × standard contribution per unit
= 500 units × £(220 − 100)
= £60,000 adverse

Solution 76

- Be careful to select actions that are appropriate both for a deficit and for the short term.

Actions (a) and (b) would be appropriate actions.

Action (c) would not be appropriate because increasing receivables would drain the cash balance still further. Action (d) is more suited to a long-term deficit, since share capital is a long term source of finance.

Solution 77

- The first step is to use the high-low method to determine the fixed and variable elements of the maintenance costs.
- Use the result to determine the budget cost allowance for period 6 and then compare this allowance with the actual expenditure during the period.

The bonus to be paid to the maintenance manager in period 6 is £**28.60**.

Using the high-low method:	*Activity* Hours	£
Period 4	3,800	11,040
Period 5	4,320	11,976
Change	520	936

Variable maintenance budgeted cost per hour = £936/520 = £1.80
Fixed maintenance cost budgeted per period = £11,976 − (4,320 × £1.80) = £4,200

	£
Fixed cost allowance for period 6	4,200
Variable cost (4,090 machine hours × £1.80)	7,362
Total budget cost allowance for period 6	11,562
Actual maintenance expenditure	10,990
Saving	572

Bonus payable = 5% × £572 = £28.60