



MANAGEMENT INFORMATION

This assessment consists of **ONE** scenario based question worth 20 marks and **32** short questions each worth 2.5 marks.

At least **55** marks are required to pass this assessment.

Numeric entry fields

Enter whole numbers only

Numbers may be entered with or without a thousand separator (use commas only)

Negative numbers can be entered with a preceding minus sign or enclosed in brackets

You have **90** minutes to complete the assessment which includes any review period.

This paper will be assessed by computer-based assessment from 1 January 2016.

SAMPLE PAPER

Oaklea plc manufactures high quality dining tables. The standard cost per table is as follows:

		£
Materials	4 kg @ £10/kg	40
Labour	12 hours @ £16/hour	192
Variable overheads	12 hours @ £4/hour	48
Fixed overheads	12 hours @ £2.50/hour	30
Total absorption cost		310

The budgeted production and sales for each month are 400 tables selling for £600 each.

In April everything went according to budget except that only 380 tables were sold.

Calculate the difference between the absorption costing and marginal costing profits for April:

Difference £

Actual results for May are as follows:

6% fewer tables than budgeted were produced and sold at a price of £620 each. 1,600 kg of materials were used costing £16,800. Labour was paid £69,020 for 4,060 hours. Fixed and variable overheads were £13,050 and £17,255 respectively.

Complete the table below to generate the marginal costing operating statement for May.

Make **ONE** entry (adverse or favourable) for each variance **AND** enter a zero or dash in the other column.

Enter the net total of adverse and favourable variances as either a positive number (favourable total) or negative number (adverse total) in the final column.

Operating statement for May

	<i>Favourable</i> £	<i>Adverse</i> £	£
Budgeted profit			<input style="width: 100px; height: 20px;" type="text"/>
Sales volume variance	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Sales price variance	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Cost variances			
Materials price	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Materials usage	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Labour rate	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Labour efficiency	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Variable overhead rate	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Variable overhead efficiency	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Fixed overhead expenditure	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	
Total variances	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>
Actual profit			<input style="width: 100px; height: 20px;" type="text"/>

- 1 Which of the following costs would **not** be the concern of the supervisor of a production department?
- A. Material costs
 - B. Labour costs
 - C. Maintenance costs for a machine
 - D. Lease payments on a machine

2. A company's telephone bill consists of two parts:

- 1. A charge of £40 per month for line rental
- 2. A charge of £0.01 per minute of call time.

Which of the following equations describes the total annual telephone cost, C if the company uses T minutes of call time in a year?

- A. $C = 480 + 0.01T$
- B. $C = 40 + 0.01T$
- C. $C = 480 + 0.12T$
- D. $C = 40 + 0.01T/12$

3. A firm makes special assemblies to customers' orders and uses job costing, with overheads being absorbed based on direct labour cost.

The data for a period are:

	Job A £	Job B £	Job C £
Opening work in progress	26,800	42,790	0
Material added in period	17,275	0	18,500
Labour for period	14,500	3,500	24,600

Job B was completed during the period, during which actual overheads were the same as the budgeted figure of £126,000.

What was the approximate value of closing work-in progress at the end of the period?

- A. £58,575
- B. £101,675
- C. £217,323
- D. £227,675

4. For each of the following industries select the appropriate method to establish the cost of products.

Oil refining

- A. Process
- B. Job/contract
- C. Batch

Clothing

- D. Process
- E. Job/contract
- F. Batch

Car repairs

- G. Process
- H. Job/contract
- I. Batch

5. Which TWO of the following statements are correct?
- A. Absorption unit cost information is the most reliable as a basis for pricing decisions.
 - B. A product showing a loss under absorption costing will also make a negative contribution under marginal costing.
 - C. When closing inventory levels are higher than opening inventory levels and overheads are constant, absorption costing gives a higher profit than marginal costing.
 - D. In a multi-product company, smaller volume products may cause a disproportionate amount of set up overhead cost.
 - E. Marginal unit cost information is normally the most useful for external reporting purposes.
6. Adam is responsible for preparing a monthly analysis of total department costs for the Managing Director of XYZ. Adam's boss, the Department Manager, has asked Adam to exclude a number of costs from the monthly analysis to 'give a better impression' of the department, and has threatened to commence disciplinary proceedings against Adam for poor work if he fails to do so.

Which threat does this represent?

- A. Familiarity
 - B. Self-interest
 - C. Intimidation
 - D. Self-review
7. Norbury plc has just completed its first year of trading. The following information has been collected from the accounting records:

	£
Variable cost per unit	
Manufacturing	6.00
Selling and administration	0.20
Fixed costs	
Manufacturing	90,000
Selling and administration	22,500

Production was 75,000 units and sales were 70,000 units. The selling price was £8 per unit throughout the year.

Calculate the net profit for the year using absorption costing.

- A. £13,500
- B. £19,500
- C. £21,000
- D. £22,500

8. In a contract to sell a commodity the selling price is agreed between the supplier and the buyer to be the actual costs incurred by the supplier plus a profit mark-up using a fixed percentage on actual costs. No credit period is offered by the supplier.

Which of the following best describes how the risk caused by inflation will be allocated between the supplier and the buyer?

- A. The supplier and the buyer will each bear some of the inflation risk but not necessarily equally.
- B. Only the supplier will bear the inflation risk.
- C. Only the buyer will bear the inflation risk.
- D. The supplier and the buyer will each bear equal amounts of the inflation risk.
9. F and G are two divisions of a company. Division F manufactures one product, Rex. Unit production cost and the market price are as follows:

	£
Variable materials	24
Labour	16
Variable fixed overhead	8
	<u>48</u>
Prevailing market price	£6
	4

Product Rex is sold outside the company in a perfectly competitive market and also to division G. If sold outside the company, Rex incurs variable selling costs of £8 per unit.

Assuming that the total demand for Rex is more than sufficient for division F to manufacture to capacity, select the price per unit at which the company would prefer division F to transfer Rex to division G.

- A. £64
- B. £56
- C. £40
- D. £48

10. The master budget for Serse Ltd, a single-product firm, for the current year is as follows:

Sales	£	£
		480,000
Variable materials (20,000 tonnes at £10 per tonne)	200,000	
Variable labour	96,000	
Variable overhead	48,000	
Fixed overhead	72,000	
Total cost		<u>(416,000)</u>
Budgeted net profit		<u>64,000</u>

Serse Ltd has substantial excess production capacity. Late in the year a sales enquiry has been received which will increase sales and production for the year by 25% over budget.

The extra requirement for 5,000 tonnes of material will enable the firm to purchase 7,000 tonnes at a discount of 5% on its normal buying price. The additional 2,000 tonnes will be used to complete the year's budgeted production.

What price should Serse Ltd charge for the special order in order to earn the same budgeted net profit for the year of £64,000?

- A. £83,500
- B. £100,500
- C. £82,500
- D. £101,500

11. A company has recorded the following costs over the last six months.

<i>Month</i>	<i>Total cost</i> £	<i>Units produced</i>
1	74,000	3,000
2	72,750	1,750
3	73,250	2,000
4	75,000	2,500
5	69,500	1,500
6	72,750	2,000

Using the high-low method, which of the following represents the total cost equation?

- A. Total cost = 61,250 + (1.25 x quantity)
- B. Total cost = 65,000 + (3 x quantity)
- C. Total cost = 65,000 + (1.25 x quantity)
- D. Total cost = 61,250 + (3 x quantity)

12. Which **TWO** of the following statements about budgeting are correct?
- A. A forecast is an attempt to predict what will happen
 - B. A budget is a plan of what is intended to happen
 - C. All budgets are prepared in financial terms
 - D. The master budget consists of a budgeted income statement and a budgeted balance sheet
 - E. A flexible budget adjusts both fixed and variable costs for the level of activity
13. A firm that uses zero-based budgeting for its overheads has:
- A. Zero as the starting point for budgeting the coming year's overheads
 - B. A zero variance between budgeted and actual overhead
 - C. An assumed sales level of zero as the starting point for budgeting the coming year's overheads
 - D. An overhead budget of zero
14. The high-low method of cost estimation is useful for:
- A. Calculating the budgeted cost for the actual activity
 - B. Calculating the highest and lowest costs in the budget period
 - C. Measuring the actual cost for the budgeted activity
 - D. Predicting the range of costs expected in the budget period
15. An extract from next year's budget for a manufacturing company is shown below.

	<i>Month 3</i>	<i>Month 4</i>
	£	£
Closing inventory of raw materials	22,000	12,000

The manufacturing cost of production is £116,000 in both month 3 and month 4. Materials costs represent 40% of manufacturing cost.

Select the budgeted material purchases for month 4 from the list below.

- A. £36,400
- B. £42,400
- C. £46,400
- D. £56,400

16. You are given the following budgeted cost information for Verlaine plc for January.

Sales	£120,000
Unit selling price	£2
Gross profit	30% margin on sales
Opening inventory	6,000 units

Sales volumes are increasing at 20% per month and company policy is to maintain 10% of next month's sales volume as closing inventory.

The budgeted cost of production for January is:

- A. £84,000
- B. £85,680
- C. £120,000
- D. £122,400

17. A company's cash budget highlights a short-term surplus in the near future.

Which **TWO** of the following actions would **not** be appropriate to make use of the surplus?

- A. Increase inventories and receivables to improve customer service.
- B. Buy back the company's shares.
- C. Increase payables by delaying payments to suppliers.
- D. Invest in a short term deposit account.

18. A retailing company's current assets and current liabilities comprise inventory at cost £2,100, receivables, cash and trade payables. Its financial ratios include the following:

Quick (liquidity) ratio	2:1
Rate of inventory turnover	10 times p.a.
Gross profit margin	30%
Receivables collection period	1 month
Payables payment period	1.6 months

The opening inventory, receivables and payables balances are the same as the closing balances.

The closing cash in hand balance will be:

- A. £3,100
- B. £2,170
- C. £1,000
- D. £100

19. A retail company extracts the following information from its accounts at 30 June 20X6:

	£
Average inventory	490,000
Average receivables	610,000
Average payables	340,000
Cost of sales	4,500,000
Purchases	4,660,000
Gross profit margin	32%

The number of days in the company's cash operating cycle is

- A. 34 days
- B. 44 days
- C. 47 days
- D. 51 days

20. Total usage of one item of Archer Ltd's inventory for the next month is estimated to be 100,000 units. The costs incurred each time an order is placed are £180. The carrying cost per unit of the item each month is estimated at £2. The purchase price of each unit is £4. The economic order quantity formula is:

$$\sqrt{(2cd)/h}$$

When using this formula to find the optimal quantity to be ordered, identify the amounts that are included in the calculation.

Cost per order (£180)

- A. Included
- B. Not included

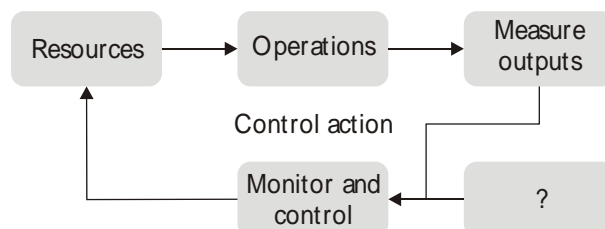
Carrying cost per unit per month (£2)

- C. Included
- D. Not included

Purchase price per unit (£4)

- E. Included
- F. Not included

21. Shown below is a diagram of a simple control cycle. What should appear in the box marked '??'



- A. Feedback
- B. Fixed costs
- C. Activity levels
- D. Budgets and standards

22. Which of the following is not a feature of effective feedback reports?

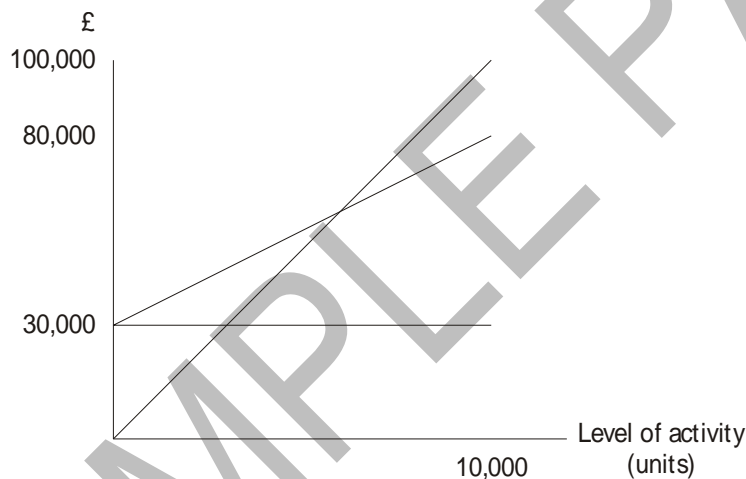
- A. Made available in a timely fashion.
- B. Produced on a regular basis.
- C. Distributed to as many managers as possible.
- D. Sufficiently accurate for the purpose intended.

23. The Finance Assistant from Castle Associates has recently returned from a management accounting seminar at which she was introduced to some new management accounting terms and formulae. She has now got several of the terms and formulae mixed up in her mind.

The contribution required to breakeven is best given by which of the following?

- A. Unit selling price less unit variable cost.
- B. Unit contribution x number of units sold.
- C. Total fixed costs.
- D. Total fixed costs/contribution ratio.

24.



The above breakeven chart has been drawn for a company's single product. Which of the following statements about the product are correct?

- (i) The product's selling price is £10 per unit.
- (ii) The product's variable cost is £8 per unit.
- (iii) The product incurs fixed costs of £30,000 per period.
- (iv) The product earns a profit of £70,000 at a level of activity of 10,000 units.

- A. (i), (ii) and (iii) only
- B. (i) and (iii) only
- C. (i), (iii) and (iv) only
- D. (iii) and (iv) only

25. Green Ltd manufactures two components, the Alpha and the Beta, using the same machines for each. The budget for next year requires the production of 4,000 units of each component. The variable production cost per component is as follows:

	<i>Machine hours per unit</i>	<i>Variable production cost (£ per unit)</i>
Alpha	3	20
Beta	2	36

Only 16,000 machine hours will be available next year. A sub-contractor has quoted the following unit prices to supply components: Alpha £29; Beta £40.

The optimum plan to obtain the components required is:

	<i>Component Alpha</i>		<i>Component Beta</i>	
	<i>Produce</i>	<i>Purchase from sub-contractor</i>	<i>Produce</i>	<i>Purchase from sub-contractor</i>
	Units	Units	Units	Units
A.	0	4,000	0	4,000
B.	2,000	2,000	0	4,000
C.	2,666	1,334	4,000	0
D.	4,000	0	2,000	2,000

26. A company has only 6,000 kg of an irreplaceable raw material called Grunch. Grunch can be used to make three possible products X, Y and Z, details of which are given below:

	X	Y	Z
Maximum demand (units)	4,000	3,000	5,000
Constant unit selling price (£/unit)	£3.00	£4.00	£5.00
Constant unit variable cost (£/unit)	£1.50	£2.40	£2.60
Fixed costs (£/unit)	£1.80	£2.20	£2.40
Quantity of raw material Grunch to make one unit of product (kg)	0.30	0.40	0.80

If the company's objective is to maximise profit, which of the following production schedules should be chosen?

	X	Y	Z
	Units	Units	Units
A.	2,666	3,000	5,000
B.	4,000	3,000	5,000
C.	4,000	2,000	5,000
D.	4,000	3,000	4,500

27. A project analyst has just completed the following evaluation of a project which has an initial cash outflow followed by several years of cash inflows:

Internal rate of return (IRR)	15% pa
Discounted payback period (DPP)	7 years

She then realises that the company's annual cost of capital is 12% not 10% and revises her calculations.

Select the option for what will happen to each of the IRR and DPP figures when the calculations are revised.

IRR

- A. No change
- B. Increase
- C. Decrease

DPP

- D. No change
- E. Increase
- F. Decrease

28. For a project with an initial cash outflow followed by a series of positive future cash inflows where the internal rate of return is unique and the net present value is positive at the opportunity cost of capital, indicate which of the following statements is true.
- A. The internal rate of return is always greater than the opportunity cost of capital.
 - B. The internal rate of return is sometimes lower than the opportunity cost of capital.
 - C. The internal rate of return is always lower than the opportunity cost of capital.
 - D. The internal rate of return is sometimes greater than the opportunity cost of capital.

29. A company has identified three independent projects, X, Y and Z. It has estimated the cash flows and positive internal rates of return (IRRs) as follows:

Year	Project X £	Project Y £	Project Z £
0	(25,000)	82,000	(50,000)
1	–	(20,000)	127,500
2	–	(20,000)	(78,750)
3	20,000	(20,000)	–
4	40,000	(20,000)	–
5	(27,938)	(20,000)	–
IRRs	10%	7%	5% and 50%

If the three projects are of equivalent risk and the company aims to maximise shareholder wealth, at which of the following costs of capital would all three projects be deemed to be acceptable by the company?

- A. 12%
 B. 8%
 C. 6%
 D. 4%
30. A company is to spend £60,000 on a machine that will have an economic life of ten years and no residual value. Depreciation is to be charged using the straight-line method. Estimated operating cash flows are:

Year	£
1	– 2,000
2	+ 13,000
3	+ 20,000
4–6	+ 25,000 each year
7–10	+ 30,000 each year

What is the average accounting rate of return (ARR), calculated as average annual profits divided by the average investment?

- A. 75%
 B. 55%
 C. 38%
 D. 28%

31. A project has an initial investment cost of £200,000. It is expected to generate a net cash inflow of £20,000 at the end of its first year. This will rise to £25,000 at the end of the second year and remain at £25,000 per annum in perpetuity. The relevant cost of capital is expected to be 8% in the first year and 10% in the second and subsequent years.

What is the net present value of the project (to the nearest £100).

- A. £29,000
- B. £45,800
- C. £50,000
- D. £68,500

32. A project can be expected to generate ten annual cash inflows of £30,000 starting immediately. The project requires an initial cash outlay of £150,000 and a final cash outlay at the end of ten years of £50,000.

If the annual cost of capital is 10%, what is the net present value of the project (to the nearest £100).

- A. £15,100
- B. £23,500
- C. £31,600
- D. £33,500

SAMPLE PAPER

MARK PLAN AND EXAMINER'S COMMENTARY

Difference £ **2 marks** (400-380)*30

Operating statement for May

	Favourable £	Adverse £	£	marks	workings
Budgeted profit			<input type="text" value="116,000"/>	2	400(600-310)
Sales volume variance	<input type="text" value="0 or -"/>	<input type="text" value="7,680"/>		1.5	(400 x 0.94-400)(600-280)
Sales price variance	<input type="text" value="7,520"/>	<input type="text" value="0 or -"/>		1.5	(620-600)400 x 0.94
Cost variances					
Materials price	<input type="text" value="0 or -"/>	<input type="text" value="800"/>		1.5	(16,800/1,600-10)1,600
Materials usage	<input type="text" value="0 or -"/>	<input type="text" value="960"/>		1.5	(1,600-400 x 0.94 x 4)10
Labour rate	<input type="text" value="0 or -"/>	<input type="text" value="4,060"/>		1.5	(69,020/4,060-16)4,060
Labour efficiency	<input type="text" value="7,232"/>	<input type="text" value="0 or -"/>		1.5	(4,060-400 x 0.94 x 12)16
Variable overhead rate	<input type="text" value="0 or -"/>	<input type="text" value="1,015"/>		1.5	(17,255/4,060-4)4,060
Variable overhead efficiency	<input type="text" value="1,808"/>	<input type="text" value="0 or -"/>		1.5	(400 x 0.94 x 12-4,060)4
Fixed overhead expenditure	<input type="text" value="0 or -"/>	<input type="text" value="1,050"/>		2	13,050-400 x 30
Total variances	<input type="text" value="16,560"/>	<input type="text" value="15,565"/>	<input type="text" value="995"/>		
Actual profit			<input type="text" value="116,995"/>	2	400 x 0.94 x 620-16,800-69,020-17,255-13,050

LO 3e, f

1. D Lease payments on a machine

The decision to take out a lease would have been made by the finance function and not be of relevance to production.

A supervisor would be concerned with material costs because he is responsible for the efficiency with which materials are used.

A supervisor would be concerned with labour costs because he is responsible for the efficiency with which labour work.

A supervisor would be concerned with maintenance costs because he is responsible for the manner in which machines are operated.

LO 1a

2. A $C = 480 + 0.01T$

A standing charge of £40/month is £480 per year. Costs then increase by £0.01/minute

LO 1b

3. C £217,323

	<i>Work in progress (WIP)</i> £
Job A £(26,800 + 17,275 + 14,500) + £(14,500/42,600 x 126,000)	101,462
Job C £(18,500 + 24,600) + £(24,600/42,600 x 126,000)	115,861
Total WIP cost	217,323

£58,575 is the direct cost of job A, with no addition for overhead. £101,675 is the direct cost of both jobs in progress, but with no addition for overhead.

£227,675 is the result of charging all of the overhead to the jobs in progress, but some of the overhead must be absorbed by the completed job B.

LO 1d

4. A, F, H

Oil refining involves a continuous manufacturing process of homogeneous output and therefore is ideally suited to process costing.

Clothing would be manufactured using batches of material, for example of a certain texture or colour. Production would be halted before the next batch of items of a particular style is produced. The most appropriate costing method would therefore be batch costing.

Car repair work would be very varied and each repair would be bespoke. Therefore neither process nor batch costing would be appropriate but job/contract costing would be a suitable costing method.

LO 1d

5. C,D The statement '*Absorption unit cost information is the most reliable as a basis for pricing decisions*' is **not true** because short term changes in activity levels can result in unit costs being artificially high or low, because overheads will be absorbed over the unrepresentative number of units. This could make prices set using this cost basis artificially high or low.

The statement '*A product showing a loss under absorption costing will also make a negative contribution under marginal costing*' is **not true** because a product could earn a contribution under marginal costing which then becomes a gross loss under absorption costing only because of the increase in cost from absorbing overheads.

The statement '*Marginal unit cost information is normally the most useful for external reporting purposes*' is **not true** because external reporting will need to take account of unit costs right across an operation not just unit costs when incremental (marginal) changes in activity levels are made.

The statement '*When closing inventory levels are higher than opening inventory levels and overheads are constant, absorption costing gives a higher profit than marginal costing*' is **true** because an increase in inventory levels will mean that with absorption costing more overhead is being carried forward at the end of the period than at the start of the period. This means that overheads charged against profit in the period would be lower than under marginal costing thereby increasing the reported profit.

The statement '*In a multi-product company, smaller volume products may cause a disproportionate amount of set up overhead cost*' is **true** because overheads would normally be apportioned based on the time a product spends on the production line. For smaller volume products the time taken to set up the product run becomes a larger proportion of the total time spent in production than for higher volume products.

LO 1c

6. C Threat of disciplinary proceedings or dismissal over a disagreement about the application of accounting principle or the way in which financial information is to be reported is an example of an intimidation threat.

LO 5a

7. B £19,500

The manufacturing cost per unit, on an absorption costing basis, is:

$$£6.00 + (£90,000/75,000) =$$

$$£6.00 + £1.20 = £7.20$$

The cost of sales is therefore $70,000 \times £7.20 = £504,000$

The sales revenue is $70,000 \times £8 = £560,000$

The profit before selling and administration costs is therefore: $£560,000 - £504,000 = £56,000$

The selling and administration costs are: $(70,000 \times £0.20) + £22,500 = £36,500$

The net profit is therefore $£56,000 - £36,500 = £19,500$

If you calculated the profit as £13,500 then you calculated the net profit using marginal costing. Total variable costs on this basis would be $70,000 \times £6.20 = £434,000$ and total overheads $£90,000 + £22,500 = £112,500$. The net profit would therefore (incorrectly) be calculated as $£560,000 - £434,000 - £112,500 = £13,500$

If you calculated the net profit as £21,000 or £22,500 then you probably followed the right method but made an arithmetical error.

LO 1c

8. C Because the selling price is agreed to be the actual costs incurred by the supplier plus a profit mark-up using a fixed percentage then any inflation adjustment to costs would also affect the selling price. The supplier can pass on all inflation increases to the buyer and will also earn a mark-up on the cost increase.

In this case:

The statement 'The supplier and the buyer will each bear some of the inflation risk' is incorrect as the supplier bears no risk.

The statement 'Only the supplier will bear the inflation risk' is incorrect, as the supplier bears no risk.

The statement 'The supplier and the buyer will each bear equal amounts of the inflation risk' is also incorrect for the same reason.

LO 1e

9. B Because the demand for Rex is more than sufficient for division F to manufacture to capacity, the price that the product should be transferred to division G should represent the same profit margin as if the product were sold externally. The external selling price is £64 but if an external sale is made then additional selling overhead of £8 would be incurred. The net transfer price is therefore £56.

The £64 price doesn't reflect the saving in selling costs. £40 and £48 give lower profit margins for the producing division F, hence they would want to sell outside.

LO 1f

10. C The total sales will use 25,000 tonnes of material, at a cost of:

$$(18,000 \times £10) + (7,000 \times £10 \times 95\%)$$

$$= (£180,000) + (£70,000 \times 95\%)$$

$$= £246,500$$

The variable labour and overhead cost for this level of production would increase to:

$$(£96,000 + £48,000) \times 125\% = £144,000 \times 125\% = £180,000$$

The fixed costs remain at £72,000

Total costs are therefore $(£246,500 + £180,000 + £72,000) = £498,500$

The requirement is to earn the same budget profit of £64,000. This means the total required sales income will be (£498,500 + £64,000) = £562,500.

The sales revenue without the extra order is £480,000 and therefore the revenue to be generated from the extra order is (£562,500 – £480,000) = £82,500.

If you calculated the answer as £100,500 then you probably incorrectly increased the fixed costs by 25% as well, from £72,000 to £90,000, meaning an extra £18,000 would need to be recovered through the selling price.

If you calculated the answer as either £83,500 or £101,500 then you either followed the correct logic or the incorrect logic set out above, and also made an arithmetical error.

LO 1e

11. B Total cost = 65,000 + (3 x quantity)

		£
Highest production	3,000 units	74,000
Lowest production	1,500 units	69,500
	1,500	4,500

Variable cost per unit = £4,500/1,500 = £3 per unit
 Total cost = fixed cost + (£3 x quantity)
 £74,000 = fixed cost + (£3 x 3,000)
 Fixed cost = £74,000 - £9,000
 = £65,000

LO 2a

12. A, B A forecast is a prediction by management of the expected outcome whereas a budget represents a set of targets of what management intend to happen. A budget is usually set just once a year whereas forecasts and re-forecasts can be carried out much more frequently.

The statement '*All budgets are prepared in financial terms*' is incorrect as often a budget could include, for example, tonnage of raw material needed or quantity (in units) of finished product.

The statement '*The master budget consists of a budgeted income statement and a budgeted balance sheet*' is incorrect as a master budget would also contain a cash flow budget.

The statement '*A flexible budget adjusts both fixed and variable costs for the level of activity*' is incorrect as a flexible budget adjusts just variable costs for the level of activity and not fixed costs.

LO 2c

13. A Zero-based budgeting, by its very definition, starts from zero and is built upwards.

The statement '*a zero variance between budgeted and actual overhead*' is incorrect as this merely refers to the comparison of actual performance with budgeted performance.

The statement '*an assumed sales level of zero as the starting point for budgeting the coming year's overheads*' is a meaningless statement as an overhead budget would be based on budgeted sales not zero sales.

The statement '*an overhead budget of zero*' is incorrect.

LO 2c

14. A The high-low method of cost estimation is a method of linear extrapolation or interpolation between two actual data points. It is a method for flexing a budget by calculating the budgeted cost for the actual activity.

The high-low method uses the highest and lowest costs in the budget period for the extrapolation process itself.

The measurement of actual cost for the budgeted activity is irrelevant.

The high-low method estimates a single cost at a certain level of activity and not a range of costs.

LO 2a

15. A Month 4 materials cost included within cost of sales is $£116,000 \times 40\% = £46,400$. Inventory of materials are budgeted to reduce from $£22,000$ to $£12,000$ and therefore budgeted materials purchased in the month would be $(£46,400 + £12,000 - £22,000) = £36,400$.

$£46,400$ (see above) represents the materials cost of sales rather than purchases.

$£46,400 - £12,000 + £22,000 = £56,400$ incorrectly deducts closing inventory and adds the opening. $40\% (£116,000 + £12,000 - £22,000) = £42,400$ incorrectly applies the 40% adjustment to the materials inventory figures.

LO 2b

16. B As sales are increasing at 20% per month the expected sales for February are $£120,000 \times 120\% = £144,000$. As the gross margin is 30% on sales the cost of sales for February is expected to be $£144,000 \times 70\% = £100,800$.

The company policy is to maintain closing inventory at 10% of the expected next month's sales. The closing inventory for January is therefore $£10,080$. The cost of a unit is $£2 \times 70\% = £1.40$, meaning the closing inventory for January is $£10,080 / £1.40 = 7,200$ units.

The budgeted cost of production for January would therefore need to cover January sales ($£120,000 / £2$ per unit = 60,000 units) plus an increase in inventory from 6,000 to 7,200 units, ie a total of 61,200 units. This is a cost of $61,200 \times £1.40 = £85,680$.

If you incorrectly calculated the cost of production as $£84,000$ then you calculated the production volume as 60,000 units (the number sold in January) and did not allow for an increase in inventory levels.

If you incorrectly calculated the cost of production as £120,000 then you again calculated the production volume as 60,000 units in error and made a further error in valuing this volume at the selling price of £2 per unit rather than the cost price.

If you incorrectly calculated the cost of production as £122,400 then you correctly calculated the production volume as 61,200 units but in error valued this volume at the selling price of £2 per unit rather than the cost price.

LO 2b

17. B Buy back the company's shares

C Increase payables by delaying payments to suppliers

Buying back the company's shares would be a suitable use of a long-term surplus (but not short-term), by returning surplus cash to the shareholders.

Increasing payables would increase the surplus still further because additional credit would be taken from suppliers.

LO 2g

18. A The inventory value is £2,100. The rate of inventory turnover is 10 times p.a., therefore the annual cost of sales is £21,000 (we are told opening inventory equals closing inventory). The gross profit margin is 30% which means annual sales are $£21,000/0.7 = £30,000$.

The receivables collection period is 1 month, which means closing receivables are $£30,000/12 = £2,500$.

The payables payment period is 1.6 months, which means closing payables are $£21,000/12 \times 1.6 = £2,800$.

The quick ratio is 2:1 which means current assets (excluding inventory) are $£2,800 \times 2 = £5,600$. As receivables are £2,500 the cash balance must be $(£5,600 - £2,500) = £3,100$.

If you calculated incorrectly the cash balance as £1,000 then you probably incorrectly calculated closing payables as $£21,000/12 = £1,750$ which would mean current assets (excluding inventory) of £3,500 and cash of $(£3,500 - £2,500) = £1,000$.

If you calculated incorrectly the cash balance as £100 then you probably incorrectly calculated closing receivables as $£2,100/12/0.7 = £250$ and closing payables as $£2,100/12 = £175$ and therefore current assets (excluding inventory) of £350.

LO 2d

19. C The company's cash operating cycle is calculated as:
(Inventory days + receivables days – payables days)
Inventory days = $\text{£}490,000/\text{£}4,500,000 \times 365 = 39.7$ days
Receivables days = $\text{£}610,000/(\text{£}4,500,000/0.68) \times 365 = 33.6$ days
Payables days = $\text{£}340,000/\text{£}4,660,000 \times 365 = 26.6$ days

Note: The cost of sales value is used for the inventory days and also to calculate sales (using the gross margin of 32%). However, the purchases figure is used to calculate the payables days.

The answer is therefore $(39.7 + 33.6 - 26.6)$ days = 46.7 days (rounded to 47).

If you incorrectly calculated the answer as 34 days then you probably rounded up the inventory days to 40 days, added the payables days in error (also rounded up at 27 days) and then deducted the receivables days (rounded down to 33 days).

If you incorrectly calculated the answer as 44 days then you probably used the purchases figure of $\text{£}4,660,000$ in the calculations for inventory days and receivables days rather than the cost of sales figure.

If you incorrectly calculated the answer as 51 days you probably calculated the inventory days and payables days correctly but used the wrong gross margin to calculate the sales figure in the receivables days formula (using 22% margin rather than 32%).

LO 2e

20. A, C, F
Cost per order ($\text{£}180$) – Included
Carrying cost per unit per month ($\text{£}2$) – Included
Purchase price per unit ($\text{£}4$) – Not included

In the formula, c = the cost of placing one order; d = the estimated usage of an inventory item over a particular period; and h = the cost of holding one unit of inventory for that period. The purchase price per unit is not a constituent part of the formula.

LO 2f

21. D Budgets and standards

To exercise control, managers must compare actual performance with budgets and standards.

The term 'feedback' describes the whole process of reporting control information to management and might also refer to the control information itself.

Information about fixed costs and activity levels might be included with the control information but they are not a separate element of the control cycle itself.

LO 3c

22. C Distributed to as many managers as possible

Reports should be communicated to the manager who has responsibility and authority to act on the information. There is no point in distributing reports to managers who cannot act on the information contained therein.

In this situation managers could suffer from information overload where they are supplied with so much information that their attention is not drawn clearly to that which is specifically relevant to them. Important information could be overlooked or simply ignored.

LO 3d

23. C Total fixed costs

Contribution required to break even is the same value as total fixed costs.

Unit selling price less unit variable cost is the unit contribution.

Unit contribution x number of units sold is the total contribution.

Total fixed costs/Contribution ratio provides the sales revenue at breakeven point.

LO 4a

24. B (i) and (iii) only

Statement (i) is correct. The line which passes through the origin indicates the sales revenue at various levels of activity. At an activity level of 10,000 units, the sales revenue is £100,000 therefore the selling price is £10 per unit.

Statement (ii) is incorrect. The sloping line which intercepts the vertical axis at £30,000 shows the total cost at various levels of activity. The **total cost** for 10,000 units is £80,000, from which we subtract the £30,000 fixed costs to derive the variable cost of 10,000 units, which is £50,000. Therefore the variable cost per unit is £5.

Statement (iii) is correct. The fixed cost is the cost incurred at zero activity and is shown as a horizontal line at £30,000.

Statement (iv) is incorrect. The profit for 10,000 units is the difference between the sales value (£100,000) and the total cost (£80,000) which amounts to £20,000.

LO 4b

25. D Alpha: Produce 4,000 units

Beta: Produce 2,000 units, Buy in 2,000 units

The units subcontracted should be those which add least to the costs of Green Ltd. The cheapest policy is to subcontract work which adds the least extra cost per machine hour saved.

	<i>Alpha</i>	<i>Beta</i>
	£	£
Variable cost of internal manufacture	20	36
Variable cost of buying	29	40
Extra variable cost of buying	9	4
Machine hours saved by buying	3 hours	2 hours
Extra cost of buying, per hour saved	£3	£2

It is cheaper to buy Betas than to buy Alphas. Therefore the priority for making the components in-house will be to allocate the available hours to the manufacture of Alphas.

<i>Component</i>	<i>Production Units</i>	<i>Hours per unit</i>	<i>Hours allocated</i>
Alpha	4,000	3	12,000
Beta	2,000	2	4,000
			16,000

The remaining 2,000 units of Beta should be purchased from the sub-contractor.

LO 4b

26. D This question relates to limiting factor analysis. The key to these questions is ranking the contribution per unit of the limiting factor, in this case Grunch. In this question the contribution per unit of Grunch will be calculated pre-fixed costs, as these will be constant whatever production schedule is chosen.

Product X: Contribution = £1.50 and $£1.50/0.3 = £5$ contribution per kg of Grunch

Product Y: Contribution = £1.60 and $£1.60/0.40 = £4$ contribution per kg of Grunch

Product Z: Contribution = £2.40 and $£2.40/0.80 = £3$ contribution per kg of Grunch

The ranking of the products is therefore X, Y, Z.

The production schedule that will maximise profit will therefore be:

4,000 units of X (maximum demand), utilising $4,000 \times 0.3\text{kg}$ of Grunch, ie 1,200kg

3,000 units of Y (maximum demand), utilising $3,000 \times 0.4\text{kg}$ of Grunch, ie 1,200kg

This is a total of 2,400kg and therefore 3,600kg of the 6,000kg will be available to manufacture Product Z. This will produce $3,600/0.8$ units = 4,500 units.

Any other production schedule will not maximise profit.

LO 4b

27. A, E A project's IRR is the return at which the net present value (NPV) of the cash flows is zero. The IRR is therefore independent of a company's cost of capital. The revision to the cost of capital by the project analyst will therefore not impact on the IRR, hence there is **no change**.

A project's DPP is the period of time taken for the project's cumulative discounted cash flows to turn from the initial negative outflow to a cumulative positive position. The revision to the cost of capital from 10% to 12% will reduce each future discounted cash inflow, and therefore **increase** the time taken for the cumulative discounted cash flows to become positive.

LO 4c

28. A As the net present value of the project's cash flows is positive at the opportunity cost of capital, this means that the project is viable and its IRR must be higher than the cost of capital.

If the internal rate of return of a project were sometimes lower than the opportunity cost of capital then the net present value in those instances would be negative.

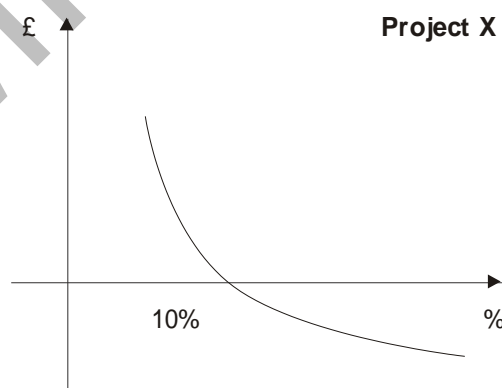
If the internal rate of return were always lower than the opportunity cost of capital then the net present value would always be negative.

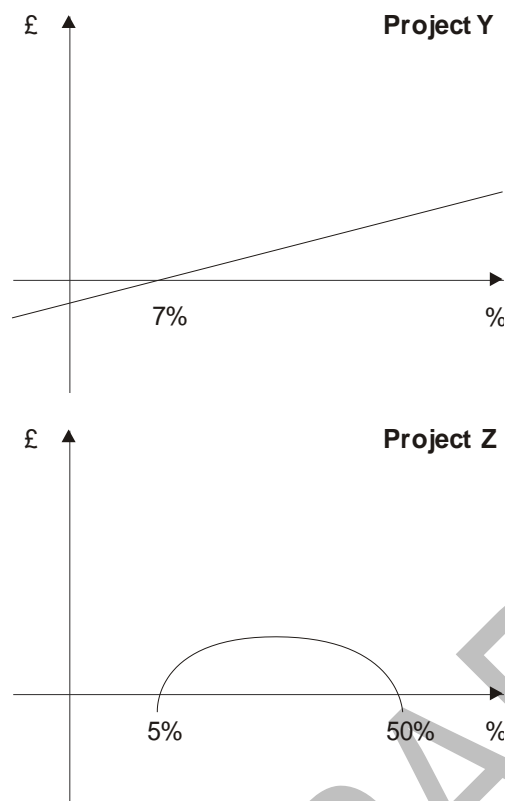
If the internal rate of return of a project were sometimes higher than the opportunity cost of capital then this would imply that sometimes it would be lower.

LO 4d

29. B The best way to attempt this question is to draw graphs of the net present value of each project at various discount rates. The IRR of each project tells us at what point the x-axis is crossed and the number of changes in sign of the cash flows (from positive to negative or vice versa) tells us how many changes in direction each graph will have. The starting sign (positive or negative) for the graph can be easily established at a discount factor of 0% by adding the cash flows up.

The graphs of net present values for Projects X, Y and Z must look like this:





The answer is 8% because at a discount factor of 8% the NPV of project X is positive (accepted), project Y is also positive (accepted) and project Z is also positive (accepted).

Examining the other discount factors shows that:

At a discount factor of 12% the NPV of project X is negative (rejected), project Y is positive (accepted) as is project Z.

At a discount factor of 6% the NPV of project X is positive (accepted), project Y is negative (rejected) and project Z is positive (accepted).

At a discount factor of 4% the NPV of project X is positive (accepted), project Y is negative (rejected) and project Z is also negative (rejected).

LO 4c

30. B The ARR in this question is defined as average annual profits divided by the average investment.

In Year 1 profits are $-\text{£}2,000$ less depreciation of $(\text{£}60,000/10)$, ie $-\text{£}8,000$

In Year 2 profits are $\text{£}13,000$ less depreciation of $\text{£}6,000$, ie $\text{£}7,000$

In Year 3 profits are $\text{£}20,000$ less depreciation of $\text{£}6,000$, ie $\text{£}14,000$

In Year 4 to 6 profits are $\text{£}25,000$ less depreciation of $\text{£}6,000$, ie $\text{£}19,000$

In Year 7 to 10 profits are $\text{£}30,000$ less depreciation of $\text{£}6,000$, ie $\text{£}24,000$

The average profits are therefore:

$$(-8,000 + 7,000 + 14,000 + (19,000 \times 3) + (24,000 \times 4))/10 = \text{£}166,000/10 = \text{£}16,600$$

The investment in Year 1 is £60,000 and the investment in Year 10 is £nil. The average investment is therefore $(\text{£}60,000)/2 = \text{£}30,000$

The ARR is therefore $\text{£}16,600/\text{£}30,000 = 55\%$

The average cash flow (rather than profit) $= (16,600 + \frac{60,000}{10}) = \text{£}22,600$

$$\text{£}22,600 \div \text{£}30,000 = 75\%$$

$\text{£}16,600 \div \text{£}60,000 = 28\%$ i.e. incorrect using the initial investment

$\text{£}22,600 \div \text{£}60,000 = 38\%$, i.e. incorrect using the initial investment and average cash flow
LO 4c

31. C The cash flows for the project are:

T_0 -£200,000

T_1 +£20,000

T_2 +£25,000 and each year thereafter

The T_0 outflow is not discounted.

The T_1 inflow is discounted for one year at 8%, giving a NPV of $\text{£}20,000/(1.08) = \text{£}18,519$

Thereafter we have a perpetuity at a discount rate of 10% starting after one year. The perpetuity factor is $1/0.1 = 10$, and therefore the NPV is $\text{£}25,000 \times 10/1.08 = \text{£}231,481$.

The NPV of the project is therefore $(-\text{£}200,000 + \text{£}18,519 + \text{£}231,481) = \text{£}50,000$

B Incorrectly discounting the perpetuity back from T_1 at 10% (rather than 8%) gives

$$\text{£}25,000 \times 10/1.1 = \text{£}227,273 + \text{£}18,519 - \text{£}200,000 = \text{£}45,792 \text{ i.e. } \text{£}45,800$$

$$\text{Discounting the perpetuity as } \frac{\text{£}25,000 \times 10}{1.1 \times 1.08} = \text{£}210,438$$

$$+ \text{£}18,519 - \text{£}200,000 = \text{£}28,957 \text{ i.e. } \text{£}29,000$$

LO 4c

32. D As the ten annual inflows start immediately then in Year 0 the net outflow is actually -
 $£150,000 + £30,000 = -£120,000$.

The NPV of this initial outflow is $-£120,000$.

The NPV of the nine remaining annual cash inflows (years 1 to 9) of £30,000 each can be found from the discount tables by taking the annuity factor for years 1 to 9 at 10%. This is 5.759. Therefore the NPV of these cash inflows is $£30,000 \times 5.759 = £172,770$.

The NPV of the outlay at the end of ten years is $-£50,000 \times 0.386 = -£19,300$.

The project NPV is therefore $(-£120,000 + £172,770 - £19,300) = £33,470$ or $£33,500$ to the nearest £100.

If you incorrectly calculated the NPV as £15,100 (to the nearest £100) then you treated the ten annual inflows as being received in Years 1 to 10 rather than Years 0 to 9. This meant you calculated the NPV as $-£150,000 + £30,000 \times 6.145 - £19,300 = £15,050$.

If you incorrectly calculated the NPV as £31,600 (to the nearest £100) then you probably completed every calculation correctly except the discounting of the final £50,000. You probably used a discount factor of 0.424 rather than 0.386 meaning the NPV became £31,570 (£31,600 to the nearest £100).

LO 4c