Fundamentals Pilot Paper – Knowledge module

Management Accounting

Paper F2

Time allowed: 2 hours

ALL FIFTY questions are compulsory and MUST be attempted.

Do NOT open this paper until instructed by the supervisor.

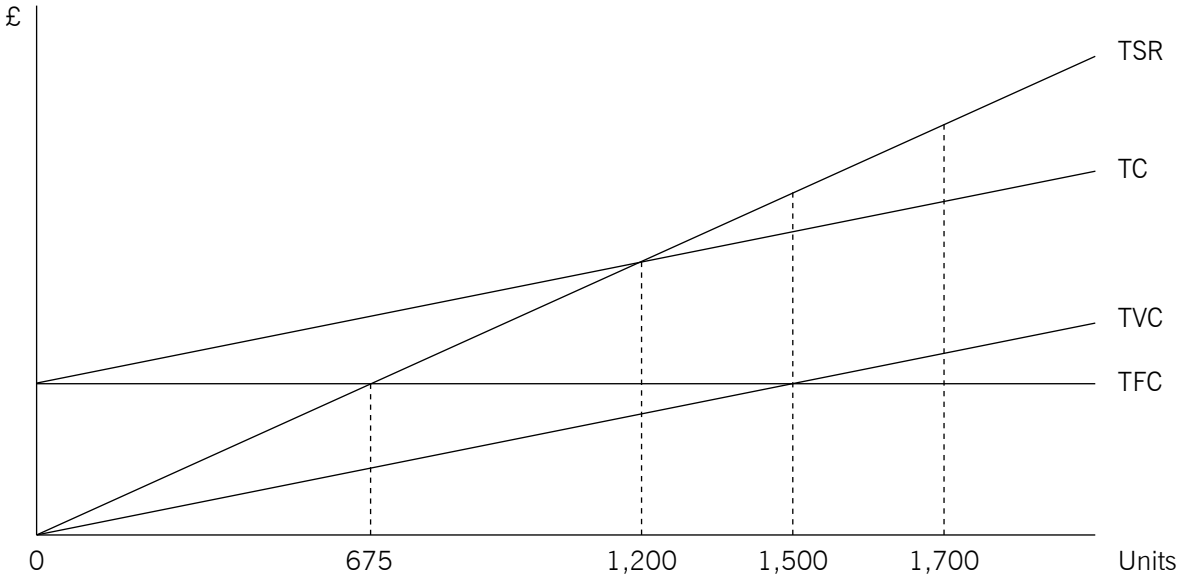
This question paper must not be removed from the examination hall.

ACCA

The Association of Chartered Certified Accountants

ALL 50 questions are compulsory and MUST be attempted.

1 The following break-even chart has been drawn showing lines for total cost (TC), total variable cost (TVC), total fixed cost (TFC) and total sales revenue (TSR):



What is the margin of safety at the 1,700 units level of activity?

A 200 units

B 300 units

C 500 units

D 1,025 units

(2 marks)

2 The following assertions relate to financial accounting and to cost accounting:

(i) The main users of financial accounting information are external to an organisation.

(ii) Cost accounting is that part of financial accounting which records the cash received and payments made by an organisation.

Which of the following statements are true?

A Assertions (i) and (ii) are both correct.

B Only assertion (i) is correct.

C Only assertion (ii) is correct.

(1 mark)

3 Regression analysis is being used to find the line of best fit ($y = a + bx$) from eleven pairs of data. The calculations have produced the following information:

$\Sigma x = 440$, $\Sigma y = 330$, $\Sigma x^2 = 17{,}986$, $\Sigma y^2 = 10{,}366$, $\Sigma xy = 13{,}467$ and $b = 0.69171$

What is the value of 'a' in the equation for the line of best fit (to 2 decimal places)?

A 0.63

B 0.69

C 2.33

D 5.33

(2 marks)

4 The purchase price of a stock item is $25 per unit. In each three month period the usage of the item is 20,000 units. The annual holding costs associated with one unit equate to 6% of its purchase price. The cost of placing an order for the item is $20.

What is the Economic Order Quantity (EOQ) for the stock item to the nearest whole unit?

A 730

B 894

C 1,461

D 1,633

(2 marks)

5 A company uses an overhead absorption rate of $3.50 per machine hour, based on 32,000 budgeted machine hours for the period. During the same period the actual total overhead expenditure amounted to $108,875 and 30,000 machine hours were recorded on actual production.

By how much was the total overhead under or over absorbed for the period?

A Under absorbed by $3,875

B Under absorbed by $7,000

C Over absorbed by $3,875

D Over absorbed by $7,000

(2 marks)

6 For which of the following is a profit centre manager responsible?

A Costs only

B Revenues only

C Costs and revenues.

(1 mark)

7 An organisation has the following total costs at two activity levels:

Activity level (units)	16,000	22,000
Total costs ($)	135,000	170,000

Variable cost per unit is constant within this range of activity but there is a step up of $5,000 in the total fixed costs when the activity exceeds 17,500 units.

What is the total cost at an activity of 20,000 units?

A $155,000

B $158,000

C $160,000

D $163,000

(2 marks)

8 A company manufactures and sells a single product. In two consecutive months the following levels of production and sales (in units) occurred:

	Month 1	Month 2
Sales	3,800	4,400
Production	3,900	4,200

The opening inventory for Month 1 was 400 units. Profits or losses have been calculated for each month using both absorption and marginal costing principles.

Which of the following combination of profits and losses for the two months is consistent with the above data?

	Absorption costing profit/(loss)		Marginal costing profit/(loss)	
	Month 1	Month 2	Month 1	Month 2
	$	$	$	$
A	200	4,400	(400)	3,200
B	(400)	4,400	200	3,200
C	200	3,200	(400)	4,400
D	(400)	3,200	200	4,400

(2 marks)

9 **Which of the following best describes a flexible budget?**

A A budget which shows variable production costs only.

B A monthly budget which is changed to reflect the number of days in the month.

C A budget which shows sales revenue and costs at different levels of activity.

D A budget that is updated halfway through the year to incorporate the actual results for the first half of the year.

(2 marks)

10 Information relating to two processes (F and G) was as follows:

Process	Normal loss as % of input	Input litres	Output litres
F	8	65,000	58,900
G	5	37,500	35,700

For each process, was there an abnormal loss or an abnormal gain?

	Process F	Process G
A	Abnormal gain	Abnormal gain
B	Abnormal gain	Abnormal loss
C	Abnormal loss	Abnormal gain
D	Abnormal loss	Abnormal loss

(2 marks)

11 An organisation manufactures a single product which is sold for $80 per unit. The organisation's total monthly fixed costs are $99,000 and it has a contribution to sales ratio of 45%. This month it plans to manufacture and sell 4,000 units.

What is the organisation's margin of safety this month (in units)?

A 1,250

B 1,750

C 2,250

D 2,750

(2 marks)

12 Which one of the following should be classified as indirect labour?

A Assembly workers on a car production line

B Bricklayers in a house building company

C Machinists in a factory producing clothes

D Forklift truck drivers in the stores of an engineering company.

(2 marks)

13 A company is evaluating a project that requires 400kg of raw material X. The company has 150kg of X in stock that were purchased six months ago for $55 per kg. The company no longer has any use for X. The inventory of X could be sold for $40 per kg. The current purchase price for X is $53 per kg.

What is the total relevant cost of raw material X for the project?

A $17,950

B $19,250

C $21,200

D $21,500

(2 marks)

14 Which of the following is NOT a feasible value for the correlation coefficient?

A +1.4

B +0.7

C 0

D −0.7

(2 marks)

15 The following statements relate to aspects of budget administration:
Statement (1): An important task of a budget committee is to ensure that budgets are properly coordinated.
Statement (2): A budget manual is the document produced at the end of the budget setting process.

Which of the following is true?

A Only statement (1) is correct.

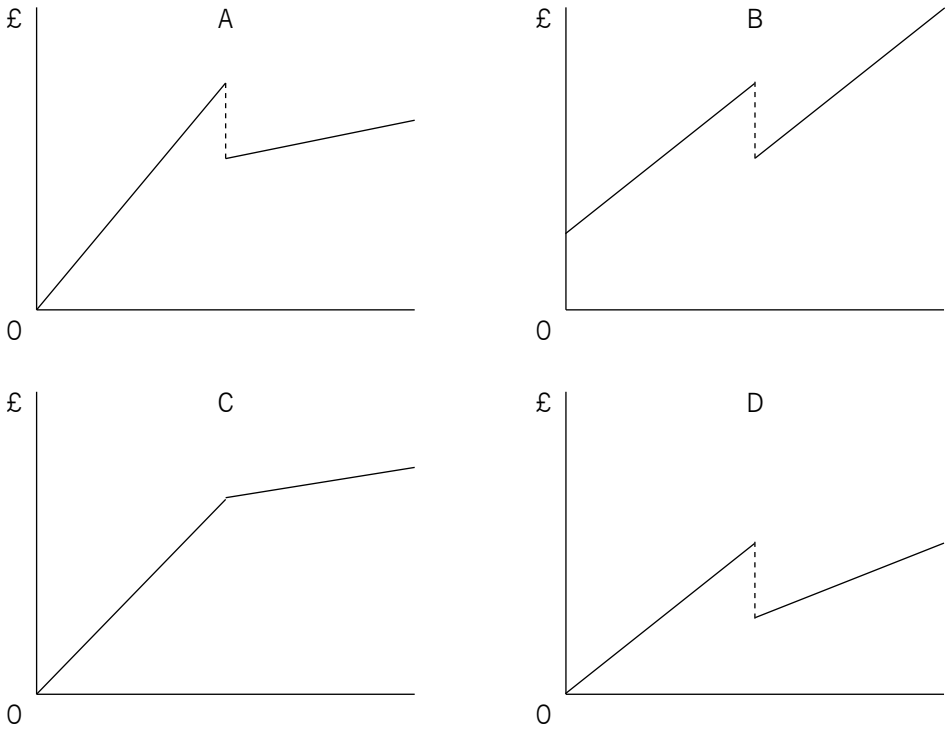
B Only statement (2) is correct.

C Both statements are correct.

(1 mark)

16 Up to a given level of activity in each period the purchase price per unit of a raw material is constant. After that point a lower price per unit applies both to further units purchased and also retrospectively to all units already purchased.

Which of the following graphs depicts the total cost of the raw materials for a period?



(2 marks)

17 A manufacturing organisation incurs costs relating to the following:

(1) Commission payable to salespersons.
(2) Inspecting all products.
(3) Packing the products at the end of the manufacturing process prior to moving them to the warehouse.

Which of these costs are classified as production costs?

A (1) and (2) only

B (1) and (3) only

C (2) and (3) only

D (1), (2) and (3)

(2 marks)

18 Which of the following is correct with regard to expected values?

A Expected values provide a weighted average of anticipated outcomes.

B The expected value will always equal one of the possible outcomes.

C Expected values will show the decision maker's attitude to risk.

D The expected value will never equal one of the possible outcomes.

(2 marks)

19 There is a 60% chance that a company will make a profit of $300,000 next year and a 40% chance of making a loss of $400,000.

What is the expected profit or loss for next year?

A $120,000 Loss

B $20,000 Loss

C $20,000 Profit

D $120,000 Profit

(2 marks)

20 A company's budgeted sales for last month were 10,000 units with a standard selling price of $20 per unit and a standard contribution of $8 per unit. Last month actual sales of 10,500 units at an average selling price of $19.50 per unit were achieved.

What were the sales price and sales volume contribution variances for last month?

	Sales price variance ($)	Sales volume contribution variance ($)
A	5,250 Adverse	4,000 Favourable
B	5,250 Adverse	4,000 Adverse
C	5,000 Adverse	4,000 Favourable
D	5,000 Adverse	4,000 Adverse

(2 marks)

21 A company manufactures and sells one product which requires 8 kg of raw material in its manufacture. The budgeted data relating to the next period are as follows:

	Units
Sales	19,000
Opening inventory of finished goods	4,000
Closing inventory of finished goods	3,000
	Kg
Opening inventory of raw materials	50,000
Closing inventory of raw materials	53,000

What is the budgeted raw material purchases for next period (in kg)?

A 141,000

B 147,000

C 157,000

D 163,000

(2 marks)

22 The following statements refer to spreadsheets:

(i) A spreadsheet is the most suitable software for the storage of large volumes of data.

(ii) A spreadsheet could be used to produce a flexible budget.

(iii) Most spreadsheets contain a facility to display the data in them within them in a graphical form.

Which of these statements are correct?

A (i) and (ii) only

B (i) and (iii) only

C (ii) and (iii) only

D (i), (ii) and (iii)

(2 marks)

23 A company always determines its order quantity for a raw material by using the Economic Order Quantity (EOQ) model.

What would be the effects on the EOQ and the total annual holding cost of a decrease in the cost of ordering a batch of raw material?

	E O Q	Annual holding cost
A	Higher	Lower
B	Higher	Higher
C	Lower	Higher
D	Lower	Lower

(2 marks)

24 Which one of the following is most likely to operate a system of service costing?

A A printing company

B A hospital

C A firm of solicitors.

(1 mark)

25 The following budgeted information relates to a manufacturing company for next period:

	Units		$
Production	14,000	Fixed production costs	63,000
Sales	12,000	Fixed selling costs	12,000

The normal level of activity is 14,000 units per period.
Using absorption costing the profit for next period has been calculated as $36,000.

What would the profit for next period be using marginal costing?

A $25,000

B $27,000

C $45,000

D $47,000

(2 marks)

26 A company manufactures a single product which it sells for $20 per unit. The product has a contribution to sales ratio of 40%. The company's weekly break- even point is sales revenue of $18,000.

What would be the profit in a week when 1,200 units are sold?

A $1,200

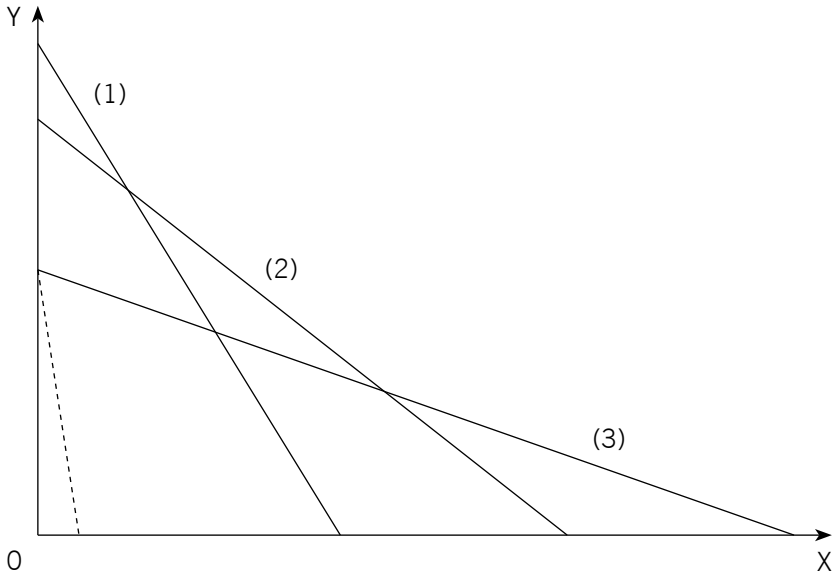
B $2,400

C $3,600

D $6,000

(2 marks)

27 The following graph relates to a linear programming problem:



The objective is to maximise contribution and the dotted line on the graph depicts this function. There are three constraints which are all of the "less than or equal to" type which are depicted on the graph by the three solid lines labelled (1), (2) and (3).

At which of the following intersections is contribution maximised?

A Constraints (1) and (2)

B Constraints (2) and (3)

C Constraints (1) and (3)

D Constraint (1) and the x-axis

(2 marks)

28 In an organisation manufacturing a number of different products in one large factory, the rent of that factory is an example of a direct expense when costing a product.

Is this statement true or false?

A True

B False

(1 mark)

29 A company operates a process in which no losses are incurred. The process account for last month, when there was no opening work-in-progress, was as follows:

Process Account

	$		$
Costs arising	624,000	Finished output (10,000 units)	480,000
		Closing work-in progress (4,000 units)	144,000
	624,000		624,000

The closing work-in-progress was complete to the same degree for all elements of cost.

What was the percentage degree of completion of the closing work-in-progress?

A 12%

B 30%

C 40%

D 75%

(2 marks)

30 A company manufactures and sells two products (X and Y) both of which utilise the same skilled labour. For the coming period, the supply of skilled labour is limited to 2,000 hours. Data relating to each product are as follows:

Product	X	Y
Selling price per unit	$20	$40
Variable cost per unit	$12	$30
Skilled labour hours per unit	2	4
Maximum demand (units) per period	800	400

In order to maximise profit in the coming period, how many units of each product should the company manufacture and sell?

A 200 units of X and 400 units of Y

B 400 units of X and 300 units of Y

C 600 units of X and 200 units of Y

D 800 units of X and 100 units of Y

(2 marks)

31 The following statements refer to organisations using job costing:

(i) Work is done to customer specification.

(ii) Work is usually completed within a relatively short period of time.

(iii) Products manufactured tend to be all identical.

Which two of these statements are CORRECT?

A (i) and (ii)

B (i) and (iii)

C (ii) and (iii)

(1 mark)

The following information relates to questions 32 and 33:
A company uses standard costing and the standard variable overhead cost for a product is:
6 direct labour hours @ $10 per hour

Last month when 3,900 units of the product were manufactured, the actual expenditure on variable overheads was $235,000 and 24,000 hours were actually worked.

32 What was the variable overhead expenditure variance for last month?

A $5,000 Adverse

B $5,000 Favourable

C $6,000 Adverse

D $6,000 Favourable

(2 marks)

33 What was the variable overhead efficiency variance for last month?

A $5,000 Adverse

B $5,000 Favourable

C $6,000 Adverse

D $6,000 Favourable

(2 marks)

34 When a manufacturing company operates a standard marginal costing system there are no fixed production overhead variances.

Is this statement true or false?

A True

B False

(1 mark)

35 A company operates a standard costing system. The variance analysis for last month shows a favourable materials price variance and an adverse labour efficiency variance.

The following four statements, which make comparisons with the standards, have been made:
(1) Inferior quality materials were purchased and used.
(2) Superior quality materials were purchased and used.
(3) Lower graded workers were used on production.
(4) Higher graded workers were used on production.

Which statements are consistent with the variance analysis?

A (1) and (3)

B (1) and (4)

C (2) and (3)

D (2) and (4)

(2 marks)

36 Which of the following best describes a principal budget factor?

A A factor that affects all budget centres.

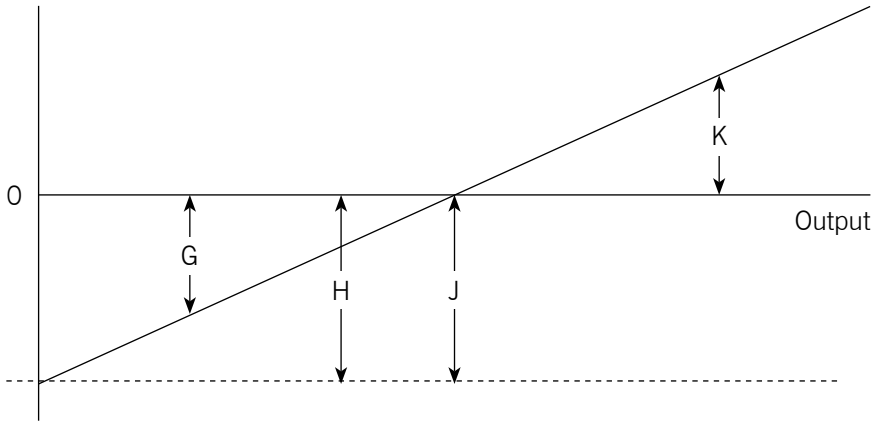
B A factor that is controllable by a budget centre manager.

C A factor which limits the activities of an organisation.

D A factor that the management accountant builds into all budgets.

(2 marks)

37 Four vertical lines have been labelled G, H, J and K at different levels of activity on the following profit-volume chart:



Which line represents the total contribution at that level of activity?

A Line G

B Line H

C Line J

D Line K

(2 marks)

38 Data is information that has been processed in such a way as to be meaningful to its recipients.

Is this statement true or false?

A True

B False

(1 mark)

39 Two products G and H are created from a joint process. G can be sold immediately after split-off. H requires further processing into product HH before it is in a saleable condition. There are no opening inventories and no work in progress of products G, H or HH. The following data are available for last period:

	$
Total joint production costs	350,000
Further processing costs of product H	66,000

Product	Production units	Closing inventory units
G	420,000	20,000
HH	330,000	30,000

Using the physical unit method for apportioning joint production costs, what was the cost value of the closing inventory of product HH for last period?

A $16,640

B $18,625

C $20,000

D $21,600

(2 marks)

40 A company purchased a machine several years ago for $50,000. Its written down value is now $10,000. The machine is no longer used on normal production work and it could be sold now for $8,000.

A project is being considered which would make use of this machine for six months. After this time the machine would be sold for $5,000.

What is the relevant cost of the machine to the project?

A $2,000

B $3,000

C $5,000

D $10,000

(2 marks)

41 A company operates a standard absorption costing system. The standard fixed production overhead rate is $15 per hour.

The following data relate to last month:

Actual hours worked	5,500
Budgeted hours	5,000
Standard hours for actual production	4,800

What was the fixed production overhead capacity variance?

A $7,500 Adverse

B $7,500 Favourable

C $10,500 Adverse

D $10,500 Favourable

(2 marks)

42 The following statements relate to relevant cost concepts in decision-making:

(i) Materials can never have an opportunity cost whereas labour can.
(ii) The annual depreciation charge is not a relevant cost.
(iii) Fixed costs would have a relevant cost element if a decision causes a change in their total expenditure

Which statements are correct?

A (i) and (ii) only

B (i) and (iii) only

C (ii) and (iii) only

D (i), (ii) and (iii)

(2 marks)

43 A contract is under consideration which requires 600 labour hours to complete. There are 350 hours of spare labour capacity for which the workers are still being paid the normal rate of pay. The remaining hours for the contract can be found either by weekend overtime working paid at double the normal rate of pay or by diverting labour from other production. This other production makes a contribution, net of labour cost, of $5 per hour. The normal rate of pay is $9 per hour.

What is the total relevant cost of labour for the contract?

A $1,250

B $3,500

C $4,500

D $4,900

(2 marks)

44 An organisation operates a piecework system of remuneration, but also guarantees its employees 80% of a time-based rate of pay which is based on $20 per hour for an eight hour working day. Three minutes is the standard time allowed per unit of output. Piecework is paid at the rate of $18 per standard hour.

If an employee produces 200 units in eight hours on a particular day, what is the employee's gross pay for that day?

A $128

B $144

C $160

D $180

(2 marks)

45 A semi-variable cost is one that, in the short term, remains the same over a given range of activity but beyond that increases and then remains constant at the higher level of activity.

Is this statement true or false?

A True

B False

(1 mark)

46 A factory consists of two production cost centres (P and Q) and two service cost centres (X and Y). The total allocated and apportioned overhead for each is as follows:

P	Q	X	Y
$95,000	$82,000	$46,000	$30,000

It has been estimated that each service cost centre does work for other cost centres in the following proportions:

	P	Q	X	Y
Percentage of service cost centre X to	50	50	–	–
Percentage of service cost centre Y to	30	60	10	–

The reapportionment of service cost centre costs to other cost centres fully reflects the above proportions.

After the reapportionment of service cost centre costs has been carried out, what is the total overhead for production cost centre P?

A $124,500

B $126,100

C $127,000

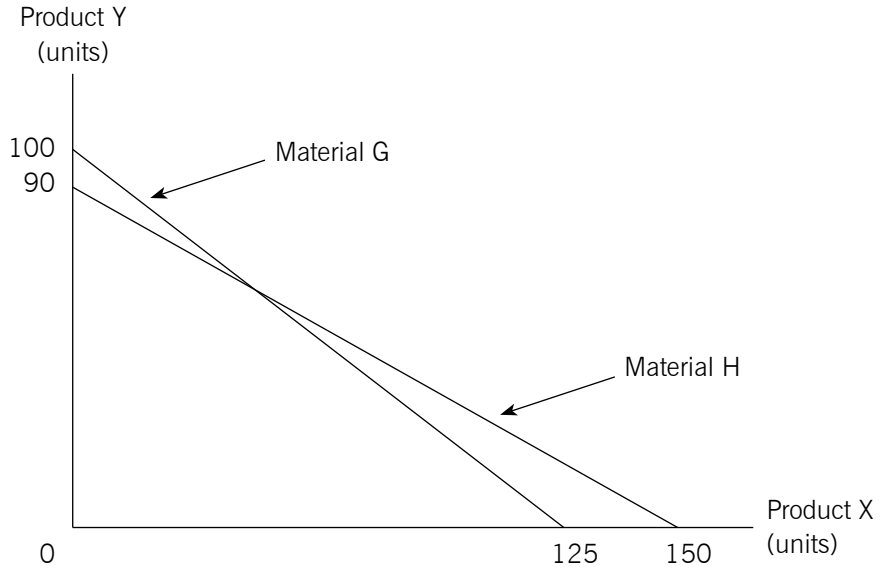
D $128,500

(2 marks)

The following information relates to questions 47 and 48:

A company manufactures and sells two products (X and Y) which have contributions per unit of $8 and $20 respectively. The company aims to maximise profit. Two materials (G and H) are used in the manufacture of each product. Each material is in short supply – 1,000 kg of G and 1,800 kg of H are available next period. The company holds no inventories and it can sell all the units produced.

The management accountant has drawn the following graph accurately showing the constraints for materials G and H.



47 What is the amount (in kg) of material G and material H used in each unit of product Y?

	Material G	Material H
A	10	20
B	10	10
C	20	20
D	20	10

(2 marks)

48 What is the optimal mix of production (in units) for the next period?

	Product X	Product Y
A	0	90
B	50	60
C	60	50
D	125	0

(2 marks)

49 The following statement refers to a quality of good information:
The cost of producing information should be greater than the value of the benefits of that information to management.

Is this statement true or false?

A True

B False

(1 mark)

50 A company which operates a process costing system had work-in-progress at the start of last month of 300 units (valued at £1,710) which were 60% complete in respect of all costs. Last month a total of 2,000 units were completed and transferred to the finished goods warehouse. The cost per equivalent unit for costs arising last month was $10. The company uses the FIFO method of cost allocation.

What was the total value of the 2,000 units transferred to the finished goods warehouse last month?

A $19,910

B $20,000

C $20,510

D $21,710

(2 marks)

FORMULAE SHEET

Regression analysis

$$a = \frac{\sum y}{n} - \frac{b\sum x}{n}$$

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$$

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2)}}$$

Economic order quantity

$$= \sqrt{\frac{2C_0 D}{C_h}}$$

Economic batch quantity

$$= \sqrt{\frac{2C_0 D}{C_h(1 - \frac{D}{R})}}$$

Answers

Summarised

1	C	**26**	B
2	B	**27**	D
3	C	**28**	B
4	C	**29**	D
5	A	**30**	D
6	C	**31**	A
7	C	**32**	B
8	C	**33**	C
9	C	**34**	B
10	C	**35**	A
11	A	**36**	C
12	D	**37**	C
13	B	**38**	B
14	A	**39**	C
15	A	**40**	B
16	D	**41**	B
17	C	**42**	C
18	A	**43**	B
19	C	**44**	D
20	A	**45**	B
21	B	**46**	D
22	C	**47**	A
23	D	**48**	A
24	B	**49**	B
25	B	**50**	A

In detail

1 C

2 B

3 C $a = (\Sigma y \div n) - [(b\Sigma x) \div n] = (330 \div 11) - [(0.69171 \times 440) \div 11]$
$= (30 - 27.6684)$
$= 2.3316$ (2.33 to 2 decimal places)

4 C $\{[\ 2 \times 20 \times (4 \times 20{,}000)\ ] \div [0.06 \times 25]\}^{0.5} = 1{,}461$ units

5 A

Actual cost	$108,875
Absorbed cost (30,000 × 3.50)	$105,000
Under absorption	$ 3,875

6 C

7 C Variable cost per unit: [(170,000 − 5,000) − 135,000] ÷ (22,000 − 16,000) = $5
Total fixed cost (below 17,500 units): [135,000 − (16,000 × 5)] = $55,000
Total cost for 20,000 units: 55,000 + 5,000 + (20,000 × 5) = $160,000

8 C Month 1: Production > Sales Absorption costing profit > Marginal costing profit
Month 2: Sales > Production Marginal costing profit > absorption costing profit
A and C satisfy Month 1, C and D satisfy Month 2. Therefore C satisfies both.

9 C

10 C

	Normal loss	Actual loss	Abnormal loss	Abnormal gain
	litres	litres	litres	litres
Process F	5,200	6,100	900	–
Process G	1,875	1,800	–	75

11 A Contribution per unit (CPU): (80 × 0.45) = $36
Break even point (units): (99,000 ÷ 36) = 2,750
Margin of safety: (4,000 − 2,750) = 1,250 units

12 D

13 B (150 × 40) + (250 × 53) = $19,250

14 A

15 A

16 D

17 C

18 A

19 C (300,000 × 0.60) − (400,000 × 0.40) = +$20,000 (profit)

20 A Price variance: (0.50 × 10,500) = $5,250 Adverse
Volume variance: (500 × 8) = $4,000 Favourable

21 B Budgeted production: (19,000 + 3,000 − 4,000) = 18,000 units
Raw materials required for budgeted production: (18,000 × 8) = 144,000 kg
Budgeted raw material purchases: (144,000 + 53,000 − 50,000) = 147,000 kg

22 C

23 D

24 B

25 B Production > Sales Absorption costing profit > Marginal costing profit
Marginal costing profit: {36,000 − [2,000 × (63,000 ÷14,000)]} = $27,000

26 B CPU: (20 ×0.4) = $8
Break even point: (18,000 ÷ 20) = 900 units
Profit when 1,200 units produced and sold: (300 × 8) = $2,400

27 D

28 B

29 D Cost per equivalent unit: (480,000 ÷10,000) = $48
Closing work in progress valuation: (4,000 × Degree of completion × 48) = 144,000
Degree of completion = (144,000 ÷ 4,000 ÷ 48) = 0.75 = 75%

30 D

	X	Y
CPU	$8	$10
Contribution per hour	$4	$2.50
Ranking	1st	2nd

Therefore produce and sell the maximum 800 units of X using 1,600 hours and with the remaining 400 hours produce and sell 100 units of Y.

31 A

32 B

	$	
Actual expenditure	235,000	
Actual hours × standard rate (24,000 × 10)	240,000	
Expenditure variance	5,000	Favourable

33 C

	$	
Actual hours × standard rate	240,000	
Standard cost of actual production (3,900 × 6 × 10)	234,000	
Efficiency variance	6,000	Adverse

34 B

35 A

36 C

37 C

38 B

39 C Joint costs apportioned to H: [330,000 ÷ (420,000 + 330,000)] × 350,000 = $154,000
Closing inventory valuation (HH): (30,000 ÷ 330,000) × (154,000 + 66,000) = $20,000

40 B Relevant cost: (8,000 − 5,000) = $3,000

41 B

Budgeted hours	5,000	
Actual hours worked	5,500	
Capacity variance	500	hours × 15 = $7,500 Favourable

42 C

43 B Overtime cost for 250 hours: (250 × 9 × 2) = $4,500
Cost of diverting labour: 250 × (9 + 5) = $3,500
Relevant cost (lowest alternative) = $3,500

44 D 200 units × (3 ÷ 60) × 18 = $180

45 B, this is a stepped fixed cost

46 D

Total overhead to cost centre P:	$
Direct	95,000
Proportion of cost centre X [46,000 + (0.10 × 30,000)] × 0.50	24,500
Proportion of cost centre Y [30,000 × 0.3]	9,000
	128,500

47 A
100 units of Y with all of material G (1,000 kg) = 10 kg per unit
90 units of Y with all of material H (1,800 kg) = 20 kg per unit

48 A
Total contributions:
A [(0 × 8) + (90 × 20)] = $1,800
B [(50 × 8) + (60 × 20)] = $1,600
C [(60 × 8) + (50 × 20)] = $1,480
D [(125 × 8) + (0 × 20)] = $1,000

49 B

50 A

	$
Value of 2,000 units transferred:	
1,700 units × 10	17,000
300 units × 0.40 × 10	1,200
Opening work in progress value	1,710
	19,910