Management Information

ICAEW CFAB/ ACA CERTIFICATE LEVEL

MOCK EXAM

ANSWERS

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1 The correct answers are:

Calculate the number of protein bars (to the nearest whole protein bar) that would need to be sold to earn a profit of £11,000 per week.

7,200	protein bars	**3 marks**

Number of protein bars sold per week = £11,000/£2 = 5,500

Variable cost per protein bar = (£2,000 + £3,850 + £1,025)/5,500

= £1.25

Contribution per protein bar = £2.00 – £1.25 = £0.75

Number of protein bar sales to reach target profit = Fixed costs + target profit/ Contribution per unit

= (£1,200 + £4,200)/£0.75

= 7,200

Calculate the margin of safety percentage per week for January (to the nearest whole number).

70	%	**2 marks**

Breakeven sales revenue = (£1,500/£0.80) × £2 = £3,750

Expected sales revenue = £11,000 × 1.12 = £12,320

Margin of safety (%) = (Budgeted sales – Breakeven sales)/Budgeted sales × 100%

= (£12,320 – £3,750)/£12,320 × 100%

= 70%

Calculate the additional profit or loss that Sherbeat would earn per week from introducing the smaller portions.

£470	additional profit	**2 marks**

Profit = Contribution less incremental fixed costs

= [1,300 × (£1.50 – £0.60)] – £700 = £470

Calculate the optimum number of protein bars and protein bites that Sherbeat should produce in order to maximise contribution per week in November.

4,830	units of protein bars	**1 mark**
1,100	units of protein bites	**1 mark**

	Protein bars	**Protein bites**
Contribution per unit	£0.70	£0.85
Nuts required per unit (grams)	10	7
Contribution per limiting factor	0.07	0.12
Ranking	2	1

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Protein bites: 1,100 units × 7g = 7,700g

Leaving 56,000g – 7,700g = 48,300g available for protein bars.

48,300/10g = 4,830 protein bars.

Calculate the payback period (to the nearest whole year) for Machine A.

3	years	**2 marks**

Annual depreciation = (£450,000 – £50,000)/5 = £80,000

Year	**Cash flow**	**Cumulative cash flow**
0	(450,000)	(450,000)
1	120,000 + 80,000 = 200,000	(250,000)
2	60,000 + 80,000 = 140,000	(110,000)
3	30,000 + 80,000 = 110,000	0

The payback period is 3 years.

Calculate the discounted payback for Machine B (to the nearest whole year) using a 10% cost of capital.

3	years	**3 marks**

Year	**£**		**£**	
0	(90,000)	1	(90,000)	(90,000)
1	29,000	0.909	26,361	(63,639)
2	43,000	0.826	35,518	(28,121)
3	38,000	0.751	28,538	417

Calculate the net present value for Machine C (to the nearest £1,000) using a 10% cost of capital.

£44,000	**2 marks**

Year		**DF @ 10%**	**Cash flow**
0	(120,000)	1	(120,000)
1–5	40,000	3.791	151,640
5	20,000	0.621	12,420
			44,060

Calculate the accounting rate of return for Machine D (to the nearest whole percent) using the average investment.

12	%	**2 marks**

Average investment = (initial investment + scrap)/2 = (£180,000 + £30,000)/2 = £105,000

ARR = Average annual accounting profit/Average investment × 100%

Total depreciation in 4 years = initial investment – scrap value = (£180,000 – £30,000) = £150,000. This is deducted from total returns to determine total profit. This is divided by 4 years (see working below) to determine average annual accounting profit.

Average annual accounting profit = [(£50,000 × 4) – £150,000]/4 = £12,500

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ARR = £12,500/£105,000 × 100% = 12%

Calculate the internal rate of return for Machine E (to the nearest whole percent) using costs of capital of 5% and 10%.

9	%	**2 marks**

Year	**Cash flow**	**DF @ 5%**	**PV**	**DF @ 10%**	**PV**
0	(200,000)	1	(200,000)	1	(200,000)
1–7	35,000	5.786	202,510	4.868	170,380
			2,510		(29,620)

If a = 5%
b = 10%
A = £2,510
B = –£29,620

Then:

IRR = a% + [A/(A – B)] × (b – a)%
= 5% + [2,510/(2,510 + 29,620)] × (10%–5%)
= 5.39%

2 The correct answer is A

- A step cost

This cost is a fixed cost (£3,000) up to a certain activity level (10,000 bottles) and then changes (steps up) as additional machines are hired. It is therefore a step cost.

As the hiring cost does not have both a fixed and variable element, it is not a semi-variable cost.

Although the cost increases with output it is not zero at a nil output level, it is therefore not a variable cost.

Finally, as the cost can be seen to increase with output it cannot be fixed.

3 The correct answer is C

- over-absorbed by £325

The overhead absorption rate is the budgeted overhead cost/budgeted hours	= £30,690/4,950
	= £6.20 per hour
Absorbed overheads (5,100 hours × £6.20)	= £31,620
Actual overheads	= £31,295
Over absorbed overheads	= £325

The overhead is over absorbed because the overhead expenditure absorbed exceeded the actual amount incurred.

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If you calculated the under or over absorption as £605 you simply determined the difference between the budgeted and actual overheads. However, the amount of overhead absorbed will depend on the actual level of activity achieved.

4 The correct answer is B

- £55

Selling price = £220 / 80% = £275 therefore profit = £275 – £220 = £55

If you selected £44 you calculated the profit mark up of 20% of the selling price.

5 The correct answer is D

- (2) and (3) only

Statement 1 is false. One of the issues of using big data is that the aim is often on finding correlations between data without due consideration for causation. It is far easier to identify correlation between variables than to establish the cause of the correlation.

Big data analytics is a recent development and enhances an organisation's ability to analyse and reveal insights in data which had previously been too difficult or costly to analyse – due to the volume and variability of the data involved. Statement 2 correctly identifies this point.

Statement 3 is true. Big data requires data analysts and therefore an organisation needs to be able to recruit suitable employees to make full use of the data.

6 The correct answers are A and E

- Depreciation of laser cutting machine
- Bad debts written off

Any item that is a cash flow will be included. Non-cash items are excluded from a cash budget.

7 The correct answer is D

- 20%

ROI = (Controllable divisional profit / Divisional capital employed) x 100%

Controllable profit = £26,000 – £8,000 – £3,000 = £15,000

Apportioned head office costs are not controllable by a division.

Therefore ROI = (£15,000 / £75,000) × 100% = 20%

If you chose 24% then you forgot to deduct the allocated costs (£18,000 / £75,000) × 100% = 24%

If you chose 17% then you used the divisional profit (£13,000 / £75,000) × 100% = 17%

If you chose 35% then you used the sales figure (£26,000 / £75,000) × 100% = 35%

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8 The correct answer is A

- (1), (2) and (3) only

Statement 1 is correct. A flexible budget for control is prepared based on the actual activity level, in order to compare 'like with like'.

Fixed and variable costs must be separately identified so that the allowance for variable costs may be flexed according to the actual activity level.

A fixed budget is useful where a significant proportion of costs is fixed, so that alterations in activity levels do not affect the costs incurred.

9 The correct answer is B

- £14.75

The labour rate variance is the difference between what the actual labour used did cost and what it should have cost.

Should cost – did cost = favourable variance

Therefore, labour should cost = variance + did cost = £2,580 + £122,795 = £125,375

Should cost = hours paid x standard cost

Therefore, standard cost = £125,375/8,500 hrs = £14.75

If you chose £14.14 then you deducted the variance from £122,795 instead of adding it.

If you chose £15.67 then you used the hours worked instead of the hours paid for (£125,375 / 8,000 = £15.67).

If you chose £15.03 then you deducted the variance from £122,795 instead of adding it and used the hours worked instead of the hours paid for (£120,215 / 8,000 = £15.03).

10 The correct answer is B

- The components bought from the subcontractor have the lowest extra variable cost per unit of scarce resource saved

For example, if labour hours are the scarce resource, HMF Ltd should minimise the extra variable cost of subcontracting per labour hour saved.

11 The correct answers are A and C

- Objectivity means having no bias.
- Integrity means fair dealing, truthfulness and being straightforward.

Professional competence and due care (not professional behaviour) means having appropriate knowledge and skill.

Professional behaviour means complying with relevant laws and regulations.

Confidentiality means not disclosing information to third parties without authority.

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12 The correct answer is D

- Value of machines

The cost of the insurance is likely to be based on the value of the machinery. From the four options available, a basis relating to the machine value would therefore seem to be most appropriate.

13 The correct answer is B

- £160

OAR = Budgeted production overheads / Budgeted number of labour hours = £40,000 / 8,000 = £5 per labour hour

Labour hours per unit = £70 / £20 = 3.5 hours

Total cost per unit = variable cost per unit + fixed cost per unit

= £110.50 + (£5 × 3.5 hours) = £128 per unit

Selling price per unit = £128 × 125% = £160

If you chose £138 then you didn't include the fixed overhead at all.

If you chose £144 then you forgot to multiply the fixed overhead per labour hour by the number of labour hours (£110.50 + £5) × 125% = £144

14 The correct answers are B and D

The first statement is false because correlation does not prove a causal link.

The axes on graphs can be manipulated or data can be omitted from the graph. Therefore, the second statement is true.

Cognitive bias (not confirmation bias) occurs when people are influenced by the way data is presented.

Survivorship bias is the tendency towards studying successful outcomes while excluding unsuccessful outcomes, so the last statement is true.

15 The correct answer is A

- 16 weeks

	Weeks
Raw materials	8
Payables	(9)
Production	1
Finished goods	5
Receivables	11
	16

If you selected 34 weeks you added the payables period instead of deducting it. However, the availability of credit from suppliers reduces the cash operating cycle.

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16 The correct answer is D

- Supplier

Aspects of a supplier relationship would be monitored, if appropriate, within the internal business perspective.

17 The correct answer is D

The employee satisfaction index relates to how satisfied employees are and is therefore a social KPI. Revenue per employee is a measure of productivity. Percentage change in utilities since last year is an environmental KPI.

18 The correct answers are A and C

- Hiring of more highly skilled workforce
- The flexed budgeted hours for actual output is higher than the actual hours worked

A more highly skilled workforce is likely to be more efficient and therefore cause a favourable efficiency variance.

As [labour efficiency variance = (standard hours for actual output – actual hours) × standard labour rate per hour] then working fewer hours than standard will result in a favourable variance.

Material usage will have no impact on the efficiency variance.

Out of date machinery could lead to less efficiency and, therefore, an adverse efficiency variance.

19 The correct answer is C

- £864

Direct costs consist of pay for the actual hours worked relating to normal hours, and the basic pay for the overtime.

Actual hours worked	= 27 hours × £24 per hour = £648
Basic pay for overtime	= 9 hours × £24 per hour = £216
Therefore, direct labour costs	= £648 + £216 = £864

If you selected £648 you forgot the direct element relating to the overtime.

If you selected £840 you included the idle time payments and forgot the direct element relating to the overtime. If the overtime had been worked for a specific cost unit then the premium could have been classified as a direct labour cost of that unit, however, this was general overtime resulting from a machine breakdown.

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20 The correct answer is C

- £52,900

	£
Actual fixed production overhead	52,000
Over-absorbed overhead	3,000
Absorbed fixed production overhead	55,000

Therefore, absorption rate per unit = £55,000 / 5,000 units
= £11 per unit

Inventory decrease = 5,900 – 5,000 = 900 units

	£
Absorption costing profit	43,000
Profit difference (900 units × £11)	9,900
Marginal costing profit	52,900

If you selected £33,100 (43,000 – 9,900) you deducted the profit difference instead of adding it. If inventory is falling, then the profit is higher under marginal costing.

The value of £55,000 is simply the absorbed fixed production overhead.

If you selected £51,820 you deducted the over-absorbed overhead and calculated the absorbed overhead as £49,000. (£43,000 + (900 × (49,000/5,000) = £51,820)

21 The correct answer is A

- 4,565

	£
Budgeted sales	4,600
Deduct inventory reduction (350 × 10%)	(35)
Budgeted production	4,565

If you selected 4,215 units you calculated the correct budgeted production but then deducted the budgeted opening inventory.

If you selected 4,635 units you added the change in inventory instead of deducting it.

The option of 4,600 units is the budgeted sales volume. This would only be the correct answer if there was no budgeted change in inventory.

22 The correct answer is B

- 983

January 20X1 to December 20X1 are months 1 to 12. May in 20X2 is month 17.

Y = 860 + 5X

Therefore Y = 860 + (5 × 17) = 945. This is the trend.

Forecast sales = trend × seasonal variation = 945 × 1.04 = 983.

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If you chose 907 then you multiplied the trend by 96% instead of 104%: 945 × 96% = 907

If you chose 920 then you calculated the sales as Y = [860 + (5 × 5)] × 1.04 = 920 (the forecast sales for May 20X1)

23 The correct answer is D

- £163,315

Receipts for March:

	£
50% × March sales for cash (50% × £107,500)	53,750
75% × February credit sales less 4% discount (50% × 75% × £290,250 × 96%)	104,490
20% January credit sales (50% × 20% × £50,750)	5,075
	163,315

24 The correct answer is D

- 16.5%

Imputed interest is £1,650,000 – £850,000 = £800,000.

With interest at 8%, capital must be £10m (£800,000 / 0.08).

ROI = £1,650,000/£10,000,000 = 16.5%.

25 The correct answer is D

- £675 (A)

Budgeted labour cost for June =	£17,000
Budget volume = 150 – 14	136 units
Budgeted labour hours = 136 units × 5 hours per unit =	680 hours
Standard labour rate = £17,000/680 hours	£25 per hour

	£
675 hours should have cost (× £25)	16,875
But did cost	17,550
Labour rate variance	675 (A)

The option of £1,200 favourable is the labour total variance. The option of £1,200 adverse is the labour total variance and you also misinterpreted its direction.

If you selected £675 favourable you calculated the correct money value of the variance but you misinterpreted its direction.

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26 The correct answer is A

Sales volume variance = £5,400 (F)

Sales price variance = £7,200 (F)

Budgeted sales volume	2,100 units
Actual sales volume	2,400 units
Sales volume variance in units	300 units (F)
× standard contribution per unit	× £18
Sales volume variance	£5,400

	£
Units should sell for (2,400 × £26)	62,400
But did sell for (2,400 × £29)	69,600
Sales price variance	7,200 (F)

If you calculated the sales volume variance to be £6,300 (F) you evaluated the volume variance in units at the actual contribution of £21 per unit instead of using the standard contribution per unit.

If you calculated £7,800 (F) as the sales volume variance you evaluated the volume variance in units at the standard selling price of £26 per unit instead of using the standard contribution per unit.

If you calculated £6,300 (F) as the sales price variance you based the calculation on the budgeted sales volume of 2,100 units instead of the actual sales volume of 2,400 units.

27 The correct answer is B

- £19,764

The LIFO method uses the cost of the most recent batches first.

	£
Costs of units sold on 24 April:	
90 units @ £186	16,740
180 units @ £174	31,320
162 units @ £168	27,216
432 units	75,276
Sales revenue = 432 × £220	95,040
Less cost of units sold	(75,276)
Gross profit	19,764

If you answered £75,276 you selected the cost of the units sold.

The answers of £73,188 and £21,852 are the cost of the issues and the gross profit, using the FIFO valuation method. (330@£168 + 102@£174 = £73,188)

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28 The correct answer is D

- Absorbed overheads exceed actual overheads

Over/under-absorption is the difference between the actual overheads and the absorbed overheads. If absorbed overheads exceed actual overheads then we have over-absorption. If actual overheads exceed absorbed overheads then we have under-absorption.

29 The correct answer is A

- Each item of expenditure has to be justified in its entirety in order to be included in the next year's budget.

Statements B and C are characteristics of rolling budgets.

Statement D is a characteristic of participative budgets.

30 The correct answer is A

Using the high low method, the variable cost per unit = (£91,500 – £39,500) / (13,000 – 5,000) = £6.50. Therefore, the fixed cost = £91,500 – (13,000 × £6.50) = £7,000.

At an activity level of 8,000 units, the total cost = £7,000 + (8,000 × £6.50) = £59,000

If you chose £52,000 you forgot to include the fixed element (8,000 × £6.50) = £52,000)

If you chose £48,125 then you used activity levels of 9,000 and 5,000 to calculate the fixed and variable elements (25,125 + (8,000 × £2.875)). This is not correct because the total cost is not necessarily linear, which is why we calculate a line of best fit using the lowest and highest activity levels.

If you chose £25,125 then you used activity levels of 9,000 and 5,000 to calculate the fixed element of the cost.

31 The correct answer is B

- (1) and (2)

Some businesses deliberately pay their suppliers late in order to improve their own cash flow but this is considered to be unethical.

In some countries, there is a legal obligation for businesses to report their payment practices and policies and, even when this is not the case, it is considered good practice to have transparent payment processes.

According to the Federation of Small Businesses (FSB), paying small businesses on time would lead to more businesses being kept open as well as creating a boost for the economy.

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32 The correct answer is B

- £35,000 (F)

	£
Budgeted fixed overhead cost £22 × 30,000	660,000
Actual fixed overhead cost	625,000
Fixed overhead expenditure variance	35,000 (F)

If you calculated the variance to be £8,600 you flexed the budget cost allowance for fixed overhead. By definition, the budgeted expenditure on fixed overhead does not alter when the activity level changes.

33 The correct answers are A and D

- An investment with a positive net present value (NPV) is viable
- Payback is useful as an initial screening device

'Internal rate of return (IRR) is a superior appraisal method to NPV' is incorrect. The NPV method is superior to the IRR method.

'Accounting rate of return (ARR) is based on cash flows' is incorrect. The ARR is based on accounting profits.

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