CERTIFIED PUBLIC ACCOUNTANT

STRATEGIC LEVEL EXAMINATIONS

BP3.6: MANAGING BUSINESS PERFORMANCE

DATE: MONDAY 24, AUGUST 2026

MARKING GUIDE AND MODEL ANSWER

SECTION A

QUESTION ONE

Marking guide

Sub	Description of marks allocation	Marks
a	2 marks for correct Direct material (2 adjustments required)	2
	1 mark for correct Skilled labour	1
	1 mark for correct Semi-skilled labour	1
	1 mark for correct Unskilled labour	1
	1 mark for marketing costs	1
	3 marks for Sales commissions (3 adjustments required)	3
	1 mark for Sales staff salaries	1
	1 mark for Rent of warehouses	1
	5 marks for Electricity and water	5
	1 mark for Rent of premises	1
	1 mark for Export logistics/compliance cost (new)	1
	1 mark for Additional supervision cost (new, stepped)	1
	1 mark for correct treatment of R&D costs	1
	Sub- total	**20**
b	Advise on the optimum production plan and resulted maximum profit of the three products	
	Identifying the scarce resource/Limiting factor: Award 1 mark for calculation on cassava flour, honey and labour. Max: 3 Mark	3
	Calculate the contribution per unit of limiting factor: Award 1 Mark for contribution/unit of each product	3
	Ranking the products according to their contribution per unit of limiting factor: Award 1 Mark for ranking	1
	Establish the production plan: Award 0.5 Marks for each well calculated production plan	4
	Expected profit: Award 1 mark for well calculated profit	1
	Sub-total	**12**
c	Write a memo to the Chief Executive Officer assessing the performance of KHBP in line with the provided sector averages	
	Quick ratio: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Current ratio: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Annual revenue growth: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Gross Profit margin: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Operating profit margin: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Return on capital employed: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Return on equity: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Debt-to-Equity Ratio: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Interest cover: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Receivable days: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Payable days: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
	Inventory days: Award 1 Mark for calculation and 0.5 Mark for discussion.	1.5
		50

Model answer

a) **Quarter 3 operating budget**

workings

Confirming the cost behaviour of direct materials and direct labour:

Before applying any rate, the behaviour of each cost line should be confirmed from the Q1/Q2 data, rather than assumed. Comparing Q1 to Q2, volume rose by exactly 5.0% (from 25,000 to 26,250 units), and each of direct materials, skilled labour, semi-skilled labour, and unskilled labour rose by precisely the same 5.0% (for example, direct materials: FRW23,750,000 to FRW24,937,500). This exact proportionality, the same test applied to electricity below, confirms that all four lines are purely variable, with no fixed element, and that the rate per unit is constant: FRW23,750,000 ÷ 25,000 = FRW950 (materials); FRW9,500,000 ÷ 25,000 = FRW380 (skilled labour); FRW6,750,000 ÷ 25,000 = FRW270 (semi-skilled labour); FRW8,500,000 ÷ 25,000 = FRW340 (unskilled labour).

By contrast, sales staff salaries, rent of warehouses, and rent of premises remained completely unchanged between Q1 and Q2 despite the change in volume, confirming those three lines are fixed costs.

Total Quarter 3 volume = domestic 24,000 units + export 5,000 units = 29,000 units. The skilled, semi-skilled, and unskilled labour rates derived above apply unchanged (no inflation applied to direct cost rates). Direct materials, however, are subject to the newly negotiated 4% price reduction effective Q3: FRW950 *(1 − 4%) = FRW912 per unit.

Cost line	Rate per unit (FRW)	Q3 total volume (units)	Q3 budget (FRW)
Direct materials (rate reduced by 4%: 950 *0.96)	912	29,000	26,448,000
Skilled labour (unchanged)	380	29,000	11,020,000
Semi-skilled labour (unchanged)	270	29,000	7,830,000
Unskilled labour (unchanged)	340	29,000	9,860,000

Domestic revenue and sales commission:

Domestic selling price inflated by 4.8%: FRW6,200 *1.048 = FRW6,497.60.

Domestic revenue = FRW6,497.60 *24,000 units = FRW155,942,400.

Sales commission = 2.5% *FRW155,942,400 = FRW3,898,560 (commission applies to domestic sales only; no commission is payable on the export contract).

Export revenue:

Export price = FRW7,000 per unit, fixed under the contract terms.

Export revenue = FRW7,000 *5,000 units = FRW35,000,000. (For reference only, not required by the budget: total Q3 revenue = FRW155,942,400 + FRW35,000,000 = FRW190,942,400.)

Marketing costs, sales staff salaries, rent of warehouses, rent of premises:

Marketing: recurring base of FRW12,000,000 (excluding Q2's one-off FRW2,500,000 campaign)..

Sales staff salaries (fixed): FRW6,000,000 *1.048 = FRW6,288,000.

Rent of warehouses (fixed): FRW3,200,000 *1.048 = FRW3,353,600.
Rent of premises: unchanged at FRW7,200,000, since the 3% lease escalation only takes effect on 1 January each year, and Quarter 3 2026 falls before the next escalation date of 1 January 2027.

Electricity and water (use high-low method);
Variable rate = (FRW5,330,000 − FRW5,200,000) ÷ (26,250 − 25,000 units) = FRW130,000 ÷ 1,250 units = FRW104 per unit.
Fixed element = FRW5,200,000 − (FRW104 *25,000) = FRW5,200,000 − FRW2,600,000 = FRW2,600,000.
Inflated fixed element = FRW2,600,000 *1.048 = FRW2,724,800. Inflated variable rate = FRW104 *1.048 = FRW108.992 per unit.
Q3 electricity and water = FRW2,724,800 + (FRW108.992 *29,000 total units) = FRW2,724,800 + FRW3,160,768 = FRW5,885,568.

New cost lines specific to Quarter 3:
Export logistics/compliance cost: a new, one-off cost of FRW2,400,000, arising specifically from establishing the Tanzania export process; this cost did not exist in Q1 or Q2 and is not expected to recur once the process is established.
Additional supervision (stepped fixed cost): the existing team can oversee up to 27,000 units per quarter. Total Q3 volume of 29,000 units exceeds this threshold by 2,000 units, which falls within a single additional step of capacity (up to 2,000 units above the threshold), requiring exactly one additional temporary supervisor at FRW1,500,000. (Note: had total volume instead reached, say, 29,500 units, 2,500 units above the threshold, this would require two full additional steps of supervision, at FRW3,000,000, since the second step is triggered by any output within the next 2,000-unit band, not only by fully completing it.)

Quarter 3: operating budget

Budget line	**FRW**
Direct materials (after 4% price reduction)	26,448,000
Skilled labour	11,020,000
Semi-skilled labour	7,830,000
Unskilled labour	9,860,000
Marketing costs	12,000,000
Sales commissions (domestic sales only)	3,898,560
Sales staff salaries	6,288,000
Rent of warehouses	3,353,600
Electricity and water	5,885,568
Rent of premises	7,200,000
Export logistics/compliance cost (new)	2,400,000
Additional supervision cost (new, stepped)	1,500,000
Total Quarter 3 operating budget	97,683,728

Treatment of planned Research and Development investment

The FRW18,000,000 R&D investment is correctly excluded from the recurring quarterly operating budget above. Operating budgets are intended to reflect the ongoing, repeating costs of running the division period after period, so that cost control and variance analysis remain meaningful across quarters. A one-off strategic investment of this kind is fundamentally different in nature, it does not recur, and including it within the operating budget would distort comparisons with other quarters and make it harder to assess whether normal operating costs are being controlled effectively. The same reasoning applies to the new export logistics/compliance cost, which, although included within the Quarter 3 operating budget above, since it is a genuine operating cost of servicing the export order this quarter, should be clearly flagged to management as non-recurring, so that Quarter 4 and future quarters are not budgeted on the mistaken assumption that this cost will repeat. The R&D investment itself should instead be evaluated separately, as part of the division's capital or strategic investment budget, using an appropriate investment appraisal technique (such as net present value), consistent with its role in supporting NFW's longer-term strategic goal rather than its day-to-day operations.

b) optimum production plan

step 1: determine whether each resource is genuinely a binding constraint

Resource requirements to meet full demand, including the Simba Supermarket contract (800 units added to Premium Cake's demand of 3,000, giving total Premium Cake requirement of 3,800 units):

Resource	**Classic Biscuit (4,500 units)**	**Premium Cake (3,800 units)**	**Standard Bread (1,800 units)**	**Total required**	**Supply available**	**Binding?**
Honey (kg)	2,250 (0.5kg *4,500)	3,800 (1.0kg *3,800)	900 (0.5kg *1,800)	6,950	8,000	No, sufficient
Cassava flour (kg)	4,500 (1.0kg *4,500)	9,500 (2.5kg *3,800)	2,160 (1.2kg *1,800)	16,160	12,000	Yes, shortfall of 4,160kg
Labour (hours)	4,500 (1.0hr *4,500)	7,600 (2.0hr *3,800)	1,800 (1.0hr *1,800)	13,900	16,000	No, sufficient

Only cassava flour is a genuine limiting factor for the month; honey and labour are both available in sufficient quantity to meet full demand (including the contract). The production plan must therefore be optimised specifically around the available 12,000kg of cassava flour.

Step 2: ranking of the three products by contribution per kg of limiting factor (cassava flour)

	Classic Biscuit	Premium Cake	Standard Bread
Contribution per unit (FRW)	1,800	2,950	2,630
Cassava flour per unit (kg)	1.0	2.5	1.2
Contribution per kg of cassava flour (FRW)	1,800	1,180	2,192
Ranking	2nd	3rd	1st

Step 3: Allocate the available cassava flour

The Simba Supermarket contract for 800 units of Premium Cake is a signed commitment and must be fulfilled first, regardless of the ranking above.

Allocation	Units	Cassava flour used (kg)	Cumulative cassava flour (kg)
1. Simba Supermarket contract (Premium Cake)	800	2,000 (800 *2.5kg)	2,000
2. Standard Bread (1st ranked, full demand)	1,800	2,160 (1,800 *1.2kg)	4,160
3. Classic Biscuit (2nd ranked, full demand)	4,500	4,500 (4,500 *1.0kg)	8,660
4. Premium Cake (3rd ranked, balance of regular demand)	1,336 (balancing figure)	3,340 (balance: 12,000 − 8,660)	12,000

Balancing figure for regular Premium Cake production: remaining cassava flour after the contract, Standard Bread, and Classic Biscuit = 12,000 − 2,000 − 2,160 − 4,500 = 3,340kg; at 2.5kg per unit, this permits 3,340 ÷ 2.5 = 1,336 units, out of the 3,000 units of regular demand (the balance of 1,664 units of regular Premium Cake demand cannot be met this month).

Step 4: Optimum production plan, (contribution and profit)

Product	Units	Contribution per unit (FRW)	Total contribution (FRW)
Premium Cake (contract, at FRW11,500 selling price: contribution = 11,500 − 10,550 = 950)	800	950	760,000
Standard Bread	1,800	2,630	4,734,000
Classic Biscuit	4,500	1,800	8,100,000
Premium Cake (regular)	1,336	2,950	3,941,200
Total contribution			17,535,200

	FRW
Total contribution	17,535,200
Less: fixed costs for the month	(8,000,000)
Maximum profit for the month	9,535,200

c) Memo to the Chief Executive Officer

MEMORANDUM

To: Chief Executive Officer

From: Management Accountant

Date: [current date]

Re: Assessment of NFW's financial performance and position against the sector average, and implications for the company's strategic goal

1. Revenue growth and profitability

Revenue has grown from FRW620,000,000 in 2023 to FRW790,000,000 in 2025, an average annual growth rate of around 12.9%, reasonably healthy in absolute terms, but well below the industry average of 20%. This suggests NFW is expanding more slowly than its competitors, which works directly against the strategic goal of becoming the region's leading manufacturer within five years, since a lower growth rate implies market share may be static or declining relative to the sector as a whole.

More concerning is the trend in profitability. Gross profit margin has fallen steadily from 32.0% (2023) to 30.0% (2024) to 28.0% (2025), and remains below the industry average of 35% throughout. Operating profit margin shows the same declining pattern, from 12.0% to 10.5% to 9.0%, again below the industry average of 15%. As a direct result, profit after tax has fallen every year, from FRW39,480,000 in 2023 to FRW30,870,000 in 2025, despite revenue growing over the same period. This combination (rising revenue, falling profit) is a classic sign of margin erosion, consistent with the production inefficiencies and intense competitive pressure the board has already identified, and it directly undermines the 'sustainably improving profitability' component of NFW's strategic goal.

2. Liquidity

On the surface, NFW's liquidity position appears comfortable and improving: the current ratio has risen from 2.29:1 (2023) to 2.65:1 (2025), and the quick ratio has remained stable at around 1.25–1.30:1 throughout, both comfortably above the industry averages of 2:1 and 1:1 respectively. However, this headline position masks a deteriorating underlying cash position: the bank balance has fallen sharply, from FRW25,000,000 in 2023 to just FRW5,000,000 in 2025. The apparent liquidity strength is being sustained mainly by a growing inventory balance, not by cash, a distinction the CEO should be aware of before treating the current and quick ratios as reassuring on their own.

3. Working capital efficiency

Working capital efficiency has deteriorated across all three activity ratios. Inventory days have risen from 64.9 (2023) to 75.1 (2025), well above the industry average of 60 days, suggesting stock is being held for longer, tying up cash and increasing the risk of obsolescence. Receivable days have risen from 40.0 to 49.9, also above the industry average of 30 days, indicating customers are taking longer to pay. At the same time, payable days have fallen from 55.0 to 48.0, below the industry average of 70 days, meaning NFW is paying its own suppliers faster than the sector norm. Together, these three trends mean cash is leaving the business faster (through payables) while taking longer to come in (through inventory and receivables), a combination that explains the declining bank balance identified above, and one that should be addressed as a priority if the company wishes to fund its strategic expansion without excessive reliance on external borrowing.

4. Gearing

Gearing has risen sharply and is now well above the industry benchmark: the debt-to-equity ratio has increased from 89.8% (2023) to 118.3% (2025), against an industry average of only 40%. Interest cover has fallen correspondingly, from 4.13 times (2023, in line with the industry average of 4 times) to just 2.63 times (2025), well below the benchmark. This indicates NFW is becoming significantly more reliant on debt financing, and its operating profit is providing a shrinking margin of safety over its finance costs. If this trend continues, NFW's ability to raise further debt to fund its strategic expansion plans may become constrained, and its financial risk is rising at a time when operational performance is already under pressure.

5. Return on capital employed and return on equity

Both return measures confirm the deteriorating picture: ROCE has fallen from 15.68% (2023, close to the industry average of 16%) to 11.23% (2025), and ROE has fallen from 15.79% (in line with the 15% benchmark) to 10.64%. Both returns are now materially below the sector average, indicating that NFW is generating a lower return on the capital invested in the business than its competitors, a critical concern for a company aiming to become the regional market leader, since sustained underperformance on these measures makes it harder to attract further investment or justify the capital required for expansion.

Overall conclusion and recommendation

NFW's revenue is growing, but more slowly than the sector, and this growth has come at the cost of declining margins, profitability, and returns, all of which sit below the industry average and are moving in the wrong direction. Liquidity appears adequate on standard ratios but is underpinned by a fast-shrinking cash balance and worsening working capital efficiency, while gearing has risen to a level that may soon constrain the company's ability to finance further growth. On the evidence presented, NFW is not currently on track to achieve its strategic goal of becoming the region's leading manufacturer within five years, and the board should prioritise addressing production efficiency, working capital management, and cost control before committing to further expansion funded by additional debt.

QUESTION TWO

Making guide

Sub	Description of marks allocation	Marks
a	1 mark for a correct meaning of the technology and 1 mark for linking with the scenario given	10
b	1 mark for a correct benefit and 1 mark for a correct limitation	8
	2 marks for advice to the CEO	2
c	1 Mark for each correct Risk and 2 marks for correct advice	5
		25

Model answer

a) Technology and marketing improvement

ABC's marketing has three underlying weaknesses embedded in the scenario:
(i) the mailing list is generic and unverified, so the catalogue may never reach the principal or head teacher who controls the budget;
(ii) ABC has no data on which schools actually respond, order, or repeat-purchase, so the same undifferentiated catalogue is sent to every school regardless of relevance; and
(iii) stock is bought against an estimate of demand made once a year, leading to recurring stockouts of popular items and surplus of others.

Each of the five technologies addresses a different part of this problem.

- Big data and data analytics. ABC's website order data, catalogue response rates, and historical stock movements together constitute a rich internal data set that is currently unused because sales, stock and marketing data sit in separate manual records. Analysing this data would let ABC identify which schools and regions order most, which product lines sell out fastest each Autumn, and which items are consistently overstocked, allowing the catalogue mailing list to be prioritised and stock purchasing to be based on evidence rather than a single annual estimate.
- Artificial intelligence. AI could be used to personalise the online catalogue experience, for example, recommending products to a returning school website user based on that school's previous orders, or using an AI-driven demand-forecasting model that continuously updates ABC's Autumn stock estimate as early-season orders come in, rather than relying on a single pre-season guess.
- Unified corporate database. At present, catalogue mailing data, website sales data and stock records are held separately (and partly on paper). A unified database would bring these together into a single source of truth, so that marketing decisions (who to mail, what to feature) are made using the same data as stock and sales decisions, removing the current disconnect between what is promoted in the catalogue and what is actually available or in demand.
- Cloud computing. Because ABC already directs customers to a website to purchase, hosting the catalogue, order data and customer records in the cloud would make this information accessible in real time to marketing, sales and stock-purchasing staff simultaneously, without ABC needing its own servers, and would support the surge in access around the Autumn ordering peak.
- Network technology. A wide area network or virtual private network linking ABC's office, warehouse and website would allow marketing staff to see stock and order data as it happens (rather

than relying on the store manager's index cards), so that the catalogue and website can be updated to reflect genuine availability instead of items that have already sold out.

- **Recommendation.** Of the five, big data and data analytics would generate the greatest improvement, because it directly targets ABC's two most costly marketing problems, an unverified, undifferentiated mailing list and demand estimates that are wrong often enough to cause regular stockouts and surplus. The other four technologies (unified database, cloud, network, AI) are largely the infrastructure that makes big data analysis possible; without data being unified and analysed, ABC gains storage and connectivity but no new insight into who to target or how much to buy. Analytics therefore has the most direct, measurable impact on the catalogue's cost-effectiveness and on reducing lost sales and surplus inventory.

b) Information systems: benefits, limitations and implementation order

- ABC currently operates three disconnected manual systems: spreadsheet-based bookkeeping, HR records in a locked filing cabinet, and stock records on index cards held by a single store manager. Each proposed system would address a different part of this fragmentation, but each also has limitations relevant to a business of ABC's size.
- Accounting information system. Benefit: replacing manual double-entry and spreadsheets with a dedicated accounting system would reduce transcription errors, speed up production of financial statements, and provide an audit trail that spreadsheets do not reliably offer. Limitation: as a standalone system it would not connect to stock or sales data, so ABC could still find its accounts showing a sale that the stock room has not yet recorded, since the underlying process fragmentation would remain.
- Management information system (MIS). Benefit: an MIS would give ABC's CEO and managers a single, real-time view of performance (sales, stock levels, catalogue response) instead of relying on separate paper and spreadsheet records that are only reconciled periodically. Limitation: an MIS is a reporting layer; it depends on good-quality underlying data, so unless ABC's stock and sales data are first captured electronically (rather than on index cards), the MIS will simply report the same delays and inaccuracies more quickly.
- Enterprise resource planning (ERP) system. Benefit: an ERP system would integrate stock, purchasing, sales, HR/payroll and accounting into one system, directly resolving ABC's core problem of the store manager, HR and accounting each keeping separate, unconnected records – for example, a sale recorded at the website could automatically update the index-card equivalent stock level and trigger reordering. Limitation: ERP implementation is costly and disruptive, requires ABC to redesign its existing manual processes rather than simply digitising them, and the benefit is only realised if staff (including the store manager, currently working from index cards) are retrained to use it consistently.
- Customer relationship management (CRM) system. Benefit: since ABC currently has no way of knowing whether a catalogue reaches the right person or which schools are engaged customers, a CRM system would let ABC record each school's ordering history, tailor future catalogues and follow-up communication, and identify lapsed or high-value schools for targeted marketing. Limitation: ABC has no existing customer database to build this from (the mailing list is a public list of schools, not a customer record), so the benefit would only build up gradually as ABC accumulates order history, and there is a risk of over-personalising communications with schools in a way that is seen as intrusive.

- Recommended order of implementation. ABC should implement the accounting information system first, since it replaces the weakest and most error-prone part of the current setup (manual bookkeeping and spreadsheet financial statements) with the least disruption, and it is a prerequisite building block for any wider system. This should be followed by ERP, which would integrate stock, sales, purchasing, HR and the now-computerised accounting function, the single biggest source of ABC's current inefficiency. An MIS naturally follows, since it draws its reporting value from the integrated ERP data. CRM should be implemented last, because it depends on having a reliable stream of sales and customer order data (from the ERP) before it can generate meaningful customer insight; implementing CRM first would mean personalising marketing on the basis of the same fragmented, unreliable data ABC has today.

c)Risks of implementing information systems and how ABC should manage them

- ABC's manual, paper-based environment means the risks of implementing new information systems are not abstract, they arise directly from the specific processes described in the scenario.
- Data migration and quality risk: converting the store manager's index cards, the HR filing cabinet and spreadsheet accounts into a single electronic system risks carrying forward errors, gaps or inconsistent formats that have never previously been reconciled against each other.
- Cost, time and disruption risk: implementation could disrupt trading during or just before the Autumn peak season, when ABC can least afford errors in order processing or payroll.
- Resistance to change: the store manager and HR staff currently rely on manual, personally-controlled records (index cards, a locked cabinet); moving to a shared electronic system may be resisted through reluctance, avoidance, or informal continuation of the old paper records alongside the new system.
- Data security and cybersecurity risk: consolidating HR, payroll and customer data (currently physically separated and, for HR, kept under lock) into one networked or cloud-based system increases the potential impact of a single cyberattack or unauthorised access, compared with today's fragmented but individually low-value paper records.
- Control and segregation-of-duties risk: ABC's current payroll process is checked and approved by a separate accounting function after HR prepares it; poorly designed system access controls could weaken this existing segregation of duties if the same system allows one person to both prepare and approve transactions.
- Over-reliance and business continuity risk: a system failure, network outage or loss of cloud access would leave ABC unable to process orders or payroll at all, whereas today's manual system, though slow, continues to function without electricity or network connectivity.

Advice to the CEO. The CEO's three reasons for resisting investment can each be directly addressed rather than simply overridden. On the first, that the present system works well enough, the scenario itself shows this is not true: recurring stockouts and surplus inventory, and no way of confirming catalogues even reach the right person, are evidence of a system that is tolerated rather than effective. On the second, that cost, time and disruption exceed the likely benefit, this risk can be managed by phasing implementation (as recommended in part (b): accounting system, then ERP, then MIS, then CRM) so that cost and disruption are spread over time and each stage is embedded before the next begins, and by scheduling major changes outside the Autumn peak season. On the third, the CEO's concern about dependence on IT, this is a legitimate risk rather than a reason to avoid investment altogether; it should be managed through data back-ups, a documented business continuity/disaster recovery plan, staff

training, and maintaining appropriate access controls and segregation of duties within the new system, so that IT dependence is controlled rather than avoided. Taken together, continued resistance is not justified: the risks identified are manageable through phased implementation, change management and appropriate controls, and the cost of continuing to operate without integration – in lost sales, surplus stock and untargeted marketing spend – is already being incurred under the status quo.

QUESTION THREE

Marking guide

Sub	Description of marks allocation	Marks
	0.5 mark for each correct pay off and the maximum marks 8	8
	0.5 mark for each correct EMV and the maximum marks 2	2
	2 marks for each correct decision and the maximum marks 4	4
	2 marks for minimax regret table and 1 mark for right decision	3
b	1 mark for correctly identifying each relevant element of the cultural web, plus 1 mark for a well-reasoned explanation that links the element to specific scenario evidence and judges its likely effect on the change agenda	8
		25

Model answer

a)

i) Profit evaluation for each production/demand combination

Contribution margin per sheet sold at the normal price is FRW 13,000 – FRW 8,500 = FRW 4,500. Where demand exceeds production, each additional sheet sourced from the subcontractor earns a reduced margin of FRW 13,000 – FRW 11,800 = FRW 1,200.

Where production exceeds demand, each unsold sheet, already costed at FRW 8,500 but salvaged at only FRW 5,000, represents a loss of FRW 3,500 relative to a sheet that was sold.

- For production (Q) and demand (D):
- Where $D \leq Q$ (over-production): Profit = (D *4,500) – [(Q – D) *3,500] – 20,000,000
- Where $D > Q$ (under-production): Profit = (Q *4,500) + [(D – Q) *1,200] – 20,000,000
- Applying these formulae to all sixteen combinations gives the following profit table (FRW):

Demand \ Production	8,000	10,000	12,000	14,000
8,000	16,000,000	9,000,000	2,000,000	(5,000,000)
10,000	18,400,000	25,000,000	18,000,000	11,000,000
12,000	20,800,000	27,400,000	34,000,000	27,000,000
14,000	23,200,000	29,800,000	36,400,000	43,000,000

For example, at production of 10,000 and demand of 8,000, 2,000 sheets are unsold:
profit = (8,000 *4,500) – (2,000 *3,500) – 20,000,000 = FRW 9,000,000.
At production of 8,000 and demand of 14,000, 6,000 sheets must be emergency-sourced:
profit = (8,000 *4,500) + (6,000 *1,200) – 20,000,000 = FRW 23,200,000.

Note that producing 14,000 sheets and only selling 8,000 results in a loss of FRW 5,000,000, the only loss-making cell in the table, since the cost of 6,000 unsold sheets (6,000 *3,500 = FRW 21,000,000) outweighs the contribution earned on the 8,000 sold.

ii) Expected value assessment

Multiplying each profit figure by the probability of that demand level and summing across each production column gives the expected profit for each production level:

	8,000	10,000	12,000	14,000
Expected profit (FRW)	19,720,000	24,280,000	24,080,000	19,800,000

Expected profit is highest at a production level of 10,000 sheets (FRW 24,280,000), narrowly ahead of 12,000 sheets (FRW 24,080,000). On the expected value criterion, KRM should therefore produce 10,000 sheets, though the margin over 12,000 sheets is small enough (FRW 200,000, under 1% of either figure) that the choice is sensitive to the accuracy of the demand probabilities, and a modest revision of the forecast could reverse the ranking.

iii) Maximin and maximax assessment

The maximin rule selects the production level whose worst-case outcome is the least bad. The worst outcome at each production level (which occurs at the lowest demand level, 8,000, in every case) is:

	8,000	10,000	12,000	14,000
Worst-case profit (FRW)	16,000,000	9,000,000	2,000,000	(5,000,000)

The best of these worst-case outcomes is FRW 16,000,000, at a production level of 8,000 sheets.
A risk-averse decision-maker following maximin would therefore choose to produce only 8,000 sheets, guaranteeing a profit of at least FRW 16,000,000 regardless of demand, and specifically avoiding the FRW 5,000,000 loss that arises from producing 14,000 sheets if demand turns out to be only 8,000.

The maximax rule selects the production level with the best possible outcome, regardless of its likelihood. The best outcome at each production level (which occurs at the highest demand level, 14,000, in every case) is:

	8,000	10,000	12,000	14,000
Best-case profit (FRW)	23,200,000	29,800,000	36,400,000	43,000,000

The highest of these best-case outcomes is FRW 43,000,000, at a production level of 14,000 sheets. A risk-seeking decision-maker following maximax would therefore choose to produce the full 14,000 sheets, accepting the possibility of the FRW 5,000,000 loss in exchange for the chance of the largest possible profit.

iv) Minimax regret assessment

Regret at each cell is the difference between the best profit achievable at that demand level and the profit actually earned at the production level being assessed. The regret table is:

Demand \ Production	8,000	10,000	12,000	14,000
8,000	0	7,000,000	14,000,000	21,000,000
10,000	6,600,000	0	7,000,000	14,000,000
12,000	13,200,000	6,600,000	0	7,000,000
14,000	19,800,000	13,200,000	6,600,000	0

The maximum regret for each production level is:

	8,000	10,000	12,000	14,000
Maximum regret (FRW)	19,800,000	13,200,000	14,000,000	21,000,000

The lowest of these maximum regrets is FRW 13,200,000, at a production level of 10,000 sheets. Minimax regret therefore also points to producing 10,000 sheets the same recommendation as the expected value criterion, though arrived at from a different logic (minimising the opportunity cost of having guessed wrong, rather than maximising the average outcome).

b) The cultural web (Johnson and Scholes) comprises six elements: stories, symbols, power structures, formal structures, control systems, and rituals and routines. The scenario provides strong evidence for all six, but the four with the clearest and most direct bearing on the CEO's culture, equity, diversity and inclusion (CEDI) agenda are stories, symbols, power structures, and control systems.

1. Stories

- Evidence: The company holds a strong collective memory of a former CEO from 30 years ago, whose successes are still talked about and whose portrait and photos remain highly visible throughout the building; every new leader, including the current CEO, is measured against this legacy.
- Effect: Hinders. A dominant historical narrative fixed on one admired individual from a very different era tends to define "good leadership" in terms of that leader's (unstated) style and priorities, not in terms of equity, diversity or inclusion. It creates an implicit yardstick the new CEO is compared against unfavourably almost by default, and it signals to staff that the company's valued story is about a single hero from the past rather than about the inclusive future the CEO is trying to introduce. This makes the CEDI narrative compete with a much older, more emotionally embedded one.

2. Symbols

- Evidence: The headquarters building resembles a decaying palace; the CEO occupies a designated parking space at the front of the building and the largest office on the ground floor.
- Effect: Hinders. The physical decay of a once-grand building visibly reinforces the staff perception that KAI itself is "once powerful, now weakened," which is a poor backdrop for a message about renewal and inclusion. More directly, the CEO immediately taking up the most visible status symbols (best parking, largest office) sends a signal of traditional hierarchy and personal privilege at the very moment the CEO is asking staff to embrace equity, the symbol contradicts the message, and staff are likely to notice and discount the memo's sincerity as a result.

3. Power structures

- Evidence: KAI is described as highly bureaucratic with centralised decision-making power.
- Effect: Mixed, but net hinders. On one hand, centralised power could help the CEO, since a leader who holds real authority can mandate CEDI changes without needing broad consensus that a change-resistant culture might block. On balance, however, centralisation cuts against the participative, "democratic" style the CEO is known for, and an inclusion agenda that is imposed top-down through a centralised, bureaucratic structure risks being seen by staff as just another directive from the centre rather than a genuine shift in how decisions are made, undermining the credibility of an initiative that is supposed to be about giving people more voice.

4. Control systems

- Evidence: Promotion has traditionally followed strict seniority rather than performance, and the same staff appraisal form has been used, unchanged, for over a decade.
- Effect: Hinders. A promotion system based purely on seniority, rather than merit or potential, tends to preserve the existing composition and outlook of management rather than opening advancement to a more diverse range of staff, working directly against an equity objective. An appraisal form unchanged for ten years is very unlikely to measure or reward the behaviours the CEO now wants to encourage (such as inclusive management practice), meaning staff who genuinely embrace the new agenda gain no formal recognition for doing so, while the system continues, by default, to reward whatever it has always rewarded.

Conclusion

Three of the four elements examined (stories, symbols, control systems) point clearly toward hindering the CEO's CEDI agenda, and the fourth (power structures) is double-edged but leans toward hindrance given the mismatch with the CEO's stated democratic style. This suggests the CEO cannot rely on the memo alone: stories, symbols and control systems are all currently working against the intended culture, so the CEO will need to address these elements directly and visibly (for example, by revising the appraisal and promotion criteria, adjusting visible symbols of privilege, and creating new stories of inclusion) rather than assuming a single memo will be sufficient to shift a culture reinforced by six mutually-supporting elements.

QUESTION FOUR

Marking guide

Sub	Description of marks allocation	Marks
a	0.5 mark for each correct ratio for every year the maximum marks 8	8
b	0.5 mark for correct working of Z-score, the maximum marks 7.5	7.5
	Award 1 mark for correct z-score for each year the maximum marks 3	3
	0.5 mark for the correct interpretation	0.5
c	1mark for correct indicators the maximum marks 3	3
	1 mark for suggested governance change needed, the maximum marks 3	3
		25

Model answer

a) The five Altman Z-score ratios

- Working capital is current assets less current liabilities:
- Year 1: 2,250 – 1,404 = 546;
- Year 2: 2,900 – 3,250 = (350);
- Year 3: 3,460 – 5,630 = (2,170).
- Market value of equity is 100 million shares multiplied by the year-end share price:
- Year 1: 100 *58 = 5,800;
- Year 2: 100 *32 = 3,200;
- Year 3: 100 *13 = 1,300 (FRW million).

Ratio	Year 1	Year 2	Year 3
A: Working capital ÷ Total assets	546 ÷ 7,050 = 0.077	(350) ÷ 9,200 = (0.038)	(2,170) ÷ 11,360 = (0.191)
B: Retained earnings ÷ Total assets	1,846 ÷ 7,050 = 0.262	1,850 ÷ 9,200 = 0.201	1,330 ÷ 11,360 = 0.117
C: EBIT ÷ Total assets	1,000 ÷ 7,050 = 0.142	600 ÷ 9,200 = 0.065	0 ÷ 11,360 = 0.000
D: Market value of equity ÷ Total liabilities	5,800 ÷ 3,204 = 1.810	3,200 ÷ 5,350 = 0.598	1,300 ÷ 8,030 = 0.162
E: Sales ÷ Total assets	9,000 ÷ 7,050 = 1.277	9,800 ÷ 9,200 = 1.065	10,200 ÷ 11,360 = 0.898

b) The Altman Z-score and its trend

Component	Year 1	Year 2	Year 3
1.2A	1.2 *0.077 = 0.092	1.2 *(0.038) = (0.046)	1.2 *(0.191) = (0.229)
1.4B	1.4 *0.262 = 0.367	1.4 *0.201 = 0.281	1.4 *0.117 = 0.164
3.3C	3.3 *0.142 = 0.469	3.3 *0.065 = 0.215	3.3 *0.000 = 0.000
0.6D	0.6 *1.810 = 1.086	0.6 *0.598 = 0.359	0.6 *0.162 = 0.097
1.0E	1.0 *1.277 = 1.277	1.0 *1.065 = 1.065	1.0 *0.898 = 0.898
Z-score	3.34	1.88	0.93

MSF's Z-score fell sharply from 3.34 (safe) to 0.93 (distress zone), showing serious financial deterioration. Liquidity weakened due to rising short-term debt and falling cash
while profitability declined as EBIT fell to zero because of import competition. At the same time, the share price collapsed and liabilities increased, raising financial risk.

Overall, MSF is in serious financial distress and faces a high risk of failure in the near term.

c) Qualitative indicators of corporate failure and governance advice

1. Combined Chairman/CEO role and a passive board. The Chairman has held the CEO role simultaneously since incorporation, and the two independent non-executive directors, appointed only in the last year, have no manufacturing experience and are reported to rubber-stamp decisions already made by the Chairman. This concentration of power removes the independent challenge a board is meant to provide over major decisions such as the regional expansion, and is one of the clearest governance-related predictors of corporate failure.

2. Overtrading through short-term financing of long-term expansion. The regional expansion and machinery repairs have been funded almost entirely through short-term borrowing and extended supplier credit rather than long-term capital, specifically because the Chairman did not want to dilute his shareholding or accept long-term debt covenants. This is a classic symptom of overtrading: the balance sheet shows short-term borrowings rising more than eightfold over three years (from FRW 504 million to FRW 4,230 million) while cash has fallen to almost nothing, leaving MSF acutely exposed to any lender withdrawing or refusing to renew short-term facilities.

3. Weak financial management infrastructure. MSF has lost two Finance Directors in three years, has no product-line costing system to reveal which products are actually profitable, and has not updated its cash flow forecasts in over a year. Without reliable costing or up-to-date cash flow information, the board has effectively been making major financing and expansion decisions without the financial visibility needed to recognise the deteriorating position in time to act.

Advice to the board. The board should immediately separate the Chairman and CEO roles, appointing an independent, suitably experienced Chairman to provide genuine oversight of executive decisions, and should recruit non-executive directors with direct manufacturing and turnaround experience rather than treating the roles as a formality. It should commission an independent review of the short-term financing structure with a view to refinancing part of the short-term borrowing through longer-term facilities or new equity, even at the cost of some dilution, since the alternative is a genuine risk of being unable to renew short-term facilities at all. Finally, the board should prioritise rebuilding the finance function, recruiting and retaining a permanent Finance Director, implementing a proper product-line costing system, and reinstating regular, rolling cash flow forecasts, so that early warning signs of deteriorating performance are visible to the board well before they show up, as they now have, in a Z-score already deep in the distress zone.

End of Marking Guide and Model Answers.