CERTIFIED PUBLIC ACCOUNTANT
STRATEGIC LEVEL EXAMINATIONS
FM3.7: ADVANCED FINANCIAL MANAGEMENT
DATE: THURSDAY 27, AUGUST 2026

INSTRUCTIONS:

1. Time Allowed: **3 hours 15 minutes** (15 minutes reading and 3 hours writing).
2. This examination has **Two** sections: **A & B.**
3. Section **A** has **One Compulsory Question** while Section **B** has **Three Optional questions** to choose any **Two.**
4. In summary attempt **three questions.**
5. Marks allocated to each question are shown at the end of the question.
6. The question paper should not be taken out of the examination room.

SECTION A

QUESTION ONE

Kanga Digital Solutions (KDS) is a leading digital payments company headquartered in Rwanda's Kigali City. The company processes over 70% of Rwanda's mobile money transactions and has recently expanded its operations into Uganda and Tanzania, establishing itself as one of East Africa's fastest-growing fintech players. KDS's business model rests on transaction processing fees, merchant settlement services, and integrations with banks, telecom operators, and government payment platforms across all three markets.

KDS recently experienced a significant cybersecurity breach in which hackers gained unauthorised access to its payment processing systems, compromising transaction data. Although the breach was contained before any confirmed loss of customer funds occurred, it drew scrutiny from regulators and unsettled merchant partners, some of whom paused their integrations while seeking assurance that the company's systems were secure. More importantly, the incident exposed critical weaknesses in KDS's underlying infrastructure - weaknesses that had existed quietly for some time but had never been tested until now.

In response, the Board of Directors is evaluating a comprehensive digital infrastructure modernisation project designed to address these vulnerabilities at their root. The project has four components. The first is the implementation of advanced encryption systems, strengthening how customer and transaction data is protected both in transit and at rest. The second is an upgrade of the core payment processing infrastructure itself, moving away from legacy systems toward a more resilient, modern architecture capable of supporting continued regional growth. The third is an enhancement of real-time monitoring capabilities, giving KDS the ability to detect and respond to suspicious activity as it happens rather than after damage has already occurred. The fourth is the installation of new data recovery centres, ensuring that customer data and operations are no longer dependent on a single physical location.

Together, these four components are intended to close the gap between KDS's rapid regional expansion and the security foundation supporting it.

The following cash flows are expected:

Time	Year 0	Year 1	Year 2	Year 3	Year 4
RWF'000	RWF'000'	RWF'000'	RWF'000'	RWF'000'	RWF'000'
Infrastructure Investment	3,200,000				
Security Systems	1,400,000				
Revenue		1,200,000	2,400,000	3,100,000	3,600,000
Operating Costs		800,000	1,100,000	1,300,000	1,400,000
Training Costs		300,000	250,000	200,000	200,000
System Maintenance		220,000	220,000	220,000	220,000

Additional Information:

1) The annual system maintenance costs include an allocation of 45% from head office operations, representing shared IT support services provided to the project. The estimated infrastructure investment of RWF 3,200,000,000 includes RWF 150,000,000 that has already been incurred on external security consultancy fees and should therefore be treated as a sunk cost. The company expects that, at the end of year 4, the infrastructure and security systems can be sold for RWF 4,100,000,000. This estimated resale value exceeds the initial investment cost because the infrastructure incorporates highly specialized components, advanced security technologies, and equipment containing sophisticated materials and rare minerals that are expected to retain significant market value. In addition, strong demand for high-performance security infrastructure, coupled with limited availability of certain critical components, is anticipated to support favorable resale prices in the secondary market.
2) KDS is currently paying corporation tax at a rate of 30%. Under the applicable income tax law, if during a tax period the tax determination of a business results in a loss, that loss is deducted from the business profits in the next five (5) consecutive tax periods, starting with the earliest tax loss, which is expected to continue for the foreseeable future. The tax payments occur one year in arrears from when the profit is earned. Tax allowable depreciation may be claimed on the security systems at 25% on a reducing balance basis. The security systems are expected to have a residual value of RWF 250,000,000 at the end of the project.
3) The company anticipates that working capital requirements will amount to 16% of revenue protection throughout the project's life. KDS has calculated its real cost of capital at 8.8% per annum. Whilst inflation is currently running at 5.5% per annum, this has been excluded from the figures presented above. However, it should be noted that the sale value at the end of year 4 is already stated in nominal terms and therefore requires no further inflation adjustment.
4) Following its expansion, KDS now generates 60% of the project's revenue and incurs 60% of the associated operating costs, training costs, and system maintenance costs in Rwanda (RWF). The remaining activity is split between its Ugandan subsidiary (25% of revenue and associated costs, invoiced and settled in Ugandan Shillings, UGX) and its Tanzanian subsidiary (15% of revenue and associated costs, invoiced and settled in Tanzanian Shillings, TZS). No tax depreciation is attributed to the subsidiaries, as the underlying infrastructure and security systems remain owned and located in Rwanda.
5) Current spot exchange rates are RWF 1 = UGX 3.40 and RWF 1 = TZS 2.15. Forecast annual inflation rates, to be used for projecting future exchange rates on a purchasing power parity (PPP) basis, are: Rwanda 5.5%, Uganda 6.8%, and Tanzania 4.2%.
6) Both the Ugandan and Tanzanian subsidiaries are subject to local corporation tax at 30%, assessed on that subsidiary's local nominal profit for the year. Each subsidiary remits 90% of its after-tax profit to KDS in Rwanda annually as a dividend, retaining 10% locally to fund local working capital and reinvestment; retained profits do not form part of the cash flows available to the group's shareholders. Dividend remittances are subject to withholding tax under the applicable double taxation treaties, at 10% for remittances from Uganda and 5% for remittances from Tanzania.

7) Rwanda grants unilateral double taxation relief in the form of a tax credit for foreign tax suffered (both underlying corporate tax and withholding tax) on remitted income, capped at the Rwandan tax that would otherwise be payable on the same income; any excess foreign tax is not refunded or otherwise recoverable. KDS currently has no forward exchange contracts, options, or other hedging arrangements in place, and converts foreign remittances into RWF at the prevailing spot rate on receipt.

Required:

a) As financial analyst, **prepare a Board report assessing the project's viability using NPV, accounting for the tax and currency implications of KDS's Ugandan and Tanzanian operations, with full workings and assumptions stated.** (36 Marks)

b) The Risk Committee has questioned the use of beta factors in evaluating project risk, particularly given KDS's unique position in Rwanda's financial sector. **Evaluate how systematic and unsystematic risk components affect the project's beta and explain whether traditional beta assumptions are appropriate for this investment.** (8 Marks)

c) Following the recent cyber-attack, **explain how KDS should apply the CIA (Confidentiality, Integrity, Availability) triad to strengthen their security framework. Provide specific examples for each component of the triad that are relevant to a digital payments provider.** (6 Marks)

(Total: 50 Marks)

SECTION B

QUESTION TWO

Ikizere International Ltd ("Ikizere") is a Rwandan company listed on the Rwanda Stock Exchange (RSE), operating in agro-processing and regional logistics across the East African Community (EAC). It has recently been targeted for a contested takeover bid.

Umuhate Holdings Plc ("Umuhate"), a dominant regional competitor headquartered in Kenya with substantial financial resources and a secondary listing on the Nairobi Securities Exchange, has begun accumulating shares in Ikizere on the open market and has publicly expressed an intention to acquire a controlling stake in order to consolidate its market position across the EAC. Umuhate has already built a 14% stake through market purchases over the past four months and has indicated it may table a formal offer within the next quarter.

A second, unsolicited approach has also been received from a Mauritius-based private equity consortium, Sahara Capital Partners, which has expressed interest in providing friendly alternative capital to help defend the company's independence should Ikizere's board wish to resist the Umuhate approach.

Ikizere's board and its financial advisers have been asked to urgently assess the company's true underlying value from multiple perspectives, evaluate realistic defense strategies, and advise on the wider factors that will shape final acquisition pricing in what would be a cross-border, cross-currency transaction.

The following information is available:

Statement of financial position as at 31 December 20X4 (in RWF millions):

	RWF millions
Assets Book Value	
Property	3,500
Plant & Equipment	2,400
Inventory	1,200
Receivables	850
Cash	550
Total Assets	**8,500**
Liabilities	
Long-term Debt (8% coupon, redeemable 20X8)	2,200
Current Liabilities	1,300
Total Liabilities	**3,500**
Net Assets	**5,000**

Additional Information:

1) Market Values/Disposal Information:

Item	**Value**
Property - current market value	RWF 4,200m (disposal costs 6%)
Plant & Equipment - disposal value	RWF 2,100m (disposal costs 8%)
Inventory - forced sale value	RWF 950m

Receivables - collectible	92%
Redundancy and unwinding costs on forced liquidation	RWF 120m
Contingent environmental remediation liability (disclosed, not provided for)	RWF 80m
Shares in issue	800,000

2) Financial Performance:

Year	Dividend per Share (RWF)	Earnings per Share (RWF)
20X1	480	1,050
20X2	550	1,180
20X3	650	1,340
20X4	750	1,500

20X4 earnings include a one-off insurance settlement gain of RWF 60m (post-tax) relating to a warehouse fire, which is not expected to recur.

The industry average P/E ratio for comparable listed agro-processing/logistics firms in the EAC is 14, but a recent thinly-traded acquisition of a similar-sized private competitor implied a P/E of 11.5.

3) Market Information:

Item	Value
Risk-free rate	5.5%
Equity market return	20%
Ikizere equity beta	1.2
Cost of debt (pre-tax)	9%
Corporate tax rate	30%

Required:

a) As a financial analyst advising the Board on a potential strategic transaction, **critically evaluate the value per share of the company by applying the Net Realisable Value method, the PE Ratio method, and the Dividend Growth Model, and recommend the most appropriate valuation for negotiation purposes.** (13Marks)

b) Explain two hostile takeover defence strategies that would be appropriate for a company in Ikizere's position, with reference to specific factors in the East African market context. (6 Marks)

c) Discuss the factors influencing acquisition pricing in a cross-border acquisition within East Africa, considering the perspectives of both the acquirer and target company. (6 Marks)

(Total: 25 Marks)

QUESTION THREE

It is now 1 April. The treasury department of Katunga Digital Solutions plc (KDS), a leading Rwandan technology company listed on the Rwanda Stock Exchange, faces a complex and uncertain financial outlook involving two separate foreign currency exposures, a contingent transaction, and a cyber-security risk that could jeopardize a major contract.

In four months' time (end of July), KDS may need to pay £12,000,000 to a UK supplier for specialised equipment. This payment will only be required if KDS wins a major government tender, the outcome of which will be announced in one month's time (end of April). If KDS loses the tender, no payment will be required and any hedge already in place would need to be closed out or reversed.

Market Data

Exchange rates (RWF per unit of foreign currency)

	GBP/RWF
1 April spot	1,450 - 1,465
1-month forward (to end April)	1,460 - 1,475
2-month forward (to end May)	1,470 - 1,485
4-month forward (to end July)	1,485 - 1,500

Futures market - GBP/RWF futures

Contract size: £500,000. Contracts are quoted in RWF per GBP and mature quarterly (March, June, September, December).

Contract month	Price (RWF/GBP)
June	1,470
September	1,505

Currency options - GBP/RWF options

Contract size: £250,000. Premiums quoted in points per GBP (i.e. RWF per GBP), payable up front.

July expiry

Exercise price (GBP/RWF)	Calls	Puts
1,425	82	12
1,450	65	20
1,475	40	35
1,500	25	55
1,525	14	78

Money market rates (annualised, simple interest)

	Deposit rate	Borrowing rate
RWF	9%	12%
GBP	3%	5%

End-of-period spot rate scenarios

Assuming the tender is won, illustrate the results of hedging the £12,000,000 payment if the GBP/RWF spot exchange rate at the end of July is:

i) 1,470
ii) 1,520

Required:

a) Critically evaluate and compare the effectiveness of a forward hedge versus a futures hedge in mitigating currency risk for a £12,000,000 transaction across the two given spot-rate scenarios. (8 Marks)

b) Illustrate the results of using a currency options hedge for the £12,000,000 payment under each of the two spot-rate scenarios. Select and justify the most appropriate exercise price, and comment on how the results compare with the forward and futures hedges. (4 Marks)

c) Using a money market hedge, **determine and illustrate the guaranteed Rwandan Franc (RWF) cost of settling the company's £12,000,000 trade payable, showing all relevant workings.** (5 Marks)

d) KDS is also concerned about a potential data security breach that could affect its bid for the government tender. **Explain how the company could implement the TARA framework (Transfer, Avoid, Reduce, Accept) to address this risk.** (4 Marks)

e) Explain how a company like KDS can develop an effective business continuity plan that addresses both financial and cyber security risks. (4 Marks)

(Total: 25 Marks)

QUESTION FOUR

Nyanga Technologies Ltd is a Rwandan software development company specialising in financial technology solutions, headquartered in Kigali. The company has developed a flagship core banking platform, "Mari", and is now launching a lighter, lower-cost version, "Mari Lite", aimed at smaller financial institutions. Both products are sold to financial institutions across East Africa (Rwanda, Kenya, Uganda and Tanzania).

Nyanga Technologies is organised into three divisions:

Division	Role
Development Division (Kigali, Rwanda)	Designs and builds the core software for both Mari and Mari Lite
Implementation Division (regional offices in Kigali, Nairobi and Kampala)	Customises, installs and integrates the core software at client sites
Support & Maintenance Division	Provides post-implementation support, upgrades and helpdesk services under annual contracts

The Development Division supplies core systems internally to the Implementation Division but also has the option of selling core systems to independent implementation contractors in the region, and the Implementation Division has the option of sourcing core systems from competing developers.

Data for Mari (flagship platform)

The Development Division supplies core systems whose demand is described by the function P = 60,000,000 - 2,000,000Q, where P is the price in RWF per installed system and Q is the number of systems sold per year, with the combined marginal cost of development and

implementation assumed constant at RWF 20,000,000 per unit; the Development Division has a capacity of 15 core systems per year, incurs a variable cost of RWF 8,000,000 per system and fixed costs of RWF 120,000,000 per year, while the external market price for comparable core systems in East Africa stands at RWF 35,000,000 per system, and the Implementation Division's own variable cost of customisation and installation, excluding the transferred core system, is RWF 12,000,000 per unit.

Data for Mari Lite (new lower-tier product)

The demand for Mari systems among microfinance institutions and savings and credit cooperatives is represented by the inverse demand function P = 20,000,000 - 1,000,000Q, where P is the price per system and Q is the annual quantity sold. The product incurs a combined marginal cost for development and implementation of RWF 6,000,000 per unit. Additionally, Mari shares its annual production capacity of 15 units with Mari Lite, as both products rely on the same Development Division resource.

Market segmentation data

Nyanga's sales team has identified three broad client segments across the region, with estimated price elasticities of demand at current price points:

Segment	Product typically bought	Estimated price elasticity of demand
Tier 1 commercial banks	Mari	-0.6
Microfinance institutions (MFIs)	Mari / Mari Lite	-1.4
SACCOs and small cooperatives	Mari Lite	-2.2

Additional information:

1) Rwanda's corporate income tax rate is 28%; Kenya's is 30%. Nyanga's Implementation Division serving Kenyan clients is run through a Kenyan-registered subsidiary.
2) Competitors in Kenya and Tanzania have recently begun offering bundled "software + 3-year maintenance" packages at a discount to combined standalone prices.
3) Management is considering a bundling strategy combining Mari/Mari Lite with the Support & Maintenance Division's services, and is also reviewing whether price discrimination across the three segments above is commercially and ethically defensible.
4) The Board wants to understand how sensitive the profit-maximising decision is to a possible increase in variable costs.

Required:

a) Nyanga's Board has asked you, as strategic financial adviser, **to determine and justify a profit-maximising pricing and output strategy for Mari and Mari Lite;and with full supporting calculations, resolve the capacity conflict arising from the two products sharing the Development Division's 15-unit annual capacity.** (10 Marks)

b) **Calculate the price elasticity of demand for both products at their optimum price points and interpret the resulting values.** (3 Marks)

c) **Advise the Board on the transfer pricing policy that should govern the transfer of core systems from the Development Division to the Implementation Division. Your**

recommendation should be supported by calculations comparing the market price-based, cost-plus (25% markup) and dual pricing approaches, tax exposure created by routing part of the Implementation Division's activity through a Kenyan subsidiary. (6 Marks)

d) **Recalculate the profit-maximizing price and quantity for Mari if the Development Division's variable cost rises by 20%, resulting in an 8% increase in combined marginal cost, and quantify the resulting impact on profitability.** (6 Marks)

(Total: 25 Marks)

End of Question Paper

Present Value Table

Present value of $1, that is (1 + r)^-n
where r = interest rate; n = number of periods until payment or receipt.

Periods	Interest rates (r)								
(n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239

Periods	Interest rates (r)								
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065

Annuity Table

Present value of an annuity of 1, ie [1-(1+r)^-n]/r
Where r = discount rate; n = number of periods.

Periods	Interest rates (r)									
(n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606

Periods	Interest rates (r)									
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675