CERTIFIED PUBLIC ACCOUNTANT

ADVANCED LEVEL II EXAMINATION

A2.1: STRATEGY CORPORATE FINANCE

DATE: WEDNEDAY 27, AUGUST 2025

MARKING GUIDE AND MODEL ANSWERS

SECTION A

QUESTION ONE

Marking Guide

SN	Question details	Marks allocation	Marks
1.a	Sales	Award 0.5Marks to each well calculated sales value. Max: 2 Marks	2
	Cost of sales	Award 0.5 Marks to each well calculated sales value. Max: 2 Marks	2
	Selling and distribution expenses	Do not award any mark	
	Administration expenses	Do not award any mark	
	Depreciation and Amortization	Do not award any mark	0
	Tax on Operating Profit	Award 0.5 Marks to each well calculated sales value. Max: 2 Marks	2
	Add back Depreciation & Amortization	Award 0.5 Marks to each well calculated sales value. Max: 2 Marks	2
	Capital Expenditure	Award 0.5 Marks to each well calculated sales value. Max: 2 Marks	2
	Increase/Decrease in Working Capital	Award 0.5Marks to each well calculated sales value. Max: 2 Marks	2
	Discount Factor		
	Cost of Bank Loan	Award 0.5 Marks for a well calculated cost of bank loan. Max 0.5 Marks	0.5
	Cost of Equity (Ke)	Award 1 Mark for a well calculated cost of equity. Max 1 Mark	1
	Cost of irredeemable debts	Award 1 Mark for a well calculated cost of irredeemable debts. Max 1 Mark	1
	Cost of redeemable debts	Award 1 Mark for table of IRR method and 0.5 marks for a well calculated cost of redeemable debts. Max 1.5 Marks	1.5
	WACC Calculation	Award 2 Marks for a well calculated WACC. Max 2 Marks	2
	Present Values of Free Cash Flow	Award 0.5Marks to each well calculated sales value. Max: 2.5 Marks	2.5
	Terminal value	Award 1 Mark for a well calculated terminal value. Max:1 Mark	1
	Value of the firm	Award 0.5 Mark for a well calculated value of the firm. Max:1 Mark	0.5
	Market value of debts	Award 1 Mark for a well calculated market value of debts. Max:1 Mark	1
	Value of equity	Award 1 Mark for a well calculated value of equity. Max:1	1

		Mark	
	Calculation of P/E ratio	Award 1 Mark for a well calculated P/E ratio. Max:1 Mark	1
	Calculation of a value of firm using P/E ratio	Award 2 Marks for a well calculated value of equity. 1 Mark for P/E ratio adjustment and 1 Mark for value of equity	2
1.b		Award 1 Mark for each well calculated formula component. Max: 5Marks	5
	Altman Z score Model	Award 1 Mark for the conclusion. Max: 1 Mark	1
1.c	Negotiated merger	Award 1 Mark for a well explained negotiated merger and 1 Mark for each well explained characteristics Max: 4 Marks	5
1.d	Autocratic chief executive	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Failure to separate role of chairman and chief executive	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Passive board of directors	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Lack of balance of skills in management team, financial, legal, marketing	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Weak finance director	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Lack of 'management in depth	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Poor response to change	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	No budgetary control	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	No cash flow plans	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	No costing system	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	High gearing	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Overtrading	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	The big project	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Financial signs	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Creative accounting	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Non-financial signs	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Terminal signs	Award 0.5Marks for well allocated score. Max: 0.5Marks	0.5
	Analysis of Defects	Award 1Mark for a well explained defects analysis	1
	Analysis of mistakes	Award 1Mark for a well explained mistake analysis	1
	Analysis of symptoms and overall performance	Award 1.5 Marks for a well explained performance analysis	1.5
	Total Marks		**50**

Model Answer

(a) Briefing paper to management of Kiruhura & Brothers Investment Ltd

- **Maranyundo Ltd valuation using Discounted Cashflow Methods**

Description	**Year 0**	**Year 1**	**Year 2**	**Year3**	**Year 4**
		FRW'000	**FRW'000**	**FRW'000**	**FRW'000**
Sales-W1		1,015,000	1,103,813	749,588	1,290,922
Less: Cost of sales		771,400	838,898	569,687	981,100
Gross Profit		243,600	264,915	179,901	309,821
Selling and distribution expenses		10,050	10,260	10,510	10,740
Administration expenses		73,500	80,182	130,370	124,057
EBDIT		160,050	174,473	39,021	175,024
Depreciation and Amortization		22,000	22,000	22,000	22,000
Operating Profit		138,050	152,473	17,021	153,024
Tax on Operating Profit-30%		-41,415	-45,742	-5,106	-45,907
Net Operating Profit		96,635	106,731	11,915	107,117
Add: Depreciation & Amortization		22,000	22,000	22,000	22,000
Less: Capital Expenditure		-40,000	-40,000	-40,000	-40,000
Increase/Decrease in Working Capital	-101,500	-8,881	35,422	-54,133	
Free Cash Flow to Firm (FCFF)	-101,500	69754	124153	-60218	89,117
Discount Factor@ WACC-9%	1	0.917	0.842	0.772	0.708
Present Values of Free Cash Flow	(101,500)	63,964	104,537	(46,488)	63,095

Present Value of FCFF	83,608
Add: Terminal Value=**FCF**@ 2028*(1+g)/WACC-g	**1,093,642**
Total Value of the company	**1,177,250**
Less: Market Value of Debt	(360,000)
Value of Equity	**817,250,**

Workings

1. **Sales Revenues**

Description	**2025**	**2026**	**2027**	**2028**
Production and sales-Units	70	72.5	47.8	78.4
Selling Price per unit-FRW	14,500	15,225	15,682	16,466
Total Sales-FRW'000	**1,015,000**	**1,103,813**	**749,588**	**1,290,922**

2. **Working Capital**

Description	**2024**	**2025**	**2026**	**2027**	**2028**
		FRW'000	**FRW'000**	**FRW'000**	**FRW'000**
Sales		1,015,000	1,103,813	749,588	1,290,922
Working Capital		101,500	110,381	74,959	129,092
Changes in WC	(101,500)	(8,881)	35,422	(54,133)	

3. **Discount Rate:**

Calculation of WACC

Cost of Bank Loan

Kd = Interest *(1-t)
Kd =10%*(1-0.3)
Kd = 7%

Cost of Equity (Ke)

The Ke using CAPM formula will be given by:

Ke=Rf+Be(Rm-Rf)
Rf=5%
Rm-Rf=6%
Be=1.69

Ke=5%+(1.69*6%)
Ke=15.14%
Ke=15%

Cost of irredeemable debts

Nominal value	FRW100
Interest rate	5%
Tax rate	30%
Market Value (MV)	115.00
Annual after-tax interest	3.5
Kd=I*(1-t)/MV	**3%**

Cost of redeemable debts

The IRR method will be used

Nominal value	FRW 100
Interest rate	7%
Tax rate	30%
Market Value (MV)	95.45
Annual after-tax interest	4.9
Redemption value-10% Premium	110

Years	**Cashflows**	**DF@7%**	**PV**	**DF@10%**	**PV**
	FRW		**FRW**		**FRW**
0	-95.45	1	-95.45	1	-95.45
Year 1-6	4.9	4.767	23.3583	4.355	21.3395
Year6	110	0.666	73.26	0.564	62.04
Total PV			**1.17**		**-12.07**

The IRR will be given by: Lr+((NPV@Lr/(NPV@Lr-NPV@Hr))*(Hr-Lr)
IRR=7%+(1.17/(1.17+12.07)*(10%-7%)
Cost of redeemable debt **7.3%**

WAC Calculation-Using Market values

Source of finance	Amount-FRW	Weight	Cost of Capital	Total
	FRW'000	**%**	**%**	**%**
Equity share capital	450,000.00	38%	15	5.8
Irredeemable debts	230,000.00	20%	3	0.6
Redeemable debts	190,900.00	16%	7.3	1.2
Bank Loan	300,000.00	26%	7	1.8
Total	**1,170,900.00**			**9.3**

The WACC is approximately 9%

The proposed acquisition of Maranyundo Ltd is likely to affect both the business and financial risk of Kiruhura & Brothers Investment Ltd. This means that the combined business entity should be evaluated using a combination of the cashflows of the acquiring and target companies plus the cash flows resulting from any synergies net of acquisition costs.

- **Maranyundo Ltd valuation using Price Earning Ratio Methods**

Using the Price Earning Ratio Method, MPS=P/E*Total Earnings
Maranyundo Ltd is a private company which is also a market leader. The P/E of Muhima Ltd will be used a proxy company. The upward adjustment will be needed to the proxy P/E ratio.

P/E ratio=MPS/EPS
P/E ratio=FRW 1680/FRW 134.4
P/E ratio=12.5

The downward adjustment will be needed due to the fact that:

Where an unquoted company is being valued a “best if its” P/E can be obtained from similar quoted companies (same industry, similar size, gearing etc.). When an appropriate P/E has been selected this should then be reduced by 20% - 30% (Best practice) to recognize that shares in unquoted companies are riskier and less marketable than those of quoted companies

The P/E ratio can be adjusted between 20-30% Downward adjustment, as a result, 13.75-15. The total market price will be given by: P/E* total Earnings.

Total value of the company before best practice: FRW 23,765 *12.5 = FRW 297,062,500. The apply downward adjustment.

Total company value will be ranging: FRW 23,765 *12.5*80%= FRW 237,650,000 and

FRW 23,765 *12.5*70*=FRW 207,943,750.

(b) **Using Altman model for predicting bankruptcy, determine the Z-score index for Maranyundo Ltd and comment on likelihood of its potential failure**

The formula may be used to predict the probability that a firm will go into bankruptcy within two years.

- Z-scores are used to predict corporate defaults and an easy-to-calculate control measure for the financial distress status of companies in academic studies.
- The Z-score uses multiple corporate income and balance sheet values to measure the financial health of a company.

The Altman formula for prediction of bankruptcy is given as follows:

Z-score = 1.2X1 + 1.4X2 + 3.3X3 +0.6X4 + 1X5

X1, X2, X3, X4 and X5 are ratios as indicated below:

Where:

X1 = Working capital/Total assets
X2 = Retained earnings/Total assets
X3 = Earnings before interest and tax/Total assets
X4 = Market value of Equity/book value of Liabilities
X5 = Sales/Total assets

Variables	**Numerator**	**Denominator**	**Ratio**
	FRW'000	**FRW'000**	
X1	321,300	1,919,950	0.17
X2	489,500	1,919,950	0.25
X3	39,950	1,919,950	0.02
X4	725000	498,000	1.46
X5	256,000	1,919,950	0.13

The Z-Score will be given by: Z-score = 1.2*(0.17) + 1.4*(0.25) + 3.3*(0.02) +0.6*(1.46) + 1*(0.13)

Z Score=1.63

In this model, a Z-Score of 2.7 or more indicates non-failure and a Z-Score of 1.8 or less indicates failure. Therefore, Maranyundo Ltd Very high probability of failure (go bankrupt) in next two years.

Z-score Interpretation	**Probability of Failure**
Less than 1.8	**Very high probability of failure**
Greater than 1.81 but less than 2.99	Not sure (may or may not fail)
Greater than 3.0	Unlikely (financially very healthy)

(c) **Considering the fact that a negotiated merger failed, advise shareholders of Kiruhura & Brothers Investment Ltd what to do to ensure the successful acquisition of the target**

The negotiated merger is an arrangement which is sometimes called a "bear hug." The negotiated merger or bear hug is the preferred approach to a Merger and Acquisition since having both sides agree to the deal will go a long way to making the M & A work. In cases where resistance is expected from the target as it is for Kiruhura & Brothers Ltd and Maranyundo Ltd, Kiruhura & Brothers Ltd would acquire a partial interest in Maranyundo Ltd; sometimes referred to as a "toehold position." This toehold position puts pressure on the target to negotiate without sending the target into panic mode.

1) instead of only negotiating with the board, Kiruhura & Brothers could consider going directly to the shareholders of Maranyundo Ltd with a tender offer. This would give them a chance to convince owners directly, especially if they present a fair and transparent valuation.

In cases where Maranyundo Ltd is expected to strongly fight a takeover attempt, Kiruhura & Brothers Ltd will make a **tender offer** directly to the shareholders of the target, bypassing the target's management.

Tender offers are characterized by the following:

- The price offered is above the target's prevailing market price.
- The offer applies to a substantial, if not all, outstanding shares of stock.
- The offer is open for a limited period of time.
- The offer is made to the public shareholders of the target;
- Generally, tender offers are more expensive than negotiated M & A's due to the resistance of target management and the fact that the target is now "in play" and may attract other bidders.
- Partial offers as well as toehold positions are not as effective as a 100% acquisition of "any and all" outstanding shares. When an acquiring firm makes a 100% offer for the outstanding stock of the target, it is very difficult to turn this type of offer down.

2) they should carefully review why the deal collapsed. Was it because of valuation disagreements, cultural issues, or lack of trust between the two management teams? Understanding the real reason is important before making another move.

3) They must make the deal more attractive. This means offering a price or structure that balances cash with other options like share swaps or performance-based payments. They also need to show Maranyundo Ltd's management and employees what benefits the acquisition would bring, such as job security, growth opportunities, or access to new markets.

4) they should make sure financing is clear and reliable. Failed deals often happen when the seller doubts the buyer's financial capacity. By showing a strong and transparent funding plan, Kiruhura & Brothers will build confidence.

5) they must manage stakeholders better. Regulators, employees, and large shareholders should be engaged early to reduce resistance. Having a clear integration plan and time frame will also reassure everyone involved.

(d) **Using Argenti (A) Score Model, analyse the financial and non-financial performance of Maranyundo Ltd**

Considering the financial and non-financial condition of Amahoro Corporation, below is its Argenti (A) score.

Process	**Details**	**Score**
Defects	***Management weaknesses***	
	Autocratic chief executive	8
	Failure to separate role of chairman and chief executive	4
	Passive board of directors	2
	Lack of balance of skills in management team, financial, legal, marketing	4
	Weak finance director	0
	Lack of 'management in depth	1
	Poor response to change	10
	Subtotal	**29**
	Accounting deficiencies	
	No budgetary control	3
	No cash flow plans	0
	No costing system	3
	Subtotal	**6**
	Subtotal-Defects	**35**
Mistakes	High gearing	15

	Overtrading	15
	The big project & Absence of MIS & Distorted Reporting	15
	Subtotal	**45**
Symptoms	Financial signs & Liquidity Crisis	4
	Creative accounting	4
	• Non-financial signs & Rising employee turnover	3
	Terminal signs; that even external observers now recognize the company's struggles	1
	Subtotal	**8**
Total Score		**92**

Analysis of Defects: The total mark for defects is 45, and Argenti suggests that a mark of 10 or less is satisfactory. Amahoro Corporation has scored 35 which is 29 for management deficiencies and 6 for accounting deficiencies. As the defect score is above the minimum required of 10, this shows that Amahoro Corporation has defects in its management and accounting which is more likely to increase the number of mistakes which may subsequently lead to the obvious failure symptoms. As it is shown in the A score, the company's management is weak, then Argenti suggests that it will inevitably make mistakes which may not become evident in the form of symptoms for a long period of time.

Analysis of mistakes: The mistakes are so obvious in Amahoro Corporation. These mistakes were resulted from many weaknesses in management and accounting areas which scored 35 while the minimum is normally a score of 10. The pass mark of mistakes section is 15 while in our case, the company has 45, meaning it failed to control any mistakes from gearing, overtrading and undertaking high risky and big projects. This shows that the company has much mistakes. This high score in the mistakes section may suggest an incapable management.

Analysis of symptoms and overall performance: The failure sequence is assumed to take many years, possibly five or more the suggested overall pass mark is a maximum of 25 and Amahoro Corporation has more than three and a half times (92). This shows that the company has many defects, mistakes and the symptoms (financial, non-financial and terminal signs) are so obvious.

As was previously said, the overall pass mark is 25. As Amahoro Corporation has scored above this 25, which is 92. This shows many of the signs preceding failure and should therefore cause concern, **therefore Amahoro Corporation is at risk.**

SECTION B

QUESTION TWO

Marking Guide

Q2(a)	Description	Marks	Total
	Number of shares to be issued	0.5	
	Cash raised	0.5	
	Market value before issue	0.5	
	Market value after issue	0.5	
	Market price per share after issue	1	
	Interest savings	0.5	
	After tax interest savings	0.5	
	Total earnings after issue	0.5	
	EPS after issue	0.5	
	PE Ratio	0.5	
	MPS after Issue using PE ratio	1	
	Net increase in wealth	1	
	Conclusion	0.5	
	Maximum of 8 marks		**8**
b(i)	Calculation of amount to be funded by retained earning	1	
	Calculation of Dividend: maximum of 2 marks	2	
	Calculation of Payout Ratio: maximum of 2 marks	2	
	Maximum of 5 marks		**5**
(ii)	Type of Dividend Policy, 1.5 marks for right choice	1.5	
	Award 1.5 marks for each well explained reasons	4.5	
	Maximum of 6 marks		**6**
(iii)	Award 1.5 mark for each point raised and explanation, **Maximum of 6 marks**		**6**
	Grand Total		**25**

Model Answer

a)

Issue price	680
terms	1 for 8
Number of shares in issue issue	200,000
New shares to be issued =(200,000/8)	25,000
Cash raised = 25,000 x 680 = FRW17,000,000	17,000,000
Compute TERP using	
Total number of shares after issue	225,000
Market value before rite issue (MPS x No. of shares (200,000 x 850)	170,000,000
Market value after rites issue(value before issue + cash raised) =(170,000,000+17,000,000)	187,000,000
Market price per share before issue	850
MPS after issue (TERP) = 187,000,000/225000	831
Or compute TERP using	
Total value of shares before =8x850	6,800
value of new share	680
Total of 9 sires after rite issue	7,480
Value per share	831
Effect on earnings	
Value of load redeemed = 17,000,000	17,000,000
interest of saving at = 17,000,000 x 15%	2,550,000
After tax savings interest x 1-t = (2,550 x0.7)	1,785,000
Current earning	8,400,000
Total Earnings after rights Issue	10,185,000
Total no, of shares	225,000
EPS PAT/No. of sires (10,185,000/225,000)	45
EPS before issue	42
PE ratio before rites MPS/EPS = 850/42	20
Assumed to be not to case	
MPS after issue using PE ratio (45x20)	**914**
Shareholders have experienced a capital gain of 914-850	64

Conclusion: shareholders will theoretically support the rights issue

- Increases EPS from FRW42 to FRW45
- Increases share price from FRW850 to FRW914 With capital gain of 64 per share

b)

i) Calculate dividend amount and Dividend payout ratio

Residual Theory states that retain sufficient funds until all profitable have been funded then the balance to be paid as dividends.

1. **Calculate amount to be funded by retained earning**
   Only portion of Equity (65%) will be finance by retained earnings: 0.65×15=FRW 9.75 million

2. **Using Residual Theory calculate dividends amount**
   Earnings available for dividends = Earnings – Capital spending dividend payout ratio.
   Dividend Amount = FRW25 million – FRW15 million*65% =FRW15.25 million;

3. **Dividend Payout Ratio**

Payout ratio = (Dividends / Earnings) × 100
Dividend payout: FRW15.25 million/FRW25 million = 61%

ii) Dividend Policy

Stable Dividend Policy

Argument for Stable Dividend Policy

1. Beta Co's current dividend policy would be classified as stable because it has paid the same amount for the past three years regardless of earnings volatility.
2. Residual dividend policy is based on paying out the full amount of internally generated funds after capital expenditures. It is rarely used in practice because it typically results in highly volatile dividend payments
3. Constant dividend payout ratio policy pays a fixed percentage of earnings, and the dividend will rise when earnings increase.

iii) Advantage of global Finance integration in capital raising by RUBAVU ltd.

1. Global integration will help free movement of capital and this will help RUBAVU ltd to raise money quickly and cheaply.
2. Global integrations will broaden financial market which helps corporations including RUBAVU ltd to float shares in as source of financing.
3. Global integrations will increase capital availability through both foreign direct foreign investment or through intermediaries which boast investment available for corporations including RUBAVU ltd.
4. Global integrations will attract more foreign lenders to present on Rwandan market or RUBAVU ltd can access foreign financing which ca be cheaper than domestic lending

QUESTION THREE

Marking Guide

Description	**Maximum Marks**
Irembo Co (IC)	
a) i) **Computations under Forward contract**	1
Computations under early payment	
Computation of amount to pay in FRW	1
Computation of interest rate	0.5
Computation of amount to pay back	1
Maximum marks	3.5
Computations under money market hedge	
Computation of interest rate to use	0.5
Computation of amount to Invest in Tshs	1
Convert into FRW at spot rate	1
Computation of amount to borrow in FRW	1
Computation of amount to to pay in FRW with interest	1
Decision on the evaluation of ways used	1
Maximum marks	5.5
ii) Methods of hedging currency risks (1 marks each, max 4)	4
iii) Award 1 mark for Explanation of currency swaps and 1 mark for example provided	2
iv) Key financial risks facing IC	
Identification of financial risk (0.5 marks each, max 2.5)	2.5
Explanation and relating to case study (0.5 marks each, max 2.5)	2.5
Maximum marks	**5**
b) Calculation of Net Exposure per Currency: Award 0.5 Marks for each well calculated net exposure. Max: 1.5 Marks	1.5
Conversion Net Exposure to FRW using Forward: Award 0.5 Marks for each well converted net exposure. Max: 1.5 Marks	1.5
Net FRW Position After Netting: Net FRW Position After Netting	2
Maximum marks	**5**
Grand total	**25**

Model answer

a)

i) Ways of hedging

Method 1 Forward contract

Buy 30,000,000 Tanzanian 3 months forward

The cost in Rwandan Francs at the forward rate is 30,000,000 Tshs/2.1465 = **FRW 13,976,240** which will be payable in three months' time.

Method 2 Immediate payment/early payment

Pay early at the current exchange rate (since the forward rates show that the FRW is expected to depreciate against the Tanzanian shillings).

The Rwandan cost will be 30,000,000 Tshs/2.1515 = FRW 13,943,760 payable now.

In case IC pays in three months' time, and borrows the money for three months at an interest rate of 15.5% + 3.0% = 18.5%

IC will pay back 13,943,760 * (1+18.5%/4) = **FRW 14,588,659**

Method 3 Money market hedge

Buy Tanzanian Shillings to invest at 17.0% - 0.35% = 16.65% per annum for three months to provide 30,000,000 Tshs in 3 months' time.

Step1: IC will need to Invest in Tanzania today $\frac{30,000,000}{1+\frac{0.1665}{4}}$ = **28,801,152 Tshs**

Step 2: The spot rate today is $\frac{28,801,152}{2.1515}$ = **FRW 13,386,545**

Step 3: Borrow in Local bank at Rwanda (FRW)= **FRW 13,386,545**

Step 4: In case this amount is borrowed today at the Rwandan interest rate, the amount repayable in three months' time would be:13,386,545* (1+18.5%/4) = **FRW 14,005,672**

Decision: Forward contract is the cheapest hedge among the three policies evaluated.

ii) Methods of hedging against foreign currency risks

Financial futures market

These offer purchase or sale of a standard amount of a limited number of foreign currencies at a specified time and price.

They may be considered as an alternative to the forward foreign exchange market, but are less flexible and require initial margin and thereafter variation margin may have to be paid dependent upon subsequent movements in exchange rates.

Foreign currency options

A currency option gives the holder the right (but not the obligation) to buy or sell an underlying currency at an agreed exchange rate (known as the "strike price"). Depending on the terms, the option can be exercisable on a single date at expiry (European Option) or over a period of time on any day (American Option).

Option is the key word because this particular instrument offers a good deal of flexibility. An option is purchased for an up-front payment, known as a Premium (usually a flat percentage fee of the amount to be covered). Thereafter, the holder exercises the option if it is in his interest to do so, or allows it to lapse if the transaction can be carried out at a more favourable rate in the spot market.

A Call Option is the right to buy the underlying currency. A Put Option is the right to sell the underlying currency.

Other methods

Forward exchange contracts

A Forward Exchange Contract is an agreement between two parties to exchange (buy/sell) one currency for another at some future date. The exchange rate, amount involved, and delivery date are agreed up-front but funds do not change hands until delivery date.

It is a straightforward contract and one of the most commonly used risk hedging mechanisms.

Money market hedging

This involves the company borrowing funds in one currency and exchanging the proceeds for another currency, often with reinvestment in the second currency.

The cost of the money market hedge is directly determined by the interest rate differential between the two countries concerned. This is in contrast to the cost of a forward market hedge, which depends upon the forward rates quoted by the bank.

iii) Currency swaps

In a currency swap two counterparties exchange principal amounts of different currencies, usually at the prevailing spot exchange rate. On the maturity of the swap the principal amounts will be re-exchanged at the same exchange rate. Over the term of the swap the counterparties make periodic exchanges of fixed rate interest in the different currencies. Companies enter into currency swaps because it allows them to exploit their relative strength (comparative advantage) in different markets and reduce each party's funding costs.

Example : IC swaps FRW debt for TZS debt with a Tanzanian company needing FRW.

iv) Key financial risks

Foreign Exchange Risk

IC faces currency fluctuation risk between the Tanzanian shilling (TZS) and Rwandan franc (FRW). If the TZS strengthens before payment, IC will need more FRW to settle the 30 million TZS invoice, increasing costs.

Interest Rate Risk

The company's borrowing costs are tied to high base rates (17% in Tanzania, 15.5% in Rwanda). If rates rise further, IC's loans (priced at base + 3%) will become more expensive, squeezing margins.

Liquidity Risk

Paying suppliers early (lead payment) requires 13.9 million FRW upfront, which may strain IC's cash reserves. If funds are tied up, the company could face short-term cash shortages for other operations.

Counterparty Risk

IC depends on Tanzanian suppliers to deliver devices as agreed. If the supplier defaults or delays delivery, IC may still owe payment, incurring losses.

Country Risk

Operating in Other country exposes IC to political instability, regulatory changes, or capital controls that could disrupt payments or supply chains. For example, sudden forex restrictions might prevent IC from converting FRW to TZS.

b) Use netting to determine the overall net inflow or outflow in Rwandan Francs (FRW) using the 3-month forward rates

Step 1: Calculate Net Exposure per Currency

Currency	Receivables	Payables	Net Exposure
USD	500,000	350,000	**+150,000** (net inflow)
Ksh	25,000,000	18,000,000	**+7,000,000** (net inflow)
EUR	400,000	550,000	**–150,000** (net outflow)

Step 2: Convert Net Exposure to FRW using Forward Rates

USD Inflow: 150,000 × 1,190 = FRW 178,500,000
Ksh Inflow: 7,000,000 × 8.95 = FRW 62,650,000
EUR Outflow: 150,000 × 1,300 = FRW 195,000,000

Step 3: Net FRW Position After Netting

Total inflows=FRW 178.5m +FRW 62.65m=FRW 241.15 million
Total outflows=FRW 195m
Net FRW Inflow=FRW 241.15m–FRW 195m=**FRW 46.15 million**

QUESTION FOUR

Marking Guide

SN	Question details	Marks allocation	Marks
4. a	**NPV of Buying option**		
	Initial Investment	Award 0.5 Marks for initial investment	0.5
	Professional fees	Award 0.5 Marks for each well calculated professional fees. Max: 2.5 Marks	2.5
	Tax benefits on Professions fees and on Capital allowance	Award 0.5 Marks for each well calculated tax benefit. Max: 2.5 Marks	2.5
	Residual value	Award 0.5Marks for residual value	0.5
	Net cashflows	Do not award any mark	0
	Discount rate	Award 0.5Marksfor the correct discount rate	0.5
	Present values	Do not award any mark	0
	NPV cost of Buying	Award 0.5 Marks for well calculated NPV of buying	0.5
	NPV of Leasing option		

	Lease rentals	Award 0.5 Marks for each well calculated lease rentals. Max: 2.5 Marks	2.5
	Tax savings	Award 0.5 Marks for each well calculated tax benefit. Max: 2.5 Marks	2.5
	Total Cashflows	Do not award any mark	0
	Discount Factors	Do not award any mark	0
	Present Values	Do not award any mark	0
	NPV cost of Leasing	Award 0.5 Marks for well calculated NPV of leasing	0.5
	Conclusion	Award 0.5 Marks for the correct conclusion	0.5
4. b	**NPV of buying calculation**		
	PV of Cashflow	Award 0.5 Marks for each well calculated cost saving. Max: 3.5marks	3.5
	NPV	Award 0.5 Marks for well calculated NPV	0.5
	NPV Conclusion	Conclusion	1
4. c	**Replacement cycle 2 years**		
	Initial investment	Award 0.5 Marks for initial investment	0.5
	Maintenance	Award 0.5Marks for well calculated maintenance costs. Max: 1 Mark	1
	Resale Value	Award 0.5 Marks for resale value	0.5
	NPV	Award 0.5 Marks for a well calculated NPV	0.5
	EAC	Award 1 Mark for well calculated EAC	0.5
	Replacement cycle 3 years		
	Initial investment	Award 0.5 Marks for initial investment	0.5
	Maintenance	Award 0.5Marks for well calculated maintenance costs. Max: 1.5 Mark	1.5
	Resale Value	Award 0.5 Marks for resale value	0.5
	NPV	Award 0.5 Marks for a well calculated NPV	0.5
	EAC	Award 1 Mark for well calculated EAC	0.5
	Conclusion	Award 0.5 Marks for well articulated conclusion	0.5
	Total		**25**

Model Answer

a) Based on financing cash flows only, calculate and determine whether MIC Ltd should lease or buy the new equipment

The Net Present Value of Buyin

Details	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
A professional License fees 5%		-22,000,000	-23,100,000	-24,255,000	-25,467,750	-26,741,138	
Tax Saving on Professional Fees at 30% one year in arrears			6,600,000	6,930,000	7,276,500	7,640,325	8,022,341
Tax saving on capital allowance			7,500,000	5,625,000	4,218,750	3,164,063	3,492,188
Total tax saving			14,100,000	12,555,000	11,495,250	10,804,388	11,514,529
Initial investment	-100,000,000						
Scrap Value						20,000,000	
Cashflow	-100,000,000	-22,000,000	-9,000,000	-11,700,000	-13,972,500	4,063,250	11,514,529
Borrowing Rate After Tax 9%	1	0.917	0.842	0.772	0.708	0.645	0.596
PV of Cashflow	-100,000,000	-20,174,000	-7,578,000	-9,032,400	-9,892,530	2,620,796	6,862,659
TOTAL PV Cost Cash flow							**-137,193,475**

The Net Present Value of Leasing

Details	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Annual Lease Rentals	-52,000,000	-52,000,000	-52,000,000	-52,000,000	-52,000,000	-	-
Tax at 30% one year in arrears			15,600,000	15,600,000	15,600,000	15,600,000	15,600,000
Cashflow	-52,000,000	-52,000,000	-36,400,000	-36,400,000	-36,400,000	15,600,000	15,600,000
Borrowing Rate After Tax 9%	1	0.917	0.842	0.772	0.708	0.645	0.596
PV of Cashflow	-52,000,000	-47,684,000	-30,648,800	-28,100,800	-25,771,200	10,062,000	9,297,600
TOTAL PV Cost Cash flow							**-164,845,200**

Conclusion: Based on financial consideration, buying option would be a better option

b) Using a nominal terms approach, calculate the net present value of buying the new equipment and advise whether MIC Ltd should undertake the proposed investment.

Details	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Expected Production Volume		60,000	75,000	95,000	80,000	80,000	
Reduction in Operating Cost Per Unit (5%)	580	609	639	671	705	740	
Total Expected Operating Cost Saving		36,540,000	47,925,000	63,745,000	56,400,000	59,200,000	
A professional License fees (5%)		-22,000,000	-23,100,000	-24,255,000	-25,467,750	-26,741,138	
Net Additional cashflow		14,540,000	24,825,000	39,490,000	30,932,250	32,458,863	
Tax at 30% one year in arrears			-4,362,000	-7,447,500	-11,847,000	-9,279,675	-9,737,659
Tax saving from capital allowance			7,500,000	5,625,000	4,218,750	3,164,063	3,492,188
Initial investement	-100,000,000						
Scrap Value						20,000,000	
Cashflow	-100,000,000	14,540,000	27,963,000	37,667,500	23,304,000	46,343,250	-6,245,471
Discounting Factor @8.4%	1	0.923	0.851	0.785	0.724	0.668	0.616
PV of Cashflow	-100,000,000	13,420,420	23,796,513	29,568,988	16,872,096	30,957,291	-3,847,210
Net Present Value of Cash flow							**10,768,097**

As the NPV is Positive, the project is financially feasible.

Working

Working of Tax Saving	Cost / reducing Balance	Deprection Rate	Deprectiation	Tax rate	Tax saving	Time (for one Year in Arrears)
Year 1	100,000,000	25%	25,000,000	30%	7,500,000	Year 2
Year 2	75,000,000	25%	18,750,000	30%	5,625,000	year 3
Year 3	56,250,000	25%	14,062,500	30%	4,218,750	Year 4
Year 4	42,187,500	25%	10,546,875	30%	3,164,063	Year 5
Year 5	31,640,625	25%	11,640,625	30%	3,492,188	Year 6
Scrap value	(20,000,000)					
Balancing Figure	**11,640,625**					

c) Calculate the preferred replacement policy for the machine in a choice between a two-year or three-year replacement cycle

Two years cycle for replacement option

Details	Year 0	Year 1	Year 2
	FRW'million	FRW'million	FRW'million
Initial investment	(490.00)		
Maintenance		(10.90)	(19.01)
Resale Value			343.98
Net total costs	(490.00)	(10.90)	324.97
Discount factors	1.000	0.877	0.769
Present values	-490.00	-9.56	250.05
NPV (A)	-249.51		
Annuity factor (B)	1.647		
EAC (A/B)	**(151.49)**		

Three years cycle for replacement

Details	Year 0	Year 1	Year 2	Year 3
	FRW'million	FRW'million	FRW'million	
Initial investment	(490.00)			
Maintenance		(10.90)	(19.01)	-38.85087
Resale Value				259.308
Net total costs	(490.00)	(10.90)	(19.01)	220.46
Discount factors	1.000	0.877	0.769	0.674971516
Present values	-490.00	-9.56	-14.63	148.80
NPV (A)	-365.39			
Annuity factor (B)	2.322			
EAC (A/B)	(157.36)			

Conclusion: Considering that the two years period replacement cycle has the lower NPV of costs, Mataba Investment Co (MIC) Ltd has to replace its equipment every two years.

Working

Working of Maintenance Cost				
		Year 1	Year 2	Year3
Maintenance Cost at Current Term		10	16	30
Inflation rate per Year	9%	(1+9%)^1	(1+9%)^2	(1+9%)^3
Inflation rate per Year	9%	1.09	1.1881	1.295029
Maintenance Cost at Nominal Terms		10.9	19.0	39

Working of Resale Value				
		Year 1	Year 2	Year3
Maintenance Cost at Current Term			312	224
Inflation rate per Year	5%		(1+5%)^2	(1+5%)^3
Inflation rate per Year	5%		1.1025	1.157625
Maintenance Cost at Nominal Terms			344	259

End of Model Answers and Marking Guide.