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**CERTIFIED PUBLIC ACCOUNTANTS**  
**ADVANCED LEVEL 2 EXAMINATIONS**  
**A2.1: STRATEGIC CORPORATE FINANCE**  
**DATE: WEDNESDAY 28, AUGUST 2024**

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**MARKING GUIDE & MODEL ANSWERS**

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## QUESTION ONE

### Marking Guide

Qn 1	Description	Marks	Total Marks
a	<b>Computation of cash flows in UGX</b>		
	Sales revenue (0.5 Marks each, maximum 2.5 Marks)	2.5	<b>21</b>
	Variable cost (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Contribution (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Depreciation (1 Mark for formula and 1 Mark for computation)	2.0	
	Profit before tax (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Profit after tax (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Working capital treatment (0.5 Marks each, maximum 3.0 Marks)	3.0	
	Scrape value treatment	0.5	
	Cash flows in UGX (0.5 Marks each, maximum 3.0 Marks)	3.0	
B	<b>Computation of NPV in FRW</b>		
	Identifying the correct exchange rates (0.5 Marks each, maximum 3.0 Marks)	3.0	<b>14</b>
	Cash flows in FRW (0.5 Marks each, maximum 3.0 Marks)	3.0	
	Identifying the correct discount factors (0.5 Marks each, maximum 3.0 Marks)	3.0	
	Present values (0.5 Marks each, maximum 3.0 Marks)	3.0	
	Net Present Value in FRW	1.0	
	Advise (0.5Marks for decision and 0.5Marks for the reason)	1.0	
C	Risks involved in international investments (1 Mark each, maximum 2 Marks)		<b>2</b>
D	Methods of hedging forex risks (1 Mark each, maximum 3.0 Marks)		<b>3</b>
E	Difference between floating exchange and adjusted peg system (1 Mark each, maximum 2.0 Marks)		<b>2</b>
F	Foreign exchange risk exposures (2 Marks each, maximum 3.0 Marks)		<b>6</b>
G	Difference between lagged payment and lead payment (1 Mark each, maximum 2.0 Marks)		<b>2</b>
	<b>Total Marks</b>		<b>50</b>

## Model Answer

### a) Computation of cash flows in UGX

#### Model Answer

(All amounts in UGX, millions)						
Year	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Sales revenue (W1)		4,357	5,604	7,032	7,974	8,069
Less: variable cost (W2)		(630)	(820)	(1,042)	(1,196)	(1,225)
<b>Contribution</b>		<b>3,727</b>	<b>4,784</b>	<b>5,990</b>	<b>6,778</b>	<b>6,844</b>
Less: fixed cost		(100)	(100)	(100)	(100)	(100)
Operating profit		3,627	4,684	5,890	6,678	6,744
Less: depreciation (W3)		(400)	(400)	(400)	(400)	(400)
<b>Profit before tax</b>		<b>3,227</b>	<b>4,284</b>	<b>5,490</b>	<b>6,278</b>	<b>6,344</b>
Tax rate (40%)		(1,291)	(1,714)	(2,196)	(2,511)	(2,538)
<b>Profit after Tax</b>		<b>1,936</b>	<b>2,570</b>	<b>3,294</b>	<b>3,767</b>	<b>3,806</b>
Add back depreciation		400	400	400	400	400
Initial Investment	(2,430)					
Working Capital (W4)	(1,350)	(68)	(71)	(74)	(78)	1,641
Scrap Value						431
<b>Cash flow (UGX)</b>	<b>(3,780)</b>	<b>2,268</b>	<b>2,899</b>	<b>3,620</b>	<b>4,089</b>	<b>6,278</b>

**b) Computation of NPV in FRW**

<b>Cash flows (UGX)</b>		<b>(3,780)</b>	<b>2,268</b>	<b>2,899</b>	<b>3,620</b>	<b>4,089</b>	<b>6,278</b>
Exchange rate UGX/FRW1		2.70	2.79	2.81	2.83	2.85	2.87
Cash flows (FRW)		(1,400)	813	1,032	1,279	1,435	2,188
Discount Factor (10%)		1.000	0.909	0.826	0.751	0.683	0.621
<b>PV of Cash flow (FRW)</b>		<b>(1,400)</b>	<b>739</b>	<b>852</b>	<b>961</b>	<b>980</b>	<b>1,358</b>
<b>Net Present Value</b>	<b>3,490</b>						

**Advice:** UNGUKA Co Ltd should proceed with investment as it has a positive net present value.

**Workings**

Working W1 on sales						
		Year 1	Year 2	Year 3	Year 4	Year 5
Selling price KES/unit	300					
Inflation 3%	0.03					
Units		500,000	620,000	750,000	820,000	800,000
Inflated price per unit (KES/Unit)		309	318	328	338	348
Given exchange rates (UGX/KES1)		28.20	28.40	28.60	28.80	29.00
Sales revenue in UGX		4,356,900,000	5,604,098,160	7,031,698,245	7,974,004,817	8,068,547,557

Working W2 on variable costs

		Year 1	Year 2	Year 3	Year 4	Year 5
Variable cost UGX/unit	1,200					
Inflation 5%	0.05					
Units		500,000	620,000	750,000	820,000	800,000
Inflated variable cost per unit (UGX/Unit)		1,260	1,323	1,389	1,459	1,532
Variable cost UGX		630,000,000	820,260,000	1,041,862,500	1,196,058,150	1,225,230,300

Working W3 on depreciation

Spot rate 2.70

Future rate at year 5 2.87

Depreciation = (initial cost - scrape value)/useful life

	FRW	UGX
Cost	900,000,000	2,430,000,000
Scrape Value	150,000,000	430,500,000
Useful life	5	5
Depreciation	150,000,000	399,900,000

Working W4 on working capital

First change the working capital into UGX at the spot rate

FRW 500,000,000

UGX 1,350,000,000

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Working Capital		(1,350,000,000)	(1,350,000,000)	(1,350,000,000)	(1,350,000,000)	(1,350,000,000)
Working capital changes	(1,350,000,000)	(67,500,000)	(70,875,000)	(74,418,750)	(78,139,688)	1,640,933,438

## **c) Risks involved in international investments**

### **Political risks**

UNGUKA's subsidiary may face political risks such as changes in the government regulations, trade policies, taxation, access to the market through operational and work permit requirements. The country is not politically stable the operations of a company like BIBAWO Co Ltd may be disrupted.

### **Market risks**

Macroeconomic factors such as changes in interest rates, inflation and currency devaluation may affect foreign companies. Protectionism may also affect the performance of foreign firms in that there may be trade barriers through tariffs and other non – tariff barriers.

### **Financial risks**

These risks may arise from currency and interest rate fluctuations, inaccessibility of finance in the host country. Credit risks such as trade credit and credit ratings of companies in the country. All these may affect the performance of companies like BIBAWO.

### **Operational risks**

These risks may arise from natural disasters, strikes, break-down of machines, pandemics, logistical problems, inability to maintain quality under high completion and cyber-attacks. All these factors may disrupt production and distribution of BIBAWO products.

### **Legal risks**

Foreign firms may fail to adhere to the regulations of the host country such as labour, environmental and consumer protection laws. Disputes that may arise from failure to honor contractual obligations, intellectual property rights issues and violation of other laws of the land.

Other risks may include cultural, reputational, foreign exchange risks, economic etc.

## **d) Methods of hedging foreign exchange risks**

### **Forward Exchange Contracts**

A forward contract is where a company agrees to buy or sell a given amount of foreign currency at an agreed rate at an agreed date in the future. This is a very common method of managing FX risk.

This eliminates risk. If a company with foreign currency exposure does not hedge against the risk of FX rate movements, capital markets will perceive the company as having a higher risk profile than might otherwise be the case and the company's cost of capital will

increase. Special types of forward contracts called “Option dated forward contracts” are available.

### **Foreign Currency Option**

This is similar to a forward contract except that the holder has the option either to exercise the option to buy/sell the foreign currency or allow it to lapse.

The FX option has the obvious advantage over a forward contract of not having to be exercised. The disadvantage is that a premium is charged on options. The premium is usually a fixed percentage of the amount of currency to be bought/sold.

### **Money Market Cover**

If a company is contracted to purchase from, say, the Ugandan Shillings for a fixed price at some date in the future, it is exposed to a potential loss if the Ugandan Shilling appreciates against the Rwandan Francs in the intervening period. Therefore, to balance out this risk, a company can borrow money in Rwandan Francs and use it to purchase in Shillings. If the Shilling appreciates the gain will cancel out the loss due to the higher costs of paying the Ugandan company.

### **Foreign Currency Invoicing**

Another method that a company can use to hedge against FX fluctuations is to arrange for its customers to pay in its domestic currency and its suppliers to invoice it in its domestic currency.

### **Netting**

If a Rwandan company buys and sells in Ugandan Shillings, then the effects on the profitability of the company are offset in terms of both increased/decreased costs and increased/decreased revenues.

### **Matching**

This method involves trying to ensure that the value of a company’s foreign currency assets and liabilities are matched. E.g. If a company was investing in property in the Uganda just like UNGUKA Co Ltd, it may choose to borrow the funds in Shillings. If the Rwandan Franc value of the property was to rise/fall as a result of a move in FX rates, the Rwandan Franc value of the loan would rise/fall by an equivalent amount.

## **e) Difference between floating exchange rate and adjustable peg system**

Floating exchange rates are either free floating or managed floating. Under a free-floating FX system, governments do not intervene in FX rates. Under a managed floating FX

system, governments will only intervene when the currency goes above or below a certain value.

### **While**

Adjustable peg system is a system where on certain occasions, the government will move to revalue/ devalue the currency to what it believes is the real value of the currency (i.e. the price that the currency would be if the exchange rates were floating).

## **f) Foreign exchange risk exposures**

### **1. Transaction Risk**

This risk exists because of the time lag between the initiation of the transaction and the actual payment/receipt of the foreign currency, allowing, potentially, the occurrence of adverse exchange rate movements in the course of normal international trading transactions.

Transaction risk is the risk of an exchange rate changing between the transaction date and the subsequent settlement date, i.e. it is the gain or loss arising on conversion. This type of risk is primarily associated with imports and exports. If a company exports goods on credit, then it has a figure for receivables in its accounts. The amount it will finally receive depends on the foreign exchange movement from the transaction date to the settlement date.

Transaction risk has a potential impact on the cash flows of a company. The degree of exposure involved is dependent on:

- o the size of the transaction if it is material
- o the time period before the expected cash flows occurs
- o the anticipated volatility of the exchange rates

### **2. Translation Risk**

Translation risk is an accounting risk rather than a cash-based one. It arises when the reported performance of an overseas subsidiary is translated into the home-based currency terms in order that they can be consolidated into the group's financial statements and is distorted because of a change in exchange rates.

The risk of profits and losses arising from the conversion of foreign currency assets and liabilities from one Balance Sheet date to the next. Translation losses can result, for example, from restating the book value of a foreign subsidiary's assets at the exchange rate on the statement of financial position date.



Unless managers believe that the company's share price will fall as a result of showing a translation exposure loss in the company's accounts, translation exposure will not normally be hedged. The company's share price, in an efficient market, should only react to exposure that is likely to have an impact on cash flows.

In the case of UNGUKA Co Ltd, if the subsidiary company were established, a variation in the Ugandan Shillings to Rwandan Francs exchange rate would cause a variation in the reported valuation of the subsidiary. For example, if the Ugandan shillings strengthened against the Rwandan Francs, the reported value of the subsidiary would decrease.

### 3. Economic Risk

This exists where there is the possibility that the value of the company will change due to unexpected changes in exchange rates. Unexpected currency fluctuations can affect both the future cash flows and their riskiness. Both are likely to result in a change in the value of the company.

Economic risk is the variation in the value of the business (i.e. the present value of future cash flows) due to unexpected changes in exchange rates. It has a long-term impact.

For an export company it could occur because:

- The home currency strengthens against the currency in which it trades
- A competitor's home currency weakens against the currency in which it trades.

UNGUKA Co Ltd would face problems if the Ugandan Shillings strengthens against the Rwandan Francs. The company would then have to consider either decreasing the profit margin on products, or increasing the sales price to maintain profit levels. The second option could result in a loss of sales. The likelihood of this would be increased if UNGUKA Co Ltd faced more competition from local companies who are not exposed to the same risk.

#### g) Difference between lagged payment and lead payment

Lagged payment is made where a company is expecting the foreign currency to weaken against the domestic currency. Therefore, by waiting a while before making payment, the company can buy the required amount of foreign currency cheaper. The above technique is usually only used in relation to payments. It is not usually possible to time receipts.

While

Lead payment is the payment which is done immediately before the currency strengthens against the home currency. For example, if a Rwandan company expects, say, the Ugandan Shillings to strengthen against the Franc over the coming month, it may decide to pay its Ugandan supplier immediately before dollars get too expensive. This may be done even if payment isn't due until the end of the month.

## QUESTION TWO

### Marking Guide

Question 2	Description	Marks	Total Marks
a	<b>Corporate Social Responsibility (CSR)</b>		
	CSR activities (1 Mark each, maximum 5 Marks)	5.0	<b>10</b>
	CSR issues (1 Mark each, maximum 5 Marks)	5.0	
b	<b>Efficient Market Hypothesis</b>		
	Type of efficient market hypothesis (2.0 Marks each, maximum 6.0 Marks)	6.0	<b>7</b>
	Form of information efficiency	1.0	
c	<b>Business Plan</b>		
	Any 8 key features of a business plan (1 Mark each, maximum 8.0 Marks)		<b>8</b>
	<b>Total Marks</b>		<b>25</b>

### Model Answers

#### a) CSR Activities

##### Community development program

KAGL built schools and provide scholastic materials for the children of the poor farmers in the community for free.

##### Production

KAGL provided co-operative farmers with seeds, fertilizers, pesticides and train them on how to do irrigation to ensure increase int the production of maize and rice.

##### Employee welfare

KAGL paid its employees a reasonable, created favorable working conditions, made contribution to their health insurances and enhanced career development for well performing employees.

##### Environmental Protection

KAGL devoted itself to help the community in construction of terraces to reduce soil erosion, use technologies that are eco-friendly and participate in planting trees.

##### Customer Satisfaction

KAGL's aims at producing quality products (maize and rice) and selling them at an affordable price to the community.

## **CSR Issues**

1. The company employs school children during harvesting time and this has led to high rate of drop outs.
2. KAGL caused pollution of the environment as result of desire for massive production of the maize and rice.
3. The company has evicted some of the residents from their land at an un fair compensation.
4. The water and wastes from the factory attracted mosquitoes in the vicinity hence causing malaria.
5. Suppliers were exploited by being paid low prices compared to the sales price of the company hence making huge profits.

## **b) Type of efficient market hypothesis**

### **Allocative Efficiency**

A market is allocatively efficient if it directs savings towards the most efficient productive enterprise or project. In this situation, the most efficient enterprises will find it easier to raise funds and economic prosperity for the whole economy should result. Allocative efficiency will be at its optimal level if there is no alternative allocation of funds channeled from savings that would result in higher economic prosperity. To be allocatively efficient, the market should have fewer financial intermediaries such that funds are allocated directly from savers to users, therefore financial disintermediation should be encouraged.

### **Operational Efficiency**

Operational Efficiency This concept relates to the cost, to the borrower and lender, of doing business in a particular market. The greater the transaction cost, the greater the cost of using financial market and therefore the lower the operational efficiency. Transaction cost is kept as low as possible where there is open competition between broker and other market participants. For a market to be operationally efficient, therefore, we need to have enough market makers who are able to play continuously

### **Information Efficiency**

This reflects the extent to which the information regarding the future prospect of a security is reflected in its current price. If all known (public information) is reflected in the security price, then investing in securities becomes a fair game. All investors have the same chances mainly because all the information that can be known is already reflected in share prices. Information efficiency is important in financial management because it means that the effect of management decision will quickly and accurately be reflected in security prices. Efficient market hypothesis relates to information processing efficiency. It argues that stock markets are efficient such that information is reflected in share prices accurately and rapidly.

## **Forms of information efficiency**

### **Weak form level of efficiency**

This level states that share prices fully reflect information in historic share price movement and patterns (past information/historic information). If this hypothesis is correct, then, it should be possible to predict future share price movement from historical patterns. E.g. If the company's shares have increased steadily over the past few months to the current price of RFW .30, then this price will already fully reflect the information about the company's growth and therefore the next change in share prices could either be upward, downward or constant with equal probability. It therefore follows that technical analysis or Chartism will not enable investors to make arbitrage profits. In markets that have achieved this level then security prices follow a trendless random walk.

### **Semi – Strong form level of efficiency**

This level states that share prices reflects all available public information. (past and present information). If the market has achieved this level, then fundamental analysis will not enable investors to earn consistently higher than average returns. Fundamental analysis involves the study of company's accounts to determine its theoretical value and thereby find any undervalued share. Fundamental theory states that every share in the market has an intrinsic value, which is equal to the present value of cash flows expected from the security.

### **Strong form level of efficiency**

This level states that price reflects all the available public and private information (past, present and future information). If the hypothesis is correct, then, the mere publication of information that was previously confidential should not have impact on share prices. This implies that insider trading is impossible. It follows therefore, that in order to maximize shareholders' wealth, managers should concentrate on maximizing the NPV of each investment.

#### **c) Business Plan**

For the purpose of the exam, details may not be required because of time. The candidate may write briefly on each key feature of the business plan. This is to evaluate the candidate's understanding of the business plan and its importance.

Name of the company: Iwacu Super Rice Ltd (ISRL)

#### **1. Executive Summary**

Iwacu Super Company Rice Ltd (ISRCL), aims to process and supply to the market high quality rice. The target market is the Eastern Province and then after five years of operation export to other countries in the region.

## **2. Company Description**

**Mission:** The mission of ISRCL is to provide customers with super quality rice at a reasonable and affordable price.

**Products:** The company will supply to its customers processed and well packaged rice that are convenient for carriage in all quantities that meet the customer needs.

**Location:** ISRCL will be located in Gatsibo in the Eastern Province of Rwanda. The company intends to construct a larger factory to cater for the demands of the country and the region.

**Unique Selling Proposition:** ISRCL's price is different from our competitors in that rice is sold in all quantities for both retail and wholesale customers.

**About the founder:** Ms. Ingabire is the founder of ISRCL. Ingabire is an entrepreneur who has a Master's degree in Agri Business with vast skills in business management and entrepreneurship. Her passion for business and agriculture are the key drivers that compelled her into this venture. The company has other shareholders who own 35% of its shares.

## **3. Market analysis**

**Target market:** Our target market are the restaurants, schools, supermarkets, distributors as well as low – income and medium – income individuals.

**Competitor analysis:** ISRCL competitors are Mugire Rice Ltd., Mulefu and Sons Rice Producers Ltd., and Mulokore Rice Producers and Suppliers Ltd. These firms have been in the industry for more than 10 years. Their strength is that they have a reasonable market share and have clients who are used to their products. However; the quality of their rice is not good. They do not do delivery services to their customers. ISRL will supply high quality rice that is well packed in convenient and environment friendly materials. ISRL will deliver their products to their clients wherever they will be

## **4. Product**

The company's product is Iwacu Super Rice produced from the Eastern Region and supplied to the whole country and abroad. It will be packaged in environmentally friendly packets.

## **5. Marketing and sales strategy**

**Marketing plan:** ISRCL intends to market its rice through its website which will outline all its products and through various social media platforms such as Facebook, Instagram, LinkedIn, Twitter and YouTube and through the company's website.

**Sales strategy:** ISRCL's rice is expected be sold to wholesalers, distributors, local retailers and also exported to other countries in the region. ISRCL intends to do an online business where its rice can be ordered online by the clients. Then the product delivered to them instantly.

## **6. Operations Plan**

Production Process: The rice will be purchased from the growers and transported to the company for processing and packaging using sophisticated machinery.

Supply Chain Management: The clients will order from the company and the rice will be supplied to them using the company's trucks.

## **7. Management and organization**

Organization structure: The company will have the Managing Director, 3 other Directors (a Director of Finance, a Director of Human Resources and Operations Director). Below these will be officers in their respective directorates. The company expects to employ 25 people.

Management Team: The Board Members will be composed of 9 members. They have vast experience in various fields that is relevant to this business.

## **8. Financial Plan**

Forecasted sales: Sales for year 1 will be FRW 100 million, year 2 FRW 110 million year 3 FRW 127 million, year 4 FRW 152 million and year 5 FRW 175 million.

Operational and other costs forecast: Costs for year 1 will be FRW 36 million, year 2 FRW 40 million year 3 FRW 47 million, year 4 FRW 55 million and year 5 FRW 68 million.

Profit and Loss statement: Net Profit for Year 1 will be 32 million, year 2 FRW 40 million, year 3 FRW 46 million, year 4 FRW 60 million and year 5 FRW 77 million.

Cash flow projections: ISRL also provides cash inflows and cash outflows to justify the liquidity of the company.

Break-even analysis: Break-even point will be achieved at year 1 end

Funding Requirement: The company will require an initial amount of FRW 150 billion to cover up initial costs and purchase of factory equipment.

## **9. Risk analysis**

The company will face risks such as climatic changes, price fluctuations, as well as competition on the market. The company will look for solutions to mitigate these risks.

## **10. Implementation Plan**

The company plans to launch its product on 1<sup>st</sup> July, 2025.

## **11. Appendix**

Data on research and development on the preference of our product

Detailed financial statements and Details of company website

### QUESTION THREE

#### Marking Guide

Question 3	Description	Marks	Total Marks
a	<b>Computation of Base Case NPV</b>		
	Computation of Beta Asset	0.5	17
	Computation of cost of capital, ke	0.5	
	Computation of operating cash flows (0.5 Marks each, maximum 2.0 Marks)	2.0	
	Computation of capital allowances (0.5 Marks each, maximum 2.0 Marks)	2.0	
	Initial outlay treatment	0.5	
	Scrape value treatment	0.5	
	Cashflows (0.5 Marks each, maximum 3.0 Marks)	3.0	
	Present values (0.5 Marks each, maximum 3.0 Marks)	3.0	
	Base Case Net Present Value	1.0	
	<b>Computation of APV</b>		
	Computation of issue costs for equity and debt (0.5 Marks each, maximum 1.0 Mark)	1.0	
	Computation of tax shield	2.0	
	Adjusted Present Value (APV)	0.5	
	Advise	0.5	
c	Advantages of NPV (1 Mark each, maximum 3.0 Marks)	3.0	
	Limitations of APV (1 Mark each, maximum 3.0 Marks)	3.0	
d	Explanation of NPV	1.0	2
	Explanation of APV	1.0	
	<b>Total Marks</b>		<b>25</b>

#### Model Answer

##### a) Computation of Base Case NPV

$$\beta_{\text{asset}} = \beta_e \frac{E}{E+D(1-t)} + \beta_d \frac{D(1-t)}{E+D(1-t)}$$

$$\beta_{\text{asset}} = 1.30 \times \frac{75}{75+25(1-0.30)} + 0.35 \times \frac{25(1-0.30)}{75+25(1-0.30)} = 1.12$$

Using CAPM,  $K_e = r_f + (E_{rm} - r_f) \beta_{\text{asset}}$

$$K_e = 10\% + (15\% - 10\%) * 1.12 = 0.1024 = 10.24\% \approx 10\%$$

**Base case NPV (FRW 000)**

Year	0	1	2	3	4	5
Operating cash flows		350.00	367.50	385.88	405.17	
Taxation at 30%			-105.00	-110.25	-115.76	-121.55
Tax relief on capital allowance (Working)			3,750.00	2,812.50	2,109.38	328.13
Initial outlay	-50,000					
Realizable value					20,000	
Net cash flows	-50,000	350.00	4,012.50	3,088.13	22,398.79	206.58
Discount rate at 10%	1.0000	0.9091	0.8264	0.7513	0.6830	0.6209
Present values	(50,000.00)	318.19	3,315.93	2,320.11	15,298.37	128.27
Base case NPV	(28,619.14)					



## Workings on capital allowances

### Capital Allowances (FRW 000)

	Written Down Allowance	Capital allowance @ 25%	Tax saving @ 30%	Year considered
Investment	<b>50,000.00</b>	12,500.00	3,750.00	2
Year 1	12,500.00			
	<b>37,500.00</b>	9,375.00	2,812.50	3
Year 2	9,375.00			
	<b>28,125.00</b>	7,031.25	2,109.38	4
Year 3	7,031.25			
	<b>21,093.75</b>			
Year 4 (proceeds)	20,000.00			
Balancing figure	<b>1,093.75</b>		328.13	5

### Computation of APV

#### The financing decision:

Equity  $50,000,000 * 0.6 = \text{FRW } 30,000,000$

Debt  $50,000,000 * 0.4 = \text{FRW } 20,000,000$

#### Issue costs on equity:

Equity issue cost =  $\text{FRW } 30,000,000 * 100/96 * 4\% = 1,250,000$

#### Issue costs on debt:

Debt issue cost =  $\text{FRW } 20,000,000 * 100/97 * 3\% = 618,557$

### Total issue costs on debt

Debt issue cost	(618,557)
Tax relief @ 30%	<u>185,567.1</u>
Total issue costs	<u>(432,989.9)</u>

### Tax shield

Total amount raised by debt = debt + issue cost

Total amount raised by debt = FRW 20,000,000 + FRW 600,000 = FRW 20,600,000

Annual tax relief = FRW 20,600,000 \* 0.08 \* 0.3 = FRW 494,400

Annuity factor for 4 years at 8% 3.067

The present value of the tax shield = 494,400 \* 3.067 = FRW 1,516,325

### Adjusted Present Value Computation

	FRW
Base NPV	(28,621,690)
Equity issue costs	(1,250,000)
Debt issue costs	<u>(432,989.9)</u>
Add tax shield	1,516,325
<b>APV</b>	<b>(28,674,442)</b>

**Advise:** Based the APV obtained, the management should not purchase the machine because it will make a loss since the APV is negative.

### b) Advantages of NPV

1. Consistent with the idea of maximising shareholder wealth i.e. telling managers to maximise NPV is equivalent to telling them to maximise shareholder wealth
2. It can be used for benchmarking in post-audit review.
3. It is an absolute measure of the increase in wealth.
4. Correctly accounts for the time value of money.
5. Uses all cash flows.

## **Limitations of APV**

1. Computation of the cost of a no equity-financed company may not be easy.
2. Identifying all costs associated with the method of financing would be difficult e.g. the transaction costs, agency cost, etc.
3. Adjusted Present Value is a lengthy method which can only be used to evaluate major projects that have complex financing packages.

### **c) Difference between Net Present Value and Adjusted Present Value**

Net Present Value is a technique which converts future cash flows to a common point in time (Present Value), by discounting them. The present values of the individual cash flows are aggregated to arrive at the Net Present Value (NPV). The NPV figure represents the change in shareholders' wealth from accepting the project. It produces an absolute value (RWF) and therefore, the impact of the project is identified.

While

Adjusted Present Value is a technique which converts future cash flows of a firm as if it were undertaken by all equity finance. And it considers the computation of the present value of the side effects such as issue costs and tax shield and then adds these side effects to the net present value. The result of the APV indicates the net effect of the wealth of the shareholder when the project is undertaken.

## QUESTION FOUR

### Marking Guide

Question 4	Description	Marks	Total Marks
a	<b>Computation of cash flows</b>		
	Sales revenue (0.5 Marks each, maximum 2.5 Marks)	2.5	<b>20</b>
	Variable cost (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Contribution (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Fixed cost (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Depreciation (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Terminal Value (1 Mark for formula and 1 Mark for calculation)	2.0	
	Net Cashflows (0.5 Marks each, maximum 2.5 Marks)	2.5	
	Total Present Values	1.0	
	Advise	2.0	
b	<b>Agency theory</b>		
	Explanation of agency theory	1.0	<b>5</b>
	Causes of agency problem (1 Marks each, maximum 2.0 Marks)	2.0	
	Solutions of agency problem (1 Marks each, maximum 2.0 Marks)	2.0	
	<b>Total Marks</b>		<b>25</b>

### Model Answers

Calculation of cost of capital using CAPM

$$K_{eu} = R_f + (R_m - R_f) * \beta$$

$$K_{eu} = 10\% + (12\% - 10\%) * 1.54 = 13.08\% \approx 13\%$$

Calculation of terminal value

$$\text{Terminal value} = \frac{\text{Cash Flow}_{\text{final year}}(1+g)}{r-g}$$

$$\text{Terminal value} = \frac{29,516.14(1+0.10)}{0.13-0.10} = \text{FRW } 1,082,258.58$$

<b>Projected Post–Merger Cash Flows as of December 31</b>					
<b>(FRW “000”)</b>					
	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
Sales Revenue	102,000.00	112,200.00	123,420.00	135,762.00	149,338.20
Less: variable costs	(40,800.00)	(44,880.00)	(49,368.00)	(54,304.80)	(59,735.28)
Contribution	61,200.00	67,320.00	74,052.00	81,457.20	89,602.92
Less: fixed cost	(15,300.00)	(16,830.00)	(18,513.00)	(20,364.30)	(22,400.73)
Less: selling and administration	(12,000.00)	(13,000.00)	(14,000.00)	(16,000.00)	(19,000.00)
Operating profit	33,900.00	37,490.00	41,539.00	45,092.90	48,202.19
Less: depreciation	(7,000.00)	(7,700.00)	(8,470.00)	(9,317.00)	(10,248.70)
EBIT	26,900.00	29,790.00	33,069.00	35,775.90	37,953.49
Less: interest expenses	(5,000.00)	(6,000.00)	(7,000.00)	(8,000.00)	(8,000.00)
EBT	21,900.00	23,790.00	26,069.00	27,775.90	29,953.49
Less: tax (30%)	(6,570.00)	(7,137.00)	(7,820.70)	(8,332.77)	(8,986.05)
EAT	15,330.00	16,653.00	18,248.30	19,443.13	20,967.44
Add back Depreciation	7,000.00	7,700.00	8,470.00	9,317.00	10,248.70
Net Income	22,330.00	24,353.00	26,718.30	28,760.13	31,216.14
Less Retention by ML	(20,000.00)	(20,000.00)	(15,000.00)	(15,000.00)	(15,000.00)
Cash available to IL	2,330.00	4,353.00	11,718.30	13,760.13	16,216.14
Add terminal value					594,591.91
Net cash flows	2,330.00	4,353.00	11,718.30	13,760.13	610,808.05

## Calculation of present values of the net cash flows

Year	Cashflow (FRW''000'')	Discount factor @ 13%	Present value (FRW''000'')
1	2,330.00	0.885	2,062.05
2	4,353.00	0.783	3,408.40
3	11,718.30	0.693	8,120.78
4	13,760.13	0.613	8,434.96
5	610,808.05	0.543	331,668.77
			<b>353,694.96</b>

**Advise:** There is a possible gain in the acquisition since the merger value (FRW 353,694,960) is greater than the pre-merger value [FRW 157,500,000 from (15,000,000 shares \* FRW10.50/share)] which gives the room for bargaining.

### b) Agency theory

This a theory that explains the conflict of interest between managers and the shareholders of a company. The managers/directors act as agents for the shareholders (owners) in running the company. This separation of ownership from control may lead to certain problems if managers are not monitored or constrained - e.g. management working inefficiently; adopting risk averse policies such as 'safe' short-term investments and low gearing; empire building for power/status; rewarding themselves with high salaries and fringe benefits; increased leisure time etc Managers' and shareholders' interests can be aligned by a number of measures - introducing profit-related remuneration for management; offering bonus shares; share option schemes; scrutiny of performance by the board of directors and banks who provide finance etc. However, care must be taken to ensure that management does not take action to boost performance in the short-term to the detriment of the long-term wealth of the shareholders ('short-termism').

### Causes of agency problem

#### Incentive Problem

Managers may have fixed salary and they may have no incentive to work hard and maximize shareholders' wealth. This is because irrespective of the profits they make, their reward is fixed. They will therefore maximize leisure and work less which is against the interest of the shareholders.

## **Consumption of Prerequisites“**

Prerequisites refer to the high salaries and generous fringe benefits which the directors might award themselves. This will constitute directors' remuneration which will reduce the dividends paid to the ordinary shareholders. Therefore, the consumption of prerequisites is against the interest of shareholders since it reduces their wealth.

## **Different Risk-profile**

Shareholders will usually prefer high-risk-high return investments since they are diversified i.e., they have many investments and the collapse of one firm may have insignificant effects on their overall wealth. Managers on the other hand, will prefer low risk-low return investment since they have a personal fear of losing their jobs if the projects collapse. (Human capital is not diversifiable). This difference in risk profile is a source of conflict of interest since shareholders will forego some profits when low-return projects are undertaken.

## **Different Evaluation Horizons**

Managers might undertake projects which are profitable in short-run. Shareholders on the other hand evaluate investments in long-run horizon which is consistent with the going concern aspect of the firm. The conflict will therefore occur where management pursue short-term profitability while shareholders prefer long term profitability.

## **Management Buy Out (MBO)**

The board of directors may attempt to acquire the business of the principal. This is equivalent to the agent buying the firm which belongs to the shareholders. This is inconsistent with the agency relationship and contract between the shareholders and the managers.

## **Pursuing power and self-esteem goals**

This is called "empire building" to enlarge the firm through mergers and acquisitions hence increase in the rewards of managers.

## **Creative Accounting**

This involves the use of accounting policies to report high profits e.g. stock valuation methods, depreciation methods recognizing profits immediately in long term construction contracts etc.

## **Solutions for agency problems**

### **Pegging/attaching managerial compensation to performance**

This will involve restructuring the remuneration scheme of the firm in order to enhance the alignments/harmonization of the interest of the shareholders with those of the management e.g. managers may be given commissions, bonus etc. for superior performance of the firm.

### **Threat of firing**

This is where there is a possibility of firing the entire management team by the shareholders due to poor performance. Management of companies have been fired by the shareholders who have the right to hire and fire the top executive officers e.g. the entire management team of UNGUKA Group, IBM, G.M. have been fired by shareholders.

### **The Threat of Hostile Takeover**

If the shares of the firm are undervalued due to poor performance and mismanagement, shareholders can threaten to sell their shares to competitors. In this case the management team is fired and those who stay on can lose their control and influence in the new firm. This threat is adequate to give incentive to management to avoid conflict of interest.