



**CERTIFIED PUBLIC ACCOUNTANT  
INTERMEDIATE LEVEL EXAMINATIONS**

**I1.1: MANAGERIAL FINANCE**

**DATE: THURSDAY, 31 MARCH 2022**

**MARKING GUIDE AND MODEL ANSWERS**

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## SECTION A

### QUESTION ONE:

#### Marking Guide

QN	Description	Marks
a (i)	Project A: Net Present Value (NPV)	1
	Project B: Net Present Value (NPV)	1
	Project C: Net Present Value (NPV)	1
	Project D: Net Present Value (NPV)	1
	Project E: Net Present Value (NPV)	1
	<b>Maximum</b>	<b>5</b>
a (ii)	Note: Present value of cash inflows computed by students in (i) should be awarded full marks as below	
	Formulae for profitability index	0.5
	Project A:	
	Present value of cash inflows	0.5
	Profitability index	1
	Project B:	
	Present value of cash inflows	0.5
	Profitability index	1
	Project C:	
	Present value of cash inflows	0.5
	Profitability index	1
	Project D:	
	Present value of cash inflows	0.5
	Profitability index	1
	Project E:	
	Present value of cash inflows	0.5
	Profitability index	1
	Project A:	
	Ranking for NPV	0.5
	Ranking for Profitability index	0.5
	Project B:	
	Ranking for NPV	0.5
	Ranking for Profitability index	0.5
	Project C:	
	Ranking for NPV	0.5
	Ranking for Profitability index	0.5

	Project D:	
	Ranking for NPV	0.5
	Ranking for Profitability index	0.5
	Project E:	
	Ranking for NPV	0.5
	Ranking for Profitability index	0.5
	<b>Maximum</b>	<b>13</b>
<b>a (iii)</b>	A correct explanation on differences	<b>1</b>
<b>b</b>	Basic assumptions of the Capital Asset Pricing Model: Briefly stated assumptions are acceptable. No additional marks for Model explanations 1 mark * 3 assumptions = 3 marks maximum Alternative valid assumptions provided by candidates should be considered	3
<b>c</b>	Factors affecting a company's capital structure: Briefly described factors are acceptable. No additional marks for Model explanations 1 mark * 3 factors = 3 marks maximum Alternative valid factors provided by candidates should be considered	3
	<b>Maximum</b>	<b>6</b>
	<b><u>Total Marks</u></b>	<b>25</b>

### Model Answer

a) Use the information provided above to answer the following questions:

i. **Calculate the expected net present value for each project.** *Note: Please use only 3 decimal places.*

**Note:** All figures in tables are in FRW '000', DF stands for Discounting Factor, PV stands for Present Value, and NPV stands for Net Present Value.

Method 1:

<b>Project A</b>			
<b>year</b>	<b>Cashflows</b>	<b>DF (12%)</b>	<b>PV</b>
0	(261,000)	1.000	(261,000)
1	85,000	0.893	75,905
2	85,000	0.797	67,745

3	85,000	0.712	60,520
4	85,000	0.636	54,060
5	85,000	0.567	48,195
<b><u>NPV</u></b>			<b><u>45,425</u></b>

Method 2 is using PV of annuity as the cashflow are annuity

$$\text{NPV} = 85,000 * \text{PVIFA} (12\%, 5\text{years}) - 261,000$$

$$= (85,000 * 3.605) - 261,000 = 45,425$$

Method 1:

<b>Project B</b>			
<b>Year</b>	<b>Cashflows</b>	<b>DF (12%)</b>	<b>PV</b>
-0	(195,000)	1.000	(195,000)
1	90,000	0.893	80,370
2	94,000	0.797	74,918
3	85,000	0.712	60,520
<b><u>NPV</u></b>			<b><u>20,808</u></b>

<b>Project C</b>			
<b>Year</b>	<b>Cashflows</b>	<b>DF (12%)</b>	<b>PV</b>
0	(190,000)	1.000	(190,000)
1	62,000	0.893	55,366
2	62,000	0.797	49,414
3	89,000	0.712	63,368
4	97,000	0.636	61,692
<b><u>NPV</u></b>			<b><u>39,840</u></b>

Method 1:

<b>Project D</b>			
<b>Year</b>	<b>Cashflows</b>	<b>DF (12%)</b>	<b>PV</b>
0	(195,000)	1.000	(195,000)
1	88,000	0.893	78,584
2	88,000	0.797	70,136
3	88,000	0.712	62,656
4	88,000	0.636	55,968
<b><u>NPV</u></b>			<b><u>72,344</u></b>

Method 2 of using PV of annuity

$$\text{NPV} = 88,000 * \text{PVIFA} (12\%, 4\text{years}) - 195,000$$

$$= 88,000 * 3.037 - 195,000 = 72,344$$

<b>Project E</b>			
<b>Year</b>	<b>Cashflows</b>	<b>DF (12%)</b>	<b>PV</b>
0	(195,000)	1.000	(195,000)
1	55,000	0.893	49,115
2	65,000	0.797	51,805
3	75,000	0.712	53,400
4	99,000	0.636	62,964
5	55,000	0.567	31,185
<b><u>NPV</u></b>			<b><u>53,469</u></b>

ii. Compute the expected profitability index associated with each of the five projects and rank the projects according to investment appraisal techniques computed in (i) and (ii).

$$\text{Profitability index} = \frac{\text{Present value of cash inflows}}{\text{Initial outlay}}$$

or (NPV /initial outlay) +1

<b>Project A</b>	Present value of cash inflows	306,425
	Initial outlay	261,000
	<b><u>Profitability index</u></b>	<b><u>1.174</u></b>

<b>Project B</b>	Present value of cash inflows	215,808
	Initial outlay	195,000
	<b><u>Profitability index</u></b>	<b><u>1.107</u></b>

<b>Project C</b>	Present value of cash inflows	229,840
	Initial outlay	190,000
	<b><u>Profitability index</u></b>	<b><u>1.210</u></b>

<b>Project D</b>	Present value of cash inflows	267,344
	Initial outlay	195,000
	<b><u>Profitability index</u></b>	<b><u>1.371</u></b>

<b>Project E</b>	Present value of cash inflows	248,469
	Initial outlay	195,000
	<b><u>Profitability index</u></b>	<b><u>1.274</u></b>

<b>Project Rankings</b>	<b>NPV</b>	<b>Profitability Index (PI)</b>
1	D	D
2	E	E
3	A	C
4	C	A
5	B	B

iii. **Briefly explain why rankings in (ii) differ for the two investment techniques.**

The rankings differ because NPV is an absolute measure whereas the profitability index is a relative measure that takes into account the different investment cost of each project.

**b) State THREE basic assumptions of the Capital Asset Pricing Model.**

- Investors are rational and risk averse.
- Investors are able to assess returns and standard deviations. Indeed, they all have the same forecasts of returns and risk because of the free availability of information.
- There are no taxes or transaction costs.
- All investors can borrow or lend at the risk-free rate of interest.
- All assets are traded and it is possible to buy a fraction of a unit of an asset.

**c) Briefly describe THREE factors affecting a company's capital structure.**

- Availability of securities – This influences the company's use of debt finance which means that if a company has sufficient securities, it can afford to use debt finance in large capacities.
- Cost of finance (both implicit and explicit) – If low, then a company can use more of debt or equity finance.
- Company gearing level – if high, the company may not be able to use more debt or equity finance because potential investors would not be willing to invest in such a company.
- Sales stability – If a company has stable sales and thus profits, it can afford to use various finances in particular debt in so far as it can service such finances.
- Competitiveness of the industry in which the company operates – If the company operates in a highly competitive industry, it may be risky to use high levels of debt because chances of servicing this debt may be low and may lead a company into receivership.

## QUESTION TWO

### Marking Guide

QN	Description	Marks
<b>a (i)</b>	Cost of debt	0.5
	Cost of equity	0.5
	WACC	1
	<b>Maximum</b>	<b>2</b>
<b>a (ii)</b>	Earnings before interest and taxes (EBIT) (0.5 marks for each year except year 1)	2
	Taxes (30%) (0.5 marks for each year except year 1)	2
	Earnings after taxes (0.5 marks for each year except year 1)	2
	Depreciation (8% of EBIT) (0.5 marks for each year except year 1)	2
	Capital spending (20% increase in EBIT) (0.5 marks for each year except year 1)	2
	Increases in net working capital (20% increase in EBIT) (0.5 marks for each year except year 1)	2
	<b>Maximum</b>	<b>12</b>
<b>a (iii)</b>	Terminal Value at Year 5	0.5
<b>a (iv)</b>	Total value of the company	0.5
<b>b</b>	THREE factors that determine the cost of debt for a company: Briefly stated factors are acceptable. No additional marks for Model explanations 1 mark * 3 factors = 3 marks maximum Alternative valid factors provided by candidates should be considered	3
<b>c</b>	TWO assumptions of weighted average cost of capital: Briefly described assumptions are acceptable. No additional marks for Model explanations 1 mark * 2 assumptions = 2 marks maximum Alternative valid assumptions provided by candidates should be considered	2
	<b>Maximum</b>	<b>6</b>
	<b><u>Total Marks</u></b>	<b>20</b>



## Model Answer

a) If NRL acquires GRL:

i. Calculate NRL's weighted average cost of capital.

Financial Component	Market Values	Weights	Cost of Capital (CoC)	CoC (Tax adjusted)	Weighted Average
	FRW '000'				
Debt	350,000	0.70	7%	4.90%	3.43%
Equity	150,000	0.30	12%	12.00%	3.60%
Total Market Value	500,000		<b><u>Weighted Average Cost of Capital (WACC)</u></b>		<b><u>7.03%</u></b>

ii. Compute GRL's net cash flows for each of the five years.

Note: All amounts are in FRW 'million'.

Year	Impact	1	2	3	4	5
Earnings before interest and taxes (EBIT)		80	88.00	96.80	106.48	117.13
Taxes (30%)	<i>Subtract</i>	24	26.40	29.04	31.94	35.14
Earnings after taxes	<i>Equal</i>	56	61.60	67.76	74.54	81.99
Depreciation (8% of EBIT)	<i>Add</i>	6.4	7.04	7.74	8.52	9.37
Capital spending (20% increase in EBIT)	<i>Subtract</i>	16	17.60	19.36	21.30	23.43
Increases in net working capital (20% increase in EBIT)	<i>Subtract</i>	16	17.60	19.36	21.30	23.43
<b>Net cash flows (CF)</b>		<b><u>30.40</u></b>	<b><u>33.44</u></b>	<b><u>36.78</u></b>	<b><u>40.46</u></b>	<b><u>44.51</u></b>

**iii. Determine GRL's terminal value at year five.**

**Note:** All amounts are in FRW 'million'.

The formula for calculating the perpetual growth terminal value is:

$$TV = (FCF_n \times (1 + g)) / (WACC - g)$$

Where:

- TV = terminal value
- FCF = free cash flow
- n = year 1 of terminal period or final year
- g = perpetual growth rate of FCF
- WACC = weighted average cost of capital

FCF at year 5	44.51
Growth rate (g)	4%
WACC	7.03%
<b>Terminal Value at Year 5</b>	<b><u>1,527.69</u></b>

**iv. Determine GRL's total value to be paid by NRL.**

**Note:** All amounts are in FRW 'million'.

<b>Method 1:</b>						
<b>Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>5</b>
Cash flows	30.40	33.44	36.78	40.46	44.51	1,527.69
DF (WACC)	0.943	0.890	0.840	0.792	0.747	0.747
PV	28.68	29.76	30.88	32.05	33.26	1,141.64
<b>Total value of the company</b>						<b><u>1,296.28</u></b>

<b>Method 2:</b>	
<b>Present value of net cash flows in Years 1 to 5</b>	<b><u>154.64</u></b>
Present value of the terminal value:	
Terminal Value at Year 5	1,527.69
DF	0.747
<b>PV</b>	<b><u>1141.64</u></b>
<b>Total value of the company</b>	<b><u>1,296.28</u></b>

**b) State THREE factors that determine the cost of debt for a company.**

The cost of debt is generally determined by the following factors:

- The prevailing interest rates for corporations more generally;
- The risk of default (and expected rate of recovery of money lent in the event of default);
- The benefit derived from interest being tax deductible.

**c) Briefly describe TWO assumptions of weighted average cost of capital when used a hurdle rate for new projects.**

The following are WACC assumptions:

- **No Change in Capital Structure:** The capital mix or structure of the new project investment should be the same as the company’s existing structure. It means that if the company has a 70:30 ratio of debt to equity in their current balance sheet, the inclusion of the new project will maintain the same.
- **No change in Risk of New Projects:** The risk associated with the new project will be like the existing projects. For example, a textile manufacturer expands and increases the number of looms from 60 to 100. Since the industry and business are the same, there will be almost no change in the risk profile of the current business and the new expansion.

### QUESTION THREE

#### Marking Guide

QN	Description	Marks
a (i)	Causes of agency principal problem: Briefly stated answers are sufficient. No additional marks for Model explanations 1 mark * 4 causes = 4 marks maximum Alternative valid causes suggested by candidates should be considered	4
a (ii)	How to reduce problems between the agent and the principal: Briefly stated answers are sufficient. No additional marks for Model explanations 1 mark * 3 ways = 3 marks maximum Alternative valid ways suggested by candidates should be considered	3
	<b>Maximum</b>	<b>7</b>
b	Basic descriptions of emerging technologies: For each of the technologies, marks are awarded for basic descriptions of what the technology is and what it for and no additional marks for Model answers	
	i. Blockchain (2 marks are awarded for a basic description of the technology and no need for details. No additional marks for the diagrammatically illustration either)	2
	ii. Cryptocurrency (2 marks are awarded for a basic description of the technology and no need for details)	2
	iii. Fintech (2 marks are awarded for a basic description of the technology and no need for details)	2
	iv. Disintermediation (2 marks are awarded for a basic description of the concept and no need for details)	2
	<b>Maximum</b>	<b>8</b>
	<b><u>Total Marks</u></b>	<b>15</b>

## Model Answer

a) With respect to the problems between shareholders and RRL's management:

**i. State FOUR potential causes of the problems between RRL's management and its shareholders.**

The case explores the agency theory. Below are the main causes of agency problems:

- When a conflict of interest arises between the principal and the agent,
- When the agent is making decisions on behalf of the principal that is not in the best interest of each associated party,
- The agent may act independently from the principal to obtain some sort of previously agreed upon incentive or bonus,
- Confidentiality breach regarding the personal and financial information of the principal,
- Insider trading with the information provided by the principal,
- When the principal acts against the recommendations provided by the agent.

**ii. Advise how the problems in (i) can be reduced.**

To reduce the likelihood of conflict, there are certain measures and principles that can be followed by both the principal and agent:

**1. Transparency:** To reduce the potential influx of agency problems, it is crucial for both the principal and the agent to be completely transparent with one another. Decisions and transactions that will be implemented must be agreed upon by each party and must be reasonably fair. Once transparency is present, conflict is reduced since there is less confusion on decision-making and fewer implications that one party is against the other.

**2. Restrictions:** Imposing restrictions or abolishing negative restrictions is a good way to significantly reduce the effect of agency loss. Setting specific restrictions on factors such as agency power allows the principal to feel more confident in their relative agent. Conversely, abolishing negative restrictions is beneficial because it instils trust within the agent and allows them to make decisions freely on behalf of the principal.

**3. 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.

**4. 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.

**5. 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.

**6. Direct Intervention by the Shareholders:** Shareholders may intervene as follows:

- Insist on a more independent board of directors.
- By sponsoring a proposal to be voted at the AGM
- Making recommendations to the management on how the firm should be run.

**7.** Managers should have **voluntary code of practice**, which would guide them in the performance of their duties.

**8. Executive Share Options Plans:** In a share option scheme, selected employees can be given several share options, each of which gives the holder the right after a certain date to subscribe for shares in the company at a fixed price. The value of an option will increase if the company is successful, and its share price goes up. The theory is that this will encourage managers to pursue high NPV strategies and investments, since they as shareholders will benefit personally from the increase in the share price that results from such investments.

**9. Incurring Agency Costs:** Agency costs are incurred by the shareholders to monitor the activities of their agent.

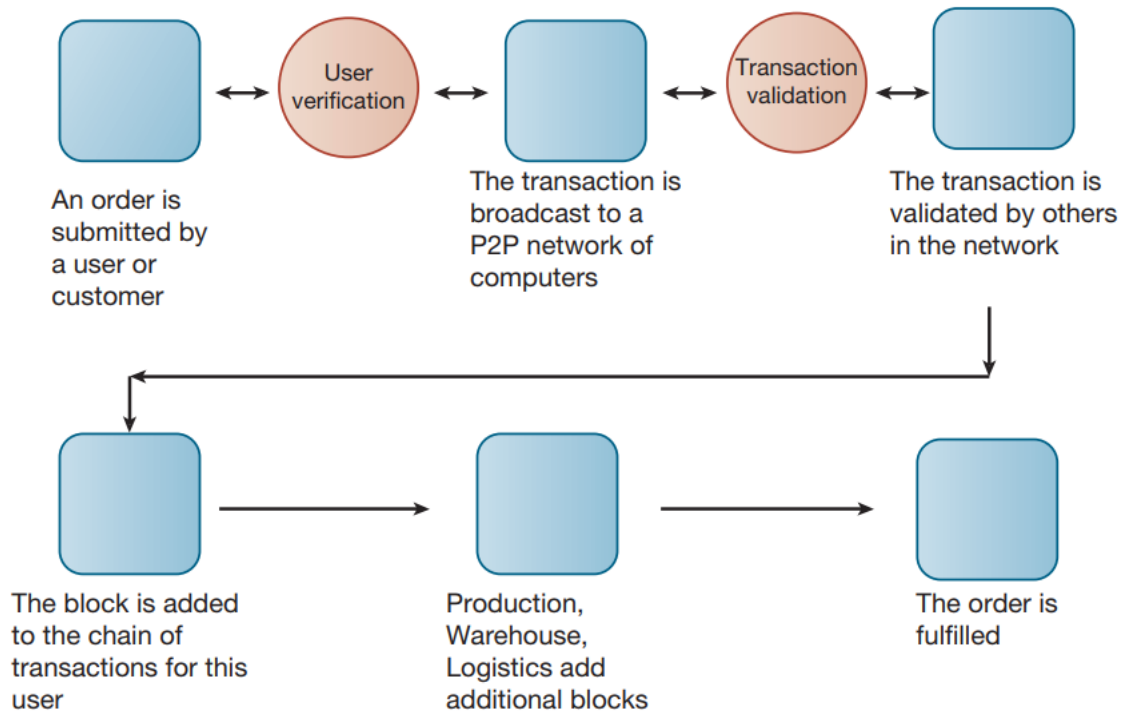
**b) Briefly describe the following emerging technologies:**

**i. Blockchain.**

Blockchain is a distributed database technology that enables firms and organizations to create and verify transactions on a network nearly instantaneously without a central authority. The system stores transactions as a distributed ledger among a network of computers. The information held in the database is continually reconciled by the computers in the network.

The blockchain maintains a continuously growing list of records called blocks. Each block contains a timestamp and link to a previous block. Once a block of data is recorded on the blockchain ledger, it cannot be altered retroactively. When someone wants to add a transaction, participants in the network (all of whom have copies of the existing blockchain) run algorithms to evaluate and verify the proposed transaction. Legitimate changes to the ledger are recorded across the blockchain in a matter of seconds or minutes and records are protected through cryptography. What makes a blockchain system possible and attractive to business firms is encryption and authentication of the actors and participating firms, which ensures that only legitimate actors can enter information, and only validated transactions are accepted. Once recorded, the transaction cannot be changed. Figure 3.1 illustrates how blockchain works for fulfilling an order.

**Figure 3.1: How Blockchain Works**



## ii. Cryptocurrency.

A cryptocurrency is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Many cryptocurrencies are decentralized networks based on blockchain technology—a distributed ledger enforced by a disparate network of computers. A defining feature of cryptocurrencies is that they are generally not issued by any central authority, rendering them theoretically immune to government interference or manipulation.

Cryptocurrencies can be mined or purchased from cryptocurrency exchanges. Not all ecommerce sites allow purchases using cryptocurrencies. In fact, cryptocurrencies, even popular ones like Bitcoin, are hardly used for retail transactions. However, the skyrocketing value of cryptocurrencies has made them popular as trading instruments. To a limited extent, they are also used for cross-border transfers.



### **iii. Fintech.**

Financial technology (Fintech) is used to describe new tech that seeks to improve and automate the delivery and use of financial services. At its core, fintech is utilized to help companies, business owners and consumers better manage their financial operations, processes, and lives by utilizing specialized software and algorithms that are used on computers and, increasingly, smartphones. Fintech, the word, is a combination of "financial technology".

The most talked-about (and most funded) fintech start-ups share the same characteristic: they are designed to be a threat to, challenge, and eventually usurp entrenched traditional financial services providers by being nimbler, serving an underserved segment or providing faster and/or better service.

Examples of fintech companies in Rwanda include AC Group which is a Hi-tech & ICT company which introduced Tap&Go to enhance the smart cities agenda in Rwanda and Africa and ADFinance which is an integrated information system that specializes in customer & loans management, savings, and accounting core module services.

### **iv. Disintermediation.**

The term disintermediation refers to the process of cutting out the financial intermediary in a transaction. It may allow a consumer to buy directly from a wholesaler rather than through an intermediary such as a retailer or enable a business to order directly from a manufacturer rather than from a distributor. In the financial industry, it is seen when an investor can buy stock directly rather than through a broker or a financial institution. The purpose of disintermediation is usually to cut costs, speed up delivery, or both.

Disintermediation is used across various industries and can lower the overall cost of completing a transaction. Removing the intermediary may also allow a transaction to be completed more quickly. It is now a pillar of the internet model, where it is often called the business-to-consumer (B2C) model.

## SECTION B

### QUESTION FOUR

#### Marking Guide

QN	Description	Marks
<b>a</b>	Buy or lease:	
	Depreciation tax shield	1
	After tax lease payment	1
	The total cash flows from leasing	1
	After tax cost of debt	1
	PVIFA (at aftertax cost of debt, period)	1
	The total cash flows from leasing - adjusted	1
	NAL	2
	Decision	2
	<b>Maximum</b>	<b>10</b>
<b>b</b>	Sale and Leaseback and Leveraged Leases: Only brief descriptions/definitions are sufficient	
	Sale and Leaseback	1
	Leveraged Leases	1
	<b>Maximum</b>	<b>2</b>
<b>c (i)</b>	THREE common characteristics of venture capitalists: Briefly explained answers are acceptable. 1 mark * 3 characteristics = 3 marks maximum	3
<b>c (ii)</b>	FIVE stages of venture capital funding: Briefly stated answers are sufficient 1 mark * 5 stages = 5 marks maximum	5
	<b>Maximum</b>	<b>8</b>
	<b><u>Total Marks</u></b>	<b>20</b>
	<b><u>Total Marks</u></b>	

## Model Answer

a) Advise the management of CPE if it should buy or lease the machine. *Note: Round your answers to two decimal places.*

### Method 1:

Description	Unit	Provided	Calculated
Depreciation tax shield:			
Machine cost	FRW	5,700,000	
Period (n)	Years	5	
Tax	%	30%	
Depreciation tax shield	FRW		342,000
The after-tax cost of the lease payments:			
Lease payments	FRW	2,200,000	
Tax	%	30%	
After-tax lease payment	FRW		1,540,000
The total cash flows from leasing	FRW		1,882,000
The after-tax cost of debt:			
Interest rate	%	12%	
Tax	%	30%	
After-tax cost of debt (r)	%		8.40%
Net advantage to leasing (NAL):			
Machine cost	FRW	5,700,000	
The total cash flows from leasing	FRW	1,882,000	

PVIFA (at after-tax cost of debt, period)	$\frac{(1 - (1 + r)^{-n})}{r}$	3.951	
The total cash flows from leasing - adjusted	FRW	7,435,722.83	
<b>NAL</b>	<b>FRW</b>		<b>- 1,735,722.83</b>

Decision: The NAL is negative, so the company should not lease.

**Method 2:**

<b>Buying Option</b>			
<b>Year</b>	<b>Net cash flows</b>	<b>DF (8.4%)</b>	<b>PV</b>
Year 0	- 5,700,000	1	- 5,700,000
Years 1-5	342,000	3.951	1,351,231
			- 4,348,769
<b>Leasing Option</b>			
After-tax lease payment	- 1,540,000	3.951	- 6,084,492
<b>NAL</b>			<b>- 1,735,723</b>

Decision: The NAL is negative, so the company should not lease.

**b) Differentiate between Sale and Leaseback and Leveraged Leases.**

**Sale and Leaseback:** A sale and leaseback occurs when a company sells an asset it owns to another firm and immediately leases it back. In a sale and leaseback two things happen:

1. The lessee receives cash from the sale of the asset.
2. The lessee makes periodic lease payments, thereby retaining use of the asset.

Whereas:

**Leveraged Leases:** A leveraged lease is a lease agreement that is financed through the lessor with help from a third-party financial institution. In a leveraged lease, an asset is rented with borrowed funds. Leveraged leases are most often used in the renting of assets planned for short-term use. Assets like cars, trucks, construction vehicles and business equipment are typically all available through the option of leveraged leasing. Leasing in general means a company or individual will be renting an asset.

Leasing any type of asset gives an entity the right to use the asset for a short-term. In general, the entity is only renting the asset although many leveraged leases offer a buyout option at the end of the lease term.

c) With reference to venture capital:

i. **Explain three common characteristics of venture capitalists.**

Venture capitalists (VC) share some common characteristics, of which three are particularly important:

1. VCs are financial intermediaries that raise funds from outside investors. VC firms are typically organized as limited partnerships. As with any limited partnership, limited partners invest with the general partner, who makes the investment decisions. The limited partners are frequently institutional investors, such as pension plans, endowments, and corporations. Wealthy individuals and families are often limited partners as well. This characteristic separates VCs from angels since angels typically invest just their own money. In addition, corporations sometimes set up internal venture capital divisions to fund fledgling firms.

2. VCs play an active role in overseeing, advising, and monitoring the companies in which they invest. For example, members of venture capital firms frequently join the board of directors. The principals in VC firms are generally quite experienced in business. By contrast, while entrepreneurs at the helm of start-up companies may be bright, creative, and knowledgeable about their products, they often lack much business experience.

3. VCs generally do not want to own the investment forever. Rather, VCs look for an exit strategy, such as taking the investment public (a topic we discuss in the next section) or selling it to another

company. Corporate venture capital does not share this characteristic, since corporations are frequently content to have the investment stay on the books of the internal VC division indefinitely.

**ii. Briefly describe five stages of venture capital funding.**

The various stages of investment by a venture capitalist can be defined as follows:

- Seed Capital – finance provided to enable a business concept to be developed, perhaps involving production of prototypes and additional research, prior to bringing the product to market.
- Start-Up – finance for product development and initial marketing. Companies may be in the process of being set up or may have been in business for a short time but have not sold their product commercially.
- Expansion – capital provided for the growth of a company which is breaking even or possibly, trading profitably. Funds may be used to finance increased production capacity, market or product development and/or provide additional working capital. Capital for “turnaround” situations is also included in this category.
- Management Buy Out (MBO) – funds provided to enable current operating management and investors to acquire an existing business.
- Management Buy In (MBI) – funds provided to enable a manager or group of managers from outside the company to buy into the company.

**QUESTION FIVE**

**Marking Guide**

<b>QN</b>	<b>Description</b>	<b>Marks</b>
<b>a (i)</b>	FIVE factors affecting a company’s credit policy: Briefly stated answers are sufficient. No additional marks for Model explanations 1 mark * 5 factors = 5 marks maximum Alternative valid factors suggested by candidates should be considered	<b>5</b>
<b>a (ii)</b>	Subscription to the agency:	
	Additional charge * sales i.e 350,000	1
	Cost of the subscription	1
	Savings from not selling to bad credit risks	1
	The company’s net savings	1
	Decision	1
	<b>Maximum</b>	<b>5</b>

<b>b (i)</b>	Activities affecting cash: For each of the activities, a simple outline is sufficient. Additional valid activities should be considered	
	Activities that increase cash (1 mark + 1 mark = 2 marks maximum)	2
	Activities that decrease cash (1 mark + 1 mark = 2 marks maximum)	2
	<b>Maximum</b>	<b>4</b>
<b>b (ii)</b>	ASL's cash-conversion cycle: Award 0.5 marks for a correct formula and 0.5 marks a correct answer for each of the following	
	Correct formulae for:	
	Raw materials stock period	0.5
	Less creditor period	0.5
	Work-in-progress period	0.5
	Finished goods inventory period	0.5
	Debtor-conversion period	0.5
	Correct answer for:	
	Raw materials stock period	0.5
	Less creditor period	0.5
	Work-in-progress period	0.5
	Finished goods inventory period	0.5
	Debtor-conversion period	0.5
	Cash-conversion cycle	1
	<b>Maximum</b>	<b>6</b>
	<b><u>Total Marks</u></b>	<b>20</b>

### Model Answer

a) Refer to credit agency subscription information and answer the following questions:

i. **State FIVE factors affecting a company's credit policy.**

The following factors affect a company's credit policy:

- Competition: Consideration should be given to the terms of credit your competitors are offering.
- Financial Position: The cost of granting credit is an important factor in determining the degree to which you are prepared to extend payment terms. Credit terms and period should always be compared with the cost of running an overdraft or any other loans obtained to finance credit.

- Attitude to risk & bad debts: Each organization should be able to measure the risk involved in comparison to the profits made. Several organizations tend to ignore this area in the name of business and each year you get the company's profits declining due to the provision of bad debts.
- The nature of the product: The nature of the business dictates the credit periods offered e.g. in the food industry the credit period is shorter while in heavy industries the credit period is longer.
- Size of the Order: The bigger the order the more the profits and this would warrant a longer credit as the cost of credit is supported by the profits.
- Economic Climate: Credit periods are also dictated by the position of the underlying domestic economy. If the economy is booming, customers are likely to pay faster.

ii. Advise ASL's management if it should subscribe to the agency.

Description	Rate		FRW
<b>Cost of the subscription:</b>			
Initial charge	FRW		2,000
Additional charge	FRW	350	
Sales	No	1,000	350,000
Cost of the subscription			<b>352,000</b>
<b>The savings from having no bad debts:</b>			
The average cost	FRW	8,000	
Sales	No	1,000	
Bad debts	%	6%	
Savings from not selling to bad credit risks			<b>480,000</b>
<b>The company's net savings</b>			<b>128,000</b>
<b>Decision</b>			The company should subscribe to the credit agency.



b) Refer to the data in table 2 and answer the following questions:

i. List TWO activities that increase cash and TWO activities that decrease cash.

**Activities That Increase Cash**

- Increasing long-term debt (borrowing over the long term)
- Increasing equity (selling some stock)
- Increasing current liabilities (getting a 90-day loan)
- Decreasing current assets other than cash (selling some inventory for cash)
- Decreasing fixed assets (selling some property)

**Activities That Decrease Cash**

- Decreasing long-term debt (paying off a long-term debt)
- Decreasing equity (repurchasing some stock)
- Decreasing current liabilities (paying off a 90-day loan)
- Increasing current assets other than cash (buying some inventory for cash)
- Increasing fixed assets (buying some property)

ii. Calculate ASL’s cash-conversion cycle.

Calculation of cash-conversion cycle:

Raw materials stock period: The average number of days raw materials remain unchanged and in stock:

$$\frac{\text{Average value of raw materials stock}}{\text{Average usage of raw materials per day}}$$

Less

Average credit period granted by suppliers The average length of time between the purchase of inputs and the payment for them:

$$\frac{\text{Average level of creditors}}{\text{Purchases on credit per day}}$$

Add

Work-in-progress period: The number of days to convert raw materials into finished goods:

$$\frac{\text{Average value of work in progress}}{\text{Average cost of goods sold per day}}$$

Add

Finished goods inventory period The number of days finished goods await delivery to customers:

$$\frac{\text{Average value of finished goods in stock}}{\text{Average cost of goods sold per day}}$$

Add

Debtor-conversion period: The average number of days to convert customer debts into cash:

$$\frac{\text{Average value of debtors}}{\text{Average value of sales per day}}$$

<b>Description</b>	<b>Computation</b>	<b>Days</b>
Raw materials stock period	$\frac{32,000,000}{406,717}$	79
Less creditor period	$\frac{22,000,000}{406,717}$	(54)
Work-in-progress period	$\frac{19,500,000}{500,400}$	39
Finished goods inventory period	$\frac{18,500,000}{500,400}$	37
Debtor-conversion period	$\frac{35,000,000}{554,642}$	63
<b>Cash-conversion cycle</b>		<b>164</b>

## QUESTION SIX

### Marking Guide

QN	Description	Marks
<b>a</b>	Covariance and correlation (consider alternative methods):	
	Weight of 0.33	1
	E(RA)	1
	E(RB)	1
	Variance of A	1
	Variance of B	1
	Standard Deviation of A	1
	Standard Deviation of B	1
	Cov(A,B)	1
	Interpretation of Cov(A,B)	2
	Correlation	1
	Interpretation of correlation	2
	<b>Maximum</b>	<b>13</b>
<b>b (i)</b>	Walter's Dividend Model description: A short but clear description is sufficient	<b>2</b>
<b>b (ii)</b>	THREE assumptions of the Walter's Dividend Model Brief answers are sufficient 1 mark * 3 assumptions = 3 marks maximum	<b>3</b>
<b>b (iii)</b>	TWO criticisms of the Walter's Dividend Model Brief answers are sufficient 1 mark * 2 criticisms = 2 marks maximum	<b>2</b>
	<b><u>Total Marks</u></b>	<b>20</b>

## Model Answer

a) Calculate the covariance and correlation between the returns of the two stocks.

Step 1: Calculate the expected return of each stock

$$E(RA) = 0.33(0.128) + 0.33(0.146) + 0.33(0.084)$$

$$E(RA) = 0.1193, \text{ or } 11.93\%$$

$$E(RB) = 0.33(-0.047) + 0.33(0.133) + 0.33(0.296)$$

$$E(RB) = 0.1273, \text{ or } 12.73\%$$

Where  $E(RA)$  is the expected return for stock A and  $E(RB)$  is the expected return for stock B.

Note that 0.33 is the weight calculated as  $1 / 3 = 0.33$

Step 2: Calculate the variance for each stock

For stock A:

$$\sigma^2 A = 0.33(0.128 - 0.1193)^2 + 0.33(0.146 - 0.1193)^2 + 0.33(0.084 - 0.1193)^2$$

$$\sigma^2 A = .00068$$

$$\sigma A = (.00068)^{1/2}$$

$$\sigma A = .0260, \text{ or } 2.60\%$$

For stock B:

$$\sigma^2 B = 0.33(-0.047 - 0.1273)^2 + 0.33(0.133 - 0.1273)^2 + 0.33(0.296 - 0.1273)^2$$

$$\sigma^2 B = .01962$$

$$\sigma B = (.01962)^{1/2}$$

$$\sigma B = .1401, \text{ or } 14.01\%$$

Where:

$\sigma^2 A$  is the variance of stock A

$\sigma A$  is the standard deviation of stock A

$\sigma^2 B$  is the variance of stock B

$\sigma B$  is the standard deviation of stock B

Step 3: Calculate the covariance

$$\text{Cov}(A,B) = 0.33(.128 - 0.1193)(-0.047 - 0.1273) + 0.33(0.146 - 0.1193)(0.133 - 0.1273) + 0.33(0.084 - 0.1193)(0.296 - 0.1273)$$

$$\text{Cov}(A,B) = -.00244$$

Where  $\text{Cov}(A, B)$  is the covariance of stocks A and B

Negative covariance means both stocks (A, B) move in the opposite direction.

Step 4: Calculate the correlation

$$\begin{aligned}\rho_{A,B} &= \frac{\text{Cov}(A,B)}{\sigma_A \sigma_B} \\ \rho_{A,B} &= \frac{-0.00224}{(0.0260)(0.1401)} \\ \rho_{A,B} &= -0.6688\end{aligned}$$

Where  $\rho_{A,B}$  is the correlation of stocks A and B

A negative correlation means that there is a negative relationship between the two stocks.

**i. Briefly describe the Walter's Dividend Model.**

Prof. James E Walter formed a model for share valuation that states that the dividend policy of a company influences its valuation. He categorized two factors that influence the price of the share viz. dividend payout ratio of the company and the relationship between the internal rate of return of the company and the cost of capital.

Walter's model on dividend policy believes in the relevance concept of a dividend. According to this concept, a dividend decision of the company affects its valuation. Walter's theory further explains this concept in a mathematical model.

**ii. Describe THREE assumptions of the Walter's Dividend Model.**

Walter's model is based on the following assumptions:

- **Internal Financing:** All the investments are financed by the firm through retained earnings. No new equity is issued for the same.
- **Constant IRR and Cost of Capital:** The internal rate of return ( $r$ ) and the cost of capital ( $k$ ) of the firm are constant. The business risks remain same for all the investment decisions.
- **Constant EPS and DPS:** Beginning earnings and dividends of the firm never change. Though different values of EPS and DPS may be used in the model, but they are assumed to remain constant while determining a value.
- **Infinite Life:** The company has an infinite or a very long life.
- **Capital Market is perfect:** It means that information about all securities is available to all investors in equal proportion. Due to this assumption, there is no over pricing or under pricing of the security. Further it means that all investors are rational. It means all investors want to increase their return and reduce their risk.
- **No Flotation Cost, no transaction cost, no Corporate Dividend Tax:** It is assumed that there is no cost to the company in issuing a security, there is no cost to investor to buy or sell a security and there is no corporate dividend tax. All of them have been eliminated because these things do not remain same for all the companies universally and this theory is to be applied universally.
- **Only Equity Finance:** A company can have only equity finance. It includes equity share capital and reserves and surplus. There is no source of finance like preference share capital or debentures. Preference share capital is a hybrid source of finance, it includes certain features of debt and certain features of equity. So, it is eliminated by making this assumption. Further, in case of debt financing there is a chance of trading on equity, so with that rate of earning of the company will keep on changing. Hence it is also eliminated. Trading on equity means borrowing at a lower rate and earning at a higher rate.

### **iii. State TWO criticisms of the Walter's Dividend Model.**

Walter's theory is critiqued for the following unrealistic assumptions in the model:

- No External Financing: Walter's assumption of complete internal financing by the firm through retained earnings is difficult to follow in the real world. The firms do require external financing for new investments.
- Constant internal rate of return of the firm ( $r$ ) and cost of capital of the firm ( $k$ ): It is very rare to find the internal rate of return and the cost of capital to be constant. The business risks will change with more investments which are not reflected in this assumption.
- Conclusion of retaining 100 % of earning: Conclusion of Walter Model that, if  $r$  exceeds  $k_e$ , then retain 100 % of earning is unrealistic. Considering dividend payment by other companies, it is necessary to make equity dividend payment otherwise company's stock will be out of favour. Cash return will give psychological more satisfaction, in comparison to change in price of security.
- Other unrealistic assumptions: Assuming that there is no debt financing, preference share capital financing, no flotation cost, transaction cost, the capital market is perfect are impractical assumptions.

**END OF MARKING GUIDE AND MODEL ANSWER**