CERTIFIED PUBLIC ACCOUNTANT

INTERMEDIATE LEVEL EXAMINATIONS

I1.1 MANAGERIAL FINANCE

DATE: THURSDAY 27, FEBRUARY 2025

MARKING GUIDE & MODEL ANSWERS

SECTION A

QUESTION ONE
MARKING GUIDE

Q4	Criteria	Marks
a)	✓ Award 1 **Mark** for each of 2 correct advantages and 3 disadvantages of equity source of finance computation of modified cash flows	**5**
b)	✓ Award **0.5 Marks** correct computation of earnings before tax in each option ✓ Award **0.5 Marks** correct computation of tax in each option ✓ Award **0.5 Marks** correct computation of earnings after tax in each option ✓ Award **1 Mark** correct advice on the best option to use **Maximum marks**	1 1 1 1 **4**
(c)	✓ Award 1 **Mark** for the formula of future value ✓ Award 1 **Mark** for each correct computation and answer of future value in each option ✓ Award 1 **Mark** for advice ✓ Award **1 Mark** for each consideration **Maximum marks**	1 2 1 2 **6**
d)	Award **1 Mark** for discussing 5 compositions of shareholders	5
	Total marks	**20**

MODEL ANSWER

a) Advantages:

- ✓ They facilitate projects especially long-term projects because they are permanent.
- ✓ Its cost is not a legal obligation.
- ✓ It lowers gearing level: reduces chances of receivership/liquidation.
- ✓ Used with flexibility: without preconditions.
- ✓ Such finances boost the company's credibility and credit rating.
- ✓ Owners contribute valuable ideas to the company's operations (during AGM by professionals).
- ✓ No fixed annual charges are payable - no legal obligation to pay a dividend.
- ✓ Do not have a maturity date and are not normally redeemable.
- ✓ Usually more attractive to investors than fixed interest securities.
- ✓ Might increase the creditworthiness of a company as they reduce gearing.

Disadvantages:

- ✓ Issue might reduce EPS, especially if the assets acquired do not produce immediate earnings.
- ✓ Extend voting rights to more shareholders.
- ✓ Lower gearing as a result of the issue might result in a higher overall cost of capital than is necessary.
- ✓ Issues often involve substantial issue and underwriting costs.
- ✓ Dividends are not a tax allowable expense

b) Advise to Silverback Cargo fright Ltd on the best option to finance its operation

Calculate loan capital		
Detail	**Option A FRW" Million**	**Option B FRW "Million**
Operating profits	400	400
Less operating cost	10	10
Less interest 10%*100	0	10
Earnings before tax	**390**	**380**
Less taxes 30%	117	114
Earnings after tax	**273**	**266**

Based on the above calculations, Option A of financing company's operation is the best as it is the one with higher Net Profit After Tax. Based on the tax paid, option B is the best because they will pay lesser tax compared to option A.

c) **Option I: Rwanda Housing Corporation Debenture**

Annual interest rate: 10% compounded quarterly

Period: 5 years

Principal (P): FRW 100 million

Compounding periods per year: 4 (quarterly)

Number of periods (n): 5*4=20

Periodic interest rate (r): 10%/4=2.5%

FV=P*(1+r)^n

FV=100,000,000*(1+0.025)^20 = FRW 163,862,000

Option II: Old Mutual Fund Securities

Annual return: 12% compounded semi-annually

Period: 5 years

Compounding periods per year: 2

Number of periods (n): 5*2=10

Periodic interest rate (r): 12%/2=6%

FV=100,000,000×(1+0.06)^10 = FRW 179,085,000

Advice: Option II (Old Mutual Fund) yields a higher future value of FRW 179,085,000 compared to FRW 163,862,000 from Option I.

Considerations:

i) Risk profile: Option I (debenture) is likely less risky as it's a debt instrument backed by Rwanda Housing Corporation while Option II (mutual fund) carries market risk due to exposure to equity and market fluctuations.

ii) Liquidity and access: Debentures may be less liquid or may have early withdrawal penalties while Mutual fund securities could offer more flexibility or redemption options, depending on terms.

d) **Composition of shareholders**

i) **Ordinary (Common) Shareholders** – These shareholders own common stock and have voting rights but receive dividends only after preferred shareholders.

ii) **Preferred Shareholders** – They hold preferred shares, which typically provide fixed dividends and priority in asset distribution but usually lack voting rights.

iii) **Institutional Shareholders** – Large entities such as mutual funds, pension funds, hedge funds, and insurance companies that invest in companies on a large scale.

iv) **Retail (Individual) Shareholders** – Private individuals who purchase shares for personal investment and may have small ownership stakes.

v) **Government and Strategic Shareholders** – These include government entities, sovereign wealth funds, or corporate investors holding shares for strategic purposes, such as influence or partnerships.

QUESTION TWO

MARKING QUIDE

Question	Criteria	Marks
Q2 (a) (i)	✓ Award **2 Mark** for clear definition of Equivalent Annual Cost	**2**
Q2 (a) (ii)	✓ Award **0.5 Mark** for computation of cash Flows for each year in table ✓ Award **0.5 Mark** for correct computed Present Values in each year ✓ Award **1 Mark** for correct Equivalent Annual Cost each year ✓ Award **1 Marks** for answering in a report format ✓ Award **2 Marks** for the correct recommendation of the year of asset replacement **Maximum marks**	2.5 2.5 5 1 2 **13**
Q2 (b)	✓ Award **2 Marks** for the five explained factors influencing working capital management, it the student only listed, award **1 Mark** only for each listed factor.	10
Total		**25**

MODEL ANSWERS

(a) (i) Equivalent Annual Cost (EAC): This refers to the method used when considering the optimum cycle within which to replace capital assets, or in other circumstances when assessing the repayments on a loan over a given schedule of years. It is a method of identifying the optimum replacement cycle for an asset by examining the various replacement options and calculates the present value of the total costs.

(a) (ii) NARRATIVE PRESENTATION TO THE BOARD

To: Members of Board of Directors of KCR Ltd

From: Management of KCR Ltd

Subject: Assets Replacement policy proposal

Dear Board members, management of KCR Ltd was tasked to prepare a narrative regarding assets replacement after issue of increase in vehicle running costs especially vehicles under our business line called Self Driving Service (SDS). Management has prepared a report of the last five years' performance and results are hereby detailed in the table below:

The Cash Flows for each cycle are:

Year	Replace every year	Replace every 2 years	Replace every 3 years	Replace every 4 years	Replace every 5 years
0	(50,000,000)	(50,000,000)	(50,000,000)	(50,000,000)	(50,000,000)
1	20,000,000	(15,000,000)	(15,000,000)	15,000,000	(15,000,000)
2		12,000,000	(20,000,000)	(20,000,000)	(20,000,000)
3			2,000,000	(25,000,000)	(25,000,000)
4				(8,000,000)	(30,000,000)
5					(17,000,000)

Present Value of cash flow at 10%

Present Value factor at 10%	0.909	0.826	0.751	0.683	0.621
Year	**Replace every year**	**Replace every 2 years**	**Replace every 3 years**	**Replace every 4 years**	**Replace every 5 years**
0	(50,000,000)	(50,000,000)	(50,000,000)	(50,000,000)	(50,000,000)
1	18,180,000	(13,635,000)	(13,635,000)	(13,635,000)	(13,635,000)
2		9,912,000	(16,520,000)	(16,520,000)	(16,520,000)
3			1,502,000	(18,775,000)	(18,775,000)
4				(5,464,000)	(20,490,000)
5					(10,557,000)
Present Value Total (A)	**(31,820,000)**	**(53,723,000)**	**(78,653,000)**	**(104,394,000)**	**(129,977,000)**
Cumulative PV factor (B)	0.909	1.735	2.486	3.169	3.790
Equivalent Annual Cost (C= A/B)	**(35,005,501)**	**(30,964,265)**	**(31,638,375)**	**(32,942,253)**	**(34,294,723)**

Result of the management assessment and recommendation:

After clear and deep analysis of the five-years data, management noted that optimum replacement cycle for our vehicles could be done every **two (2)** years as this has the lowest cost of **FRW 30,964,265** as shown in above table.

Management wishes that the proposed assets replacement policy guiding the company that all vehicles need to be replaced every four years of their operation and that other factors should be taken into account such as industrial practice, development in technology.

Thank you

KCR Ltd management

(b) Briefly, discuss on five factors influencing working capital management

Factors influencing working capital are:

1. Nature and size of the Business

Different businesses have varying working capital requirements i.e. manufacturing companies needs higher levels of working capital due to inventory needs, whereas service-oriented businesses may have lower requirements. While large manufacturing companies require higher levels of working capital compared to the small businesses.

2. Business's manufacturing cycle or season

Businesses that experience seasonal fluctuations in demand may need to adjust their working capital levels accordingly. They may need more working capital during peak seasons to support higher sales and production levels.

3. Firm's credit policy

The credit terms offered to customers affect accounts receivable and cash flow. Tightening or loosening credit policies can impact the amount of working capital tied up in receivables.

4. Availability of credit

The cost of financing working capital through loans or lines of credit is influenced by prevailing interest rates, which can impact overall working capital management policy. When interest rate increase or decrease, it affects how much may be borrowed to finance the working capital.

5. Business fluctuations/business cycle

The stage of the business cycle (growth, maturity, decline) can impact working capital needs.

During growth stage, company need more working capital same as when matured while at decline stage of business cycle, company's need of working capital reduces.

6. Production policy and supplier management

The terms negotiated with supplier's influence accounts payable. Longer payment terms can free up cash for other uses but may strain supplier relationships if not managed carefully.

7. Level of Competition

In highly competitive industries, companies may need **higher working** capital to maintain sufficient stock and offer favorable credit terms. Less competitive industries may require lower working capital.

8. Inflation and Economic Conditions

High inflation increases the cost of raw materials and labor, leading to higher working capital needs. Economic stability ensures predictable cash flows and lower working capital requirements

QUESTION THREE

MARKING QUIDE

Question	Criteria	Marks
Q3 (a)	✓ Award **0.5 Mark** for proper computation of cash inflow year ✓ Award **0.5 Mark** for proper computation of total operating costs each year ✓ Award **0.5 Mark** for correct total of Net cash flow ✓ Award **0.5 Mark** for correct PV each year ✓ Award **1 Mark** for Correct NPV ✓ Award **1 Marks** for correct recommendation to accept project **Maximum marks**	2 2 2 2 1 1 10
Q3 (b)	✓ Award **1 Mark** for calculating other NPV ✓ Award **0.5 Mark** for formula of IRR ✓ Award **1.5 Mark** for proper computation of IRR **Maximum marks**	1 0.5 1.5 **3**
Q3 (c)	✓ Award 1 **Mark** for calculating average accounting profit ✓ Award 1 **Mark** for calculating correct ARR **Maximum marks**	1 1 2
Total		**15**

MODEL ANSWERS

(i) Calculation of NPV

Year	**Y0**	**Y1**	**Y2**	**Y3**	**Y4**
Cash flow (W1)	(1,100,000,000)	480,000,000	576,800,000	1,018,464,000	393,381,720
Operating cost (W2)		(182,937,500)	(221,455,000)	(392,553,200)	(155,160,928)
Net cash flow	**(1,100,000,000)**	**297,062,500**	**355,345,000**	**625,910,800**	**238,220,792**
Discounting factor at 12%	1.000	0.893	0.797	0.712	0.636
Present Value (PV)	**(1,100,000,000)**	**265,276,813**	**283,209,965**	**445,648,490**	**151,508,424**
Net present value	**45,643,691**				

The investment proposal has a positive net present value (NPV) of **FRW 45,643,691** and is therefore, it should be **"Accepted".**

W1 Cash Inflow

Year	Y1	Y2	Y3	Y4
Selling price per unit 3% after Y1 onward	8,000	8,240	8,487	8,742
Demand (units/year)	60,000	70,000	120,000	45,000
Cash inflows	**480,000,000**	**576,800,000**	**1,018,464,000**	**393,381,720**

W2 Calculation of operating costs

Year	Y1	Y2	Y3	Y4
Inflated variable cost (FRW/unit) by 4% after Y1 onward	3,000	3,120	3,245	3,375
Demand (units/year)	60,000	70,000	120,000	45,000
Variable costs (FRW/year	**180,000,000**	**218,400,000**	**389,376,000**	**151,856,640**
Inflated fixed costs (FRW/year) 4% after Y1 onward	**2,937,500**	**3,055,000**	**3,177,200**	**3,304,288**
Total operating costs (FRW/year)	**182,937,500**	**221,455,000**	**392,553,200**	**155,160,928**

(ii) Calculation of internal rate of return

W3 NPV at 15%

Year	Y0	Y1	Y2	Y3	Y4
Net cash flow	(1,100,000,000)	297,062,500	355,345,000	625,910,800	238,220,792
Discounting factor at 15%	1	0.870	0.756	0.658	0.572
Present Value (PV)	**(1,100,000,000)**	**258,444,375**	**268,640,820**	**411,849,306**	**136,262,293**

Net present value **(24,803,206)**

Low rate	12%
High rate	15%
High rate - Low rate	3%
NPV at Low Rate	45,643,691
NPV at High Rate	(24,803,206)
NPV at Low Rate - NPV at High Rate	70,446,896

$$\text{IRR} = \text{Low rate} + \frac{NPV\ at\ Lower\ rate}{NPV\ at\ Lower\ rate - NPV\ at\ High\ rate} * High\ rate - low\ rate$$

$$\text{IRR} = 12\% + \frac{45{,}643{,}691}{45{,}643{,}691 - (-24{,}803{,}206)} * (15\% - 12\%) = 14\%$$

(iii) Calculation of return on capital employed (Accounting Rate of Return)

Details	Total cash inflow
Y1	297,062,500
Y2	355,345,000
Y3	625,910,800
Y4	238,220,792
Total	**1,516,539,092**

Total depreciation and initial investment are same, as there is no scrap value

Details	Cash inflow
Total Net cash inflow	1,516,539,092
Total Depreciation	(1,100,000,000)
Total accounting profit	416,539,092
Average Accounting Profit (416,539,092/4)	104,134,773

$$\text{ARR} = \frac{\text{Average Accounting Profits}}{\text{Initial Investment}} * 100 = \frac{104{,}134{,}773}{1{,}100{,}000{,}000} * 100 = 9\%$$

QUESTION FOUR

MARKING QUIDE

Question	Criteria	Marks
Q4 (a)	✓ Award **1 Mark** for Value of share formula ✓ Award 4 Marks for correct value computed **Maximum marks**	1 4 **5**
Q4 (b)	(i) - Award 0.5 Mark for DPS formula - Award 1Mark for correct DPS computed - Award 1 Mark for interpretation of DPS (ii) - Award 0.5 Mark for DY formula - Award 1Mark for correct DY computed - Award 1 Mark for interpretation of DY (iii) - Award 0.5 Mark for EPS formula - Award 1Mark for correct EPS computed - Award 1 Mark for interpretation of EPS (iv) - Award 0.5 Mark for DC formula - Award 1Mark for correct DC computed - Award 1 Mark for interpretation of DC Maximum marks	0.5 1 1 0.5 1 0.5 1 0.5 **6**
Q4 (c)	Award **2 Marks** for each two explained forms of dividend	4
Q4 (d)	✓ Award 1 Mark for Baumol's Model formula ✓ Award 1 Mark for converting annual interest rate to monthly interest rate ✓ Award 3 Mark for correct computed optimal cash balance **Maximum marks**	1 1 3 **5**
Total		**20**

MODEL ANSWERS

(a) Calculate the current share price of GPS ltd using the dividend.

During calculation of value of share using dividend model; use the following formula:

Constant growth model

$$\text{Value} = \frac{d_o (1 + g)}{r - g}$$

Where: d_o = most recent dividend
g = expected growth rate in dividends
r = company's cost of equity

Data given

D_0 = FRW 3,000,000 (Dividend paid before Covid-19)

R = 10% (required rate of return)

G = 5% (growth rate of dividends)

$$\textbf{Value} = \frac{3{,}000{,}000\ (1+0.05)}{0.1-0.05} = \textbf{63,000,000}$$

(b) With appropriate calculation, interpret dividend ration results

(i) Dividend Per Share (DPS) = $\frac{\text{Dividend payments to shareholders}}{\text{Number of ordinary shares}} = \frac{3{,}000{,}000}{500} =$ $\boldsymbol{Frw\ 6{,}000}$

Indicate cash returns received for every share holder

(ii) Dividend Yield (DY) = $\frac{\text{Dividend Per Share (DPS)}}{\text{Market Value Per shares (MPS)}} = \frac{6{,}000}{20{,}000{,}000} = \mathbf{0.030\%}$

Indicate dividend returns for every FRW invested in the Gasabo Printing Services Ltd by the shareholder.

(iii) Earnings Per Share (EPS) = $\frac{\text{Earnings to ordinary shareholders}}{\text{Number of ordinary shares}} = \frac{4{,}243{,}585{,}500}{500} =$ $\boldsymbol{Frw\ 8{,}487{,}171}$

This indicate earning for each share held in the company.

(iv) Dividend Cover (DC) = $\frac{\text{Earning Per Share (EPS)}}{\text{Dividend Per shares (DPS)}} = \frac{8{,}487{,}171}{6{,}000} = \mathbf{1{,}415\ times}$

Indicate the number of times dividends can be paid out of earnings of shareholders. The higher the DPS the lower the dividend cover

(c) Explanation of forms of dividends

1. **Cash and bonus issue**: For a firm to pay cash dividends, it should have adequate liquid funds. However, under conditions of liquidity and financial constraints, a firm can pay stock dividend.
   Bonus issue involves issue of additional shares for free (instead of cash) to existing shareholders in their shareholding proportion
   Stock dividend/Bonus issue involves capitalization of retained earnings and does not increase the wealth of shareholders. This is because Retained Earnings is converted into shares.
2. **Stock Split and Reverse Split:** This is where a block of shares is broken down into smaller units (shares) so that the number of ordinary shares increases and their respective par value decreases at the stock split factor. Stock split is meant to make the shares of a company more affordable by low-income investors and increase their liquidity in the market.
3. **Stock Repurchase:** The company can also buy back some of its outstanding shares instead of paying cash dividends. This is known as stock repurchase and shares repurchased, (bought back) are called treasury Stock. If some outstanding shares are repurchased, fewer shares would remain outstanding.
4. **Stock rights/rights issue (Scrip Dividend:** This is when a company raises additional capital by offering existing shareholders the right to purchase new shares at a discounted price (discount is a dividend).

(d) Calculation of the optimal cash balance of GPS Ltd using Baumol's Model

Optimal Cash formula:

$$Bo = \sqrt{\frac{2*T*F}{i}}$$

Where:

BO = Optimal cash balance

T = Total cash needed per period (average cash balance requirement), in this question it is FRW 200,000 per month

F = Fixed cost per transaction (cost of each cash withdrawal) on this question, it is FRW 50

i = Opportunity cost, or interest rate on Government Treasury bond and its is 13% per year, then Monthly interest rate is 13%/12 = 1.08%.

Then,

Considering per month

$$\text{Bo} = \sqrt{\frac{2*200{,}000*50}{1.08\%}} = \sqrt{\frac{20{,}000{,}000}{1.08\%}} = \sqrt{1{,}846{,}153{,}846} = \mathbf{42{,}967}$$

Or

Considering per annum

$$\text{Bo} = \sqrt{\frac{2*200{,}000*12*50}{13\%}} = \sqrt{\frac{240{,}000{,}000}{13\%}} = \sqrt{1{,}846{,}153{,}846} = \mathbf{42{,}967}$$

QUESTION FIVE

MARKING GUIDE

Q5	Criteria	Marks
a)	Award 2 **Marks** each for discussing 5 advantages of venture capital	**10**
b)	✓ Award **1 Mark** for each of 4 correct computations of cost of capital ✓ Award **1 Mark** for correct WACC Maximum marks	4 1 **5**
(C)	Award **1 Mark** for 5 correct discussions of limitation of WACC	**5**
	Total marks	**20**

Model Answer

a) Discuss five advantages of using venture capital as a source of finance

 Access to Expertise and Networks: Venture capitalists often bring valuable expertise, experience, and industry connections to the table. They can provide strategic guidance, mentorship, and operational support, which are crucial for early-stage companies navigating growth and scaling challenges. This expertise can significantly enhance the success prospects of the funded venture.

 Risk Sharing: Venture capital allows entrepreneurs and startups to share the financial risks associated with starting and growing a business. Unlike traditional loans or debt financing, where repayment is required regardless of business success, venture capital

investors typically accept the risk of loss if the venture fails. This alignment of risk encourages investors to work closely with founders to achieve mutual success.

 Long-Term Focus on Growth: Venture capitalists are typically interested in long-term growth and maximizing the value of their investments over several years. This focus aligns well with the needs of early-stage companies that require capital to fund product development, market expansion, and team building without the short-term pressure of immediate profitability. It allows startups to prioritize growth and market penetration over profitability in the initial stages.

 Flexible Financing Structures: Venture capital financing can be structured in various ways to meet the specific needs of the business. Besides equity investments, venture capitalists may provide convertible debt, which converts to equity under certain conditions, or structured investments that allow for milestone-based funding. This flexibility can provide startups with the necessary capital at different stages of their growth trajectory.

 Validation and Credibility: Securing venture capital funding can provide external validation of a startup's business model, team, and market potential. This validation can enhance the startup's credibility with customers, suppliers, and future investors, making it easier to attract additional funding rounds or strategic partnerships. Moreover, the involvement of reputable venture capitalists can enhance the startup's reputation and visibility within the industry.

• **Access to Large Funding Without Debt:** Unlike loans, venture capital (VC) does not require repayment with interest. Startups can secure significant capital without the burden of fixed repayments, improving cash flow.

b)

Calculate weighted average cost of capital (WACC)
Cost of ordinary shares
Using dividend model
Ke =d1/Po*100+g%
di=12.75
Po=120
g%=2.5%
Ke =12.75/120*100+2.5%
Ke=13.13%
13.125
Using CAPM
Ke=Rf+beta (Rm-Rf)
Rf=2.6%
Rm=12%
beta=1.12
Ke=2.6%+1.12(12%-2.6%)
Ke=13.13%
13.128
Cost of preference shares
KPS=DO/PO*100

DO=15%*80=12
PO=80
KPS =12/80*100
KPS=15%
Cost of 8%bank loan
Kd=I(1-T)
I=8%
T=0.3
Kd=8%*(1-0.3) =5.6%
Cost of 14% irredeemable debentures
Kd=I(1-T)
I=14%
Kd=14%*(1 - 0.3) = 9.8%

Market values			
Details	**Number of shares million**	**Market price**	**Total market value FRW**
Ordinary shares	25	120	3,000
15% Preferences shares	10	80	800
8% Bank loan			400
14% Irredeemable debentures	10	70	700
			4,900

Source of capital	**Market value FRW million**	**Weight**	**After tax cost%**	**WACC %**
Ordinary shares	3,000	0.612244898	13.128	8.04
15% Preference shares	800	0.163265306	15	2.45
8% Bank loan	400	0.081632653	5.6	0.46
14% Irredeemable debentures	700	0.142857143	9.8	1.4
	4,900	1		12.34%

c)Discuss the limitation of weighted average cost of capital

i) Assumes Constant Capital Structure: The WACC computation is predicated on the idea that the capital structure, or the ratio of debt to equity, would not change. In actuality, businesses regularly alter their capital structures, which over time may render the WACC inaccurate as a representation of cost of capital.

ii) Application to Diverse Projects: When assessing projects with risk profiles comparable to those of the organization as a whole, WACC is frequently employed as a discount rate.

Because it ignores project-specific risk modifications, using it for projects with varying risk levels may result in poor investment decisions.

iii) No Timing of Cash Flows Is Taken into Account: WACC ignores timing and instead assumes that cash flows happen equally throughout the year. When evaluating projects with irregular or concentrated cash flows, this constraint becomes important.

iv) Ignores Cost of Capital Fluctuations: WACC uses the average cost of equity and debt, which could not accurately reflect the state of the market right now. For instance, changes in interest rates or the company's credit rating may affect the cost of debt, whereas shifts in investor sentiment or market risk may affect the cost of equity. It's possible to oversimplify the true cost of capital at any particular moment by using average expenses.

v) Difficulty in Estimating Components: Subjective assumptions about future growth rates, risk-free rates, and market risk premiums are involved in estimating the cost of equity, particularly the required rate of return. These approximations may differ greatly amongst analysts and add subjectivity to WACC computations.

vi) Ignores Project-Specific Risks: WACC represents the average cost of capital for the entire company and may not reflect the risk of individual projects. Using the same WACC for all projects can lead to incorrect investment decisions.

vii) Market Conditions Fluctuate: Like interest rates, inflation, and investor risk appetite can change over time, affecting the cost of debt and equity. Since WACC is based on past data, it may not accurately reflect future conditions.

QUESTION SIX

MARKING QUIDE

Question	Criteria	Marks
Q6 (a)	✓ Award **1 Mark** for clear definition of capital rationing ✓ Award **1 Mark** for each of the four possible ways of solving capital rationing **Maximum marks**	1 4 **5**
Q6 (b)	✓ Award **1 Mark** for each of the three assumptions of CAPM ✓ Award **1 Mark** for each of the two applications of CAPM ✓ Award 1 **Mark** for each of the two limitations of CAPM **Maximum marks**	3 2 2 **7**
Q6 (c)	Award **2 Marks** for each of the four briefly explained factors influencing dividend	8
Total		**20**

MODEL ANSWERS

(a) Definition of capital rationing and give at least 4 possible ways of solving capital rationing

Capital rationing: This refers to a situation where a company has insufficient capital to complete all projects which it would like to undertake (e.g. those with a positive NPV).

There are two forms of capital rationing as explained below:

Soft Capital Rationing – due to factors **internal** to the organisation. For example, projects are limited to funds available from retentions; management are unwilling to commit to additional debt due to the risk involved; the capacity of management to undertake many projects etc.

Hard Capital Rationing – due to factors **external** to the organisation. For example, restrictions imposed on further borrowing due to a credit squeeze or lenders unwilling to provide further funds due to risk factors; stock market depressed and share issue not acceptable by shareholders.

Possible ways of solving capital rationing are:

1. Defer one or more projects to a later period when capital is not rationed
2. Share project(s) with another partner, joint venture
3. Outsource part of a project (e.g. component)
4. Consider licensing/franchising
5. Seek alternative sources of funding (e.g. venture capital, sale & leaseback)

(b) **Assumptions, two applications and two limitations of CAPM**

Capital Asset Model (CAPM)			
S/N	**Assumptions**	**Applications**	**Limitation**
1	Investors are rational and they choose among alternative portfolios on the basis of each portfolio's expected return and standard deviation.	Cost of Equity Calculation	It is based on some unrealistic assumptions such as: - Existence of Risk-free assets, - All assets being perfectly divisible and marketable (human capital is not divisible), - Asset returns are normally distributed. - Existence of homogeneous expectations about the expected returns
2	Investors are risk averse.	Portfolio Management and Diversification:	CAPM is a single period model —it looks at the end of the year return.
3	Investors maximise the utility of end of period wealth. CAPM is a single period model.	Performance Evaluation of Investment Managers	CAPM cannot be empirically tested because we cannot test investors expectations.

4	Investors have homogeneous expectations with regard to asset return. All investors will perceive the same efficient set.	Valuation of Securities and Projects:	CAPM assumes that a security's required rate of return is based on only one factor (the stock market—beta). However, other factors such as relative sensitivity to inflation and dividend payout, may influence a security's return relative to those of other securities.
5	There exist a risk-free asset and all investors can borrow and lend at this rate.		
6	All assets are marketable and perfectly divisible.		
7	The capital market is efficient and perfect.		

(c) Factors to consider in paying dividends (factors influencing dividend)

1. **Legal rules**
   - ✓ Net purchase rule States that dividend may be paid from company's profit either past or present.
   - ✓ **Capital impairment rule:** prohibits payment of dividends from capital i.e. from sale of assets. This is liquidating the firm.
   - ✓ **Insolvency rule:** prohibits payment of dividend when company is insolvent. Insolvent company is one where assets are less than liabilities. Insolvent company is one where assets are less than liabilities. In such a case all earnings and assets of company belong to debt holders and no dividends is paid.

2. Profitability and liquidity

A company's capacity to pay dividend will be determined primarily by its ability to generate adequate and stable profits and cash flow.

If the company has liquidity problem, it may be unable to pay cash dividend and result to paying stock dividend.

3. Taxation position of shareholders

Dividend payment is influenced by tax regime of a country e.g in Rwanda cash dividend are taxable at source, while capital are tax exempt**.**

The effect of tax differential is to discourage shareholders from wanting high dividends. (This is explained by tax differential theory).

4. Investment opportunity

Lack of appropriate investment opportunities i.e. those with positive returns (N.P.V.), may encourage a firm to increase its dividend distribution. If a firm has many investment opportunities, it will pay low dividends and have high retention.

5. Capital Structure
A company's management may wish to achieve or restore an optimal capital structure i.e. if they consider gearing to be too high, they may pay low dividends and allow reserves to accumulate until a more optimal/appropriate capital structure is restored/achieved.

6. Industrial Practice
Companies will be resistant to deviation from accepted dividend or payment norms within the industry.

7. Growth Stage
Dividend policy is likely to be influenced by firm's growth stage e.g a young rapidly growing firm is likely to have high demand for development finance and therefore may pay low dividend or a defer dividend payment until company reaches maturity. It will retain high amount.

8. Ownership Structure
A dividend policy may be driven by Time Ownership Structure e.g in small firms where owners and managers are same, dividend payout are usually low.

9. Shareholders expectation
Shareholder clientele have become accustomed to receiving stable and increasing div. Will expect a similar pattern to continue in the future.

End of Marking Guide and Answer Model