



**CERTIFIED PUBLIC ACCOUNTANT
INTERMEDIATE LEVEL EXAMINATIONS**

11.1: MANAGERIAL FINANCE

DATE: THURSDAY, 27 APRIL 2023

INSTRUCTIONS:

- 1. Time Allowed: 3 hours 15 minutes (15 minutes reading and 3 hours writing).**
- 2. This examination has two sections: A & B.**
- 3. Section A has three Compulsory Questions while B has three questions of which two Should be attempted.**
- 4. In summary attempt FIVE questions.**
- 5. Marks allocated to each question are shown at the end of the question.**
- 6. Show all your workings where necessary.**
- 7. The question paper should not be taken out of the examination room.**

SECTION A

QUESTION ONE

Kanamugire Co Ltd is a manufacturing company operating in Gakiriro–Gisozi. Apart from manufacturing, Kanamugire Co Ltd engages in distribution of tiles in Rwanda. 80% of sales are made on credit.

Information below was extracted from its books of accounts for two comparative years.

Extract for Statement of Profit or Loss

	2022	2021
	FRW (Millions)	FRW (Millions)
Sales revenue	45,000	35,000
Cost of sales	(39,000)	(28,000)
Goss profit	6,000	7,000

Extract for Balance sheet

	2022	2021
	FRW (Millions)	FRW (Millions)
Current asset		
Inventories	8,500	7,000
Accounts receivable	2,550	4,050
Short term investment	14,000	9,500
Cash at bank	14,000	8,500
Cash in hand	1,700	5,500
	40,750	34,550
Current liabilities		
Bank overdraft	14,000	12,000
Accrued tax	600	650
Short term interest loan	2,500	4,800
Account's payables	5,500	5,200
	(22,600)	(22,650)
Net current asset	18,150	11,900

The manufacturing sector industry average data are as follows.

Current ratio	2:1
Quick ratio	1:1
Net working capital turnover ratio	3:1
Inventory turnover days	60
Account receivables days	20
Account Payables days	35

Required:

- a) Briefly discuss the Five factors which should be considered when formulating the working Capital Policy (10 Marks)
- b) Calculate the liquidity and working capital turnover ratio for comparative year and on industry level.
 - i. Current ratio (1.5Marks)
 - ii. Quick ratio (1.5 Marks)
 - iii. Accounts receivable days (1.5 Marks)
 - iv. Accounts payable days (1.5 Marks)
 - v. Inventory days (1.5 Marks)
 - vi. Net working capital Turnover ratio (1.5 Marks)
- c) Calculate working capital cycle of Kanamugire Co Ltd and appraise its performance against industry average, based on Current ratio, quick ratio, networking capital turnover ratio and working capital cycle. (6 Marks)

(Total: 25 Marks)

QUESTION TWO

Ntuma Co Ltd is a company legally registered in Rwanda and it is listed on Rwanda stock exchange (RSE). It is currently operating on Rwandan market, and it is considering to expand its operation over the East African region market. Ntuma Co Ltd wants to spend FRW 100 million to acquire a brand-new bus as it is expanding the business. It has been suggested by Financial Manager that, the money could be raised by issuing of 9 % loan note redeemable in 5 years.

The following is the statement of financial position as extracted from Ntuma Co Ltd.'s books of accounts of 2022.

Account's description	(000)FRW
Non-current asset	100,000
Current asset	60,000
Total assets	160,000
Equity and liability	
Ordinary shares of FRW 100 each,	50,000
Retained earnings	10,000
Total equity	60,000
Liabilities	
12% loan note	35,000
7.5% Preference share of FRW 100 each	25,000
Total non-current liability	60,000
Current liabilities	40,000
Total Equity and liability	160,000

The current ex dividend ordinary share price is FRW 500 per share. Dividend of FRW 50 per share has been paid and dividend are expected to grow by 5% per year for the foreseeable future.

The current ex dividend preference share price is FRW 80. The 12% loan note has to be redeemable at par in 6 years' time. They have a current ex interest market price of FRW 1,200 per FRW 1,000 loan note. Corporate tax was at 30%.

Required:

a) Calculate the current weighted average cost of capital (WACC) of Ntuma Co Ltd (14 Marks)

b) Without further calculations, explain the impact of the new loan on the following:

i. Cost of equity (1 Mark)

ii. Cost of debt (1 Mark)

c) Without further calculation, discuss whether financial management of Ntuma Co Ltd suggestion of issuing of 9 % loan note redeemable in 5 years to raise amount for expansion of business that can reduce its Weighted average cost of capital to a minimum level according to Traditional view and Muller and Modigliani Model of capital structure. (4 Marks)

(Total: 20 Marks)

QUESTION THREE

Kanyange Company Ltd is manufacturing company operate in Kigali Special Economic Zone (KSEZ), where many products are sanitary equipment, Kanyange Company Ltd needs to diversify into new product of plastic pipeline used in water installation to different household in Rwanda and in the region, which will require company to buy a new machine to meet expected future demand. The company's Finance Manager has proposed the following project proposal to the management for approval.

The machine will cost FRW 350 million, and it is expected to have five years of useful life after which it will be scrapped at the value of FRW 25 million.

Kanyange Company Ltd expect demand for plastic pipeline to be as follows:

Years	1	2	3	4	5
Demand (units)	85,000	85,000	100,000	90,000	60,000

The current unit selling price for plastic pipeline is FRW 2,500 and the variable cost of production is expected to FRW 600 per unit. Incremental annual fixed production overhead is FRW 500 per unit. Selling price and all cost are in current terms.

Selling price and cost are expected to grow as follows:

Selling price of plastic pipeline	5% per annum
Variable production cost	4% per annum
Fixed production overhead	3% per annum

In addition to the initial investment in new machinery, FRW50 million would need to be invested in working capital which will be increased by 10 % per annum. The full amount cost FRW 350 million of the initial investment in new machinery will give rise of capital allowance of 25% per year reducing balance basis.

Kanyange Company Ltd has real cost of capital of 9.5 % per annum and pays tax in arrears at a rate of 30%. General inflation rate is expected to be 5% per year. Kanyange Company Ltd has a target return on capital employed of 20%. Depreciation is charged on straight-line basis.

Required:

- Calculate the Net Present Value of the proposed investment of buying new machine and comment on your result. (11 Marks)**
- Calculate the before-tax Return on Capital Employed (Accounting Rate of Return) based on average investment (2 Marks)**
- Explain how the NPV investment appraisal method is applied in situation where capital is rationed. (2 Marks)**

(Total: 15 Marks)

SECTION B

QUESTION FOUR

Munyehirwe has a capital of FRW 10 million which he wishes to invest his funds in share of Horizon Co Ltd and Ntuma Nkugireyo Co Ltd (NN Co Ltd). The funds to be invested will be allocated as follow:

Company	Amount (FRW)
Horizon Co LTD	7,500,000
NN Co Ltd	2,500,000

The following probability distribution relates to the share of the two companies.

State of economy	Probability	Return from NN ltd	Return from horizon co ltd
Boom	0.2	5%	24%
Steady growth	0.6	30%	12%
Recession	0.2	-5%	0%

Required:

a) Showing all your workings, compute the following for the two companies:

- i) Expected return on the shares (2 Marks)**
- ii) Determine standard deviation of return on share (2 Marks)**
- iii) Coefficient of correlation between the returns on share (4 Marks)**
- iv) Determine Expected portfolio returns (2 Marks)**
- v) Determine expected Portfolio risk (3 Marks)**

b) What are the assumptions underlying the Capital Asset Pricing Model (5 Marks)

c) Many of the Underlying Assumption of CAPM are violated in the real world, does that fact invalidate the model's conclusions? Explain (2 Marks)

(Total: 20 Marks)

QUESTION FIVE

Managing Directors of three profitable listed companies met in annual training Conference organized by ICPAR at the end of each year, they have discussed on different dividend policies applicable to their companies' shareholders.

The following data were extracted from the books of accounts of the three companies:

Years	Company A			Company B			Company C	
	Earning	Dividend	CAPEX	Earning	Dividend	CAPEX	Earning	Dividend
	FRW (000)							
2018	900	315	401	1,250	400	390	1,050	630
2019	800	280	500	950	450	250	980	518
2020	600	210	700	730	600	600	1,500	992
2021	750	262.5	350	680	600	150	900	340
2022	850	297.5	390	968	750	100	605	0

Note that the above stated total earnings figure is before deducting any required capital expenditure (CAPEX)

Capital structure of Company A in 2022 was 1,000 ordinary shares at par value of FRW 4,000 in issue and there was no issue of shares during last five years. Ordinary shares of Company C were 4,000 ordinary shares at FRW 1,250 par value, the capital expenditure required by Company C was FRW 420,000 in 2018 with a growth rate of 10% for next four years as approved by Board of director for expansion of the business.

The following information was extracted in books of account of Company B

	2022	2021	2022	2019	2018
Ordinary share in issue at par value of (FRW 3,500)	1,500	1,200	1,200	900	800

The Managing Director of Company A wants to introduce a new method of dividend payment in the company, Its Finance Manager's had two proposals: stock split and reverse split. He suggested that this will help the company to attract new investors unfortunately, he fails to explain it and convince the Managing Director.

Required:

- Using provided information with appropriate calculation, **Discuss the dividend policy which is being applied to each company** (10 Marks)
- Briefly differentiate stock split and reverse split as a form of dividend payment** (2 Marks)
- Discuss how the dividend payment can be a signal to attract potential investors** (3 Marks)

- d) Briefly discuss the interests that the following stakeholders may look in the above companies:**
- i. Investors** (1 Mark)
 - ii. Government** (1 Mark)
 - iii. Customers** (1 Mark)
 - iv. Community** (1 Mark)
 - v. Loan Creditors** (1 Mark)
- (Total: 20 Marks)**

QUESTION SIX

Iwacu Clinic is a private Company located in Nyarutarama, whose owners are also the Directors. They have decided to sell their business and they have begun to search for a potential client. They have asked you for assessment of the price per share of the clinic. Most Recent Statement of Financial Position is presented below:

	FRW'000
Non-current assets (Net Book Value)	
Land and buildings	800,000
Plant and equipment	450,000
Motor vehicles	55,000
Goodwill (Internally generated)	2,000
Total Non-current assets	1,307,000
Current assets	
Inventory	250,000
Receivables	125,000
Cash	8,000
Total current assets	383,000
Total Assets	1,690,000
Equity and Liabilities	
Share capital (300,000 ordinary shares of FRW1,000)	300,000
Reserves	760,000
Total equity	1,060,000
Long-term liability	
Loan secured on property	400,000
Current liabilities	
Payables	180,000
Taxation	50,000
Total liability	630,000
Total equity & liability	1,690,000

The profits after tax and interest but before dividend over the last five years have been as follows.

Year	FRW'000
1	90,000
2	80,000
3	105,000
4	90,000
5 (most recent)	100,000

The company forecasts an after-tax profit of FRW 100,000,000 for year next to 5th year, with an increase of 4% year over each next four years. The annual dividend has been FRW 45,000,000 for the last six years with the same growth as that of forecasted after tax profit.

As part of their preparation to sell the Company, the Directors of Iwacu Clinic have the non-current assets revalued by an independent expert, with the following results.

	FRW (000)
Land and buildings	1,075,000
Plant and equipment	480,000
Motor vehicles	45,000

The gross dividend yield and P/E ratio of the three listed Companies in the same industry as Iwacu Clinic for recent year have been as follows:

	Murugo Clinic		Ururgwiro Clinic		Hora Clinic	
	Div. yield	P/E ratio	Div. yield	P/E ratio	Div. yield	P/E ratio
Recent year	12%	8.5%	11%	9%	13%	10%

Required:

Using the information provided to suggest a range of share value, which prospective purchasers might make using the following valuation methods:

- Asset-based model, (4 Marks)
- Price/earnings-based model (4 Marks)
- Earning yield model (4 Marks)
- Dividend yield basis without growth (4 Marks)
- Dividend yield basis with growth (4 Marks)

(Total: 20 Marks)

End of question Paper

Present value interest factor of FRW1 per period at i% for n periods, PVIF(i,n)

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

Present value interest factor of FRW1 per period at i% for n periods, PVIF(i,n)

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

Present value interest factor of an (ordinary) annuity of FRW1 per period at i% for n periods, PVIFA(i,n).

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

Present value interest factor of an (ordinary) annuity of FRW1 per period at i% for n periods, PVIFA(i,n).

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

