CERTIFIED PUBLIC ACCOUNTANT

INTERMEDIATE LEVEL EXAMINATIONS

I1.1: MANAGERIAL FINANCE

DATE: THURSDAY 27, NOVEMBER 2025

INSTRUCTIONS:

1. Time Allowed: **3hours 15minutes** (15minutes 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

a) An agency relationship exists where one or more parties, known as the principal, hire another known as an agent to perform on their behalf and then delegate decision-making authority to that hired party (Agent). Shora Wunguke Ltd is a company located in Nyagatare District that operates in the sector of selling meat to Nyagatare town. The board of directors and their shareholders of Shora Wunguke Ltd decided to expand their market boundaries to other parts of the country by establishing a new branch in Kigali City, so they decided to take a loan from Bliss Bank Ltd to expand their business. One of the board members comes with a proposal of taking part of the loan and buying new vehicles for the Board Members of the company and paying dividends to shareholders. Then, after the other party of loan amount is used for the proposed investment. This leads the company to fail to comply to the agreement they have with their lenders.

Required:

i) **Discuss THREE possible causes of agency problems between Shora Wunguke Ltd's management and its lenders.** (3 Marks)
ii) **Advise how agency problems in (i) can be addressed, highlighting four possible solutions** (2 Marks)
iii) **Discuss possible interests of TWO stakeholders of your choice towards Shora Wunguke Ltd.** (2 Marks)

b) Gakiriro Company Limited wants to buy a machine that could fulfill the company's future production plan. The Machine will cost FRW 900,000, payable immediately. It would have a useful life of 5 years. The machine would require the input of FRW 100,000 as working capital throughout its working life and have an expected scrap value of FRW 100,000.

The forecast pre-tax operating cash flows associated with the machine are as follows:

Years	**1**	**2**	**3**	**4**	**5**
Cash flows (FRW)	305,000	370,000	320,000	290,000	150,000

Gakiriro Company Limited pays tax at 30% payable one year in arrears, and claims that tax-allowable depreciation is available at 25% per year on a reducing balance basis. The company's cost of capital is 8%.

Required:

Calculate a modified payback period and advise whether the company should purchase the machine using Net Present Value (NPV) analysis. (8 Marks)

c) Gakiriro Company Limited operates a fleet of vehicles and is considering whether to replace the vehicle on a 1, 2, or 3-year cycle. Vehicle cost FRW 5,000,000 and the operating costs and the resale value at the end of each year are as follows:

	Year1	**Year 2**	**Year 3**
Operating cost	500,000	700,000	1,000,000
Resale value	3,500,000	2,500,000	1,500,000

Assume that the initial investment is incurred at the beginning of year 1 and that all other cash flows arise at the end of the year; consider the cost of capital of 8% per annum.

Required:

i) Explain the method used when you want to replace the existing asset with a similar asset. (2 Marks)

ii) With relevant calculations, **assess how frequently Gakiriro Company Ltd's assets should be replaced.** (8 Marks**)**

(Total: 25 Marks)

QUESTION TWO

The following data relates to Tech Solution Company Ltd, a company operating in the electronics industry in Musanze City.

Details	**2017**	**2018**	**2019**	**2020**	**2021**
After tax earnings (FRW)	3,400,000	3,900,000	5,100,000	5,900,000	8,020,000
Dividend per share (FRW)	90	80	85	85	93
Number of ordinary shares	10,000	12,000	13,000	15,000	18,000
Average share price (FRW)	150	175	150	160	200
Capital expenditure required per year (FRW)	2,500,000	2,940,000	3,995,000	4,625,000	6,346,000

A major institutional shareholder has criticized the level of dividend payment and suggested that it should be substantially increased.

Required:

a) Briefly explain SIX factors to be considered in formulating Tech Solution Company Ltd's dividend policy. (6 Marks)

b) By using relevant calculations, **discuss whether or not the shareholder's criticism is likely to be valid.** (8 Marks)

c) Using relevant calculations, **identify and discuss briefly the type of dividend policy used by Tech Solution Company Ltd and TWO advantages of the identified policy.** (6 Marks)

(Total: 20 Marks)

QUESTION THREE

The directors of Inyange Ltd, a company located in Kigali City operating in the industry sector of processed milk, are considering to acquire of Zirakamwa Meza Ltd, located in Nyabihu District, which is in the same industry for horizontal integration. The shareholders of Zirakamwa Meza Ltd are willing to sell the business on 1 January 2023, but they don't know the value of the firm. From the perspective of directors of Inyange Ltd, they hire you as a financial expert valuer, so you can help them determine the value of their business. The following table is the projection of the performance of Zirakamwa Meza Ltd for the next five years as follows:

	2023 FRW '000'	**2024 FRW '000'**	**2025 FRW '000'**	**2026 FRW '000'**	**2027 FRW '000'**
Sales	40,000	50,000	56,000	66,000	70,000
Cost of goods sold	15,000	17,000	22,000	18,000	20,000
Distribution cost	4,000	5,000	4,200	3,500	3,900
Depreciation	25,000	25,000	25,000	25,000	25,000
Administration cost	3,000	3,000	3,000	3,000	3,000
Capital allowance claimed	60,000	18,750	18,750	18,750	18,750
Interest paid	6,800	6,800	6,800	6,800	6,800

Additional information:

1. All the revenue and cost information above is in current terms.
2. Corporation tax is charged on profits at 30%. Tax is payable in the year following the year in which the profits occur
3. The following inflation rate will be applicable: Sales revenue: 5%, cost of sales: 3%, distribution cost and administration cost: 2%
4. After a forecasted five-year period, the growth rate of its Free Cash Flows will be 3% for the foreseeable future.
5. The company has a nominal cost of Equity of 10% and a real cost of Equity of 6%

Required:

With relevant calculations, **determine the market capitalization of the firm to Equity holders using the discounted cash flow method. (Total: 15 Marks)**

SECTION B

QUESTION FOUR

a) Robotic Solution Ltd is a public company headquartered in Kigali City, which deals in the technology of computers. Robotic Solution Ltd is in the process of determining the appropriate cost of capital to evaluate the viability of alternative projects. The following data is available to help the finance team in this process.

1. The company currently pays a dividend of FRW 200 per share. The growth rate is equal to 5% per annum.
2. The market prices of 10% irredeemable loan notes are FRW 900 ex-interest.
3. Convertible debt will be redeemable in five years at par; they are currently quoted at FRW 8,000 for every FRW 10,000 of nominal. A loan note can be converted into four shares in five years' time. A share has a current market value of FRW 1,500 and is expected to grow at 6% per annum.
4. Corporate tax rate is at 30%.
5. The company has its capital structure as follows:

	FRW'000'
Ordinary share capital (FRW1,000)	15,000
10% Irredeemable loan note (FRW 1,000)	35,000
12% Convertible debt (FRW 10,000)	40,000
Total	**90,000**

Required:

i) Using the information above, **calculate the:**
   1. **Cost of equity.** (1.5 Marks)
   2. **Cost of irredeemable loan note.** (1.5 Marks)
   3. **Cost of convertible debt.** (4 Marks)
   4. **Weighted average cost of capital.** (1.5 Marks)

ii) The dividend growth model is one of method of estimating cost of equity, where on the assumption that, market value of share is directly related to expected future dividend from the shares. **Elaborate THREE constraints of applying dividend growth model in estimating cost of equity.** (3 Marks)

iii) Explain how Capital Asset pricing Model would be used as alternative method of estimating the cost of capital and indicate the formula of CAPM. (2 Marks)

b) Venture capital is one of the sources of finance in Rwanda. Venture capital could be described as a means of financing the start-up, expansion, or purchase of a company, whereby the venture capitalist acquires an agreed proportion of the share capital (equity) of the company in return for providing the requisite funding.

Required:

i) **Highlight FIVE constraints of venture capital in Rwanda** (2.5 Marks)
ii) **Outline THREE reasons why the venture capital sector is more advanced in developed countries.** (1.5 marks)
iii) **Briefly explain the FIVE stages of venture capital investment** (2.5 Marks)

(Total: 20 Marks)

QUESTION FIVE

Agaciro Kacu Keza Ltd (AKK) is a newly established limited company since 2021 and has a head office in the MIC Building in Nyarugenge District. AKK Ltd is engaged in green projects as its core activity in environmental conservation. It is considering the construction of Green Park, where people can subscribe to spend a day, week, or even an entire vacation, depending on their wishes. This project requires an initial investment to buy equipment of FRW 600,000,000 now and will last for 4 years. The company charges depreciation at the rate of 25% and the Rwanda Revenue Authority allows a capital allowance of 40% in year one and the remaining 3 years straight line on the remaining balance. Sales revenue from subscriptions and membership fees is expected to be FRW 285,000,000 per annum. Raw materials will cost FRW 49,527,600 in the first year and will rise thereafter by 5% per annum because of inflation. Labour costs will be FRW 26,573,300 in year 1, and an agreement has just been concluded, whereby increases of 4% per annum will apply for the following three years. No residual value will arise at the end of the project. Due to the current competitive environment, there will be no increase in sales prices.

The general rate of inflation is expected to be 8% per annum for the next few years. The company's required Nominal rate of return is 15% and the tax rate is 30% payable in the same year.

Agaciro Kacu Keza Ltd (AKK) has also assessed another two projects. Project one is to open a Kigali Keza Restaurant (KKR) operating as a restaurant, and another Keza Bar Services (KBS) operating as a bar with a nightclub, and those new business lines are mutually exclusive.

Both projects will require an initial investment of FRW 100,000,000 each. Kigali Keza Restaurant (KKR) is expected to generate an annual income of FRW 35,000,000 for a period of 5 years, while Keza Bar Serviced (KBS) is expected to generate an annual income of FRW 30,000,000 for a period of 6 years. Both projects have no salvage value at the end of their useful lives.

Required:

a) **Evaluate the proposed project of Green Park using Net Present Value (NPV) and advise whether the project can be accepted or rejected, and why?** (13 Marks)

b) Calculate the relevant cash flows for both KKR and KBS projects and advise on which project Agaciro Kacu Keza Ltd (AKK) will go for and why? (5 Marks)

c) Elaborate at least TWO elements to be considered in a business plan before deciding whether an investment is worth backing the venture capital. (2 Marks)

(20 Marks)

QUESTION SIX

a) Modern Appliances budgets FRW 40,000,000 annually for raw materials used to manufacture television sets. Each unit of raw material costs FRW 2,000 with an ordering cost of FRW 500 per order and holding costs equal to 10% of the purchase price. To improve operations, the general manager plans to shift from the Economic Order Quantity (EOQ) model to the Economic Batch Quantity (EBQ) model. The production manager reports that the company operates 250 days per year, produces 120 television sets per day, and incurs a setup cost of FRW 300 per batch.

Required:

i) Calculate economic order quantity (3 Marks)

ii) Calculate economic batch quantity (4 Marks)

iii) Highlight three challenges of using just-in-time (3 Marks)

b) Explain an efficient portfolio for a two-asset case (1 Mark)

c) KCB Bank Rwanda Ltd is evaluating investing its surplus funds in mutual funds of company A and company B as a way of diversification and increasing income. The following table shows the return and risk of each company.

Details	Company A	Company B
Amount invested (FRW 000)	400,000	600,000
Expected return	11%	25%
Total risk	15%	20%

The correlation coefficient between the two companies is 0.30

Required:

Using the above information;

i) Calculate the portfolio return (4 Marks)

ii) Calculate the portfolio risk (5 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%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092	0.074	0.059	0.047	0.038	0.030	0.024	0.020	0.016	0.013	0.010
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057	0.044	0.033	0.026	0.020	0.015	0.012	0.009	0.007	0.005	0.004
35	0.706	0.500	0.355	0.253	0.181	0.130	0.094	0.068	0.049	0.036	0.026	0.019	0.014	0.010	0.008	0.006	0.004	0.003	0.002	0.002
40	0.672	0.453	0.307	0.208	0.142	0.097	0.067	0.046	0.032	0.022	0.015	0.011	0.008	0.005	0.004	0.003	0.002	0.001	0.001	0.001
50	0.608	0.372	0.228	0.141	0.087	0.054	0.034	0.021	0.013	0.009	0.005	0.003	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000

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%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077	8.422	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.427	8.694	8.055	7.496	7.003	6.566	6.177	5.829	5.517	5.235	4.979
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.644	8.855	8.176	7.586	7.070	6.617	6.215	5.858	5.539	5.251	4.992
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.779	8.951	8.244	7.634	7.105	6.642	6.233	5.871	5.548	5.258	4.997
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.915	9.042	8.304	7.675	7.133	6.661	6.246	5.880	5.554	5.262	4.999