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**CERTIFIED PUBLIC ACCOUNTANT
INTERMEDIATE LEVEL EXAMINATIONS**

11.1: MANAGERIAL FINANCE

DATE: THURSDAY 24, AUGUST 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

a) Turindane Face shield Ltd (TFS) is a local manufacturer producing laboratory consumables, and other protective equipment. Due to limited demand, the company has been producing only personal protective equipment including face masks for its staff while making solutions and laboratory consumables when cleaning up spills of infectious materials. During the Coronavirus outbreak, the company faced the more demand of face masks. TFS Ltd is considering a new machine “Mask Making Machine’ (MMM) to replace the existing machine currently being used in the production process. The new machine requires an investment of FRW 12,000,000. The production of MMM is expected to last five years after which the machine will be sold at FRW 3,000,000.

Masks produced would be sold at FRW 1,200 per box with a variable cost of FRW 480 per box. TFS will incur fixed production costs (excluding depreciation) amounting to FRW 1,200,000 per annum. The company depreciates the machine using straight-line method.

The number of boxes of facemasks expected to be produced and sold per annum for the next five years is indicated in table below:

Period (Year)	Boxes expected to be produced
1	16,000
2	14,000
3	14,000
4	10,000
5	6,000

Additional Information:

1. The Company’s cost of capital is 10% per annum,
2. The corporate tax rate is 30%.

Required:

- Calculate the five-year net present value of TFS Ltd and advise whether the Mask Making Machine should be invested in or not. (12Marks)**
- Briefly explain any TWO types of real options available in capital investments decisions. (2 Marks)**
- In making investment decisions, cashflows are considered to be more important than accounting profits. Why is this the case? (3 Marks)**

b) Kigali Hides and Skins Ltd is a local manufacturer that processes and exports raw hides and skins to the entire East African region. The company has been enjoying the market dominance until recently when new companies producing similar products entered the market. This development has affected the company's profitability and the stakeholders' value. In a bid to reduce the impact of competition and to increase shareholders' value, management is planning for a replacement cycle of an older machine with a new one to be purchased. This new machine will cost FRW 100,000 and the company's cost of capital is 11%. The operating costs and resale values for future years are estimated in table below:

Period	Year 0	Year 1	Year 2	Year 3
Operating Cost	0	120,000	130,000	140,000
Resale value	0	80,000	65,000	35,000

Required:

Advise Kigali Hides and Skins Ltd on whether to replace this new machine on a one-year, two-year or three-year cycle. NOTE: Please round off your calculations to the nearest whole number. (8 Marks)

(Total: 25 Marks)

QUESTION TWO

a) In 2020, there was a general global economic recession caused by the COVID-19 pandemic. From this recession, individual national economies started the recovery process from the end of 2020 till now. This process of significantly improving the pace of economic growth is to continue, in line with the current forecasts of economic development and possibly also in the following years.

However, this process of recovery to be carried out effectively, the government of Rwanda applies various anti-crisis, pro-development socio-economic policy instruments, including various fiscal, budgetary, and sectoral policy programs. In addition, government of Rwanda also applies enterprise development support programs, and public financial aid programs aimed at specific types of economic entities, programs supporting the business cycle sectors in the economy, social programs to activate consumption, programs to activate entrepreneurship and innovativeness of citizens and enterprises.

The effects of the application of these interventionist programs are different and require government to mobilize more funds to finance their implementation.

Required:

Discuss eight sources of finance for government Rwanda which could help pull the economy out of the economic recession caused by the pandemic. (8 Marks)

- b) Refer to venture capitalists and answer the following questions:
- Briefly explain the nature of venture capital financing. (2 Marks)
 - Briefly explain the advantages and disadvantages of venture capital financing. (8 Marks)
 - List any Two methods of withdrawal by venture capitals. (2 Marks)
- (Total: 20 Marks)

QUESTION THREE

- Distinguish between systematic and unsystematic risk in relation to portfolio theory. (4 Marks)
- State any Four limitations of portfolio analysis. (4 Marks)
- Ms Kankundiye, the finance manager of URUKALI Ltd has invested 75% of her funds in shares of company X and 25% in shares of company Y. The rate of return on the two assets under different economic conditions are presented in table 3.1 below:

State of economy	Probability	Return on company X shares (%)	Return on company Y shares (%)
Boom	0.2	24	5
Steady growth	0.6	12	30
Slump	0.2	0	-5

Required:

- Calculate the expected returns on the shares of companies X and Y. (1 Mark)
 - Compute the standard deviation of the returns on shares of companies X and Y. *Note: Please round of your answer to two decimal places.* (2 Marks)
 - Calculate the coefficient of correlation between the returns on shares of companies X and Y. (2 Marks)
 - Calculate the expected portfolio return. (1 Mark)
 - Compute the portfolio risk. (1 Mark)
- (Total: 15 Marks)

SECTION B

QUESTION FOUR

a) The primary objective of working capital management is to avoid over/under investment in current assets as a very large amount of funds are blocked in current assets in practical circumstances. Management of working capital ensures that sufficient cash is available to meet day-to-day cash requirements. Maximisation of profits is another primary objective of working capital management. The management of working capital involves managing inventories, accounts receivables, accounts payables, and cash. Assume you are the Financial Director of a company with a large investment program.

Required:

Discuss the conflicts that might arise among the objectives of working capital Management.

(2 Marks)

b) Tunozisuku Ltd produces a wide range of quality sanitary products ranging from tissue products to perfumed laundry bar soap and detergents. It has been selected as the best Made in Rwanda selling quality sanitary products. On average, the company has been selling 2,000 units of product “Detergents” per month. The purchase price per unit of the product is FRW 200. The cost of placing each order in FRW 5,000 and the carrying cost is 10% of the purchase price.

Required:

i) **Calculate the Economic Order Quantity (EOQ).** (1 Mark)

ii) **Calculate the total cost of inventory per annum.** (4 Marks)

iii) **Calculate the Total cost of inventory assuming that the company has received a discount offer of 1% for purchases of at least 4,500 units per order.** (4 Marks)

iv) **Using supporting calculations, advise the company on whether to take advantage of the discount offer.** (2 Marks)

c) The information in table 4.1 was extracted from the books of Ubumwe Trading Ltd at the end of the financial year ended 31 December 2021 and 31 December 2022.

Particulars	2021	2022
	FRW'000'	FRW'000'
Stock of raw material	20,000	30,000
Work in progress	5,000	9,000
Finished goods stock	25,000	35,000
Trade debtors	70,000	90,000
Annual sales	1,000,000	1,100,000
Cost of production	500,000	525,000
Annual cost of sales	600,000	625,000
Trade creditors	55,000	50,000

Particulars	2021	2022
	FRW'000'	FRW'000'
Annual purchase of raw materials	350,000	390,000

Required:

Calculate the working capital cycle (in days) of Ubumwe Trading Ltd for 2022. Note:

assume 365 days in a year. (7 Marks)

(Total: 20 Marks)

QUESTION FIVE

a) Umuyenzi Ltd is a public limited company located in Nyanza. The company's management intends to understand its value through various valuation methods to gauge whether the company is growing or not.

The company's last published Statement of Financial Position (SOFP) indicates the following information:

Particulars	Amount FRW'000'
Ordinary Shares of FRW 20 each	100,000
Reserves	130,000
Current liabilities	80,000
Total	310,000
Assets:	
Non-current Assets	160,000
Current assets	150,000
Total	310,000

Profit for the last five years

Period	Amount FRW '000'
Year 1	18,000
Year 2	12,000
Year 3	20,000
Year 4	16,000
Year 5	34,000

Note: P/E ratio applicable is 12:1.

Required:

i) Compute the value of Umuyenzi Ltd and its share using the Price Earnings Ratio Method. (4 Marks)

ii) Compute Umuyenzi Ltd's share value using the Asset method of valuation. (2 Marks)

b) New Vision Ltd has followed a policy of paying out a gradually increasing dividend per share. Table 5.1 below shows New Vision Ltd's Earning Per Share and Dividend Per share over 5 Years.

Year	Earnings per share		Dividend per share	
	FRW		FRW	
2016	114		6	
2017	126		6.5	
2018	147		7	
2019	136		7.5	
2020	161		8.3	

Additional information:

1. The company has paid dividend for the year. The share is therefore quoted ex-dividend.
2. Management is considering a change in the financing policy whereby greater financing will be provided from internally generated funds. This change is expected to reduce the dividend per share to FRW 6 in the 2021.
3. The growth rate in earnings per share and dividend per share is expected to increase to 14% per annum from year 2021.
4. The company's shareholders require a minimum return on investment of 16%.

Required:

i) Discuss any three factors that a company should consider when formulating its dividend policy. (10 Marks)

ii) Using the dividend growth model, calculate the market price per share as at 31 December 2020 prior to the change in the company's financial policy. NOTE: Round your calculations off to the nearest whole number. (3 Marks)

iii) Calculate the market price per share as at 31 December 2020 under the new financing policy. (1 Marks)

(Total: 20 Marks)

QUESTION SIX

- a) Explain the meaning of the term “cost of capital” and explain why a company should calculate its cost of capital with care. (4 Marks)
- b) State key assumptions of cost of capital relevant to a firm's investment decision. (4 Marks)
- c) Explain the effect of the use of debt capital on firm's weighted average cost of capital. (2 Marks)
- d) Millennium investment Ltd wishes to raise funds amounting to FRW 10 million for a project in the following manner: FRW 6 million from debt and FRW 4 million from floating new ordinary shares. The present capital structure of the company is presented in table below.

Description	Amount
600,000 fully paid ordinary shares	FRW 10 each
Retained earnings	FRW 4,000,000
200,000, 10% preference shares	FRW 20 each
40,000 6% long term debentures	FRW 150 each

The current market value of the company's ordinary shares is FRW 60 per share. The expected ordinary share dividend in a year's time is FRW 2.4 per share. The average growth rate in both dividends and earnings has been 10% over the past years and this growth rate is expected to be maintained in the foreseeable future.

The company's long-term debentures currently change hands for FRW 100 each. The debentures will mature in 100 years. The preference shares were issued four years ago and still change hands at face value. Assume a 30% tax rate.

Required:

- i. Calculate the component cost of ordinary share capital. *Note: Round off your answer to the nearest two decimal places.* (2 Marks)
- ii. Calculate the component cost of debt capital. *Note: Round off your answer to the nearest two decimal places.* (3 Marks)
- iii. Calculate the component cost of preference share capital. (1 Marks)
- iv. Compute the company's current weighted average cost of capital. *Note: Round off your answer to the nearest two decimal places.* (4 Marks)

(Total: 20 Marks)

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

END OF QUESTION PAPER

