

SECTION A

QUESTION ONE

NZAKUNAMBAHO Group is a Rwandan conglomerate company registered with Rwanda Development Board (RDB) in 2010. The company has three independent subsidiaries each located in a separate district with its own corporate governance structure and with general high level corporate support from NZAKUNAMBAHO Group. Use the information provided below relating to each of the subsidiaries to answer questions in the requirement section:

Subsidiary 1: VISIYO C

VISIYO Co is listed on the Rwanda Stock Exchange (RSE) dealing with the manufacture and sale of fresh fruit juices mostly in the southern province of Rwanda. Over the last few years, VISIYO Co has used a mixture of equity and debt finance for investing in its projects. However, the company's board of directors is now considering different sources of funds for its highly anticipated new product line: bottled drinking water. VISIYO Co's investment committee has advised the board to approve a new investment facility of FRW 240 million for the new product line, which the company expects to finance solely by debt finance.

Project information

VISIYO Co's Chief Finance Officer (CFO) has presented to the board the following project's fouryears horizon financial estimates:

Year ^{022ICPARNOV2022IC}	PARNOV2022ICPAF	NOV2022CPARNO	V2022ICP3RNOV20	22ICPAR <mark>4</mark> OV2022I
Details _{21CPARNOV20221C}	FRW 'million'	FRW 'million'	FRW 'million'	FRW 'million'
Post-tax operating cash	PARNO37.52ICPAF	NOV2045.7PARNO	V2022I 53.4 NOV20	22ICPA 59.9 V20221
flows	PARNOV2022ICPAF	NOV2022ICPARNO	V2022ICPARNOV20	22ICPARNOV2022I
Realizable value value	DA DNOV2022ICDA E	NOV2022ICDADNO	V2022ICDA DNOV20	p_{21} CDA P 64 V20221

The company estimates that working capital of FRW 7 million will be funded from retained earnings which is not included in the aforementioned estimates and it will also be required imminently for the project rising by the predicted annual inflation rate. The company's CFO suggests that any residual working capital will be surrendered in full at the end of the project.

Inflation rates as predicted by financial analysts are as follows:

RNOV20221CPARNOV20221CPARNO	V2022ICPARNOV2	0221CPARNOV20	22ICPARNOV2022	ICPARNOV20221
JYear2022ICPARNOV2022ICPARNC	V2022ICPARNOV2	022ICP2RNOV20	22ICPABNOV2022	ICPARMOV2022I

The higher estimated inflation rate during the first year is as a result of expected government expansionary fiscal policies to revive the economy from the negative effects of COVID-19 pandemic.

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In a recent investment committee meeting, the company's CFO proposed the following finance package for the new investment:

CHOV20221CPARNOV20221CPARNOV20221CPARNOV20221CPARNOV20221CPARNOV20221CPARNOV20221CPA	FRW
Particulars (Nov2022)CPARNOV2022	'million'
8% interest bank loan, repayable in equal annual instalments over the project's life	^{RN} 120 ²²
3.1% interest subsidized loan from a government backed COVID-19 relief scheme repayable over the project's life	RN 120 ²²
Total 221CPARNOV2022ICPARNOV2020ICPARNOV2020ICPARNOV2020ICPARNOV2020ICPARNOV202ICPARNOV202ICPARNOV202ICPARNOV202ICPARNOV202ICPARNOV2020ICPARNOV2020ICP	240

Issue costs of 3% of gross proceeds will be payable on the subsidized loan. No issue costs will be payable on the bank loan. Issue costs are not allowable for tax purposes.

Additional financial information

VISIYO Co pays tax at an annual rate of 30% on profits in the year in which profits arise
 VISIYO Co's asset beta is currently estimated at 1.14. The current return on the market is

estimated at 11% and the current risk-free rate is 4% per annum.

Ms. KAMALIZA Pacy a VISIYO Co's chair of the board, has noted that all company's debts, including the new debts, will be repaid within three to five years. Ms. Pacy is, however, wondering whether VISIYO Co needs to develop a broader longer-term financing policy and how flexible this policy should be.

Subsidiary 2: TWIGIRE Co

TWIGIRE Co is another subsidiary of NZAKUNAMBAHO Group which is located in the eastern province of Rwanda and serves one of the biggest markets in the country. TWIGIRE Co is listed on the Rwanda Stock Exchange (RSE) with 1.2 million ordinary outstanding shares. RSE's website and the national broadcasting television indicated that the company's stock currently sells at FRW 320 per share. The firm's debt is traded on the bourse and was recently quoted at 92% of face value. It has a total face value of FRW 44 million, and it is currently priced to yield 15% . The risk-free rate is 9% and the market risk premium is 8%. TWIGIRE Co has a beta of 0.84. The corporate tax rate is 30%.

Subsidiary 3: TURINDANE Co 202

TURINDANE Co is the third subsidiary of NZAKUNAMBAHO Group located in western province. The company specializes in the production and sale of agricultural fertilizers to farmers in the country but mostly those in the western province of the country due to the location's topography.

It is a requirement in the Law N°17/2018 of 13/04/2018 governing companies in Rwanda for public companies listed on the stock exchange to publish the audit report, along with financial statements, in at least one (1) of the most widely circulated newspapers in Rwanda. As such, the following

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financial statements were extracted from TURINDANE Co's audit report publi
Daily, a widely read newspaper in Rwanda, on 30 May 2021:
 TURINDANE Co
 Income Statement for
 Particulars
                                                                          FRW 'millions
                                                                                    3,200
 Sales
 Cost of goods sold
                                                                                    2.200
                                                                                      390
 Depreciation
 Earnings before i
                                                                                      610
                                                                                     150
 Interest paid
                                                                                      460
 Taxable income
 Taxes (30%)
                                                                                      138
 Net income
                                                                                      322
                                                                                      129
 Dividends
 Addition to retained earn
                                                                                      193
 TURINDANE Co
 Balance Sheet as of Decem
 Particulars
 Assets 2
 Current assets
 Cash 0221CPARNO
                                                                                    1,800
 Accounts receivable
                                                                                   1.700
                                                                                    1.300
 Inventory
 Total Current Assets
                                                                                    4,800
 Non-Current Assets 21CPARNOV20
 Net Property Plant and Equipment
                                                                                     3 900
 Total assets
                                                                                    8,700
 Liabilities and Owners' Equity
 Current liabilities
 Accounts payable
                                                                                    1,200
                                                                                    1.800
 Notes payable
 Total Current Liabilities
                                                                                    3,000
 Long-term debt
                                                                                    1,500
 Total Liabilities
                                                                                    4.500
 Owners' equity
 Common stock and paid-in
                                                                                    1,150
                                                                                   3.050
 Retained earnings
                                                                                    4,200
 Total Equity
 Total liabilities and
                                                                                    8,700
  21
                                                                               Page 4 of 12
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TURINDANE Co's board recently considering the approval of a loan to be applied by management for the financing of the company's expansion strategy following a two-year slow growth mainly due to COVID-19. The board is interested in understanding the company's performance before approving the final loan application drafted by management. **Required:** (a) Calculate the Adjusted Present Value (APV) for the VISIYO Co's project and advise whether the project should be accepted or not?022ICPARNOV2022 (18 Marks) (b) You are hired as TWIGIRE Co's investment analyst and the company's investment committee has requested you to calculate TWIGIRE Co's Weighted Average Cost of Capital (WACC) and advise on its usefulness and limitations. RNOV202210 (12 Marks) (c) You are TURINDANE Co's financial analyst and you are to analyze and advise on the solvency, liquidity, turnover, and profitability for the year ended December 2020 by computing and interpreting each of the following ratios: V Acid-Test ratio i. (2 Marks) RNO **Interval measure** (2 Marks) iii. **Equity multiplier** (2 Marks) (2 Marks) iv. V Long-term debt ratio v. **Accounts Receivable days** (2 Marks) (2 Marks) vi. **Return on assets** (8 Mar Page 5

SECTION B

QUESTION TWO

BIGOGWE Supermarket (BS) Ltd is a well-known supermarket selling household goods and other useful items used by customers of Kimironko in Kigali. Ms. Kengayiga Faith, the company's owner is a respected citizen in Kimironko area where she has lived for the past 52 years with her husband and four of their children. BS Ltd currently sells all of its stock on a cash only basis. Ms. Kengayiga is considering a change in this existing sales policy for Kararyoha, one of the items sold in the supermarket. The new terms of sale would be net one month. BS Ltd's finance officer has provided the information in the table below regarding current and new proposed policies. The company's interest rate is 2.5% per month.

Details ²¹ CPARNOV20221CPARNOV20221CPARNOV	20221 Current Policy ARNO	V202New Policy 0221
NOV20221CPARNOV20221CPARNOV20221CPARNOV NOV20221CPARNOV20221CPARNOV20221CPARNOV	2022ICPARNE 2022ICPARNE	V20221C FRW V20221
Price per Kg RNOV20221CPARNOV20221CPARNOV	2022ICPARN 250 022ICPARNO	V2022ICP 250 IOV20221
Cost per Kg ^{RNOV20221CPARNOV20221CPARNOV}	20221CPARN1400221CPARNO	V2022ICP140 ¹⁰ V20221
Monthly sales quantity (Kg) NOV20221CPARNOV	20221CPARNOV20221CPARNO 20221CPARN 0 500221CPARNO	V2022ICIA6000V2022I

BS Ltd is also considering the investment of some of its surplus profits from 2020 that were mostly a result of panic shopping from residents of Kimironko in three stocks on the stock market as an investment strategy. The mean return and Beta for each of the three stocks are demonstrated in the table below:

Details _{21CPARNOV20221CPARN}	Stock A PARNOV2022	Stock B 20221CPARNO	Stock CARNOV20221
Mean return RNOV20221CPARN	OV2022IC 5% NOV2022	CPARNO10%2ICPARNO)V2022IC 20% IOV2022I
Beta 2022ICPARNOV2022ICPARN	OV20221CPARNOV2022 OV20221CPARNOV2022	(CPARNOV20221CPARNOV2020000000000000000000000000000000000	DV 20221CPA RNOV 20221 DV 20221CPA RNOV 20221

Before COVID-19 hit and citizens became unable to conduct Umuganda, a monthly community service, Ms Kengayiga and her family used to be the first at Umuganda site to offer help of clearing roads, constructing houses for the disabled and elderly neighbors. She also contributes financially to a village fund to support those who lost jobs due to the pandemic since early 2020. She becomes aware of a set of voluntary standards released the International Organization for Standardization (ISO) 2010 meant to help companies to implement corporate social responsibility (CSR). However, Ms. Kengayiga is unsure of how this ISO certification can help her company.

Required:

(a) Based on the information provided, determine if it is advisable for Ms. Kengayiga to switch to the new policy. (7 Marks)

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(b) With respect to BS Ltd's intentions of investing in three stocks: NOV20221CPARNOV20221 i. Does it have any arbitrage opportunities in this market? Explain your answer?

(4 Marks)
 Compare and contrast the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT) and outline FIVE assumptions of the APT. (7 Marks)
 (c) Discuss arguments for and against CSR for BS Ltd. (7 Marks)

NOV2022ICPARNOV2022ICPARNOV2022ICPARNOV (Total: 25 Mai

QUESTION THREE

RUNIGA Investments is a company located in Mbyo in the Eastern province of Rwanda owned by a group of renowned investors who are also members of Private Sector Federation. RUNIGA Investments has an investment opportunity in Europe. The project costs \notin 21 million and is expected to produce cash flows of \notin 4.3 million in Year 1, \notin 5.2 million in Year 2, and \notin 6.3 million in Year 3. The current spot exchange rate is FRW1,170/ \notin and the current risk-free rate in Rwanda is 7.4%, compared to that in Europe of 2.1%. The appropriate discount rate for the project is estimated to be 10%. In addition, RUNIGA's project can be sold at the end of three years for an estimated \notin 13.5 million.

RUNIGA Investments also imports fishes from Burundi. The exchange rate is BIF 1.97/FRW, where BIF stands for Burundian Francs. RUNIGA's procurement department has just placed an order for 45,000 Kgs of fish at a cost of BIF 350 each Kg. RUNIGA will pay for the shipment when it arrives in 90 days. RUNIGA will sell the fish for FRW 260 each kg.

Required:

(a) Compute the NPV of RUNIGA Investments' project in Europe and advise the management if the project makes financial sense. (8 Marks)
(b) Based on the information provided for the project in Burundi:

Calculate RUNIGA Investments' profit if the exchange rate goes up by 12% over the next 90 days. (3.5 Marks)

ii. Compute the break-even exchange rate. (1.5 Marks)

(c) In reference to international transactions and finance: RNOV20221CP/

With examples, differentiate between absolute and relative purchasing power parity (PPP) (4 Marks)

ii. Describe what is meant by 'political risk' in international investment and examine ways of management in international business. (8 Marks)

(Total: 25 Marks)

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QUESTION FOUR

NTUNGA & Associates Ltd is a company incorporated in Musanze district. The company specializes in facilitating Mergers & Acquisitions (M&As) transactions mostly for clients from the Northern province of Rwanda. The company has a reputation for handling some of the biggest M&As in the region, some of which were considered by experts as 'tricky'.

Recently, NTUNGA & Associates Ltd received invitations from 2 groups of clients intending to conduct high profile M&A transactions. The following are extracts from invitation files:

Extract from invitation 1:

KABAGEMA Ltd is a company located in Nyakayaga, a tech hub in the Northern province. It is currently considering the acquisition of KIGEME Ltd, a company dealing in wholesale of electronic spare parts. A recent board meeting of KABAGEMA Ltd made this acquisition decision based on a recent due diligence conducted on KIGEME Ltd which revealed that the acquisition will boost KABAGEMA Ltd's total after-tax annual cash flow by FRW 1.5 million indefinitely. KABAGEMA Ltd's Chief Investment Officer (CIO) has presented a proposal to offer 36% of its stock or FRW 35 million in cash to KIGEME Ltd's shareholders. Consider the following additional information:

Details 21CPARNOV20221CPARNOV2022	KABAGEMA	KIGEME
RNOV2022ICPARNOV2022ICPARNOV2022	CPARN FRW2'million')V2022I	CPARN(FRW2'million')V2022
Current market value	CPARNOV202275PARNOV20221	CPARNOV202245PARNOV2022
Debt 0221CPARNOV20221CPARNOV2022	CPARNOV20221CPARNOV20221 CPARNOV20221CPARNOV20221	CPARNOV20221CPARNOV2022
Discount rate NOV2022ICPARNOV2022	CPARNOV2022ICPARNOV202	%ARNOV2022ICPARNOV2022

Extract from invitation 2:

NTARAMA Ltd is considering acquiring IGIKWE Ltd, both companies located in Kayonza District. NTARAMA Ltd will fund the acquisition by issuing new long-term debt for all the shares outstanding at a merger premium of FRW100 per share. The table below demonstrates additional financial information for both companies:

RNOV2022ICPARNOV2022ICPAR	10V20221 Unit NOV2022	ICPAR NTARAMA RNO	V20221 IGIKWE 20221
Total earnings	FRWNOV2022	96,000 PARNO	23,000
Shares outstanding O221CPAR	NOV20221CPARNOV2022 NOV20221C NO RNOV2022	CPARNO 41,000 PARNO	V20221C1 9,300 V20221
Per-share values: 2022ICPAR	NOV2022ICPARNOV2022	ICPARNOV2022ICPARNO	V2022ICPARNOV2022I
Market Value	$\mathbf{FRW}^{NOV2022}$	250 CPARNOV 950	$v_{20221CPA}^{2000020221}$
Book Value RNOV20221CPAR	10V20221 FRW 10V2022	ICPARNOV 100 ICPARNO	v20221Cpa 40 10v20221

ote: None of the two companies has any debt before the merger.

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You are the Chief Executive Officer and Chief Negotiator of NTUNGA & Associates Ltd. In one of the meetings you attended, you heard the board chair of KABAGEMA Ltd explaining that 'Managers should choose a capital structure that they believe will have the highest firm value because this capital structure will be most beneficial to the firm's stockholders.' **Required:** (a) Based on the proposed acquisition of KIGEME Ltd by KABAGEMA Ltd: i. Calculate the cost of the proposed acquisition using Cash and Stock Payment methods (5 Marks) Compute Net Present Value (NPV) of the proposed acquisition using Cash and Stock RNO Payment methods. CPARNOV20221CPARNOV20221CPARNOV20221CP. V2022ICPAR(4 Marks) iii. Advise the board of KABAGEMA Ltd of the two payment methods should be used and (1 Mark) why. b) Based on the proposed acquisition of td, calculate the 21 IGIKWE Ltd by NT post-acquisition total assets. (5 Marks) c) In reference to regarding capital structure: Describe 'financial leverage' and examine its risks to a company (8 Marks) i. O Describe the main proposition of the Modigliani and Miller (MM or M&M) – no tax – (2 Marks) theory. Total: 25 Marks) Page 9 of

Present value interest factor of FRW1 per period at i% for n periods, PVIF(i,n) 12% 1% 2% 3% 4% 5% 6% 7% 8% 9% 10% 11% 13% 14% 15% 16% 17% 18% 19% 20% Period 0.870 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 0.862 0.855 0.847 0.840 0.833 PAR1 CPAR² 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 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 PARA 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 0.951 0.822 0.784 0.747 0.713 0.621 0.593 0.567 0.543 0.519 0.497 0.476 0.437 0.419 0.402 PAR5 0.906 0.863 0.681 0.650 0.456 0.370 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 0.352 0.335 PAR6 0.400 **PAR** 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 0.376 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 PAR9 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 0.744 0.558 0.508 0.386 0.352 0.322 0.295 0.270 0.247 0.227 0.905 0.820 0.676 0.614 0.463 0.422 0.208 0.191 0.176 0.162 PA 10 PARI 0.722 0.527 0.237 0.896 0.804 0.650 0.585 0.475 0.429 0.388 0.350 0.317 0.287 0.261 0.215 0.195 0.178 0.162 0.148 0.135 PAR 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 0.229 PA 13 0.879 0.773 0.681 0.601 0.530 0.469 0.415 0.368 0.326 0.290 0.258 0.204 0.182 0.163 0.145 0.130 0.116 0.104 0.093 0.442 0.388 0.340 PAR4 0.870 0.758 0.661 0.577 0.505 0.299 0.263 0.232 0.205 0.181 0.160 0.141 0.125 0.111 0.099 0.088 0.078 PATS 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 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 16 PAR 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 0.212 0.111 0.051 PAI18 0.836 0.700 0.587 0.494 0.416 0.350 0.296 0.250 0.180 0.153 0.130 0.095 0.081 0.069 0.059 0.044 0.038 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 PA 19 0.178 20 0.820 0.673 0.554 0.456 0.377 0.312 0.258 0.215 0.149 0.124 0.104 0.087 0.073 0.061 0.051 0.043 0.037 0.031 0.026

IARNOV20221CPARNOV

ICPARNOV2022ICPARN

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

DADN	0.74%	2%	NO 3%0	221 4% A	KN 5%	02.6%	AK7%	208%10	9%	10%2210	1%	2% 44	13%	14%	45%	16%	17%	18%	19%-	20%
TAKIW	OV2022	ICPAR	NOV20	22ICPA	RNOV2	022ICP	ARNO	V2022IC	PARNO	V2022IC	PARNO	V2022	ICPAF	NOV2	022ICP	ARNO	V2022I	CPARN	OV202	2ICP/
PA 25	0.780	0.610	0.4780	0.375	R 0.295/	0.233	0.184	0.146	0.116	0.092 0	074 NO.	059(20	.047	0.038/2	0.030	0.024	0.020	0.016	0.0132	2 0.010
PAR PA 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	2 0.004
PARN 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	0.00
PAP40	0.672	0.453	0.307	0.208	0.142	0.097	0.067	0.046	0.032	0.022 0	015 0.	011 20	.008	0.005	0.004	0.003	0.002	0.001	0.001	0.00
PARN PAISO	0.608	ICPAR 10.372	0.228	22ICPA 2 .0.141 A	RNOV2 R0.087	0221C1	ARNO A0.034	V20221C	PARNO	0.009 0	PARNO 005RNO.	003 20	ICPAF .002AF	0.001/2	022ICP	ARNO /0.001	V202210	0.000	OV202 0.0002	21CP/ 2 0.00
PARN	DV2022	ICPAR	NOV20	221CPA	RNOV	022101	ARNO	7202210	PARNO	V20221C	PARNO	V2(22	ICPAR	NOV2	022TCP	ARNOV	7202210	PARN	OV202	2ICP
Present	value inte	erest facto	or of an (ordinary)	annuity	of FRW1	per perio	od at i% f	or n perio	ods, PVIFA	(i,n)RNC	V2022 V2022	ICPAF	NOV2	022ICP 022ICP 022ICP	ARNOV ARNOV	V202210 V202210 V202210	CPARN CPARN	OV202 OV202 OV202	2ICP 2ICP 2ICP
Period	D 1% 022	[2%]R	N (3% 20)	221 4% A	RN5%2	022 6% P	ARN7%	V202 8%	PAR 9%	V20 10%	PA 11%	12%	13%	14%	15%	A R 16%	217%	18%	019%2	20%
PARN	0.990	0.980	0.971	0.962	0.952	0.943	3 0.93	5 ₂₀₂ 0.92	.6 0.91	0.909	0.901	0.893	0.885	0.87	0.870	0.862	0.855	0.847	0.840	0.83
PARN 2 PARN	1.970	1.942	1.913	1.886	1.859	1.833	3 1.80	8 1.78	3 1.75	59 1.736	1.713	1.690	1.668	3 1.647	1.626	1.605	1.585	1.566	1.547	1.52
DA DAD	2,94122	2.884	2.829	2.775	2.723	2.673	3 2.62	42022.57	7 2.53	31 - 2.487	2.444	2.402	2.361	2.322	2.283	2.246	-2.210	2.174	2.140	2.10
3'AKN DADNI	0372022	CDAD	NOVION								DVIDE	V ZUZZ						DAPAS		
3 ARN PARN PARN	DV2022	(3.808)	OV20 (3.717)	3.630	R 3.546	0223.465	54 R 3.38	72023.31	2 A R 3.24	40 2 3.170	PA3.102	3.037	2.974	2.914	2.855	2.798	202210	2.690	2.639	2.58
PARN PARN PARN)))))))))))))))))))	CPAR (3.808) (CPAR) (4.713)	(3.717) (3.720)	3.630	3.546	0223.465 0221CP	5 3.38	72 0 3.31 /2022	2 3.24	40° 3.170	2 3.102	3.037	2.974 CPA	2.914	2.855	2.798	2.743	2.690	2.639	2.58
PARN PARN PARN PARN PARN	3.902 4.853	3.808 (7) (7) (7) (7) (7) (7) (7) (7) (7) (7)	3.717 4.580	3.630	3.546	4.212	5 3.38 2 4.10	7 3.31 0 3.99	2 3.24 3 3.89	40 3.170 90 3.791	3.102 3.696	3.037 3.605	2.974	4 2.914 7 3.433	2.855 3.352	2.798 3.274	2.743 3.199	2.690 3.127	2.639 3.058	2.589 2.99
3 ARN PARN 4 ARN 9 ARN 5 ARN 9 ARN 6 PARN	3.902 3.902 4.853 5.795	3.808 4.713 5.601	3.717 4.580 5.417	3.630 4.452 5.242	3.546 4.329 5.076	4.212	5 3.38 2 4.10 7 4.76	7 3.31 0 3.99 7 4.62	2 3.24 3 3.89 3 4.48	40 3.170 90 3.791 36 4.355	3.102 3.696 4.231	3.037 3.605 4.111	2.974 3.517 3.998	1 2.914 7 3.433 8 3.889	 2.855 3.352 3.784 	2.798 3.274 3.685	2.743 2.743 3.199 3.589	2.690 3.127 3.498	2.639 3.058 3.410	2.58 ⁴ 2.99 3.320
3 ARN PARN PARN 5 ARN 6 PARN 7 ARN PARN	3.902 3.902 4.853 5.795 6.728	3.808 4.713 5.601 6.472	3.717 4.580 5.417 6.230	3.630 4.452 5.242 6.002	3.546 4.329 5.076 5.786	4.212	5 3.38 2 4.10 7 4.76 2 5.38	7 3.31 0 3.99 7 4.62 9 5.20	2 3.24 3 3.89 3 4.48 6 5.03	40 3.170 90 3.791 36 4.355 33 4.868	3.102 3.696 4.231 4.712	3.037 3.605 4.111 4.564	2.974 3.517 3.998 4.423	4 2.914 7 3.433 8 3.889 3 4.288	 2.855 3.352 3.784 4.160 	2.798 3.274 3.685 4.039	2.743 3.199 3.589 3.922	2.690 3.127 3.498 3.812	2.639 3.058 3.410 3.706	2.58 2.99 3.32 3.60
3 ARN PARN 4 ARN 5 ARN 6 PARN 7 ARN 8 ARN	3.902 4.853 5.795 6.728 7.652	3.808 4.713 5.601 6.472 7.325	3.717 4.580 5.417 6.230 7.020	3.630 4.452 5.242 6.002 6.733	3.546 4.329 5.076 5.786 6.463	3.465 4.212 4.917 5.582 6.210	5 3.38 2 4.10 7 4.76 2 5.38 0 5.97	72 3.31 02 3.99 72 4.62 92 5.20 12 5.74	2 3.24 3 3.89 3 4.48 6 5.03 7 5.53	40 3.170 90 3.791 36 4.355 33 4.868 22 22 35 5.335	3.102 3.696 4.231 4.712 5.146	3.037 3.605 4.111 4.564 4.968	2.974 3.517 3.998 4.423 4.799	4 2.914 7 3.435 8 3.889 3 4.288 9 4.639	2.855 3.352 3.784 3 4.160 4.487	2.798 3.274 3.685 4.039 4.344	2.743 3.199 3.589 -3.922 -4.207	2.690 3.127 3.498 3.812 4.078	2.639 3.058 3.410 3.706 3.954	2.58 2.99 3.32 3.60 3.83
3 ARN PARN PARN 5 ARN PARN 6 PARN 7 ARN 7 ARN 8 ARN 8 ARN	3.902 4.853 5.795 6.728 7.652 8.566	3.808 4.713 5.601 6.472 7.325	3.717 4.580 5.417 6.230 7.020 7.786	3.630 4.452 5.242 6.002 6.733	3.546 4.329 5.076 5.786 6.463	3.465 4.212 4.917 5.582 6.210	5 3.38 2 4.10 7 4.76 2 5.38 0 5.97 2 6.51	7 3.31 0 3.99 7 4.62 9 5.20 1 5.74 5 6.24	2 3.24 3 3.89 3 4.48 6 5.03 7 5.53 7 5.53	10 3.170 00 3.791 36 4.355 33 4.868 35 5.335 55 5.755	3.102 3.696 4.231 4.712 5.146	3.037 3.605 4.111 4.564 4.968	2.974 3.517 3.998 4.422 4.799	4 2.914 7 3.433 3 3.889 3 3.889 3 4.288 3 4.288 4 4.944	 2.855 3.352 3.784 4.160 4.487 4.772 	2.798 3.274 3.685 4.039 4.344	2.743 3.199 3.589 3.922 4.207	2.690 3.127 3.498 3.812 4.078 4.078	2.639 3.058 3.410 3.706 3.954 4.163	2.58 2.99 3.32 3.60 3.83
3 ARN 9 ARN 4 ARN 9 ARN 6 PARN 7 ARN 9 ARN 9 ARN 9 ARN 9 ARN	3.902 4.853 5.795 6.728 7.652 8.566	3.808 4.713 5.601 6.472 7.325 8.162	3.717 4.580 5.417 6.230 7.020 7.786	3.630 4.452 5.242 6.002 6.733 7.435	3.546 4.329 5.076 5.786 6.463 7.108	3.465 4.212 4.917 5.582 6.210 6.802	5 3.38 2 4.10 7 4.76 2 5.38 0) 5.97 2 6.51	7 3.31 0 3.99 7 4.62 9 5.20 11 5.74 5 6.24	2 3.24 3 3.89 3 4.48 6 5.03 7 5.53 7 5.99	10 3.170 00 3.791 36 4.355 33 4.868 35 5.335 95 5.759	3.102 3.696 4.231 4.712 5.146 5.537	3.037 3.605 4.111 4.564 4.968 5.328	2.974 3.517 3.998 4.422 4.799 5.132	1 2.914 7 3.433 3 3.889 3 3.889 3 4.288 4 4.639 2 4.946	4 2.855 4 2.855 3 3.352 3 3.784 3 4.160 4 4.87 5 4.772	2.798 3.274 3.685 4.039 4.344 4.607	2.743 3.199 3.589 3.922 4.207 4.451	2.690 3.127 3.498 3.812 4.078 4.303	2.639 3.058 3.410 3.706 3.954 4.163	2.58 2.99 3.320 3.60 3.83 4.03
3 ARN 9 ARN 4 ARN 9 ARN 7 ARN 9 ARN 9 ARN 10 ARN	3.902 4.853 5.795 6.728 7.652 8.566 9.471	3.808 4.713 5.601 6.472 7.325 8.162 8.983	3.717 4.580 5.417 6.230 7.020 7.786 8.530	3.630 4.452 5.242 6.002 6.733 7.435 8.111	3.546 4.329 5.076 5.786 6.463 7.108 7.722	3.465 4.212 5.582 6.210 6.802 2,7.360	5 3.38 2 4.10 7 4.76 2 5.38 0 5.97 2 6.51 0 7.02	7 3.31 0 3.99 7 4.62 9 5.20 11 5.74 5 6.24 4 6.71	2 3.24 3 3.89 3 4.48 6 5.03 7 5.53 7 5.99 0 6.41	40 3.170 90 3.791 36 4.355 33 4.868 35 5.335 95 5.759 8 6.145	3.102 3.696 4.231 4.712 5.146 5.537 5.889	3.037 3.605 4.111 4.564 4.968 5.328 5.650	2.974 3.517 3.998 4.422 4.799 5.132 5.426	4 2.914 7 3.432 3 3.889 3 3.889 3 4.288 9 4.639 2 4.946 5 5.216	4 2.855 3 3.352 9 3.784 9 3.784 9 4.160 9 4.487 9 4.772 9 5.019	2.798 3.274 3.685 4.039 4.344 4.607 4.833	2.743 3.199 3.589 3.589 4.207 4.451 4.659	2.690 3.127 3.498 3.812 4.078 4.303 4.494	2.639 3.058 3.410 3.706 3.954 4.163 4.339	2.58 ⁴ 2.99 3.320 3.602 3.837 4.031 4.192

ECPARNOV2022I

ICPARNOV2022ICPARN

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

PARNOV2 12 12 13 13	2022[CPA]	3%202	4%AR	5% 202	-6% A.	17% √20	2 8% PA	9% V2	10%	11%	12%	13%	14%	15%	16%	-17%	18%	19%-	20%
12 R 011.2 <u>PARNOV2</u> 13 P 12.1	255 10 57	RNOV202	2ICPAR	NOV202	2ICPAR	NOV20	22ICPA	RNOV2	022ICF	ARNO	V2022I	CPARN C50180	IOV20	22ICPA	RNOV	2022IC	PARN	DV202	2ICPA
13 12.1	20221CPA1	2NOV202	219.363 R	NoV20'	20.304 A R	NOV20	27.550A	RNOV2	0.014 0221CF	A0.492)	V 0.1941	CPARN	(3.00) IOV20	2 .3.421 A	RNOV	24.900	P4.795	04.0012	01CPA
STAINIO V Z	.134 11.34	8 10.635	9.986 R	9.394	8.853	8.358	27.904 A	7.487/2	7.103	6.750	6.424	6.122	5.842	5.583	5.342	25.118	4.910	4.715	4.533
14 13.0	3.004 12.10	6 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 13.8	.865 12.84	9 11.938	11.118 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 R D 14.7	.718 13.57	8 12.561	11.652	10.838	210.106	9.4472	28.851	8.313 2	7.824	7.379	6.974	6.604	6.265	5.954	5.668	25.405	5.162	4.938	4.730
17 _{ARN} 15.5	5.562 14.29	2 13.166	12.166	11.274	210.477	9.763	29.122 A	8.544/2	8.022	7.549	7.120	6.729	6.373	6.047	5.749	25.475	5.222	4.990	4.775
18 16.3	5.398 14.99	2 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	25.534	5.273	5.033	4.812
19 17.2	.226 15.67	8 14.324	13.134	12.085	211.158 2	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 18.0	.046 16.35	1 14.877	13.590	12.462	211.470	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
25ARN 22.0	.023 19.52	3 17.413	15.622	14.094	12.783	11.654	10.675	9.823 2	9.077	8.422	7.843	7.330	6.873	6.464	6.097	5.766	5.467	5.195	4.948
30 25.8	.808 22.39	6 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 29.4	24.99	9 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 32.8 PARN 22	2.835 27.35 2022 CPA	5 23.115 0V202	19.793	17.159	215.046 21CPAR	13.332	² 11.925 221CPA	10.757 NOV2	9.779	8.951	8.244	7.634	7.105 OV20	6.642	6.233	2 5.871 202210	5.548	5.258 0V202	4.997
50 RN 39.1	.1962 31.42	4 25.730	21.482	18.256	215.762	13.801	212.233	10.962	9.915	9.042	8.304	7.675	7.133	6.661	6.246	25.880	5.554	5.262	4.999
CPARNOV2	2022[CPA]	RNOV202	2ICPAR	NOV202	2ICPAR	NOV20	22ICPA	DNOVA	DODICE	a war a war a	700007	and a second		LOT OT A	terms the last street and the		and the second s	377000	a cost active factor is a