CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 4 December 2024. Morning Paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) Explain **FOUR** ways in which transactions are facilitated by financial intermediaries in contributing to a well functioning financial system in a country. (4 marks)

(b) Simon Mbeo decides to sell short 10,000 shares of Akili Ltd.'s shares when it is selling at its yearly high of Sh.56. The broker has a margin requirement of 45% and the commission on the purchase is Sh.15,500. While holding the position, Akili Ltd. pays a dividend of Sh.2.50 per share. One year later, the investor purchases 10,000 shares at Sh.45 to close out the position and the broker charges a commission of Sh.14,500 and 8% interest on the money borrowed.

Required:

Determine the rate of return on the investment. (8 marks)

(c) The earnings per share (EPS) and dividend per share (DPS) data for Ukweli Ltd. over the last five years are provided below:

Year	Dividend per share (DPS) Sh.	Earnings per share (EPS) Sh.
2019	1.00	2.50
2020	1.10	2.70
2021	1.20	3.00
2022	1.50	3.20
2023	1.80	3.50

Additional information:

1. A prospective investor is considering buying the shares of this company which are currently selling at Sh.55 each at the securities exchange.
2. The investor's required rate of return is 20%.

Required:

(i) The growth rate in dividend. (3 marks)

(ii) The intrinsic value of a share using the Gordon's pricing model. (3 marks)

(iii) Advise the investor on whether or not to buy the shares of Ukweli Ltd. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) In relation to market efficiency:

(i) Highlight **FOUR** roles of market efficiency to investment participants. (4 marks)

(ii) Explain **TWO** tests for weak form of the efficient market hypothesis (EMH). (4 marks)

(b) Hazina Ltd. is run by management that insist on reinvesting 60% of its earnings in projects that provide a return on equity (ROE) of 10%. The firm's year end dividend will be Sh.2 per share, paid out of earnings of Sh.5 per share. The required rate of return is 15%.

Required:
Calculate the present value of growth opportunities (PVGO). (4 marks)

(c) The following financial information relates to Bidii Ltd.:

	Market value	**Required rate of return**
Debt	Sh.15.4 million	6%
Preferred shares	Sh.4 million	5.5%
Ordinary shares	Sh.18.1 million	11%

Additional information:
1. Free cash flow to firm (FCFF), most recent year is Sh.3.226 million.
2. The corporate tax rate is 30%.
3. The firm owns some land with a market value of Sh.10 million that is being held for investment.
4. The FCFF is forecasted to grow at a stable growth rate of 1.5% for the next three years and then at a rate of 0.75% thereafter into perpetuity.

Required:
(i) The weighted average cost of capital (WACC). (2 marks)

(ii) The value of the firm. (3 marks)

(iii) The value of ordinary shares derived from (c) (ii) above. (2 marks)

(iv) Determine whether ordinary shares are undervalued or overvalued. (1 mark)

(Total: 20 marks)

QUESTION THREE

(a) Describe **THREE** elements of a competitive analysis for a company. (6 marks)

(b) A company can generate a return on equity (ROE) of 15% and has earnings retention ratio of 0.60. Next year's earnings are projected at Sh.10 million. The required rate of return for the company is 12%.

Required:
Calculate the following for the company:

(i) Tangible price to earnings (P/E) ratio. (2 marks)

(ii) Franchise factor. (2 marks)

(iii) Franchise price to earnings (P/E) ratio. (2 marks)

(c) Prospero Ltd. expected earnings per share (EPS) is Sh.2.00, Sh.2.50 and Sh.4.00 for the years 2024, 2025 and 2026 respectively. Financial analysts expect that the firm will pay dividends of Sh.1.00, Sh.1.25 and Sh.12.25 for the years 2024, 2025 and 2026 respectively. The last dividend is anticipated to be a liquidating dividend and analysts expect Prospero Ltd. will cease operations after 2026. Prospero Ltd.'s current book value is Sh.6.00 per share and its required rate of return on equity is 10%.

Required:
(i) Calculate ending book value per share and residual income per share for the year 2024, 2025 and 2026 respectively. (6 marks)

(ii) The share value of the company using the residual income model. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Explain **THREE** factors that could determine the sensitivity of a firm's earnings to the business cycle. (6 marks)

(b) The following information relates to Bantu Ltd.'s:

- Corporate bond yield is 5%.
- Long term earnings growth rate is 3%.
- Discount factor is 0.6.

Required:

(i) Using the Yardeni model, determine implied earnings yield of the bond. (2 marks)

(ii) State **TWO** strengths of the Yardeni model. (2 marks)

(c) A financial analyst based at Genesis Rating Bureau, has gathered the following information about equity market performance over two countries:

	COUNTRY	
	A	**B**
Change in correlation with World Index	7.30%	12.20%
Change in price to earnings (P/E) ratio	0.70%	1.10%
Change in shares outstanding	–0.20%	1.20%
Dividend yield	2.70%	0.60%
Growth in real earnings	4.80%	5.70%
Liquidity risk premium	2.00%	3.60%
Long-term inflation rate	2.80%	5.30%
Growth in exports	3.70%	2.30%
Growth in imports	4.60%	7.20%

Required:

Using the Grinold and Kroner Model, compute the expected returns of equity market performance for each country. (4 marks)

(d) Sifa Ltd. reported a net income of Sh.32 million, depreciation and amortisation of Sh.41 million, net interest expense of Sh.12 million and cash flow from operations of Sh.44 million. Sifa Ltd. has 25 million ordinary shares outstanding trading at Sh.47 per share.

Required:

(i) The price to cash flow ratio. (3 marks)

(ii) The price to adjusted cash flow from operations. (3 marks)

(Total: 20 marks)

QUESTION FIVE

(a) State **FOUR** features of an effective equity research report. (4 marks)

(b) Discuss **THREE** factors to consider when using enterprise value multiples in equity valuation. (6 marks)

(c) Sarah Kandie recently installed some investment software and is verifying the calculation of some of the statistics it produces. Her screens indicates a trading index value of 1.02 for the Smart Securities Exchange and 1.80 for the Bima market. These values seem to be unusually far apart to her and she wonders whether they are both real-time statistics like the other market price data. To check whether they are real-time statistics, a few minutes later, she simultaneously captures the trading index from her software display (slightly changed to 1.01 for the Smart Securities Exchange and 1.81 for Bima market) and on a separate monitor, she does a screen capture of Smart Securities Exchange and Bima market data as follows:

		Smart Securities Exchange	**Bima Market**
Number of issues			
	Advancing	850	937
	Declining	1,982	1,472
Volume			
	Advancing	76,921,200	156,178,475
	Declining	185,461,042	441,970,884

Required:
Calculate the trading index values for the Smart Securities Exchange and Bima market. (4 marks)

Hint: Formula for trading index

= Number of shares advancing ÷ Number of shares declining
Volume advancing ÷ Volume declining

(d) Peter Odero, a minority shareholder at Wetu Limited, holds 15% of a private firm's equity and the manager holds the other 85%. There are two possible scenarios:

Scenario A
The manager will likely sell the firm very soon. In this case, valuation discounts will be very small. A discount for lack of marketability (DLOM) of 5% will be applied and a discount for lack of control (DLOC) will not be applied under the assumption that all selling shareholders will receive the same price. The value of the firm's equity is estimated at Sh.10 million.

Scenario B
The manager has no plans to sell the firm and the minority shareholder cannot sell its interest easily. A discount for lack of marketability (DLOM) of 20% will be applied. A discount for lack of control (DLOC) will be estimated by using reported earnings instead of normalised earnings to provide an estimated firm equity value of Sh. 9 million.

Required:
Calculate the value of the minority shareholder's equity interest under both scenarios. (6 marks)
(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 21 August 2024. Morning Paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) Distinguish between "financial intermediation" and "financial disintermediation" with respect to equity markets. (4 marks)

(b) Tom Ojionda is considering investment in foreign equity. As an investment analyst, write a clear advisory to Tom pointing out **THREE** key challenges Tom could encounter. (6 marks)

(c) A financial analyst at Utumishi Capital is evaluating the following investments:

Investment 1

The financial analyst predicts that if Omega Ltd.'s technological developments are successful, the company's operating costs will be reduced by 15%. As a result of the reduction in operating costs, the company will reduce the average selling price of its products by 5% and the volume of sales will increase by 8%. The company's current gross profit margin is 40%.

Investment 2

The financial analyst has gathered the following information for Alpha Ltd.:

- Expected earnings per share Sh.5.70.
- Expected dividend per share Sh.2.70.
- Dividends are expected to grow at the rate of 2.75% per year indefinitely.
- The required rate of return is 8.35%.

Investment 3

The financial analyst is attempting to value shares of Quota Ltd. The company has just paid a dividend of Sh.0.58 per share. Dividends are expected to grow at the rate of 20% next year and at the rate of 15% the year after that. From the third year onward, the dividend are expected to grow at the rate of 5.6% per year indefinitely. The required rate of return is 8.3%.

Required:

(i) Calculate Omega Ltd.'s gross profit margin assuming technological development occurs with respect to investment 1. (3 marks)

(ii) Calculate the price to earnings (P/E) multiple for Alpha Ltd. (4 marks)

(iii) Calculate the intrinsic value of the share with respect to investment 3. (3 marks)

(Total: 20 marks)

QUESTION TWO

(a) Assess **TWO** uses of enterprise value multiple in equity valuation. (4 marks)

(b) Describe **TWO** responsibilities of an equity analyst in performing equity valuations. (4 marks)

(c) The following information is available for SCM Ltd. at the beginning of the year 2024:

Dividend per share (for year 2023)	Sh.3.70
Earnings per share (for year 2023)	Sh.6.50
Share price	Sh.165.74
Book value per share	Sh.78.52
Historical beta	0.89

The company is assumed to grow in perpetuity based on its year 2023 fundamentals. The return on equity is 8.9%. The yield to maturity on governmental securities is 1.1% and the expected market risk premium is 7%.

Required:

(i) Determine the sustainable growth rate of the company. (2 marks)

(ii) Calculate the justified trading price-to-earnings (P/E) ratio. (3 marks)

(iii) Determine whether the security is correctly valued using the price to earnings (P/E) ratio in (c) (ii) above. (2 marks)

(iv) Calculate the justified price-to-earnings-to-growth (PEG) ratio. (3 marks)

(v) Determine whether the security is correctly valued using PEG ratio in (c) (iv) above. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Summarise **FOUR** assumptions that form the basis of market efficiency. (4 marks)

(b) Discuss **TWO** types of cross-sectional anomalies. (4 marks)

(c) Windsor Ltd. reports net operating profit after tax (NOPAT) of Sh.2,100,000, a weighted average cost of capital of 14.2% and invested capital of Sh.18 million at the beginning of the year and Sh.21 million at the end of year. The market price of the firm equity at year end is Sh.25 per share and has 800,000 outstanding shares. The market value at year end of the firm's long term debt is Sh.4 million.

Required:

Calculate the firm's:

(i) Economic value added (EVA). (2 marks)

(ii) Market value added (MVA). (2 marks)

(d) An equity analyst has normalised the earnings and expenses for Wakombozi Ltd. under consideration as an acquisition. The following data is available:

- Current revenues Sh.20 million
- Revenue growth 4%
- Gross profit margin 30%
- Depreciation expense as a percentage of sales 2%
- Working capital as a percentage of sales 10%
- Selling, general and administrative expenses Sh.2.2 million
- Corporation Tax rate 30%
- Capital expenditures will cover depreciation plus 6% of the firm's incremental revenues

Required:

Calculate the free cash flow to the firm for Wakombozi Ltd. (8 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Highlight **FOUR** roles of quality of earnings analysis in financial forecasting. (4 marks)

(b) The following information relates to Hakika Ltd:

- Market capitalisation Sh.1,000 million
- Total debt Sh.200 million
- Cash Sh.50 million
- Earnings before interest, taxes, depreciation and amortisation (EBITDA) Sh.150 million

Required:

(i) Determine the enterprise value (EV). (2 marks)

(ii) Compute the enterprise value to earnings before interest, taxes, depreciation and armotisation (EBITDA) multiple. (2 marks)

(c) At the beginning of the year 2024, an investor bought XM Limited shares, which paid a dividend per share of Sh.3.25 in the year 2023. The investor assumes an annual earnings growth rate of 10% and a constant dividend payout ratio for the next 2 years. He also expects a dividend yield of 5% in year 1. The historical beta of the share is 1.52. The risk free rate is 4% and the expected market risk premium is 3%. Assume that the dividend is paid out at the end of the investment period.

Required:

Determine the price at which the investor is willing to buy the shares if they sell the shares in one year. (4 marks)

(d) James Wainaina is examining a private firm being considered for acquisition and has determined the following:

1. A small stock premium and company specific risk premium are determined because the private firm is much smaller and much less diversified than the public firms that beta is estimated from.

2. The industry risk premium reflects the additional risk in this industry compared to the broad market.

The following data is available:

- Risk free rate 3.6%
- Equity risk premium 6.0%
- Beta 1.3
- Small stock premium 3.0%
- Company-specific risk premium 2.0%
- Industry risk premium 1.0%

Required:

Calculate the required return on equity using:

(i) Capital asset pricing model (CAPM). (1 mark)

(ii) The expanded CAPM. (1 mark)

(iii) The build-up method. (1 mark)

(e) Nderi Kioko is valuing a private company on behalf of a strategic buyer and deflates the average public company multiple by 30% to account for the higher risk of the private firm.

The following data is available:

- Market value of debt Sh.2,600,000
- Normalised earnings before interest, tax, depreciation and amortisation (EBITDA) Sh.27,100,000
- Control premium from past transaction 25%
- Average public company (market value of invested capital (MVIC)/EBITDA multiple) 9.0

Required:

Calculate the value of the firm equity using the Guidelines Public Company Method (GPCM). (5 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Explain the following equity market models:

(i) Tobins Q. (2 marks)

(ii) Fed model. (2 marks)

(iii) Yardeni model. (2 marks)

(b) Explain **THREE** differences between free cash flow to firm (FCFF) and free cash flow to equity (FCFE) models. (6 marks)

(c) A financial analyst has gathered the following information relating to ABC Ltd.:

- Long-term growth rate starting in 2024 9%
- Expected return on equity (ROE) in 2024 26%
- Current market price per share Sh.16.55
- Book value per share, beginning of 2021 Sh.7.60
- Cost of equity 10%
- Persistence factor 0.70

	2021	**2022**	**2023**
Expected earnings per share (Sh.)	3.28	3.15	2.90
Expected dividend per share (Sh.)	2.46	2.36	2.06

It is assumed that the firm's return on equity will decline slowly towards the cost of equity after 2024.

Required:

Estimate the value of ABC Ltd. using the multistage residual income (RI) model. (8 marks)

(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 24 April 2024. Morning Paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) In relation to market efficiency:

(i) Differentiate between "herding" and "information cascades". (4 marks)

(ii) Explain **THREE** factors that affect market efficiency. (6 marks)

(b) The following information is available for Plethora Ltd., a private company:

	Sh.
Reported earnings before interest, tax, depreciation and amortisation (EBITDA)	4,500,000
Current executive compensation	700,000
Market based executive compensation	620,000
Current selling, general and administration (SG&A) expenses	6,300,000
SG&A expenses after synergistic savings	5,600,000
Current lease rate	300,000
Market based leased rate	390,000

Required:
Calculated normalised earnings before interest, tax, depreciation and amortisation (EBITDA) for:

(i) Financial buyer. (2 marks)

(ii) Strategic buyer. (2 marks)

(c) Imenti Ltd. earned Sh.1.50 per share last year. Investment in fixed capital was Sh.0.80 per share and depreciation was Sh.0.30. Investment in working capital was Sh.0.20 per share. Imenti Ltd. expects earnings to grow at 15% per year for the next five years and that investment in fixed capital, depreciation and investment in working capital will grow at the same rate. After five years, the growth in earnings and working capital requirements will decline to a stable 5% per year and investment in fixed capital and depreciation will offset each other. The firm's target debt ratio is 30%. The shareholders require a return of 17% on their investment during the high growth stage and a return of 10% on their investment during the stable stage.

Required:
Calculate the value of a share. (6 marks)

(Total: 20 marks)

QUESTION TWO

(a) Outline **FOUR** disadvantages of price multiples. (4 marks)

(b) Discuss **THREE** significance of technical analysis in equity valuation. (6 marks)

(c) Afuya Wafula seeks to determine the intrinsic value of Alpha Ltd. using both single stage and multi-stage residual income model. Selected data and assumptions for Alpha Ltd. are presented below:

Book value per share (BVPS)	Sh.45.25
Market price per share	Sh.126.05
Constant by term return on equity (ROE)	12%
Constant long term earnings growth rate	4.50%
Cost of equity	8.70%

For the multi-stage model, Afuya forecasts Alpha Ltd. ROE to be higher than its long term ROE for the first three years. Starting in year four, Afuya Wafula forecasts Alpha Ltd.'s ROE to revert to the constant long term ROE of 12% annually. The terminal value is based on an assumption that the residual income per share will be constant from year three into perpetuity.

Forecasted earnings per share and dividend per share for Alpha Ltd. are presented below:

	Year 1	**Year 2**	**Year 3**
Earnings per share (EPS)	7.82	8.17	8.54
Dividends per share (DPS)	1.46	1.53	1.59

Required:
Calculate the intrinsic value of a share. (10 marks)
(Total: 20 marks)

QUESTION THREE
(a) Summarise **FOUR** external factors affecting an industry's growth, profitability and risk. (4 marks)

(b) Examine **THREE** effects of inflation on the equity valuation process. (6 marks)

(c) The following information relates to Kakuma Ltd.'s securities at the beginning of 2024:

Dividend per share (DPS) for 2023	Sh.3.70
Earnings per share (EPS) for 2023	Sh.6.50
Share price	Sh.165.74
Book value per share	Sh.78.52
Historical beta	0.89

Additional information:
1. The company is assumed to grow in perpetuity based on its 2023 fundamentals.
2. The return on equity is 8.9%.
3. The yield to maturity of a 10-year bond is 5%.
4. The expected risk premium is 3.1%.

Required:
(i) Determine the justified price to earnings (P/E) ratio of Kakuma Ltd.'s security and indicate whether the security is correctly valued. (4 marks)

(ii) Compute the justified price/earnings to growth (PEG) ratio of Kakuma Ltd.'s security and indicate whether the security is correctly valued. (3 marks)

(iii) Calculate the justified price to book (P/B) ratio of Kakuma Ltd.'s security and indicate whether the security is correctly valued. (3 marks)
(Total: 20 marks)

QUESTION FOUR
(a) In relation to equity market equilibrium, analyse **FOUR** measures of security market diversity. (8 marks)

(b) State **FOUR** factors to consider when making foreign equity investment. (4 marks)

(c) The following information relates to shares of Kwekwe Ltd.:

1. The current dividend per share is Sh.1.00.
2. The dividend growth rate is 29.28%, declining linearly over a 16 year period to a final and perpetual growth rate of 7.26%.
3. The risk free rate is 5.34%, market risk premium is 5.32% and Kwekwe Ltd. shares has a beta of 1.37.
4. The current market price per share is Sh.60.

Required:

(i) Using Capital Asset Pricing Model (CAPM), calculate the required rate of return for Kwekwe Ltd. (2 marks)

(ii) Using the H-model, compute the intrinsic value of a share of Kwekwe Ltd. (4 marks)

(iii) Advise the investor on whether the share is under-valued or over-valued. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Describe **THREE** indicators of quality earnings. (6 marks)

(b) Evaluate **THREE** sources of differences in cross-boarder valuation comparisons. (6 marks)

(c) Ndemo Kimani has extracted the following information relating to Nyayo Ltd., a private company:

Working capital	Sh.400,000
Non current assets	Sh.1,800,000
Normalised earnings	Sh.235,000
Refund return for working capital	4%
Required return for non current assets	12%
Growth rate of residual income	3%
Discount rate for intangible assets	16%

Required:

Calculate the value of the firm using Excess Earnings Method (EEM). (4 marks)

(d) James Onyango opens a brokerage account to sell short 1,000 shares of Popote Ltd. at Sh.40 per share. The initial margin and maintenance margin requirements are 50% and 30% respectively. The margin account pays no interest. A year later, the price of Popote Ltd. has risen from Sh.40 to Sh.50 and the security has paid a dividend of Sh.2 per share.

Required:

Calculate the following:

(i) The remaining margin in the account. (1 mark)

(ii) The rate of return on the investment. (1 mark)

(iii) Determine whether or not James Onyango will receive a margin call. (2 marks)

(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 6 December 2023. Morning Paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) Explain the following sources of competitive advantage enjoyed by a firm:

(i) Price premium. (2 marks)

(ii) Cost and capital efficiency. (2 marks)

(b) Discuss **TWO** differences in calculating economic profit from accounting profit as used in Economic Value Added (EVA) analysis. (4 marks)

(c) An analyst has gathered the following information for Pambo Ltd.

- Adjusted net operating profit after tax (NOPAT) is Sh.100 million.
- Total capital is Sh.700 million. The firm has no debt.
- Closing share price is Sh.26.
- Total number of shares outstanding is 30 million.
- The cost of equity is 14%.

Required:
Calculate the following:

(i) Economic value added (EVA). (2 marks)

(ii) Market value added (MVA). (2 marks)

(d) A financial analyst has gathered the following information relating to Bena Ltd., a firm listed at the securities exchange:

1. The risk free rate of return is 4.5%.
2. Expected return on the equity market is 14.5%.
3. The stock beta factor is 1.15.
4. Dividend just paid recently is Sh.1.72.

The analyst has projected that the current dividend will grow at a high extra-ordinary rate of 12% per annum for the next three years. Thereafter, the dividends will grow at a constant rate of 9% to perpetuity.

Required:

(i) The cost of equity of Bena Limited. (2 marks)

(ii) The intrinsic value of Bena Ltd.'s share today. (6 marks)

(Total: 20 marks)

QUESTION TWO

(a) In relation to technical analysis indicators, explain the following terms:

(i) Support and resistance level. (2 marks)

(ii) Trend line. (2 marks)

(iii) Reversal day. (2 marks)

(b) In relation to equity analysis, examine **THREE** uses of industry analysis. (6 marks)

(c) Gilead Ltd.'s shares have a retention ratio of 45%, a return on equity of 14%, an earnings per share (EPS) of Sh.5.25 and sales per share of Sh.245.54. The expected growth rate in dividends and earnings is 6.5%. The required return on investment is 11%.

Required:
Calculate the following:

(i) Price to sales (P/S) multiple. (2 marks)

(ii) Justified price to book value (P/B) multiple. (2 marks)

(iii) Trailing price to earnings (P/E) multiple. (2 marks)

(iv) Justified leading price to earnings (P/E) multiple. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Describe how the following factors affect the lack of marketability of a private firm:

(i) Prospect of public offering or sale. (2 marks)

(ii) Information access and reliability. (2 marks)

(iii) Put rights. (2 marks)

(iv) Restrictive transfer. (2 marks)

(b) The value of working capital and non-currents for Mamboleo Ltd. a privately held firm, are Sh.200,000 and Sh.800,000 respectively. The normalised earnings for the year just ended is Sh.100,000. The discount rate for the working capital, non-current assets and intangible assets are 5%, 11% and 12% respectively. The growth rate is 3%.

Required:
Estimate the value of the firm using excess earnings method. (6 marks)

(c) William Wanjohi purchased 500 shares of ABC Ltd. at Sh.32 per share. The shares were purchased at 75% margin. One month later, Wanjohi had to pay interest on the amount borrowed at a rate of 2% per month. At that time, Wanjohi received a dividend of Sh.0.50 per share from ABC Ltd. Immediately after that he sold the shares at Sh.28 per share. He paid a commission of Sh.10 on the purchase and Sh.10 on the sale of the shares.

Required:
Calculate the investor's rate of return for the investment for the one month period. (6 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Highlight **THREE** reasons that could make equity investments analysts prefer to use Enterprise Value (EV) to Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA), that is, (EV/EBITDA) ratio in equity valuation. (3 marks)

(b) Analyse **TWO** strengths of two-stage dividend discount model (DDM) as compared to the constant growth dividend discount model (DDM) in equity valuation. (4 marks)

(c) An investor is considering the following equity investments to make in the coming year:

1. Bidii Ltd. that is currently paying no dividend and will not pay for several years. Bidii Ltd. is expected to begin paying a dividend of Sh.100 four years from now and the dividend is expected to grow at a rate of 5% thereafter. The company's required rate return is 11%.

2. The purchase of Capital City Investments, which has a price to book value (P/B) of Sh.5.00. The required return on equity is expected to be 18%, the market price per share is Sh.25 and the growth rate is expected to be 8%. The investor believes that the share is currently priced at its fair value.

Required:

(i) The value of Bidii Limited's share price today. (2 marks)

(ii) The cost of equity the investor should use in the valuation of Capital City Investments. (4 marks)

(d) Fariji Ltd. earned a net profit margin of 20% on revenues of Sh.20 million this year. Fixed capital investment was Sh.2 million and depreciation was Sh.3 million. Working capital investment equals 7.5% of sales every year. Net income, fixed capital investment, depreciation, interest expense and sales are expected to grow at a rate of 10% per annum for the next five years. After five years, the growth in sales, net income, fixed capital investment, depreciation and interest expense will decline to a stable rate of 5% per annum. The tax rate is 30% and Fariji Ltd. has 1 million ordinary shares outstanding and long term debt paying 12.5% interest trading at its par value of Sh.32 million. The weighted average cost of capital (WACC) is 18% during the high growth stage and 15% during the stable stage.

Required:

Calculate the value of the firm's equity using the free cash flow to the firm (FCFF) model. (7 marks)

(Total: 20 marks)

QUESTION FIVE

(a) With respect to market efficiency in equity investment analysis:

(i) Explain the term "financial market efficiency". (2 marks)

(ii) Discuss **THREE** forms of market efficiency. (6 marks)

(b) Wote Traders (WT) produces wood carvings for use in homes.
The most recent income statement for Wote Trades (WT) is given below:

	Sh.
Revenue	1,500,000
Cost of goods sold	630,000
Selling expenses	120,000
Administrative expenses	330,000
Operating profit	420,000

An analyst believes that a new revenue tax of 10% is going to be imposed on the wood carvings. He also believes that the cost of goods sold and selling expenses are a fixed percentage of sales, while administrative expenses are fixed. Wote Traders is expected to pass on the entire cost of the revenue tax to the consumers. The price elasticity of demand for the wood carvings is 0.60.

Required:

Forecast Wote Traders (WT) operating margin for the upcoming year given the anticipated 10% increase in taxes. (6 marks)

(c) An investor collects the information relating to the markets and the economy as shown below:

10 year Historical	Current	Capital market expectations
10 year average government bond yield 6.2%.	10 year government bond yield 3.8%.	
Average annual equity return 8.2%.	Year over year equity return 9.4%.	
Average annual inflation rate 2.8%.	Year over year inflation rate 2.6%.	Expected annual inflation 3.5%.
Equity market price to earnings (beginning of period) 15.0 times.	Current equity price to earnings (P/E) 14.5 times.	Expected equity market (P/E) 14.0 times.
Average annual income return 2.0%.		Expected annual income return 1.5%.
Average annual real earnings growth rate 6%.		Expected annual real earnings growth rate 5%.

Required:
Calculate the expected annual equity return using the Grinold-Kroner model assuming no change in the number of shares outstanding. (6 marks)

(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 23 August 2023. Morning Paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) Highlight **THREE** reasons why the equity market is important to the economy as a component of the financial system. (3 marks)

(b) Outline **THREE** reasons why preference shares are considered less risky than ordinary shares as a type of equity security. (3 marks)

(c) A trainee financial analyst makes the following statement, "No equity investor needs to understand valuation models because real-time market prices are easy to obtain online".

Required:
Provide **TWO** criticisms for the above statement in support of the use of valuation models in equity valuation. (4 marks)

(d) Charles John is evaluating Reliant Home Limited. He has gathered the following information:

1. Current free cash flow to the firm (FCFF) is Sh.745 million.
2. Outstanding number of ordinary shares is 309,390.
3. The equity beta is 0.90, risk-free rate is 5.04% and equity risk premium is 5.5%.
4. Before tax cost of debt is 7.1%.
5. Corporation tax rate is 34%.
6. Capital structure is 20% debt and 80% equity.
7. Long-term debt is Sh.518 million.
8. Growth rate of FCFF is estimated as follows:
   - 8.8% annually in stage 1 from year 1 to 4.
   - 7.4% in year 5, 6.0% in year 6 and 4.6% in year 7.
   - 3.2% in year 8 and thereafter.

Required:
From the above information, compute the following:

(i) Weighted average cost of capital (WACC). (2 marks)

(ii) Total value of the firm. (4 marks)

(iii) Total value of equity. (2 marks)

(iv) Value per share. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Explain **THREE** limitations of fundamental analysis as used in equity valuation. (6 marks)

(b) Assess the appropriateness of the following alternative methods of issuing equity finance in primary markets:

(i) Placing. (2 marks)

(ii) An offer for sale. (2 marks)

(iii) A public offer for subscription. (2 marks)

(c) Joel Mutugi is an equity analyst and is researching the relative valuation of two companies operating in the same industry. Joel gathers the following information:

	Company	
	Mambo Leo Ltd. (Sh."million")	**Zawadi Ltd. (Sh."million")**
Market value of debt	50	100
Book value of debt	52	112
Cash and investments	5	2
Net income	49.5	12
Net income from continuing operations	49.5	8
Interest expense	3	5
Depreciation and amortisation	8	4
Taxes	2	3

Additional information:

1. The current market price per share for Mambo Leo Ltd. and Zawadi Ltd. are Sh.150 and Sh.100 respectively.
2. The current number of outstanding shares for Mambo Leo Ltd. and Zawadi Ltd. is 5,000 shares and 2,000 shares respectively.

Required:
Calculate the following:

(i) Price to earnings before interest, tax, depreciation and amortisation (P/EBITDA) for Mambo Leo and Zawadi Ltd. (4 marks)

(ii) Enterprise value (EV) to EBITDA for Mambo Leo Ltd. and Zawadi Ltd. (4 marks)

(Total: 20 marks)

QUESTION THREE

(a) Explain the following competitive strategies as used in industry analysis:

(i) Defensive competitive strategy. (1 mark)

(ii) Offensive competitive strategy. (1 mark)

(iii) Low cost strategy. (1 mark)

(iv) Differentiation strategy. (1 mark)

(b) Assess **TWO** uses of dividend discount model (DDM) in equity valuation. (4 marks)

(c) Java Ltd. is expecting a Return on Equity (ROE) of 15% over each of the next five years. Its current book value is Sh.5.00 per share, it pays no dividends and all earnings are reinvested. The required return on equity is 10%. Forecasted earnings in year 1 through year 5 are equal to ROE times beginning book value.

Required:

(i) Calculate the intrinsic value of the company using the residual income model, assuming that after 5 years, continuing residual income falls to zero. (5 marks)

(ii) Calculate the new intrinsic value of Java Ltd. assuming that after year 5 Java Ltd.'s residual income will decay over time to zero with a persistence factor of 0.4. (3 marks)

(iii) Calculate Java Ltd.'s intrinsic value assuming that at the end of year 5, Java Ltd.'s ROE falls to a long-run average level and the price-to-book ratio falls to 1.2. (4 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Discuss **THREE** implications of the efficient market hypothesis (EMH) to financial market participants. (6 marks)

(b) A financial analyst gathers the following information on Ndika Ltd.

Year	**2019**	**2020**	**2021**	**2022**	**2023(E)**
Earnings per share (Sh.)	4.93	5.25	4.46	5.64	6.00
Dividends per share (Sh.)	2.45	2.60	2.60	2.75	2.91
Return on equity (ROE)	13.01%	13.71%	11.58%	14.21%	14.96%

Note: The data for the year 2019-2022 are actual and for the year 2023 are estimated.

The analyst estimates a required return of 15% and forecasts growth of dividends of 6% into perpetuity. Current share price is Sh.50.

Required:

(i) Calculate the trailing price-to-earnings (P/E) as at 1 January 2023 ignoring any business cycle influence. (2 marks)

(ii) Calculate the justified forward P/E using the Gordon growth dividend discount model. (2 marks)

(c) At the beginning of the month of August 2023, KYM Ltd. shares were trading at Sh.52.72. In the previous year, KYM Ltd. paid a Sh.1.70 dividend that an equity analyst expects to grow at a rate of 4% annually for the next four years. At the end of year 4, the analyst expects the dividend to equal 35% of earnings per share and the trailing price to earnings (P/E) for KYM Ltd. to be 13. The required rate of return is 8%.

Required:

Calculate the price per share value of KYM Ltd. ordinary shares using the Gordon growth model (GGM). (5 marks)

(d) Jane Njoroge has gathered the following information relating to Baringo Stores Ltd. for the year ending 31 December 2022:

Normalised earnings	Sh.185,000
Estimated value of working capital	Sh.300,000
Estimated value of non current assets	Sh.1,200,000
Required return on working capital	4%
Required return on non-current assets	12%
Residual income growth rate	4%
Discount rate	12%

Required:

Estimate the value of Baringo Stores Ltd. using excess earnings method (EEM). (5 marks)

(Total: 20 marks)

QUESTION FIVE

(a) With respect to technical analysis, state the application of the following principles:

(i) Contrary opinion rule. (1 mark)

(ii) Follow the smart money rule. (1 mark)

(iii) Momentum indicators. (1 mark)

(iv) Stock price and volume techniques. (1 mark)

(b) Describe **FOUR** stages of the industry life cycle. (4 marks)

(c) Evaluate **TWO** drawbacks of price-to-earnings (P/E) ratio in valuation of companies. (4 marks)

(d) The following statement of cash flows is available for Bidii Ltd., a private company:

	Years ending 30 June:		
	2021	**2022**	**2023**
	Sh."000"	**Sh."000"**	**Sh."000"**
Cash flow from operations:			
Net income	97.52	107.28	118.00
Plus depreciation	45.00	49.50	54.45
Increase in accounts receivable	(100.00)	(10.00)	(11.00)
Increase in inventory	(6.00)	(6.60)	(7.26)
Increase in accounts payable	50.00	5.00	5.50
Cash flow from operations	86.52	145.18	159.69
Cash flow from investing activities:			
Purchase of plant, property and equipment	0.00	(50.00)	(55.00)
Cash flow from financing activities:			
Borrowings (repayment)	22.40	24.64	27.10
Total cash flow	108.92	119.82	131.80
Beginning cash	0.00	108.92	228.74
Ending cash	108.92	228.74	360.54
Notes:			
Cash paid for interest	(15.68)	(17.25)	(18.97)
Cash paid for taxes	(41.80)	(45.98)	(50.57)

The tax rate for the firm is 30%:

Required:
Calculate the following:

(i) Free cash flow to the firm (FCFF). (4 marks)

(ii) Free cash flow to equity (FCFE). (4 marks)

(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 26 April 2023. Morning Paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) Distinguish between the following stages as per the industry life-cycle model:

(i) "Embryonic stage" and "growth stage". (4 marks)

(ii) "Shake out stage" and "decline stage". (4 marks)

(b) Outline **FOUR** challenges involved with application of valuation standards in valuing private companies. (4 marks)

(c) The shares of Sabuni Ltd. are currently being sold at Sh.100 per share at the securities exchange. The firm currently yields a 10% book return on equity. At the end of the year, the firm is expected to pay Sh.4 dividend per share. It has been re-investing 40% of earnings and growing at a rate of 4% per year.

The management of Sabuni Ltd. plans to expand the firm gradually over five years in which it will have to re-invest 80% of its earnings for five years, however, starting in year 6, it will be able to pay out 60% of its earnings.

Required:

(i) Determine the part of Sh.100 which is attributable to the present value of growth opportunities (PVGO). (4 marks)

(ii) Calculate the firm's share price after expansion plan announcement. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Outline **THREE** approaches to industry classifications as used in industry analysis. (3 marks)

(b) Enumerate **THREE** key differences between "fundamental analysis" and "technical analysis". (3 marks)

(c) John Kiama has been tasked with developing a capital market expectations outlook including expected return on domestic equities and expected short term interest rates. He has gathered the following data:

Table 1:

Economic indicator	**Value**
Expected dividend yield	1.75%
Expected inflation rate	1.50%
Real growth rate	4.00%
Percentage change in number of shares outstanding	0.50%
Percentage change in price to earnings ratio	-0.75%

Table 2:

Economic indicator	Value
Neutral rate	4%
Forecast inflation rate	7%
Target inflation rate	3%
Gross domestic product (GDP) growth rate	0%
GDP trend growth rate	2%

Required:

(i) Using the Grinold - Kroner model, estimate the expected return on domestic equities. (3 marks)

(ii) Using the Taylor rule, determine the target short term interest rate. (4 marks)

(d) Alice Wanjeri has gathered the following data and assumptions for Karambu Ltd.

Book value per share	Sh.45.25
Market price per share	Sh.126.05
Constant long term return on equity (ROE)	12%
Constant long term earnings growth rate	4.50%
Cost of equity	8.7%

Alice forecasts that the firm's return on equity (ROE) will be higher than its long term ROE for the first three years. The forecasted earnings per share (EPS) and dividends per share (DPS) are shown below:

	Year 1	Year 2	Year 3
Earnings per share (Sh.)	7.82	8.17	8.54
Dividends per share (Sh.)	1.46	1.53	1.59

Starting in year 4, she forecasts the firm's ROE to revert to the constant long term ROE of 12% annually. The terminal value is based on an assumption that residual income per share will be constant from year 3 into perpetuity.

Required:

Calculate the intrinsic value of the firm using the multistage residual income model. (7 marks)

(Total: 20 marks)

QUESTION THREE

(a) Describe the following market pricing anomalies:

(i) Calendar anomalies. (2 marks)

(ii) Momentum and overreaction anomalies. (2 marks)

(iii) Cross-sectional anomalies. (2 marks)

(b) Monica Achieng' has determined that at the beginning of year 2022, Bill Ltd. had total capital of Sh.324 million of which Sh.251 million was debt and Sh.73 million was equity. The company's cost of debt before taxes is 7% and the cost equity capital is 8%. The net operating profit after tax before any adjustment is Sh.28,517,640 while the net income before the year is Sh.10,035,000. Monica also notes that the book value per share for Bill Ltd. at the beginning of year 2023 was Sh.4.29 and the current market price is Sh.70. She forecasts the return on equity for year 2023 to be 11.84%.

The corporate tax rate is 30%.

Required:

Calculate the firm's:

(i) Residual income. (3 marks)

(ii) Economic value added (EVA) for year 2022. (3 marks)

(iii) Implied residual income growth rate for the year 2023 based on the residual income model. (2 marks)

(c) An investor is considering the following three stocks:

1. Stock A is expected to provide a free cash flow to the firm (FCFF) of Sh.10 per share to perpetuity.
2. Stock B is expected to earn free cash flow to the firm (FCFF) of Sh.5 per share next year. Thereafter, a dividend growth rate is expected to be 4% per annum to perpetuity.
3. Stock C is expected to earn a FCFF of Sh.5 per share next year. Thereafter, FCFF growth rate is expected to be 20% per annum for 5 years and zero growth rate thereafter.

The required rate of return is 10%.

Required:
Determine the most valuable stock. (6 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Summarise **FOUR** rationales for the use of price to cash flow in equity valuation. (4 marks)

(b) According to Michael Porter (1998), identify **FIVE** competitive forces that determine a firm's ability to earn returns on capital in excess of cost of capital. (5 marks)

(c) In the month of March 2022, Brent Ltd., share sold for Sh.73. Security analysts were forecasting a long term earnings annual growth rate of Sh.8.5%. The company was paying dividend of Sh.1.68 per share. James Kobia is interested in determining the required rate of return for the firm. He comes up with the following scenarios:

Scenario 1: The dividends are expected to grow along with the earnings at a rate of 8.5% per year in perpetuity.

Scenario 2: The firm is expected to earn about 12% on book equity and to pay out about 50% of earnings as dividends.

Required:
Calculate:

(i) The rate of return under scenario 1. (2 marks)

(ii) The rate of return under scenario 2. (3 marks)

(d) Explain **THREE** methods of underwriting equity agreements. (6 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Analyse the implications of efficient market hypothesis with respect to:

(i) Technical analysis. (2 marks)

(ii) Fundamental analysis. (2 marks)

(iii) Portfolio management. (2 marks)

(b) Discuss **TWO** transactional considerations faced by controlling owner of a closely held business who wishes to liquidate his controlling interest. (4 marks)

(c) A minority shareholder holds 10% of a private firm's equity with the chief executive officer (CEO) holding the other 90%. Using normalised earnings method, the value of the firm's equity is estimated at Sh.20 million. The CEO refuses to sell the firm and the minority shareholder cannot sell their interest easily. A discount for lack of marketability (DLOM) of 15% will be applied. Using reported earnings instead of normalised earnings provides an estimated firm equity value of Sh.19 million.

Required:
Calculate the value of the minority shareholders equity interest. (2 marks)

(d) Ujenzi Ltd. generates a return on equity (ROE) of 13% and pays out 50% of its earnings in dividends. The required rate of return for the firm is 10%.

Required:
Calculate the firms franchise price to earnings (P/E) ratio. (4 marks)

(e) The management of Maadili Ltd. has announced the signing of a new marketing agreement that will allow the company to sell its products in Europe. An equity analyst is analysing the effect of this announcement on the estimated value of Maadili Ltd. equity.

The analyst uses the H-Model in his valuation process and has identified the following inputs:

1. Maadili Ltd. Free Cash Flow To Equity (FCFE) growth is expected to be 30% in the year 2023, declining over a five-year period to a constant growth rate of 12% in the year 2028 and thereafter.
2. The required rate of return for the firm is expected to be 13.5%.
3. The FCFE per share for the year 2022 was Sh.0.20.
4. The FCFE dividend payout ratio is expected to be constant.

Required:
Calculate the estimated value of a share of Maadili's Ltd.'s equity on 31 December 2022. (4 marks)

(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 7 December 2022. Morning Paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) Explain **TWO** limitations of industry life cycle models in relation to fundamental analysis. (4 marks)

(b) Highlight **FIVE** reasons for increased use of enterprise value multiples in equity valuation. (5 marks)

(c) The following information relates to Ukunda Ltd.:

1. Earnings per share (EPS) in the year 2021 was Sh.4.
2. The retention ratio is 70%.
3. The company expected to earn a return on equity of 16% on its investments.
4. The required rate of return is 12%.
5. The dividends are paid at the end of the year.

Required:
Using Gordon's constant growth model:

(i) Determine the company's sustainable growth rate. (2 marks)

(ii) Estimate the value of the company's share at the beginning of the year 2022. (3 marks)

(iii) Calculate the present value of growth opportunities assuming no growth. (3 marks)

(d) Outline **THREE** methods used to estimate the required rate of return to the private company equity. (3 marks)

(Total: 20 marks)

QUESTION TWO

(a) Highlight **FOUR** methods that may be used to invest in foreign equities. (4 marks)

(b) In relation to industry and company analysis, assess **THREE** generic competitive strategies. (6 marks)

(c) Jeremy Owuor is preparing a valuation report of Maximum Exports Ltd. He has decided to use a three stage free cash flow to equity (FCFE) valuation model and he has made the following estimates:

1. The FCFE per share for the current year is Sh.1.00.
2. The FCFE is expected to grow at 10% for next year then at 26% annually for the following three years and then at 8% in year 5 and thereafter.
3. Maximum Exports Ltd. estimated beta is 2.00 and the current market conditions favours a 5% risk free rate of return and a 5% equity risk premium.

Required:
Estimate the value of a share of maximum Export Ltd. (7 marks)

(d) A stock has a dividend payout ratio of 40%, return on equity (ROE) of 8.3, an earnings per share of Sh.4.25, sales per share of Sh.218.75 and an expected growth rate in dividends and earnings of 5%.

Shareholders require a return of 10% on their investment.

Required:
Calculate the justified price-to-sales (P/S) multiple based on these fundamentals. (3 marks)

(Total: 20 marks)

QUESTION THREE

(a) George Nyamu has concluded that two stage dividend discount model (DDM) is the most appropriate for valuing Blue Energy Ltd. The current dividend paid by the company is Sh.5.00. The analyst wants to value the company's shares using the following approaches separately:

1. The dividend growth rate will be 12% throughout the first stage of four years. The dividend growth rate thereafter will be 6%.
2. Instead of using the estimated stable growth rate of 6% in the second stage, George wants to use his estimate that four years later Blue Energy stock will be worth 15 times its earnings per share. He expects that the earnings retention ratio at that time will be 0.60.
3. In contrast to the above approach in which growth rate declines abruptly from 12% in the fourth year to 6% in the fifth, the growth rate would decline linearly from 12% in first year to 6% in the fifth year.

The current share price is Sh.100.

The required return is 14%.

Required:
(i) Estimate the present value of the terminal value of the share. (6 marks)

(ii) Advise whether the investor should purchase the company's shares using the H-model. (4 marks)

(b) Chris Sifuna of XYZ pension plan has historically invested in the shares of only Kenya-domiciled companies. Recently he has decided to add international exposure to the plan portfolio.

Required:
In relation to the above statement, explain **THREE** challenges that Chris Sifuna of XZY pension plan may encounter while investing in foreign equity securities. (6 marks)

(c) An investor gathers the following data estimates for a company from the energy sector. It includes projected earnings and dividends over a three year period. The required rate of return of the project is 10%. Average dividend payouts rate for mature companies in the market is 0.45. The industry average return on equity is 0.13. The earnings per share in year 3 is Sh.4.00. The industry average price earnings ratio is 24.0.

Required:
Estimate the terminal value of the share using the Gordon Growth Model. (4 marks)

(Total: 20 marks)

QUESTION FOUR

(a) The following selected information is gathered from financial records of Oanda Ltd.:

	Amount in Sh."million"		
	2019	**2020**	**2021**
Net sales	46.8	50.5	53.9
Operating expenses	19.3	22.5	25.1

An analyst estimates that sales for 2022 will grow at an average annual growth rate in net sales over 2019 – 2021 period and the year 2022 operating expenses/net sales ratio will be the same as the average ratio over the year 2019 and 2021 time period.

Required:
Estimate the year 2022 operating expenses. (6 marks)

(b) Jamal Hassan has gathered the following data for XXT Ltd. for the year ended 30 September 2022:

	Sh.
Reported earnings before interest, tax, depreciation and amortisation (EBITDA)	6,700,0000
Current executive compensation	800,000
Market based executive compensation	650,000
Current selling, general and administrative (SG&A) expenses	8,100,000
SG&A expenses after synergistic savings	7,300,000
Current lease rate	200,000
Market based lease rate	250,000

Required:
Compute the normalised EBITDA for:

(i) Financial buyer. (3 marks)

(ii) Strategic buyer. (4 marks)

(c) Describe **TWO** drawbacks to using enterprise value to earnings before interest, taxes, depreciation and amortisation (EV/EBITDA). (4 marks)

(d) Explain the term "Tobins q". (3 marks)

(Total: 20 marks)

QUESTION FIVE

(a) In private company valuation, describe instances when the following valuations are applied:

(i) Discount for lack of marketability. (2 marks)

(ii) Discount for lack of control. (2 marks)

(iii) Control premium. (2 marks)

(b) An equity analyst gathers the following information:

Long-term treasury yield	3.5%
Beta	1.4
Equity risk premium	6.0%
Small stock premium	4.0%
Company specific risk premiums	3.0%
Industry risk premium	2.0%

Required:
Calculate the required rate of equity using the expanded capital asset pricing model (CAPM). (2 marks)

(c) Highlight **FOUR** applications of equation valuation models. (4 marks)

(d) The following financial information relates to Beth PVT Ltd. for the year ended 31 December 2020 and 31 December 2021:

	2020 **Sh."million"**	**2021** **Sh."million"**
Revenue	995	1,180
Pre-tax accounting profit	210	265
Taxation	63	80
Profit after tax	147	185
Dividends	50	60
Retained earnings	97	125

Statement of financial position for the year ended 31 December:

	2020 Sh."million"	2021 Sh."million"
Non-current assets	370	480
Net current assets	400	500
	770	980
Financed by:		
Shareholder's funds	595	720
Medium and long-term bank loans	175	260
	770	980

Pre-tax accounting profit is taken after deducting the economic depreciation of the company's non-current assets (also the depreciation used for tax purposes).

Additional information:

1. Economic deprecation was Sh.95 million in 2020 and Sh.105 million in 2021.
2. Interest expenses were Sh.13 million in 2020 and Sh.18 million in 2021.
3. Other non-cash expenses were Sh.32 million in 2020 and Sh.36 million in 2021.
4. The rate of tax was 30% in both years.
5. Beth PVT Ltd. had non-capitalised leases valued at Sh.35 million in each year 2019 - 2021.
6. The company's pre-tax cost of debt was estimated as 7% in 2020 and 8% in 2021.
7. The company's cost of equity was estimated as 14% in 2020 and 16% in 2021.
8. The target capital structure is 75% equity, 25% debt.
9. Capital employed at the end of 2019 was Sh.695 million. There were no loans at that date.

Required:

(i) Net operating profit after taxes (NOPAT) for financial year's ending 31 December 2020 and 31 December 2021. (2 marks)

(ii) Capital employed by Beth PVT Ltd. for each of the years 2020 and 2021. (2 marks)

(iii) Weighted average cost of capital (WACC) of Beth PVT Ltd. for both years 2020 and 2021. (2 marks)

(iv) Economic value added (EVA) of Beth PVT Ltd. for each of the years 2020 and 2021. (2 marks)

(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

PILOT

EQUITY INVESTMENTS ANALYSIS

December 2021. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Outline four characteristics of a well-functioning securities market. (4 marks)

(b) Consider an order driven system that allows hidden orders. The following four sell orders on Huduma Ltd. shares are currently in the automated trading systems (ATS) limit order section:

Order	Time the order was placed	Limit price of the order (Sh)	Special instructions (if any)
I	9:52:01 am	20.33	
II	9:52:08 am	20.29	Hidden order
III	9:53:04 am	20.29	
IV	9:53: 49 am	20.29	

Required:

Based on the order precedence hierarchy, illustrate the precedence in which the four orders were executed. (6 marks)

(c) Explain the five steps involved in equity valuation process. (5 marks)

(d) (i) Explain the term "convertible preference". (1 mark)

(ii) Outline five advantages of convertible preference share an investor. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Julias Koech is an investment analyst at an asset management firm. Each year he provides his firm with a report that includes a series of market forecasts. As part of his report, he uses the Grinold-Kroner model to forecast the expected rate of return on equities for the next 10 years. He uses the data below to prepare his forecast:

Factor	10 year forecast (annualized) %
Dividend yield	1.80
Dividend growth rate	4.00
Change in price to earnings (P/E) multiple	0.50
Inflation rate	1.20
Change in the number of shares outstanding	-0.30
Real total earnings growth rate	2.50

Required:

Calculate the following sources of return for equities:

(i) Expected nominal earnings growth return. (2 marks)
(ii) Expected repricing return. (2 marks)
(iii) Expected income return. (2 marks)

(b) In each case, explain two tests used to examine the following:

(i) Weak form of efficient market hypothesis. (4 marks)

(ii) Semi- strong form of efficient market hypothesis. (4 marks)

(c) Explain three principles of technical analysis. (6 marks)

(Total: 20 marks)

QUESTION THREE

(a) Distinguish between the following terms as used in industry analysis:

(i) Growth company and growth stock. (2 marks)

(ii) Defensive company and defensive stock. (2 marks)

(iii) Cyclical company and cyclical stock. (2 marks)

(iv) Speculative company and speculative stock. (2 marks)

(b) Medina Ltd has a competitive advantage that will probably deteriorate over time. Flavor Tobiko expects this deterioration to be reflected in declining sales growth rates as well as declining profit margins. To value the company, Tobiko has accumulated the following information:

1. Current sales are Sh.600 million. Over the next six years, the annual sales growth rate and the net profit margin are projected to be as follows:

Year	1	2	3	4	5	6
Sales growth rate	20%	16%	12%	10%	8%	7%
Net profit margin	14%	13%	12%	11%	10.50%	10%

2. Beginning in Year 6, the 7% sales growth rate and 10% net profit margin should persist indefinitely.

3. Capital expenditures (net of depreciation) in the amount of 60% of the sales increase will be required each year.

4. Investments in working capital equal to 25% of the sales increase will also be required each year.

5. Debt financing will be used to fund 40% of the investments in net capital items and working capital.

6. The beta for company is 1.10. The risk-free rate of return is 6% and the equity risk premium is 4.5%.

7. There are 70 million outstanding shares.

Required:

(i) The estimated total market value of equity. (10 marks)

(ii) The value of Medina Ltd.'s share. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) An analyst is examining a private firm under consideration as an acquisition and determines the following:

1. The current capital structure is non-optimal because the owner avoids the use of debt.

2. A small stock premium and company-specific risk premium are determined because the private firm is much smaller and much less diversified than the public firms that beta is estimated from.

3. The industry risk premium reflects the additional risk in this industry compared to the broad market.

The relevant figures are listed below:

- Risk-free rate 3.6%
- Equity risk premium 6.0%
- Beta 1.3
- Small stock premium 3.0%
- Company-specific risk premium 2.0%
- Industry risk-premium 1 .0%
- Pretax cost of debt 9.0%
- Debt/total cap for public firms in industry 30%
- Optimal debt/total cap 12%
- Current debt/total 3%
- Tax rate 30%.

Required:

(i) The required return on equity using the capital asset pricing model (CAPM), the expanded CAPM and the build-up method. (6 marks)

(ii) The weighted average cost of capital (WACC) using the current capital structure and the optimal capital structure, assuming a cost of equity of 16%. (4 marks)

(iii) Comment on the appropriate capital structure weights. (2 marks)

(b) An analyst gathered the following data for Equifax Ltd.:

- Recent share price Ksh.22.50
- Shares outstanding 40 million
- Market value of debt Ksh.137 million
- Cash and marketable securities Ksh.62.3 million
- Investments Ksh.327 million
- Net income Ksh.137.5 million
- Interest expense Ksh.6.9 million
- Depreciation and amortization Ksh.10.4 million
- Taxes Ksh.95.9 million

Required:

The enterprise value to earnings before interest, tax, depreciation and amortisation (EV/EBITDA) ratio for Equifax Ltd. (4 marks)

(c) Examine two favourable arguments for and against enterprise value to earnings before interest tax depreciation and amortisation (EV/EBITDA). (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Kawaida Ltd is expecting return on equity (ROE) of 15% over each of the next five years. Its current book value is Ksh.5.00 per share, it pays no dividends, and all earnings are reinvested. The required return on equity is 10%. Forecasted earnings in years 1 to 5 are equal to ROE times beginning book value.

Required:

(i) The intrinsic value of the company using a residual income model, assuming that after five years, continuing residual income falls to zero. (3 marks)

(ii) The intrinsic values of the company using residual income, assuming that after five years to assuming that the residual income remains constant at Sh.0.44 forever. (3 marks)

(iii) Assuming that after Year 5, Kawaida's residual income will decay over time to zero with a persistence factor of 0.4. Determine the new intrinsic value of Kawaida. (3 marks)

(iv) Suppose that at the end of Year 5 Kawaida's ROE falls to a long-run average level and the price-to-book ratio falls to 1.2. What will be the intrinsic value? (3 marks)

(b) Amlex Ltd is a large manufacturer and distributor of packaged consumer food products. James, a buy-side analyst covering Amlex Ltd, has studied the historical growth rates in sales, earnings, and dividends for the company, and also has made projections of future growth rates. James expects the current dividend of Sh.1.10 to grow at 11% for the next five years, and that the growth rate will decline to 8% and remain at that level thereafter. James feels that his estimate of the company's beta is unreliable, so he is using the bond yield plus risk premium method to estimate the required rate of return on the stock. The yield to maturity of Amlex's Ltd long-term bond (6.27% of 2021) is 6.67%. Adding a 4.0% risk premium to the yield-to-maturity gives a required return of 10.67%, which James rounds to 10.7%.

Required:
Determine the stock value using the Two-Stage Dividend Discount Model. (8 marks)

(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 3 August 2022. Morning paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) Explain three types of market structures based on execution mechanisms. (6 marks)

(b) Stephen Mwaweza buys stock on margin and holds the position for exactly one year, during which time the stock pays a dividend. Assume that the interest on the loan and the dividend are both paid at the end of the year.

Purchase price	Sh.20 per share
Sale price	Sh.15 per share
Shares purchased	1000
Leverage ratio	2.5
Call money rate	5%
Dividend	Sh.0.10 per share
Commission	Sh.0.01 per share

Required:

The total return on this investment. (4 marks)

(c) Tim Limited's competitive advantage is expected to deteriorate over time. Evans Karani, an equity analyst for the company expects this deterioration to be reflected in declining sales growth rates as well as declining profit margins. To value the company, Evans has accumulated the following information:

1. Current sales are Sh.600 million. Over the next six years, the annual sales growth rate and the net profit margin are projected to be as follows:

Year	1	2	3	4	5	6
Sales growth rate (%)	20	16	12	10	8	7
Net profit margin (%)	14	13	12	11	10.50	10

Beginning in year 6, the 7% sales growth rate and 10% net profit margin should persist indefinitely.

2. Capital expenditures (net of depreciation) equal to 60% of the sales increase will be required each year.
3. Investment in working capital equal to 25% of the sales increase will be required each year.
4. Debt financing will be used to fund 40% of the investment in net capital expenditure items and working capital.
5. The beta for Tim Limited is 1.10. The Treasury bond rate of return is 6% and equity risk premium is 4.5%.
6. There are 70 million shares outstanding.

Required:

(i) Cost of equity. (1 mark)

(ii) Free cash flow to equity (FCFE). (6 marks)

(iii) The value of the firm. (3 marks)

(Total: 20 marks)

QUESTION TWO

(a) In relation to industry analysis, develop a five step approach to be followed while constructing a preliminary list of peer companies. (5 marks)

(b) John Weru is valuing the ordinary shares of Diamond Ltd. as at 31 December 2021, when the book value per share is Sh.10.62. He has made the following assumptions:

1. Earnings per share (EPS) will be 20% of the beginning book value per share for each of the next three years.
2. Diamond Ltd. will pay cash dividend equal to 40% of EPS.
3. At the end of three years, Diamond Ltd. ordinary shares will trade at four times its book value.
4. The beta for Diamond Ltd. is 0.7, the risk free rate is 4.5% and the equity risk premium is 5.0%.

Required

The value per share of the firm using residual income model. (9 marks)

(c) Describe two challenges encountered in the implementation of appraisal standards used in valuing private companies. (2 marks)

(d) A financial analyst has gathered the following information for a private firm:

Working capital	Sh.600,000
Non-current assets	Sh.2,300,000
Normalised earnings	Sh.340,000
Required return for working capital	5%
Required return for non-current assets	13%
Growth rate of residual income	4%
Discount rate for intangible assets	18%

Required:

The value of the firms using the excess earnings method (EEM). (4 marks)

(Total: 20 marks)

QUESTION THREE

(a) Describe three applications of equity valuation. (6 marks)

(b) Explain the following terms as used in equity valuation:

(i) Liquidation value. (2 marks)

(ii) Investment value. (2 marks)

(c) Bee Ltd. had an earning per share (EPS) of Sh.2 in the year 2021. The earnings in the year 2022 without the additional planned investments are expected to remain at Sh.2.

The retention ratio is 0.70. The company is expected to earn a return on equity of 15% on its investments and the required return is 12%. Dividends are paid at the end of the year.

Required:

The present value of growth opportunities (PVGO). (6 marks)

(d) Damco Ltd. has just paid a dividend of Sh.2.57 per share. Dividends are expected to grow by 12% for the next two years and by 8% the year after that. From the fourth year, the dividends are expected to grow at a rate of 6.2% indefinitely. The required rate of return is 7.2%.

Required:

The current value of the company's share using Gordon Growth Model. (4 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Evaluate the following technical analysis indicators:

(i) Price-based indicators. (2 marks)

(ii) Momentum indicators (2 marks)

(iii) Sentiment indicators. (2 marks)

(b) An investor considering the enterprise value approach to valuation gathers the following data:

	Sh. Million
Earnings before interest, tax, depreciation and amortisation (EBITDA).	25
Value of debt	40
Value of preferred shares	12
Cash and marketable securities	3.5

Number of ordinary shares outstanding 7.5 million
Firms tax rate 30%.
Appropriate enterprise value (EV)/EBITDA multiple = 4x

Required:

(i) The value per share of the company's ordinary shares using the enterprise value approach. (4 marks)

(ii) Highlight two limitations of using enterprise value to earnings before interest, tax, depreciation and amortisation (EV/EBITDA). (2 marks)

(c) Pendo Ltd. has existing assets which have a book value of Sh.2,431,000 and a gross cash flow of Sh.390,000. The expected salvage value is Sh.607,800 and a life of 10 years. The real cost of capital is 8%.

Required:

The cash flow return on investment (CFROI) of the firm. (4 marks)

(d) A minority shareholder holds 10% of a private firm's equity, with the Chief Executive Officer (CEO) holding the other 90%. Using normalised earnings, the value of the firm's equity is estimated at Sh.20 million. The CEO refuses to sell the firm and the minority shareholder cannot sell their interest easily. A discount for lack of marketability (DLOM) of 15% will be applied. A discount for lack of control (DLOC) is 0%.

Using reported earnings instead of normalised earnings provides an estimated firm equity value of Sh.19 million.

Required:

The value of the minority shareholder's equity interest. (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Outline four assumptions of efficient capital market hypothesis. (4 marks)

(b) Explain two sets of tests used to examine each of the following:

(i) Weak form of efficient market hypothesis. (2 marks)

(ii) Semi-strong form of efficient market hypothesis. (2 marks)

(c) As an equity analyst, explain four elements of a company analysis. (4 marks)

(d) Dawa Pharm Ltd. belongs to the Animal drugs industry and Beta Computers Ltd. belongs to the applications software industry. The following additional information has been provided:

	Book value of equity, 2021	**Sales 2021**	**Share outstanding 2021**	**Price**
Company	Sh."million"	Sh."million"	Sh."million"	Sh.
Dawa Pharm Ltd.	19,950	32,373	6,162	31.37
Beta Computers Ltd.	61,020	32,187	10,771	25.63

Peer Industry	**Mean P/B**	**Median P/B**	**Mean P/S**	**Median P/S**
			Sales in Sh."million"	Sales in Sh."million"
Animal drugs	5.622	4.250	8.708	4.530
Application software	4.100	2.140	3.420	1.440

Where P/B – Price-to-book ratio
P/S – Price-to- sales ratio

Required:
Calculate:

(i) Price-to-book ratio for Dawa Pharm Ltd. and Beta Computers Ltd. (4 marks)

(ii) Price-to-sales ratio for Dawa Pharm Ltd. and Beta Computers Ltd. (4 marks)

(Total: 20 marks)

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CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

TUESDAY: 5 April 2022. Morning paper. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings. Do NOT write anything on this paper.

QUESTION ONE

(a) Discuss three functions of a new issue market. (6 marks)

(b) Highlight four principle weaknesses of equity market in your country. (4 marks)

(c) Examine four advantages of secondary securities market to investors. (4 marks)

(d) Explain the meaning of the following terms used in time-in-force designations:

(i) Fill or kill. (1 mark)

(ii) All or nothing. (1 mark)

(iii) Good till cancelled. (1 mark)

(e) The following information relates to Bora Limited:

1. The company forecasts to earn Sh.2 per share in perpetuity.
2. The company pays out all its earnings and dividends.
3. The book value per share is Sh.12.00.
4. The required rate of return on equity is 10%.

Required:

(i) The level amount per share residual income that will be earned each year. (1 mark)

(ii) The value of the share using residual income model. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Describe five external factors that could affect an industry's growth, profitability and risk. (5 marks)

(b) Benson Mwembea has gathered the following data for a private company:

Current revenues	Sh.40,000,000
Revenue growth	6%
Gross profit margin	30%
Depreciation expense as a percentage of sales	2%
Working capital as a percentage of sales	10%
Selling, general and administration expenses	3,000,000
Tax rate	30%

The earnings and expenses are normalised and that the capital expenditures are expected to cover depreciation plus 5% of the firm's incremental revenues.

Required:

The firm's free cash flow to firm (FCFF). (6 marks)

(c) A firm has a justified price to sales ratio of 2 times, a net profit margin of 5% and a long term growth rate of 4%.

Required:
Calculate the justified leading price to earnings (P/E) ratio based on the Gordon growth model. (3 marks)

(d) The shares of Bidii Ltd. are currently trading at Sh.60 each at the securities exchange. The company has paid a dividend of Sh.4.0. It is predicted that the company's dividend's will grow at an annual rate of 20% for the first three years, 15% for the next two years and thereafter at a constant rate of 10% per annum in perpetuity. The investor's minimum required rate of return is 12%.

Required:
(i) The intrinsic value of the shares of Bidii Ltd. (4 marks)

(ii) Advise a prospective investor whether or not to buy shares of Bidii Ltd. (2 marks)
(Total: 20 marks)

QUESTION THREE
(a) Equity research analysts pays close attention to a firm's competitive advantage.

Citing relevant examples, describe three sources of competitive advantages enjoyed by a firm. (6 marks)

(b) Highlight the three factors that could determine the sensitivity of a firm's earnings to the business cycle. (3 marks)

(c) Martin Kivuva, a CIFA practitioner is researching the relative valuation of two companies in the financial services industry, Maji Mazuri Ltd. (MML) and Relax Group International (RGI).

The following applicable information on the companies has been provided:

Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA) comparisons (in Sh. millions except for per-share)

Company	**RGI**	**MML**
Price per share	150	100
Shares outstanding	5 million	2 million
Market value of debt	50	100
Book value of debt	52	112
Cash and investments	5	2
Net income	49.5	12
Net income from continuing operations	49.5	8
Interest expense	3	5
Depreciation and amortisation	8	4
Taxes	2	3

Required:
(i) Evaluate the Price/EBITDA for both RGI and MML. (4 marks)

(ii) Evaluate the Enterprise Value/EBITDA for both RGI and MML. (4 marks)

(iii) Advise on the relatively undervalued company. (3 marks)
(Total: 20 marks)

QUESTION FOUR
(a) In relation to factors affecting market efficiency, explain how the following factors could contribute to and impend a market's efficiency:

(i) Market participants. (2 marks)

(ii) Information availability and financial disclosure. (2 marks)

(iii) Limits to trading. (2 marks)

(b) Charts are an essential component of the technical analyst's toolkit. Charts provide information about past price behaviour and provide a basis for informing likely future price behaviour.

In relation to technical analysis tools, describe the following features of charts:

(i) Volume. (2 marks)

(ii) Time intervals. (2 marks)

(iii) Relative strength analysis. (2 marks)

(c) Meta Lab Ltd. earns a book rate of return (ROE) of 12%. It reinvests half of its earnings and pays out the other half as cash dividends. The nominal cost of capital is 12%.

Required:

(i) Given this ROE and dividend payout ratio, determine the growth rate of Meta Lab earnings and dividend. (2 marks)

(ii) The growth rate in part (c) (i) above is expected to continue in perpetuity. Calculate the present value of Meta Lab shares. (2 marks)

(d) Horizons Company Ltd. is currently in a mature industry. Over the last three years, it has averaged a profit margin of 10%, a total asset turnover of 1.8 and a leverage ratio of 1.25. The firm distributes 40% of its earnings as dividends.

Required:

Calculate the firm's long-term sustainable growth rate using the PRAT model. (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Examine four reasons why equity analysts could be engaged to value a business. (4 marks)

(b) The equity share of ABL Limited offers dividend of Sh.4.00 at present. The present dividend growth rate is 40%. Analysts predict that the dividend growth rate will decline linearly over a period of 12 years after which it will stabilise at 15%.

An investor requires a return of 18% for his investment in the equity share of the company.

Required:

The intrinsic value of the equity share using the H – model. (4 marks)

(c) General Power Limited is expecting a return on equity (ROE) of 15% over each of the next five years. Its current book value is Sh.5.00 per share, it pays no dividend and all earnings are reinvested. The required return on equity is 10%. Forecasted earnings in years 1 through year 5 are equal to ROE times beginning book value. At the end of year 5, the ROE falls to long run average level and the price-to-book value ratio falls to 1.2.

Required:

The firm's intrinsic value using residual income model. (6 marks)

(d) Dan's Limited minority shareholders hold 15% of firm's equity and the Chief Executive Officer (CEO) holds other 85%. There are two possible scenarios.

In scenario 1: The CEO will likely sell the firm very soon. In this case, valuation discounts will be very small. A Discount for Lack of Marketability (DLOM) of 5% will be applied and a Discount for Lack of Control (DLOC) will not be applied under the assumption that all selling shareholders will receive the same price. The value of the firm's equity is estimated at Sh.1.15 Billion.

In Scenario 2: The CEO has no plans to sell the firm, and the minority shareholders cannot sell their interest easily. A DLOC will be estimated by using reported earnings instead of normalised earnings to provide an estimated firm equity value of Sh.1.035 Billion.

Required:

Evaluate the value of minority share's equity interest under both scenarios. (6 marks)

(Total: 20 marks)

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Present Value Interest factor of 1 Received at the End of *n* Periods at r Percent:

$PVIF_{r,n} = 1 / (1+r)^{n} = (1+r)^{-n}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	0.7831	0.7695	0.7561	0.7432	0.6944	0.6504	0.6400	0.5917
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6750	0.6575	0.6407	0.5787	0.5245	0.5120	0.4552
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355	0.6133	0.5921	0.5718	0.5523	0.4823	0.4230	0.4096	0.3501
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674	0.5428	0.5194	0.4972	0.4761	0.4019	0.3411	0.3277	0.2693
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066	0.4803	0.4556	0.4323	0.4104	0.3349	0.2751	0.2621	0.2072
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	0.4251	0.3996	0.3759	0.3538	0.2791	0.2218	0.2097	0.1594
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039	0.3762	0.3506	0.3269	0.3050	0.2326	0.1789	0.1678	0.1226
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3075	0.2843	0.2630	0.1938	0.1443	0.1342	0.0943
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.1615	0.1164	0.1074	0.0725
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	0.2607	0.2366	0.2149	0.1954	0.1346	0.0938	0.0859	0.0558
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567	0.2307	0.2076	0.1869	0.1685	0.1122	0.0757	0.0687	0.0429
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	0.2042	0.1821	0.1625	0.1452	0.0935	0.0610	0.0550	0.0330
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046	0.1807	0.1597	0.1413	0.1252	0.0779	0.0492	0.0440	0.0254
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	0.1599	0.1401	0.1229	0.1079	0.0649	0.0397	0.0352	0.0195
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631	0.1415	0.1229	0.1069	0.0930	0.0541	0.0320	0.0281	0.0150
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456	0.1252	0.1078	0.0929	0.0802	0.0451	0.0258	0.0225	0.0116
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300	0.1108	0.0946	0.0808	0.0691	0.0376	0.0208	0.0180	0.0089
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161	0.0981	0.0829	0.0703	0.0596	0.0313	0.0168	0.0144	0.0068
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	0.0868	0.0728	0.0611	0.0514	0.0261	0.0135	0.0115	0.0053
21	0.8114	0.8598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926	0.0768	0.0638	0.0531	0.0443	0.0217	0.0109	0.0092	0.0040
22	0.8034	0.8468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826	0.0680	0.0560	0.0462	0.0382	0.0181	0.0088	0.0074	0.0031
23	0.7954	0.8342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738	0.0601	0.0491	0.0402	0.0329	0.0151	0.0071	0.0059	0.0024
24	0.7876	0.8217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659	0.0532	0.0431	0.0349	0.0284	0.0126	0.0057	0.0047	0.0018
25	0.7798	0.8095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588	0.0471	0.0378	0.0304	0.0245	0.0105	0.0046	0.0038	0.0014
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334	0.0256	0.0196	0.0151	0.0116	0.0042	0.0016	0.0012	*
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189	0.0139	0.0102	0.0075	0.0055	0.0017	0.0005	*	*
36	0.6989	0.4902	0.3450	0.2437	0.1727	0.1227	0.0875	0.0626	0.0449	0.0323	0.0234	0.0169	0.0123	0.0089	0.0065	0.0048	0.0014	*	*	*
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107	0.0075	0.0053	0.0037	0.0026	0.0007	*	*	*
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0054	0.0035	0.0022	0.0014	0.0009	0.0006	*	*	*	*

Present Value Interest factors for Annuity of 1 Discounted at r Percent for *n* Periods:

$PVIFA_{r,n} = [1 - 1/(1+r)^{n}]/r$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5278	1.4568	1.4400	1.3609
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.1065	1.9813	1.9520	1.8161
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550	2.7982	2.5887	2.4043	2.3616	2.1662
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048	3.5172	3.4331	3.3522	3.2743	2.9906	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	3.9975	3.8887	3.7845	3.6847	3.3255	3.0205	2.9514	2.6427
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638	4.4226	4.2883	4.1604	4.0386	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873	4.3436	3.8372	3.4212	3.3289	2.9247
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	4.7716	4.6065	4.0310	3.5655	3.4631	3.0190
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188	4.8332	4.1925	3.8819	3.5705	3.0915
11	10.368	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0286	4.3271	3.7757	3.6564	3.1473
12	11.255	10.575	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944	5.9176	5.6603	5.4206	5.1971	4.4392	3.8514	3.7251	3.1903
13	12.134	11.348	10.635	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831	5.3423	4.5327	3.9124	3.7801	3.2233
14	13.004	12.106	11.296	10.563	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245	5.4675	4.6106	3.9616	3.8241	3.2487
15	13.865	12.849	11.938	11.118	10.380	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474	5.5755	4.6755	4.0013	3.8593	3.2682
16	14.718	13.578	12.561	11.652	10.838	10.106	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	4.7296	4.0333	3.8874	3.2832
17	15.562	14.292	13.166	12.166	11.274	10.477	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	4.7746	4.0591	3.9099	3.2948
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280	5.8178	4.8122	4.0799	3.9279	3.3037
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.6036	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982	5.8775	4.8435	4.0967	3.9424	3.3105
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.8181	9.1285	8.5136	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	4.8696	4.1103	3.9539	3.3158
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.2922	8.6487	8.0751	7.5620	7.1016	6.6870	6.3125	5.9731	4.8913	4.1212	3.9631	3.3198
22	19.660	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.4424	8.7715	8.1757	7.6446	7.1695	6.7429	6.3587	6.0113	4.9094	4.1300	3.9705	3.3230
23	20.456	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.5802	8.8832	8.2664	7.7184	7.2297	6.7921	6.3988	6.0442	4.9245	4.1371	3.9764	3.3254
24	21.243	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.7066	8.9847	8.3481	7.7843	7.2829	6.8351	6.4338	6.0726	4.9371	4.1428	3.9811	3.3272
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	4.9476	4.1474	3.9849	3.3286
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1772	4.9789	4.1601	3.9950	3.3321
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	4.9915	4.1644	3.9984	3.3330
36	30.108	25.489	21.832	18.908	16.547	14.621	13.035	11.717	10.612	9.6765	8.8786	8.1924	7.5979	7.0790	6.6231	6.2201	4.9929	4.1649	3.9987	3.3331
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	4.9966	4.1659	3.9995	3.3332
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.9148	9.0417	8.3045	7.6752	7.1327	6.6605	6.2463	4.9995	4.1666	3.9999	3.3333

kasneb

CIFA INTERMEDIATE LEVEL

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 16 December 2021. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Distinguish between the following terms as used in equity markets:

(i) "Primary market" and "secondary market". (2 marks)

(ii) "Bull market" and "bear market". (2 marks)

(iii) "Short selling" and "going long". (2 marks)

(iv) "Bid" and "ask". (2 marks)

(v) "Limit order" and "market order". (2 marks)

(b) The current dividend on an equity share of Zep Ltd. is Sh.2.00. The firm is expected to enjoy an above normal growth rate of 20% for a period of 6 years. Thereafter, the growth rate will fall and stabilise at 10%. The equity investors require a return of 15%.

Required:
The intrinsic value of the equity share of Zep Ltd. (4 marks)

(c) Adepo Limited's current return on equity (ROE) is 16%. The company pays out 25% of its earnings as cash dividends. The current book value per share is Sh.35. The company has 5 million shares outstanding. It is assumed that the return on equity and dividend payout ratio will remain constant for the next four years. After that, competition forces the return on equity (ROE) to decline to 10% and the company increases the dividend payout ratio to 60%. The company does not plan to issue or retire shares. The cost of capital is 9.5%.

Required:
The value of Adepo's Limited share that is attributable to growth opportunities (PVGO) assuming a growth rate of 4% after 4 years. (6 marks)

(Total: 20 marks)

QUESTION TWO

(a) Discuss five stages of an industry life cycle model. (10 marks)

(b) In relation to technical analysis:

(i) Explain the term "Elliot wave theory". (2 marks)

(ii) Describe four momentum oscillators. (4 marks)

(iii) Peterson Kamau is a technical analyst following Brightstars Ltd.'s shares in which he notices an inverted head and shoulders pattern. The neckline is at Sh.100, the shoulder is at Sh.90 and the head is at Sh.75.

Required:
Determine the price target for the company's share. (2 marks)

(c) Evaluate two instances where enterprise value to sales is appropriate for valuation of companies. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Highlight three drawbacks of price-to-book value in equity valuation. (3 marks)

(b) David Obwogi an investor at the securities exchange intends to purchase XYZ Ltd.'s shares which he intends to hold for a period of four years. The expected dividend per share (DPS) is as follows:

Year	**1**	**2**	**3**	**4**
Dividend per share (Sh.)	6.00	6.50	7.50	9.00

David is hopeful of selling the shares in the secondary market at a price of Sh.120 after the end of four years. He expects a return of 20% on his investment.

Required:

(i) The present value of the share to the investor. (3 marks)

(ii) Examine three limitations of Gordon Model in share valuation. (3 marks)

(c) Ziwani Limited is expected to experience growth in three distinct stages in the future. The company's recent free cash flow to equity (FCFE) is Sh.67.95 per share. The following information has been compiled about the firm:

High-growth period:
Duration of 3 years.
FCFE growth rate of 30%.
Shareholders' required rate of return of 20%.

Transitional period:
Duration of 3 years.
FCFE growth will decline by 9% per year down to the indicated stable growth rate.
Shareholder's required rate of return of 15%.

Stable-growth period:
FCFE growth rate of 3%.
Shareholders' required rate of return of 10%.

Required:
The value of the firm's equity using three-stage FCFE model. (7 marks)

(d) An equity market's forecasted earnings per share (EPS) is Sh.15.30. The required real return on equity is 8%. The current dividend per share is Sh.10, current supernormal growth rate is 9.5%, a long-term sustainable rate of growth is 2% and a 20 year period of linear growth decline.

Required:
Using H-model, estimate the market's forward price-earnings ratio. (4 marks)
(Total: 20 marks)

QUESTION FOUR

(a) Examine four challenges of estimating discount rate in a private company valuation. (4 marks)

(b) An equity analyst is examining a private firm under consideration as an acquisition and determines the following:

1. The current capital structure is non-optimal because the owner avoids the use of debt.
2. The industry risk premium reflects the additional risk in this industry compared to the broad market.
3. A small stock premium and company-specific risk premium are determined because the private firm is much smaller and much less diversified than the public firms that beta is estimated from. The relevant figures are listed below:

Risk free rate	3.6%
Equity risk premium	6.0%
Beta	1.3
Small stock premium	3.0%
Company specific risk premium	2.0%

Industry risk-premium	1.0%
Pretax cost of debt	9.0%
Debt/total capitalisation for public firms in industry	30%
Optimal debt/total capitalisation	12%
Current debt/total capitalisation	3%
Tax rate	30%

Required:
The required rate of return on equity using:

(i) Capital asset pricing model (CAPM). (2 marks)

(ii) Expanded CAPM. (2 marks)

(iii) Build-up method. (2 marks)

(c) Fredrick Muli is valuing Quality Equipment Limited (QEL). He has made the following assumptions:

1. Book value per share is estimated at Sh.9.62 on 31 December 2021.
2. Earnings per share (EPS) will be 22% of the beginning book value per share (BVPS) for the next eight years.
3. Cash dividends will be 30% of EPS.
4. At the end of the eight year period, the market price per share (MPS) will be three times the book value per share.
5. The beta for QEL is 0.60%, the risk free rate is 5% and the equity risk premium is 5.50%
6. The current market price of QEL is Sh.59.38, which indicates a current price to book value (P/B) of 6.2.

Required:

(i) Estimate the value per share of QEL stock using the residual income model. (7 marks)

(ii) Describe three weaknesses of the residual income model in equity valuation. (3 marks)

(Total: 20 marks)

QUESTION FIVE

(a) (i) Explain the term "random walk theory" as used in equity valuation. (2 marks)

(ii) Discuss three forms of market efficiency. (6 marks)

(b) Evaluate two top-down approaches to modelling revenue. (4 marks)

(c) There has been an increase in the number of zero income stocks in your country and the exposure to these stocks is becoming increasingly unavoidable.

Required:
In relation to the above statement, assess three key adjustments to the traditional present value approach necessary to avoid critical errors in the equity valuation process. (6 marks)

(d) An equity analyst has gathered the following information:

Neutral rate	4%
Inflation target	3%
Expected inflation	7%

Gross Domestic Product long term trend 2%
Expected Gross Domestic Product growth 0%

Required:
Estimate the short-term interest rate target using the Taylor rule. (2 marks)

(Total: 20 marks)

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Present Value Interest factor of 1 Received at the End of *n* Periods at r Percent:

$PVIF_{r,n} = 1 / (1+r)^n = (1+r)^{-n}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	0.7831	0.7695	0.7561	0.7432	0.6944	0.6504	0.6400	0.5917
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6750	0.6575	0.6407	0.5787	0.5245	0.5120	0.4552
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355	0.6133	0.5921	0.5718	0.5523	0.4823	0.4230	0.4096	0.3501
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674	0.5428	0.5194	0.4972	0.4761	0.4019	0.3411	0.3277	0.2693
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066	0.4803	0.4556	0.4323	0.4104	0.3349	0.2751	0.2621	0.2072
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	0.4251	0.3996	0.3759	0.3538	0.2791	0.2218	0.2097	0.1594
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039	0.3762	0.3506	0.3269	0.3050	0.2326	0.1789	0.1678	0.1226
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3075	0.2843	0.2630	0.1938	0.1443	0.1342	0.0943
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.1615	0.1164	0.1074	0.0725
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	0.2607	0.2366	0.2149	0.1954	0.1346	0.0938	0.0859	0.0558
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567	0.2307	0.2076	0.1869	0.1685	0.1122	0.0757	0.0687	0.0429
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	0.2042	0.1821	0.1625	0.1452	0.0935	0.0610	0.0550	0.0330
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046	0.1807	0.1597	0.1413	0.1252	0.0779	0.0492	0.0440	0.0254
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	0.1599	0.1401	0.1229	0.1079	0.0649	0.0397	0.0352	0.0195
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631	0.1415	0.1229	0.1069	0.0930	0.0541	0.0320	0.0281	0.0150
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456	0.1252	0.1078	0.0929	0.0802	0.0451	0.0258	0.0225	0.0116
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300	0.1108	0.0946	0.0808	0.0691	0.0376	0.0209	0.0180	0.0089
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161	0.0981	0.0829	0.0703	0.0596	0.0313	0.0168	0.0144	0.0068
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	0.0868	0.0728	0.0611	0.0514	0.0261	0.0135	0.0115	0.0053
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926	0.0768	0.0638	0.0531	0.0443	0.0217	0.0109	0.0092	0.0040
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826	0.0680	0.0560	0.0462	0.0382	0.0181	0.0088	0.0074	0.0031
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738	0.0601	0.0491	0.0402	0.0329	0.0151	0.0071	0.0059	0.0024
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659	0.0532	0.0431	0.0349	0.0284	0.0126	0.0057	0.0047	0.0018
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588	0.0471	0.0378	0.0304	0.0245	0.0105	0.0046	0.0038	0.0014
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334	0.0256	0.0196	0.0151	0.0116	0.0042	0.0016	0.0012	-
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189	0.0139	0.0102	0.0075	0.0055	0.0017	0.0005	-	-
36	0.6989	0.4902	0.3450	0.2437	0.1727	0.1227	0.0875	0.0626	0.0449	0.0323	0.0234	0.0169	0.0123	0.0089	0.0065	0.0048	0.0014	-	-	-
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107	0.0075	0.0053	0.0037	0.0026	0.0007	-	-	-
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0054	0.0035	0.0022	0.0014	0.0009	0.0006	-	-	-	-

Present Value Interest factors for Annuity of 1 Discounted at r Percent for *n* Periods:

$PVIFA_{r,n} = [1 - 1/(1+r)^n] / r$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5278	1.4568	1.4400	1.3609
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.1065	1.9813	1.9520	1.8161
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550	2.7982	2.5887	2.4043	2.3616	2.1662
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048	3.5172	3.4331	3.3522	3.2743	2.9906	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	3.9975	3.8887	3.7845	3.6847	3.3255	3.0205	2.9514	2.6427
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638	4.4226	4.2883	4.1604	4.0386	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873	4.3436	3.8372	3.4212	3.3289	2.9247
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	4.7716	4.6065	4.0310	3.5655	3.4631	3.0190
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188	4.8332	4.1925	3.6819	3.5705	3.0915
11	10.368	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0286	4.3271	3.7757	3.6564	3.1473
12	11.255	10.575	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944	5.9176	5.6603	5.4206	5.1971	4.4392	3.8514	3.7251	3.1903
13	12.134	11.348	10.635	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831	5.3423	4.5327	3.9124	3.7801	3.2233
14	13.004	12.106	11.296	10.563	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245	5.4675	4.6106	3.9616	3.8241	3.2487
15	13.865	12.849	11.938	11.118	10.380	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474	5.5755	4.6755	4.0013	3.8593	3.2682
16	14.718	13.578	12.561	11.652	10.838	10.106	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	4.7296	4.0333	3.8874	3.2832
17	15.562	14.292	13.166	12.166	11.274	10.477	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	4.7746	4.0591	3.9099	3.2948
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280	5.8178	4.8122	4.0799	3.9279	3.3037
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.6036	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982	5.8775	4.8435	4.0967	3.9424	3.3105
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.8181	9.1285	8.5136	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	4.8696	4.1103	3.9539	3.3158
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.2922	8.6487	8.0751	7.5620	7.1016	6.6870	6.3125	5.9731	4.8913	4.1212	3.9631	3.3198
22	19.660	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.4424	8.7715	8.1757	7.6446	7.1695	6.7429	6.3587	6.0113	4.9094	4.1300	3.9705	3.3230
23	20.456	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.5802	8.8832	8.2664	7.7184	7.2297	6.7921	6.3988	6.0442	4.9245	4.1371	3.9764	3.3254
24	21.243	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.7066	8.9847	8.3481	7.7843	7.2829	6.8351	6.4338	6.0726	4.9371	4.1428	3.9811	3.3272
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	4.9476	4.1474	3.9849	3.3286
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1772	4.9789	4.1601	3.9950	3.3321
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	4.9915	4.1644	3.9984	3.3330
36	30.108	25.489	21.832	18.908	16.547	14.621	13.035	11.717	10.612	9.6765	8.8786	8.1924	7.5979	7.0790	6.6239	6.2201	4.9929	4.1649	3.9987	3.3331
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	4.9966	4.1659	3.9995	3.3332
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.9148	9.0417	8.3045	7.6752	7.1327	6.6605	6.2463	4.9995	4.1666	3.9999	3.3333

kasneb

CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 20 May 2021. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Explain the following types of market organisation used in the securities market:

(i) Auction market. (1 mark)
(ii) Brokered market. (1 mark)
(iii) Dealer market. (1 mark)

(b) The following information relates to the central order book of Dolphin Ventures Limited, a company quoted at the Securities Exchange:

Sell orders		Buy orders	
Quantity	**Limit (Sh.)**	**Quantity**	**Limit (Sh.)**
5,000	151	5,000	146
20,000	150	20,000	144
10,000	149	10,000	143
5,000	148	20,000	142
5,000	147	10,000	141

Required:

(i) Alfred Ngugi has entered a market order to purchase 15,000 shares of Dolphin Ventures Limited.

Advise him on the price at which he should buy the shares. (2 marks)

(ii) Compute the average trade price of the shares based on your answer in (b) (i) above. (1 mark)

(iii) Suppose that Alfred Ngugi had instead wanted to sell 10,000 shares of the company.

Determine the price at which he would sell the shares. (2 marks)

(iv) Outline four macroeconomic indicators that could influence the securities market in your country. (4 marks)

(c) An analyst gathered the following information regarding Beta Ltd.:

Expected earnings per share for 2020	Sh.3.34
Retention rate	0.40
Required rate of return	12%
Current share price	Sh.40

Dividends are paid out at the end of the year and are expected to grow at the rate of 6% into perpetuity.

Required:

(i) The fraction of the company's leading price to earnings ratio that comes from the present value of growth opportunities (PVGO). (5 marks)

(ii) Explain three causes of a negative present value of growth opportunities (PVGO). (3 marks)

(Total: 20 marks)

QUESTION TWO

(a) Examine five steps that are involved in the equity valuation process. (5 marks)

(b) Using relevant diagrams, explain three types of technical analysis charts that are used by equity analysts while forecasting the movement of the prices of shares. (6 marks)

(c) An analyst gathers the following information about Zeb Limited shares:

Current market price per share	Sh.22.56
Current annual dividend per share	Sh.1.06
Annual dividend growth rate for years 1 – 4	9.00%
Annual dividend growth rate for years 5 and above	4.00%
Required rate of return	12%

Required:

Using the Two-Stage Dividend Discount Model, compute the intrinsic value of the share and comment on the results. (5 marks)

(d) Smartprint Ltd. is a large-scale printing firm quoted on the Securities Exchange. The company is considering investing Sh.500 million in new printing equipment. The present value of the future after-tax cash flows resulting from the equipment is Sh.750 million. Smartprint Ltd. currently has 100 million shares outstanding, with a current market price of Sh.45 per share. Assume that this project's new information is independent of other expectations about the company.

Required:

(i) Determine the effect of the new equipment on the value of Smartprint Ltd. (3 marks)

(ii) Comment on the effect of the results obtained in (d) (i) above on Smartprint Ltd.'s share price. (1 mark)

(Total: 20 marks)

QUESTION THREE

(a) Summarise four factors that could justify the use of the residual income model in the valuation of equity. (4 marks)

(b) The following information relates to Sky Blue Ltd.:

Debt	Sh.20,000,000
Long-term growth of revenues and after tax operating income	5% annually
Gross profit margin	40%
Depreciation	2% of sales
Other operating expenses	Sh.4,000,000
Working capital required	10% of additional revenues
Sales	Sh.100,000,000
Corporation tax rate	30%
Capital expenditure is expected to equal projected depreciation expense plus 5% of incremental revenues	

Required:

(i) Explain whether a prospective investor should use reported earnings or normalised earnings in estimating the free cash flow to firm (FCFF) for Sky Blue Ltd. (2 marks)

(ii) Calculate the forecast free cash flow to firm (FCFF) for Sky Blue Ltd. for the upcoming year. (5 marks)

(c) An analyst gathered the following data for TZ Construction Ltd.:

Recent market price per share	Sh.30
Number of shares outstanding	40 million
	Sh."000"
Market value of debt	120
Cash and marketable securities	75
Investments	200
Net income	160
Interest expense	9
Depreciation and amortisation	12
Taxes	48

Required:

Calculate the enterprise value to earnings before interest, taxes and depreciation (EV/EBITDA) multiple. (4 marks)

(d) Wema Ltd. reported the following figures for the end of its financial year:

Revenues	Sh.40.8 million
Pretax income	Sh.8.6 million
Assets	Sh.53.2 million
Liabilities	Sh.27.8 million
Dividends per share	Sh.0.35
Number of shares outstanding	8 million
Corporation tax rate	30%

The beta for Wema Ltd. is 1.2, the current risk free rate is 4.5% and the expected return on the market is 12.5%.

Required:
The value of the shares using a single-stage residual income model. (5 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Evaluate three momentum valuation indicators used in equity analysis. (6 marks)

(b) Explain three applications of industry analysis in equity valuation. (6 marks)

(c) Benson Mutisya has gathered the following data for a publicly quoted firm:

	Sh."000"
Net income	43,923
Sales	423,474
Average total assets during the year	486,203
Shareholders equity, beginning of the year	397,925
Dividends paid	1,518

Required:
The firm's sustainable growth rate using the Dupont Model. (3 marks)

(d) Big Store Limited (BSL) produces electronic toys for children aged between 2 and 12 years. The most recent income statement for BSL is given below:

	Sh. "million"
Revenue	1,500
Cost of goods sold	630
Selling expenses	120
Administrative expenses	330
Operating profit	420

Allan Oketch, a financial analyst, is forecasting BSL's operating profit for the next financial year. He believes a new tax rate of 10% is going to be imposed on the revenue. Allan also believes that cost of goods sold and selling expenses are a fixed percentage of sales, while administrative expenses are fixed. BSL is expected to pass on the entire cost of the tax to the consumer. The price elasticity of demand for BSL toys is 0.75, that is, volume will decrease by 7.5% when the effective price increases by 10%.

Required:
The forecasted operating margin for the next financial year. (5 marks)

(Total: 20 marks)

QUESTION FIVE

(a) (i) Describe three disadvantages of using the price to book value ratio in equity valuation. (3 marks)

(ii) A firm has a return on equity (ROE) of 18%, an estimated growth rate of 13% and its shareholders require a return of 17% on their investments.

Required:
Based on these fundamentals, calculate the appropriate price to book value ratio for the firm. (2 marks)

(b) The margin and sales tradeoff for QT Ltd. for next year are provided below:

Firm	Strategy	Retention Rate	Profit margin	Sales/book value of equity
QT	High margin/Low volume	20%	8%	1.25
QT	Low margin/High volume	20%	2%	4.00

The book value of equity of the firm is Sh.80 and has a required rate of return of 10%.

Required:
Calculate the firm's leading price to sales (P/S) multiple assuming that it undertakes a high margin/low volume strategy. (3 marks)

(c) Charles Magut is a financial analyst at Signature Investment Limited. He has compiled the following information about Reliant Properties Ltd.:

Growth rate of free cash flow to firm (FCFF) - 8.8% in Stage 1 comprised of years 1 – 4. 7.4% in year 5, 6% in year 6 and 4.6% in year 7, 3.2% in year 8 and thereafter

Capital structure	-	20% debt and 80% equity
Marginal tax rate	-	34%
Long-term debt	-	Sh.1.518 billion
Cost of debt	-	7.1%
Equity beta	-	0.90
Risk-free rate	-	5.04%
Equity risk premium	-	5.5%
Current FCFF	-	Sh.745 million
Outstanding shares	-	309.39 million

Required:

(i) The required return for equity. (2 marks)

(ii) Weighted average cost of capital (WACC). (2 marks)

(iii) Total value of Reliant Properties Ltd. using Three-Stage FCFF. (6 marks)

(iv) Value per share of the company. (2 marks)

(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,n} = \sum_{i=1}^{n} \frac{1}{(1+r)^i} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	15.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

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CIFA PART II SECTION 4

EQUITY INVESTMENT ANALYSIS

PILOT PAPER

September 2015. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Briefly explain the following terms as applied in equity investment evaluation:

(i) Intrinsic value. (2 marks)

(ii) Going concern value. (2 marks)

(iii) Fair market value. (2 marks)

(iv) Investment value. (2 marks)

(b) In a research note on the ordinary shares of Rivet Fashion Group (RFG) dated early July 2015, when the share price was Sh.700 and projected annual dividend was Sh.50, an analyst started a target price of Sh.920. The research note did not explain how the target price was obtained or how it should be interpreted. Assume that the target price represents the expected price of RFG.

Required:
Describe any further information that you would need to form an opinion on whether RFG was fairly valued or undervalued. (4 marks)

(c) Historical estimates of the equity risk premium in developing markets are often attended by a range of concerns. In one of the markets, a number of equity indexes are available and each has possible limitations. Although not as broad-based as the alternatives, the stock exchange index (Sensex 30) returns, a market capitalization weighted index of the shares of 30 leading companies, the largest available record compiled since 2006, go back to 1999. Note the following facts concerning the index and other relevant information to estimating the equity risk premium:

1. The backfilled returns from 1999 to 2005 are based on the initial 30 issues selected in 2006, which were among the largest market-caps as of 2006.

2. The Sensex is a price index; a total return version of the index incorporating dividends is available from 2007 forward.

3. Interest rates were suppressed by regulations prior to 2011 and moved higher thereafter. The post-regulation period appears to be associated with higher stock market volatility.

4. Objective estimates of the extent of any bias can be developed.

Required:
Based on the information given, explain the following:

(i) The factors that could bias an unadjusted historical risk premium estimate upwards. (2 marks)

(ii) The factors that could bias an unadjusted historical risk premium estimate downwards. (2 marks)

(iii) Two indications that the historical time series is non-stationery. (2 marks)

(iv) Whether the historical or an adjusted historical equity risk premium is preferable. Justify your answer. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Explain the five steps involved in equity valuation. (10 marks)

(b) Shitieka, an investment analyst at Value Trackers Fund is researching on Kapu Oil Limited's shares to estimate a required return on equity. Kapu Oil Limited has no long term debt. Shitieka uses an equally weighted average of the capital asset pricing model (CAPM) and Fama French Model (FFM) estimates, unless one method appears to be superior as judged by a more than five point difference in the adjusted R^2, in which case, only the estimate with superior explanatory power is used. The cost of equity information for Kapu Oil Limited is provided below. All the beta estimates are significant at 5% level.

CAPM and FFM required return estimates

Kapu Oil Limited

		Model A	Model B
1.	Current risk free rate	4.7%	4.7%
2.	Beta	1.04	1.14
3.	Market (equity) risk premium	5.5%	5.5%
	Premium for stock (2) x (3)	5.72%	6.27%
4.	Size beta	-	-0.222
5.	Size Premium (SMB)	-	2.7%
	Premium for stock (4) x (5)	-	-0.60%
6.	Value beta	-	-0.328
7.	Value premium	-	4.3%
	Premium for stock (6) x (7)	-	-1.41%
	R^2	0.34	0.35
	Adjusted R^2	0.33	0.32

Additional information:

Value Trackers Fund holds positions for 4 years on average. Shitieka has determined that the market place will favour growth oriented equities over the coming year. Revicwing all the information, Shitieka makes the following statements:

1. Kapu Oil Limited's cost of capital benefits from the company's above average market capitalisation, which offsets the stock's above average risk premium for market risk.

2. If our economic unit's analysis is correct, growth-oriented portfolios are expected to outperform value-oriented portfolios over the next year. As a consequence, we should favour the CAPM required return estimate over the Fama French estimate.

Required:

(a) Estimate Kapu Oil Limited's cost of equity using:

(i) Capital asset pricing model (CAPM). (2 marks)

(ii) Fama-French model. (2 marks)

(b) Assess whether Shitieka's first statement concerning Kapu Oil Limited's cost of equity is accurate. (3 marks)

(c) Assess whether Shitieka's second statement concerning the expected relative performance of growth oriented portfolios and the use of the CAPM and FFM required return estimates, is correct. (3 marks)

(Total: 20 marks)

QUESTION THREE

(a) The shares of Xtronics Limited are selling for Sh.30 each. The mean analysts earnings per share forecast for next year is Sh.4.0 and the long run growth rate is 5%. Xtronics Limited has a dividend pay-out ratio of 60%. The required rate of return is 14%.

Required:

(i) The fundamental value of the share using the Gordon growth model. (4 marks)

(ii) Determine whether Xtronics Limited's shares are overvalued or undervalued using the method of forecasted fundamentals. (3 marks)

(b) Josphine Akinyi, a Certified Investment and Financial Analysts (CIFA) student, is evaluating a purchase of Zedtum Investment Limited. Current book value per share is Sh.12.9 and the current price per share is Sh.32.41. Josphine expects long term return on equity (ROE) to be 10% and long term growth rate to be 8%.

Required:
The intrinsic value of the share using a residual income model.

NB: Assume a cost of equity of 9%.

(3 marks)

(c) Biashara Limited was a publicly traded production company that supplied a number of products to the market. Biashara Limited capitalised production costs including expenses for advertising, publicity and promotion, production costs, salaries and fares paid to staff. The company then amortised those capitalised costs over the expected life of the production based on anticipated venues.

Required:
(i) State the effects of Biashara Limited accounting for pre-production costs on its reported earnings per share.
(5 marks)

(ii) An analyst calculated earnings before interest, tax, depreciation and amortisations (EBITDA) interest expenses and debt; (EBITDA) based on Biashara Limited's accounting pre-production costs without adjustment.

Explain how the analyst might be misled in assessing Biashara Limited's financial strength using the above measure.
(5 marks)
(Total: 20 marks)

QUESTION FOUR

(a) During the period 1960-2007. earnings of S&P 500 index companies have increased at an average rate of 8.18% per year and dividends paid have increased at an average rate of 5.9% per year.

Assume that:
1. Dividends will continue to grow at the 1960-2007 rate.
2. The required return on the index is 8%.
3. Companies in the S&P 500 index collectively paid Sh.246 billion in dividends.

Required:
Estimate the aggregate value of the S&P 500 index component companies at the beginning of 2008 using the Gordon growth model.
(4 marks)

(b) Signet Ltd. has free cash flows to the firm (FCFF) of Sh.700 million and free cash flows to equity (FCFE) of Sh.620 million. The firm's before tax cost of debt is 5.7% and its required rate of return on equity is 11.8%. The company expects a target capital structure consisting of 20% debt financing and 80% equity financing. The tax rate is 33.33% and FCFF is expected to grow forever at a rate of 5%. Signet Ltd. has debt outstanding with a market value of Sh.2.2 billion and 200 million outstanding common shares.

Required:
(i) Signet Ltd.'s weighted average cost of capital. (4 marks)

(ii) The value of Signet's equity using the FCFE valuation approach. (4 marks)

(iii) The value per share using the FCFF approach. (2 marks)

(c) Robotics Limited's shares are currently selling for Sh.24 and have paid a dividend of Sh.1 per share in the most recent year.

The following additional information is given:

1. The risk free rate is 4%.
2. The shares have an estimated beta of 1.2.
3. The equity risk premium is estimated at 5%.

Required:
The constant dividend growth rate that would be required to justify the market price of Sh.24. (6 marks)
(Total: 20 marks)

QUESTION FIVE

(a) In a valuation of a financial services company, a business appraiser estimated four values for the company using four different approaches.

Required:

Explain four approaches to the valuation of a financial services company. (8 marks)

(b) Shamira, a financial analyst, decides to use the Guideline Public Company Method (GPCM) to develop value indication for Able Limited that is independent of the Free Cash Flow (FCF) indication. He believes that many acquirers apply a multiple of market value of invested capital to EBITDA to value companies in Able Limited's industry. A search for comparable public companies indicated several companies that might serve as guidelines or benchmarks for valuing Able Limited. However, all of these companies were much larger than Able Limited. His research on guideline public companies indicates the following:

1. The market value of invested capital (MVIC) to EBITDA multiple of such public companies averages 7.0.
2. A combined downward adjustment of 15% for relative risk and growth characteristics of Able Limited compared with the GPCM suggests an adjusted MVIC to EBITDA multiple of 5.95 rounded to 6 for Able Limited.
3. A control premium of 20% was reported in a single strategic acquisition several years ago. The transaction involved an exchange of stock with no cash consideration paid.
4. Shitakuli is not aware of any strategic buyer that might incorporate synergies into their valuation of Able Limited.
5. Normalised EBITDA is Sh.16,900,000.
6. Market value of debt capital is Sh.2,000,000.

Required:

(i) Explain the elements included in the calculation of a pricing multiple for Able Limited. (4 marks)

(ii) Calculate the pricing multiple appropriate for Able Limited including a control premium adjustment. (4 marks)

(iii) Calculate the value of Able Limited using the guideline public company method (GPCM). (4 marks)

(Total: 20 marks)

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CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 30 November 2017. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Highlight three challenges of direct investment in securities held by foreign companies. (3 mark)

(b) Explain the following terms as used in equity markets:

(i) Underwriting an issue of shares. (1 mark)

(ii) Book building. (1 mark)

(iii) Red herring prospectus. (1 mark)

(iv) Class A and Class B shares. (1 mark)

(c) Mometrax Limited is expected to pay Sh.1 dividend per share (DPS) at the end of the year and that dividend is expected to grow at a constant rate of 5% per annum in the future. The company's beta is 1.2, the market risk premium is 5% and the risk-free rate is 3%.

Required:
The current share price of Mometrax Limited using the Gordon-growth model. (2 marks)

(d) James Momanyi, a certified investment and financial analyst (CIFA), is reviewing the valuation of three companies namely; EXE Ltd., WYE Ltd. and ZED Ltd. using the dividend discount model (DDM) and their corresponding current market prices.

The following information summarises Momanyi's findings:

	EXE Ltd. Shares	**WYE Ltd. Shares**	**ZED Ltd. Shares**
Market price (Sh.)	35	40	36
DDM price (Sh.)	40	35	36

Required:
Based on the above information, determine the overvalued, undervalued and the fairly valued company. (3 marks)

(e) Bamaco Limited paid Sh.0.40 dividend per share (DPS) in the financial year 2016. In that year, the company had generated Sh.1.0 earnings per share (EPS). The firm's earnings and dividends are expected to grow at an annual rate of 5% perpetually. Shareholders require a return of 12% on the investment.

Required:
(i) Justified trailing price-to-earnings (P/E) multiple. (1 mark)

(ii) Justified leading price-to-earnings (P/E) multiple. (1 mark)

(f) Tryson Limited's share is currently trading at Sh.472. The company's beta is 0.83. The current dividend per share is Sh.13.80, the risk-free rate is 4.66% and the equity risk premium is 4.92%. Christopher Koech, an equity analyst for the company projects that the dividends will initially grow at a rate of 14% and then decline linearly to 5% over a 10-year period. Thereafter, the dividends are expected to grow at a rate of 5% per annum.

Required:

(i) The value of Tryson Limited's dividend cash flow streams using the H - Model. (3 marks)

(ii) Explain whether the shares of Tryson Limited are correctly priced based on your answer in (f) (i) above. (1 mark)

(iii) The expected rate of return assuming that the investor decides to pay the current price of Sh.472 per share and that the company adopts the H – Model in its valuation. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Analyse five elements that a financial analyst should include in his report while undertaking a thorough industry analysis. (5 marks)

(b) The annual revenue for top five airline players are given below:

Company	Revenue (Sh."Billions")
A	38
B	25
C	25
D	23
E	13

The total revenue for all firms in this industry is Sh.250 billion.

Required:

(i) The concentration ratio for the five firms. (2 marks)

(ii) The Herfindahl index for the five firms. (2 marks)

(c) Prism Limited has a return on equity (ROE) of 14%. The earnings next year are projected at Sh.100 million and the firm's earnings retention ratio is 0.60. The firm's required rate of return is 12%.

Required:

Compute the following values for Prism Limited:

(i) Franchise price-to-earnings (P/E) value. (3 marks)

(ii) Intrinsic price-to-earnings (P/E) value. (3 marks)

(d) Selected information for Nevada Limited and industry is provided below:

Nevada Limited	
Estimated earnings growth rate	11%
Current share price	Sh. 25.00
Normalised (underlying) earnings per share for the year 2016	Sh.1.71
Weighted average shares outstanding during the year 2016	16 million
Industry	
Estimated earnings growth rate	12%
Median price-to-earnings (P/E) ratio	19.90

Required:

Determine when compared to the industry, whether Nevada Limited equity is overvalued or undervalued on a price-earnings-to-growth (PEG) basis, using normalised earnings per share. (5 marks)

(Total: 20 marks)

QUESTION THREE

(a) (i) In relation to sustainable growth, explain four alternative courses of action that management could take when actual growth rate falls below the sustainable growth rate. (4 marks)

(ii) A bicycle manufacturing company has the following ratios for the years 2015 and 2016:

	2015	2016
Profit margin (%)	11.4	12.3
Retention ratio (%)	91.3	91.9
Asset turnover	1.25	1.14
Asset at the end of year (Sh."million")	2,436	3,118
Equity at the end of the year (Sh."million")	1,406	1,756
Growth rate in sales (%)	17.8	16.4

Required:

The firm's annual sustainable growth rate for the years 2015 and 2016. (3 marks)

(b) Harrison Nyongesa is evaluating Reliant Capital Limited using a three-stage growth model. He has gathered the following information:

1. Current free cash flow to the firm is Sh.745 million.
2. Outstanding ordinary shares are 309.39 million.
3. The firm has equity beta of 0.90, risk-free rate of 5.05% and equity risk premium of 5.5%.
4. The cost of debt is 7.1%.
5. The capital structure of the company consists of 20% debt and 80% equity.
6. Long-term debt has a market value of Sh.1,518 million.
7. The annual growth rate of free cash flow to the firm (FCFF) is 8.8% from first year to fourth year, 7.4% in year 5, 6% in year 6, 4.6% in year 7, and 3.2% in year 8 and thereafter.
8. The Corporation tax rate is 30%.

Required:

(i) The required rate of return on equity. (1 mark)

(ii) The weighted average cost of capital (WACC). (2 marks)

(iii) The total value of the firm. (4 marks)

(iv) The total market value of equity. (1 mark)

(v) The value of equity per share. (2 marks)

(c) Explain the following behavioural biases inherent in technical analysis:

(i) Extrapolation bias. (1 mark)

(ii) Overconfidence bias. (1 mark)

(iii) Anchoring bias. (1 mark)

(Total: 20 marks)

QUESTION FOUR

(a) An analyst has gathered the following information about Pericap Limited for the year ended 31 October 2017:

1.	Working capital balance	Sh.2,000,000
2.	Fair value of fixed assets	Sh.5,500,000
3.	Book value of fixed assets	Sh.4,000,000
4.	Normalised earnings of the firm	Sh.1,000,000
5.	Required return on working capital	5%
6.	Required return on intangible assets	15%
7.	Required return on fixed assets	8%
8.	Weighted average cost of capital	10%
9.	Long-term growth rate of residual income	5%

Required:

Using excess earnings method, calculate:

(i) The value of intangible assets. (3 marks)

(ii) The value of invested capital. (1 mark)

(b) A market has the following limit orders standing on its book for a particular stock:

Buyer	Bid size	Limit price (Sh.)	Offer size	Seller
Nancy	1,000	19.70		
Joan	200	19.84		
John	400	19.89		
Andrew	300	20.02		
		20.03	800	James
		20.11	1,100	Paul
		20.16	400	Peter

Ann Nyabuto submits a day order to sell 1,000 shares with a limit of Sh.19.83.

Required:

(i) The average trade price assuming that no more buy orders are submitted on that day after Nyabuto submits her order. (2 marks)

(ii) Comment on the answer obtained in (b) (i) above. (2 marks)

(c) In relation to private company valuation, explain six factors affecting the discount for lack of marketability. (6 marks)

(d) An analyst gathered the following data to value a private company:

Market value of debt	Sh.6,800,000
Normalised earnings before interest, tax, depreciation and armotisation (EBITDA)	Sh.28,000,000
Average market value of invested capital ÷ EBITDA	9
Control premium from past transactions	20%
Discount for increased risk	18%

Required:

The value of the private company's equity assuming that:

(i) Buyer is strategic. (3 marks)

(ii) Buyer is not strategic. (3 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Assess two circumstances in which a residual income model is most appropriate for valuing the equity of a company. (4 marks)

(b) Isaac Miano expects Warren Ltd. return on equity (ROE) will average 15% in the year 2017 and beyond. Using the capital asset pricing model he estimates the required rate of return for Warren Ltd. equity to be 11%. He believes that Warren Ltd. will grow at a rate of 9% annually for the foreseeable future. The current book value per share for Warren Ltd. is Sh.21.00.

Required:

The value per share of Warren Ltd.'s equity as at 31 December 2016 using single stage residual income model. (3 marks)

(c) Discuss four technical trading rules and indicators that could be followed by an analyst while evaluating equities using technical analysis. (8 marks)

(d) Summarise five differences between "fundamental analysis" and "technical analysis". (5 marks)

(Total: 20 marks)

.....

Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,t} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

kasneb

CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 2 September 2021. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) In relation to industry and company analysis, discuss three generic competitive strategies that a company might employ in order to compete and generate profits. (6 marks)

(b) A market has the following limit on its book for a particular stock:

Buyer	Bid size (Number of shares)	Limit price Sh.	Offer size (Number of shares)	Seller
Keith	1,000	19.70		
Paul	200	19.84		
Ann	400	19.89		
Mary	300	20.02		
		20.03	800	Jack
		20.11	1,100	Margaret
		20.16	400	Jeff

Ian submits a day order to sell 1,000 shares limit Sh.19.83.

Required:

(i) Assuming that no more buy orders are submitted on that day after Ian submits his order, determine Ian's average trade price. (2 marks)

(ii) Explain how the market will go about executing Ian's order in (b) (i) above. (4 marks)

(c) Blue Line Ltd. is expected to pay a Sh.21 dividend next year. The dividend will decline by 10% annually for the following three years. In year 5, the firm will sell off an asset worth Sh.100 per share. The year 5 dividend, which includes a distribution of some of the proceeds of the asset sale is expected to be Sh.60. In year 6, the dividend is expected to decrease to Sh.40 and this will be maintained for one additional year. The dividend is then expected to grow by 5% annually thereafter.

The required rate of return is 12%.

Required:

Calculate the value per share of the firm. (4 marks)

(d) Summarise four challenges that market regulation seeks to address in financial markets. (4 marks)

(Total:20 marks)

QUESTION TWO

(a) (i) Differentiate between "free cash flow to firm (FCFF)" and "free cash flow to equity (FCFE)". (2 marks)

(ii) Outline two cases where free cash flow to firm (FCFF) is preferred over free cash flow to equity (FCFE) for valuation purposes. (2 marks)

(iii) Ndovu Ltd. has revenues amounting to Sh.20 million this year. Its future performance will be tracked to sales as follows:

1. Sales growth and the net profit margin are projected yearly as shown in the following table:

Year	**1**	**2**	**3**	**4**	**5**	**6**
Sales growth (%)	30	25	20	15	10	5
Net profit margin (%)	8	7.5	7.0	6	5.5	5

2. Fixed capital investment net of depreciation is projected to be 30% of the sales increase each year.
3. Working capital requirements are 7.0% of the projected shilling increase in sales each year.
4. Debt will finance 40% of the investments in net capital and working capital.
5. The company has a 12% required return on equity.
6. The firm has 1 million ordinary shares outstanding.

Required:
Using the two stage, free cash flow to equity (FCFE) approach, estimate the value of equity of Ndovu Ltd.

(Assume long term growth rate is 5%) (10 marks)

(b) Jaraz Metals Ltd. is expecting a return on equity (ROE) of 15% over each of the next five years. Its current book value is Sh.5.00 per share. The company pays no dividend and all earnings are reinvested. The required rate of return on equity is 10%. Forecasted earnings in years 1 through year 5 are equal to ROE times beginning book value.

Required:
The intrinsic value of the company using the residual income model.

(Assume that after five years, continuing residual income falls to zero) (6 marks)

(Total: 20 marks)

QUESTION THREE

(a) Analyse five elements that an equity analyst should consider while conducting a thorough company analysis. (5 marks)

(b) Mwendwa Kilonzo, an investor at the Securities Exchange, bought Sh.25 million worth of Talino Ltd.'s shares. Her contribution was 40% with the remainder being borrowed from her stock broker.

Required:

(i) The leveraged position ratio. (1 mark)

(ii) The return on the equity investment based on the leveraged position in (b) (i) above assuming the share price rises by 10%. (1 mark)

(iii) The return on equity investment on leveraged position assuming the share price falls by 10%. (1 mark)

(c) Suppose an equity analyst estimates a 2.1% dividend yield, long-term inflation of 3.1%, earnings growth rate of 4%, a repurchase yield of 0.5% and price to earnings (P/E) ratio of 3%.

Required:

(i) Using the information above, formulate the Grinold-Kroner Model. (2 marks)

(ii) Compute the expected return on the share using the Grinold-Kroner Model in (c) (i) above. (2 marks)

(iii) Highlight four advantages of the Grinold-Kroner Model. (4 marks)

(d) The following data was obtained from the financial statements of Watamu Limited for the year ended 31 December 2019 and 31 December 2020:

	2020	2019
Total shareholders equity (Sh."million")	18,503	17,143
Net income available to ordinary shareholders (Sh."million")	3,526	3,056
Price per share (Sh.)	16.80	15.30
Number of shares outstanding (million)	3,710	2,790

Required:
For each year, compute:

(i) Book value per share (BVPS). (2 marks)

(ii) Market to book ratio at end of 2019. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Rafiki Ltd.'s share is currently selling for Sh.16.00. The current earnings of the company are Sh.3.00 per share and current dividend is Sh.1.50 per share. Dividends are expected to grow at a rate of 3.5% per year indefinitely. The risk free rate is 4%, the market equity risk premium is 6% and the company's beta is estimated to be 1.1.

Required:
Justified leading and trailing price to earnings (P/E) ratios for the company. (4 marks)

(b) Panda Ltd. has recently paid a dividend of Sh.0.75, which has been growing at a rate of 10% per annum. This growth rate is expected to decline to 5% over the next five years and then remain at 5% indefinitely. The current market price per share is Sh.30.

Required:
Expected return of Panda Ltd. using H-model. (4 marks)

(c) An analyst has gathered the following information for Alpha Ltd.:

1. Expected earnings per share (EPS) is Sh.5.70
2. Expected dividends per share (DPS) is Sh.2.70.
3. Dividends are expected to grow at a rate of 2.75% per year indefinitely.
4. The required rate of return is 8.5%.

Required:
The price/earnings (P/E) multiple for the company. (2 marks)

(d) A financial analyst has gathered the following information about similar companies in the banking sector:

	First Bank	Prince Bank	Pioneer Trust
Price to book (P/B) ratio	1.10	0.60	0.60
Price to earnings (P/E) ratio	8.40	11.10	8.30

Required:
Determine the company(s) that is most likely to be undervalued. (2 marks)

(e) Two equity analysts at an investment bank are provided with the following financial information relating to Jasper Limited:

Jasper Limited selected financial information (Sh.millions)

	Years ended		
	2018	**2019**	**2020**
Net sales	46.8	50.5	53.9
Cost of sales	18.2	18.4	18.8
Gross profit	28.6	32.1	35.1
Selling general and administrative (SG&A) expenses	19.3	22.5	25.1
Operating income	9.3	9.6	10.0
Interest expense	0.5	0.7	0.6
Income before provision for income tax	8.8	8.9	9.4
Provision for income taxes	2.8	2.8	3.1
Net income	6.0	6.1	6.3

The analysts are required to forecast the year 2021 income statement and outline the key assumptions used in their analysis.

For year 2021, they are required to assume nominal Growth Domestic Product (GDP) growth rate of 3.6% based on expectations of real GDP growth of 1.6% and inflation rate of 2.0%.

The summary of key assumptions are:

Metric	**Equity analyst 1**	**Equity analyst 2**
Net sales	Net sales will grow at the average annual growth rate in net sales over 2018-2020 time period.	Net sales will grow by 50 basis points slower than nominal GDP.
Cost of sales	2021 gross margin will be the same as the average annual gross margin over 2018-2020 time period.	2021 gross margin will increase by 20 basis points from 2020.
Selling, general and administrative (SG&A) expenses	2021 SG&A/net sales ratio will be the same as the average ratio over the 2018-2020 time period.	2021 SG&A/net sales ratio will be the same as 2020 ratio.

Required:

(i) Calculate equity analyst 2's forecast for cost of sales in the year 2021. (4 marks)

(ii) Calculate equity analyst 1's forecast for selling, general and administrative expenses in the year 2021. (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Samson Mwagire is interested in trading shares at the Securities Exchange. He approached John Babu, an accomplished equity analyst at Bambito Financial Services, who advised him to use technical analysis to predict share prices.

Required:

In relation to the above statement:

(i) Highlight three assumptions of technical analysis. (3 marks)

(ii) Summarise four limitations of using technical analysis in predicting share prices. (4 marks)

Present Value Interest factor of 1 Received at the End of *n* Periods at r Percent:

$PVIF_{r,n} = 1 / (1+r)^n = (1+r)^{-n}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	0.7831	0.7695	0.7561	0.7432	0.6944	0.6504	0.6400	0.5917
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6750	0.6575	0.6407	0.5787	0.5245	0.5120	0.4552
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355	0.6133	0.5921	0.5718	0.5523	0.4823	0.4230	0.4096	0.3501
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674	0.5428	0.5194	0.4972	0.4761	0.4019	0.3411	0.3277	0.2693
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066	0.4803	0.4556	0.4323	0.4104	0.3349	0.2751	0.2621	0.2072
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	0.4251	0.3996	0.3759	0.3538	0.2791	0.2218	0.2097	0.1594
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039	0.3762	0.3506	0.3269	0.3050	0.2326	0.1789	0.1678	0.1226
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3075	0.2843	0.2630	0.1938	0.1443	0.1342	0.0943
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.1615	0.1164	0.1074	0.0725
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	0.2607	0.2366	0.2149	0.1954	0.1346	0.0938	0.0859	0.0558
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567	0.2307	0.2076	0.1869	0.1685	0.1122	0.0757	0.0687	0.0429
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	0.2042	0.1821	0.1625	0.1452	0.0935	0.0610	0.0550	0.0330
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046	0.1807	0.1597	0.1413	0.1252	0.0779	0.0492	0.0440	0.0254
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	0.1599	0.1401	0.1229	0.1079	0.0649	0.0397	0.0352	0.0195
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631	0.1415	0.1229	0.1069	0.0930	0.0541	0.0320	0.0281	0.0150
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456	0.1252	0.1078	0.0929	0.0802	0.0451	0.0258	0.0225	0.0116
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300	0.1108	0.0946	0.0808	0.0691	0.0376	0.0208	0.0180	0.0089
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161	0.0981	0.0829	0.0703	0.0596	0.0313	0.0168	0.0144	0.0068
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	0.0868	0.0728	0.0611	0.0514	0.0261	0.0135	0.0115	0.0053
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926	0.0768	0.0638	0.0531	0.0443	0.0217	0.0109	0.0092	0.0040
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826	0.0680	0.0560	0.0462	0.0382	0.0181	0.0088	0.0074	0.0031
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738	0.0601	0.0491	0.0402	0.0329	0.0151	0.0071	0.0059	0.0024
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659	0.0532	0.0431	0.0349	0.0284	0.0126	0.0057	0.0047	0.0018
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588	0.0471	0.0378	0.0304	0.0245	0.0105	0.0046	0.0038	0.0014
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334	0.0256	0.0196	0.0151	0.0116	0.0042	0.0016	0.0012	-
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189	0.0139	0.0102	0.0075	0.0055	0.0017	0.0005	-	-
36	0.6989	0.4902	0.3450	0.2437	0.1727	0.1227	0.0875	0.0626	0.0449	0.0323	0.0234	0.0169	0.0123	0.0089	0.0065	0.0048	0.0014	-	-	-
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107	0.0075	0.0053	0.0037	0.0026	0.0007	-	-	-
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0054	0.0035	0.0022	0.0014	0.0009	0.0006	-	-	-	-

Present Value Interest factors for Annuity of 1 Discounted at r Percent for *n* Periods:

$PVIFA_{r,n} = [1 - 1/(1+r)^n] / r$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5278	1.4568	1.4400	1.3609
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.1065	1.9813	1.9520	1.8161
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550	2.7982	2.5887	2.4043	2.3616	2.1662
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048	3.5172	3.4331	3.3522	3.2743	2.9906	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	3.9975	3.8887	3.7845	3.6847	3.3255	3.0205	2.9514	2.6427
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638	4.4226	4.2883	4.1604	4.0386	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873	4.3436	3.8372	3.4212	3.3289	2.9247
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	4.7716	4.6065	4.0310	3.5655	3.4631	3.0190
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188	4.8332	4.1925	3.6819	3.5705	3.0915
11	10.368	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0286	4.3271	3.7757	3.6564	3.1473
12	11.255	10.575	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944	5.9176	5.6603	5.4206	5.1971	4.4392	3.8514	3.7251	3.1903
13	12.134	11.348	10.635	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831	5.3423	4.5327	3.9124	3.7801	3.2233
14	13.004	12.106	11.296	10.563	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245	5.4675	4.6106	3.9616	3.8241	3.2487
15	13.865	12.849	11.938	11.118	10.380	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474	5.5755	4.6755	4.0013	3.8593	3.2682
16	14.718	13.578	12.561	11.652	10.838	10.106	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	4.7296	4.0333	3.8874	3.2832
17	15.562	14.292	13.166	12.166	11.274	10.477	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	4.7746	4.0591	3.9099	3.2948
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280	5.8178	4.8122	4.0799	3.9279	3.3037
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.6036	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982	5.8775	4.8435	4.0967	3.9424	3.3105
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.8181	9.1285	8.5136	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	4.8696	4.1103	3.9539	3.3158
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.2922	8.6487	8.0751	7.5620	7.1016	6.6870	6.3125	5.9731	4.8913	4.1212	3.9631	3.3198
22	19.660	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.4424	8.7715	8.1757	7.6446	7.1695	6.7429	6.3587	6.0113	4.9094	4.1300	3.9705	3.3230
23	20.456	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.5802	8.8832	8.2664	7.7184	7.2297	6.7921	6.3988	6.0442	4.9245	4.1371	3.9764	3.3254
24	21.243	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.7066	8.9847	8.3481	7.7843	7.2829	6.8351	6.4338	6.0726	4.9371	4.1428	3.9811	3.3272
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	4.9476	4.1474	3.9849	3.3286
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1772	4.9789	4.1601	3.9950	3.3321
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	4.9915	4.1644	3.9984	3.3330
36	30.108	25.489	21.832	18.908	16.547	14.621	13.035	11.717	10.612	9.6765	8.8786	8.1924	7.5979	7.0790	6.6231	6.2201	4.9929	4.1649	3.9987	3.3331
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	4.9966	4.1659	3.9995	3.3332
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.9148	9.0417	8.3045	7.6752	7.1327	6.6605	6.2463	4.9995	4.1666	3.9999	3.3333

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CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

FRIDAY: 27 November 2020. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Explain the meaning of the following terms as used in equity markets:

(i) Circuit breaker. (2 marks)

(ii) Trading halt. (2 marks)

(iii) Program trading. (2 marks)

(iv) Short selling. (2 marks)

(b) Discuss two forms of abuse that could be found in the initial public offering (IPO) market. (4 marks)

(c) As a member of the Institute of Certified Investment and Financial Analysts (ICIFA), you have been invited to give a talk to a graduate class of a local university on investment styles that portfolio managers could use in stock picking.

Required:
With reference to above statement, discuss four types of investment styles that you would include in your presentation.

(8 marks)
(Total: 20 marks)

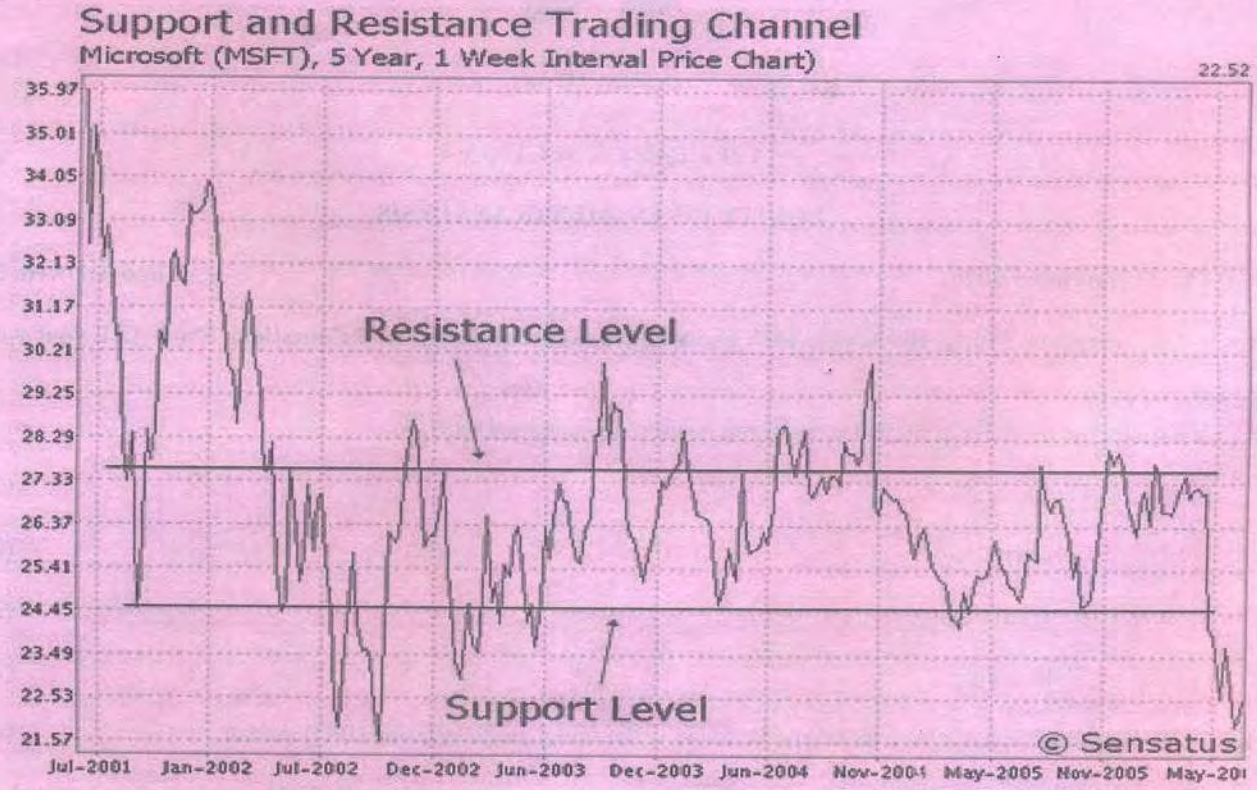
QUESTION TWO

(a) Explain the following terms in relation to technical analysis:

(i) Uptrend in market. (2 marks)

(ii) Downward trend in market. (2 marks)

(b) The following technical analysis chart was obtained from a trading channel in one of the leading Securities Exchanges in the world:



Required:
Using the chart above, interpret the following:

(i) Resistance level. (2 marks)

(ii) Support level. (2 marks)

(iii) Describe the investment strategy that an investor should apply at resistance level and support level in (b) (i) and (b) (ii) above. (2 marks)

(c) An equity analyst has gathered the following data for Pioneer Manufacturing Ltd.:

- Beta 1.15
- Market price per share Sh.30
- Risk-free rate 4.50%
- Expected market return 14.50%
- Recent year dividend per share Sh.1.72
- Earnings per share (EPS) and dividend growth rate:
  - First 3 years 12% per annum
  - Years thereafter 9% per annum

The analyst seeks to use a two-stage dividend discount model (DDM) and the capital asset pricing model (CAPM) to value the company's shares.

Required:

(i) Estimate the intrinsic value of the company's share. (5 marks)

(ii) Advise an investor on whether the share should be purchased by comparing the intrinsic value in (c) (i) above with the current market price per share of the company. (2 marks)

(iii) Describe one strength of the two-stage dividend discount model (DDM) in comparison with constant growth DDM. (2 marks)

(iv) Describe one weakness inherent in all dividend discount models. (1 mark)

(Total: 20 marks)

QUESTION THREE

(a) You are a financial analyst at Fedha Financial Consultancies Limited. The Chief Investment Officer (CIO) has presented you with the following information regarding Zanplom Limited, a leading soft drinks manufacturer in the East Africa Region:

1. In the current financial year (year 0) Zanplom Limited is expected to generate net income of Sh.25 million. Depreciation is expected to be Sh.18 million, gross investments in tangible assets will be Sh.26 million and net working capital is expected to increase by Sh.4 million.
2. In the next three years, Zanplom's free cash flows to the firm (FCFF) are expected to grow by 8% per annum.
3. After year 4, FCFF is expected to grow in perpetuity at 6% per annum.
4. The company is financed with 40% debt and 60% equity which is expected to be maintained in foreseeable future.
5. Two years ago, Zanplom Limited had issued a bond with a notional value of Sh.250 million. The bond is currently trading at 80% of its par value. Annual interest expenses on the bond are Sh.15 million. The company has no other interest-bearing debts.
6. The corporate tax rate is 30%.
7. The cost of debt is 7% while the cost of equity is 11%.
8. The company has 21.5 million ordinary shares issued and outstanding.

Required:

Using two-stage FCFF, determine:

(i) The total value of the firm. (7 marks)

(ii) The market value of equity. (2 marks)

(iii) The equity value per share. (2 marks)

(iv) Advise an investor whether to buy the company's share assuming that they are trading at Sh.28.50 at the Securities Exchange. (1 mark)

(b) The following information relates to two companies quoted at the Securities Exchange of your country:

Company	Return on asset (ROA)	Dividend retention rate	Equity multiplier
Solaiz Limited	12%	40%	1.65
Talino Limited	12%	66.7%	2. 00

Required:

(i) Sustainable dividend growth rates for both Solaiz Limited and Talino Limited. (3 marks)

(ii) Explain your results in (b) (i) above. (1 mark)

(c) The yield on a 10-year A rated corporate bond is 7.5%. The long-term sustainable earnings growth rate is 5% and the weighting factor for the importance of earnings growth is 0.15. The current trailing price to earnings (P/E) ratio for the equity market is 15.

Required:

(i) Determine whether the equity market is properly valued using the Yardeni model. (3 marks)

(ii) Outline one limitation of the Yardeni model. (1 mark)

(Total: 20 marks)

QUESTION FOUR

(a) In the context of residual income model:

(i) Examine three circumstances in which it is appropriate to use the residual income model in equity valuation. (3 marks)

(ii) Highlight three weaknesses of residual income model in equity valuation. (3 marks)

(b) Kangaloo Ltd.'s shares are currently selling for Sh.38.50, with trailing twelve month (TTM) earnings per share (EPS) and dividends per share (DPS) of Sh.1.36 and Sh.0.91 respectively. The company's price to earnings (P/E) ratio is 28.3, price to book (P/B) is 7.1 and price to sales (P/S) is 2.9. The return on equity (ROE) is 27% and the profit margin on sales is 10.24%. The risk free rate is 4.9%, the equity risk premium is 5.5 and company's beta is 1.2. The dividend and earnings growth rate is 9%.

Required:
Calculate the following multiples:

(i) Justified trailing price to earnings (P/E). (3 marks)

(ii) Justified price to book (P/B). (3 marks)

(iii) Justified price to sales (P/S). (3 marks)

(iv) Determine, based on fundamentals, whether Kangaloo Limited is fairly valued, overvalued or undervalued. (1 mark)

(c) An analyst notes that for the year just ended, Bingwa Ltd. cost of goods sold was 30% of sales. To forecast the firm's income statement for the current financial year, the analyst assumes that all companies in the same industry will experience an inflation rate of 8% on the cost of goods sold.

The analyst also forecast on the price and volume changes as follows:

- Average price increase per unit 5.00%
- Volume growth –3.00%

Required:
The firm's forecasted gross profit margin for the current financial year. (4 marks)
(Total: 20 marks)

QUESTION FIVE

(a) HQ Limited has invested Sh.100 million in assets. The after tax operating income on the assets in place is Sh.15 million. The return on capital of 15% is expected to continue in the future. The company's cost of capital is 10%. At the beginning of each of the next five years, the company is expected to make an investment of Sh.10 million each year. These investments are also expected to earn 15% as a return on capital and the cost of capital is expected to remain at 10% . After year 5, the company will continue to make investments and earnings will grow at a rate of 5% per annum, but the new investments will have a return on capital of only 10% which is also the cost of capital. All assets and investments are expected to have infinite lives.

Required:
The value of the company using the economic value added (EVA) valuation approach. (8 marks)

(b) The following information has been extracted by Hiza Securities Limited from Panda Food Processors Limited:

• Working capital balance	Sh.2,000,000
• Fair value of fixed assets	Sh.5,500,000
• Book value of fixed assets	Sh.4,000,000
• Normalised earnings of firm	Sh.1,000,000
• Required return on working capital	5%
• Required return on fixed assets	8%
• Weighted average cost of capital	15%
• Long-term growth rate of residual income	5%

Required:
Using an Excess Earnings Method:

(i) Determine the value of Panda Food Processors Limited's intangible assets. (2 marks)

(ii) Determine the market value of invested capital. (2 marks)

(c) Lately, ABC Limited has experienced financial difficulties due to prolonged Corona Virus Pandemic in the country. As a result, dividends are expected to grow at a reduced rate of 2% for the next 2 years and return to its historical rate of 5% there after. The last dividend paid was Sh.2 per share and the cost of equity capital is 15%.

Required:
The market value of ABC Limited's share today. (4 marks)

(d) HornBill Limited just reported earnings of Sh.11 per share, giving the company a book value of Sh.91.50 per share. The required rate of return on the share is 11%. The company's dividend payout ratio is 40%. The company adopts a constant dividend growth rate.

Required:
The company's intrinsic value. (4 marks)
(Total: 20 marks)

.....

Present Value Interest factor of 1 Received at the End of *n* Periods at r Percent:

$PVIF_{r,n} = 1 / (1+r)^n = (1+r)^{-n}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	0.7831	0.7695	0.7561	0.7432	0.6944	0.6504	0.6400	0.5917
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6750	0.6575	0.6407	0.5787	0.5245	0.5120	0.4552
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355	0.6133	0.5921	0.5718	0.5523	0.4823	0.4230	0.4096	0.3501
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674	0.5428	0.5194	0.4972	0.4761	0.4019	0.3411	0.3277	0.2693
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066	0.4803	0.4556	0.4323	0.4104	0.3349	0.2751	0.2621	0.2072
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	0.4251	0.3996	0.3759	0.3538	0.2791	0.2218	0.2097	0.1594
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039	0.3762	0.3506	0.3269	0.3050	0.2326	0.1789	0.1678	0.1226
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3075	0.2843	0.2630	0.1938	0.1443	0.1342	0.0943
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.1615	0.1164	0.1074	0.0725
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	0.2607	0.2366	0.2149	0.1954	0.1346	0.0938	0.0859	0.0558
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567	0.2307	0.2076	0.1869	0.1685	0.1122	0.0757	0.0687	0.0429
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	0.2042	0.1821	0.1625	0.1452	0.0935	0.0610	0.0550	0.0330
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046	0.1807	0.1597	0.1413	0.1252	0.0779	0.0492	0.0440	0.0254
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	0.1599	0.1401	0.1229	0.1079	0.0649	0.0397	0.0352	0.0195
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631	0.1415	0.1229	0.1069	0.0930	0.0541	0.0320	0.0281	0.0150
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456	0.1252	0.1078	0.0929	0.0802	0.0451	0.0258	0.0225	0.0116
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300	0.1108	0.0946	0.0808	0.0691	0.0376	0.0208	0.0180	0.0089
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161	0.0981	0.0829	0.0703	0.0596	0.0313	0.0168	0.0144	0.0068
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	0.0868	0.0728	0.0611	0.0514	0.0261	0.0135	0.0115	0.0053
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926	0.0768	0.0638	0.0531	0.0443	0.0217	0.0109	0.0092	0.0040
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826	0.0680	0.0560	0.0462	0.0382	0.0181	0.0088	0.0074	0.0031
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738	0.0601	0.0491	0.0402	0.0329	0.0151	0.0071	0.0059	0.0024
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659	0.0532	0.0431	0.0349	0.0284	0.0126	0.0057	0.0047	0.0018
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588	0.0471	0.0378	0.0304	0.0245	0.0105	0.0046	0.0038	0.0014
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334	0.0256	0.0196	0.0151	0.0116	0.0042	0.0016	0.0012	*
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189	0.0139	0.0102	0.0075	0.0055	0.0017	0.0005	*	*
36	0.6989	0.4902	0.3450	0.2437	0.1727	0.1227	0.0875	0.0626	0.0449	0.0323	0.0234	0.0169	0.0123	0.0089	0.0065	0.0048	0.0014	*	*	*
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107	0.0075	0.0053	0.0037	0.0026	0.0007	*	*	*
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0054	0.0035	0.0022	0.0014	0.0009	0.0006	*	*	*	*

Present Value Interest factors for Annuity of 1 Discounted at r Percent for *n* Periods:

$PVIFA_{r,n} = [1 - 1/(1+r)^n] / r$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	0.8850	0.8772	0.8696	0.8621	0.8333	0.8065	0.8000	0.7692
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5278	1.4568	1.4400	1.3609
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.1065	1.9813	1.9520	1.8161
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550	2.7982	2.5887	2.4043	2.3616	2.1662
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048	3.5172	3.4331	3.3522	3.2743	2.9906	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	3.9975	3.8887	3.7845	3.6847	3.3255	3.0205	2.9514	2.6427
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638	4.4226	4.2883	4.1604	4.0386	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873	4.3436	3.8372	3.4212	3.3289	2.9247
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	4.7716	4.6065	4.0310	3.5655	3.4631	3.0190
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4262	5.2161	5.0188	4.8332	4.1925	3.6819	3.5705	3.0915
11	10.368	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0286	4.3271	3.7757	3.6564	3.1473
12	11.255	10.575	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944	5.9176	5.6603	5.4206	5.1971	4.4392	3.8514	3.7251	3.1903
13	12.134	11.348	10.635	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831	5.3423	4.5327	3.9124	3.7801	3.2233
14	13.004	12.106	11.296	10.563	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245	5.4675	4.6106	3.9616	3.8241	3.2487
15	13.865	12.849	11.938	11.118	10.380	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474	5.5755	4.6755	4.0013	3.8593	3.2682
16	14.718	13.578	12.561	11.652	10.838	10.106	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	4.7296	4.0333	3.8874	3.2832
17	15.562	14.292	13.166	12.166	11.274	10.477	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	4.7746	4.0591	3.9099	3.2948
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280	5.8178	4.8122	4.0799	3.9279	3.3037
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.6036	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982	5.8775	4.8435	4.0967	3.9424	3.3105
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.8181	9.1285	8.5136	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	4.8696	4.1103	3.9539	3.3158
21	18.857	17.011	15.415	14.029	12.821	11.764	10.836	10.017	9.2922	8.6487	8.0751	7.5620	7.1016	6.6870	6.3125	5.9731	4.8913	4.1212	3.9631	3.3198
22	19.660	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.4424	8.7715	8.1757	7.6446	7.1695	6.7429	6.3587	6.0113	4.9094	4.1300	3.9705	3.3230
23	20.456	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.5802	8.8832	8.2664	7.7184	7.2297	6.7921	6.3988	6.0442	4.9245	4.1371	3.9764	3.3254
24	21.243	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.7066	8.9847	8.3481	7.7843	7.2829	6.8351	6.4338	6.0726	4.9371	4.1428	3.9811	3.3272
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	4.9476	4.1474	3.9849	3.3286
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1772	4.9789	4.1601	3.9950	3.3321
35	29.409	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	4.9915	4.1644	3.9984	3.3330
36	30.108	25.489	21.832	18.908	16.547	14.621	13.035	11.717	10.612	9.6765	8.8786	8.1924	7.5979	7.0790	6.6231	6.2201	4.9929	4.1649	3.9987	3.3331
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	4.9966	4.1659	3.9995	3.3332
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.9148	9.0417	8.3045	7.6752	7.1327	6.6605	6.2463	4.9995	4.1666	3.9999	3.3333

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CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

WEDNESDAY: 27 November 2019. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Describe three main categories of securities markets in relation to equity investment analysis. (6 marks)

(b) An investor buys 1,000 shares of a stock on margin at a price of Sh.50 per share. The initial margin requirement is 40% and the margin lending rate is 3%. The investor's broker charges a commission of Sh.0.01 per share on purchases and sales. The stock pays an annual dividend of Sh.0.30 per share. One year later, the investor sells the 1,000 share at a price of Sh.56 per share.

Required:
The return on the equity investment. (6 marks)

(c) A financial analyst has gathered the following information for Rafiki Limited, a high growth firm trading and quoted in your country's securities exchange:

• Dividend payout ratio in the first five years	20%
• Dividend payout ratio after five years	50%
• Dividend growth rate in the first five years	25%
• Dividend growth rate after five years	8%
• Risk free rate	6%
• Beta of the company	1.0
• Risk premium of the company	5.5%

Required:

(i) Estimate the price to earnings (P/E) ratio of the firm using two-stage dividend discount growth model. (4 marks)

(ii) Estimate the return on equity (ROE) in the first 5 years. (2 marks)

(iii) Estimate the return on Equity (ROE) during the stable growth rate period. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) In relation to industry analysis:

(i) Examine five factors that could influence the cash flow prospects of different industries in your country. (5 marks)

(i) Highlight three characteristics of a shakeout stage of an industry life cycle phase. (3 marks)

(b) As a financial analyst for an equity income mutual fund, you are evaluating National Water Ltd. for possible inclusion in the approved list of investments.

National Water Ltd. operates in a regulated industry and hence you are confident that its future growth rate should follow its stable historical growth record.

The return on equity (ROE) for the company has consistently been close to the historical median return on equity (ROE) for the country's businesses of 12.2%, reflecting the regulated prices for its product.

Estimated earnings per share (EPS) for the financial years 2019 and 2020 are Sh.1.27 and Sh.1.33 respectively reflecting a 4.7% growth rate.

The company has a current dividend payment rate of Sh.0.81. Although the company's dividend payout ratio has been relatively stable, that is, 73% in the year 2018, 77% in the year 2017, 75% in the year 2016, 77% in the year 2015, and 78% in the year 2014, you conclude that National Water Ltd. has not followed an exact fixed payout dividend policy. This is as a result of the company being conservative in reflecting earnings growth in increased dividend. Your dividends forecast for the year 2019 is Sh.0.83. In addition, the nominal annual Gross Domestic Product (GDP) growth estimate is 4%.

Compared with a mean dividend payout ratio of 76% from year 2014 to year 2017, you expect a long-term average dividend payout ratio of 70% going forward. You also anticipate a 3.7% long-term dividend growth rate.

The current market price per share (MPS) for National Water Ltd. is Sh.30. The estimated cost of equity is 6.2%.

Required:

(i) Using Gordon growth model, estimate the value of the company's shares. (2 marks)

(ii) State whether the company's shares are overvalued, fairly valued, or undervalued based on the results obtained in (b) (i) above. (2 marks)

(iii) Provide three reasons why the Gordon growth model is suitable for valuing the company's shares. (3 marks)

(iv) National Water Ltd's beta is -0.16.

Calculate the Capital asset pricing model (CAPM) estimate of the cost of equity for the company. (Assume equity risk premium of 5.7% and risk-free rate based on the long-term Treasury Bond was 5.7%).

(v) The Gordon growth estimate of value of the company's share using the cost of equity obtained in (b) (iv) above. (2 marks)

(vi) Assuming that a price to earnings ratio (P/E) of 24 based on estimated 2019 financial year earnings per share (EPS) is an appropriate guide to value, evaluate whether the Gordon growth estimate value in (b) (v) above is plausible. (1 mark)

(Total: 20 marks)

QUESTION THREE

(a) In relation to technical analysis:

(i) Summarise three principles underlying Dow Theory. (3 marks)

(ii) Explain three uses of oscillator indicators. (3 marks)

(b) Jiji Limited is expected to grow at the rate of 30% for the next five years. After that, competition is expected to lower the company's growth rate to a constant rate of 7% indefinitely. The market risk premium is 6% and the risk-free rate is 5%. The company's beta is 1.5 and it just paid a dividend of sh.2.50.

Required:

The current market value of the company's share. (6 marks)

(c) Jaloz Limited intends to invest Sh.100 million in a project that is being depreciated on a straight line basis to zero over a two year life with no salvage value. The project will generate earnings before interest and taxes (EBIT) of Sh.50 million each year for two years. The company's weighted average cost of capital (WACC) and required rate of return (RRR) for the project are both 12%.

The corporation tax rate is 30%.

Required:

(i) The economic income for the company in year one and year two. (4 marks)

(ii) The market value added (MVA) for the company. (4 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Melissa Atunda, a financial analyst at Beta Capital is undertaking equity valuation of Babito Limited, a big European multinational corporation specialising with electronics. The firm intends to venture in the Africa region to expand its market share.

The Chief Finance Officer has tasked Melissa to prepare a research report to be tabled to the Board of Management for consideration during the next Board meeting scheduled in the month of January 2020.

Required:

(i) Outline three contents of an equity research report that Melissa should include in her presentation. (3 marks)

(ii) Discuss four ethical responsibilities that Melissa should observe while undertaking the assignment. (4 marks)

(b) An equity analyst has gathered the following financial information relating to Emma Elisha Ltd.:

Emma Elisha Ltd.
Income Statement excerpts
for the year ended 31 December:

	2018 Sh. "million"	2017 Sh. "million"
Earnings before interest, taxes and depreciation (EBITD)	275.0	250.0
Depreciation expense	82.5	75.0
Operating profit	192.5	175.0
Interest expense	16.0	14.9
Income before taxes	176.5	160.1
Income taxes	56.5	48.0
Net income	120.0	112.1
Ordinary dividend	48.0	44.8

Emma Elisha Ltd.
Statement of financial position as at 31 December:

	2018 Sh. "million"	2017 Sh. "million"
Assets:		
Current assets:		
Cash	38.0	34.5
Accounts receivable	126.5	115.0
Inventory	189.7	172.5
Current assets	354.2	322.0
Non current assets	1,168.3	1,003.0
Less: Accumulated depreciation	(257.5)	(175.0)
Total assets	1,265.0	1,150.0
Current liabilities:		
Account payable	128.2	97.7
Notes payable	20.0	15.0
Total current liabilities	148.2	112.7
Long term debt	157.5	150.0
50 million ordinary shares	800.0	800.0
Retained earnings	159.3	87.3
Total liabilities and equity	1,265.0	1,150.0

Additional information:

1. The tax rate is 30%.
2. The required rate of return is 13%.
3. The analyst expects a growth rate on the financial year 2018 free cash flow to equity (FCFE) of 20% per year for the next three years and a 6% constant growth rate beyond the three years.

Required:

(i) The free cash flow to equity (FCFE) per share. (6 marks)

(ii) Estimate the company's value. (3 marks)

(c) Boo Limited has Sh.160 million worth of assets, 20 million shares outstanding and a current share price of Sh.6.

Required:

(i) Calculate the company's Tobin's Q ratio. (2 marks)

(ii) Comment on the value obtained in (c) (i) above. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Justify four reasons why private company valuation is necessary in equity investment. (4 marks)

(b) Sophia Akinyi is valuing a non-controlling interest in a small ornament retailer business. To obtain the appropriate price multiple for the firm's valuation, she has prepared a database of price multiples from the sale of entire public and private companies over the past ten years.

Using historical data, she estimates a control premium of 18.7% and a discount for lack of marketability of 24%.

Required:

(i) Calculate the total adjustment for control and marketability to be applied in the valuation. (3 marks)

(ii) Highlight three ways in which financial analyst could use to quantify discount for lack of marketability. (3 marks)

(c) Rachael Gakii, an equity analyst at Rachel Securities Ltd. has gathered the following data for Ramex Global Bakeries dealing with investments in hypermarkets and supermarkets.

All figures except for the share prices are in Shillings Millions:

	2018 Sh.	2017 Sh.	2016 Sh.
Total shareholder's equity	55.60	54.10	52.60
Net revenues	77.30	73.60	70.80
Net incomes	3.20	1.10	0.40
Net cash flow from operations	17.90	15.20	12.20
Share price	11.40	14.40	12.05
Shares outstanding	4,476	3,994	3,823

Industry relevant averages for year 2018:

Lagging industry ratios	**2018**
Price-to-Earnings (P/E)	8.6
Price-to-Cash Flow (P/CF)	4.6
Price-to-Sales (P/S)	1.4
Price-to-Book Value (P/B)	3.6

Required:

(i) Ramex Ltd.'s trailing P/E, P/CF, P/S and P/B ratios. (4 marks)

(ii) Explain whether the firm is undervalued or overvalued using the industry averages for 2018. (3 marks)

(iii) Propose three drawbacks of price-to-sales (P/S) ratio in equity valuation. (3 marks)

(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001	.	.
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001	.	.	.	.
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001	.	.	.	.	.	.

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,n} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of Payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

kasneb

CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 23 May 2019. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Irene Kanini believes that the shares of Rafiki Limited are currently overvalued. However, she recognises that share prices often continue to increase above their intrinsic values for sometime before correcting.

Required:
With reference to the above statement:

(i) Explain to Irene Karini three types of validity instructions used in securities exchange market which specify when an order should be executed. (3 marks)

(ii) Advise Irene on the type of order that she should place assuming that she intends to sell her shares when the share prices begin to fall by a significant amount. (2 marks)

(b) Better App Limited has come up with a new mobile application software that is expected to enable the company grow at a rate of 20% per annum for the next four years. By the end of four years, Better App Limited forecast that other firms will have copied the mobile application and competition will drive down profit margin and the sustainable growth rate will fall to 5%.

The company's most recent dividend was Sh.1.00 per share. The cost of capital is 10%.

Required:
The expected rate of return to an investor who buys the company's shares now and sells them in a year. (4 marks)

(c) Dee Limited uses bonds, preference shares and ordinary shares modes of financing. The market value of each of these sources of financing and the before-tax required rates of return for each source are given below:

	Market value Sh. "million"	**Required rate of return (%)**
Bonds	400	8.0
Preference shares	100	8.0
Ordinary shares	500	12.0
Total	1,000	

Additional information:
1. Net income available to ordinary shareholders is Sh.110 million.
2. Interest expense is Sh.32 million.
3. Preference dividends are Sh.48 million.
4. Depreciations expense is Sh.40 million.
5. Investment in fixed capital is Sh.70 million.
6. Investment in working capital is Sh.20 million.
7. Net borrowing is Sh.25 million.
8. Corporate tax rate is at 30%.
9. Stable growth rate of free cash flow to the firm (FCFF) is 4%.
10. Stable growth rate of free cash flow to equity (FCFE) is 5.4%.

Required:

(i) The weighted average cost of capital (WACC) for the firm. (2 marks)

(ii) The current value of free cash flow to the firm (FCFF). (2 marks)

(iii) The total value of the firm. (2 marks)

(iv) The value of equity for the firm. (1 mark)

(v) The current value of free cash flow to equity (FCFE). (2 marks)

(vi) The value of equity based on forecasted year 1 FCFE. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) In relation to industry and company analysis and equity valuation:

(i) Explain the term "peer group". (2 marks)

(ii) Summarise any four steps that an equity analyst should follow in forming a peer group. (4 marks)

(b) In relation to technical analysis:

(i) Explain the term "change in polarity principle". (2 marks)

(ii) Describe two chart patterns. (4 marks)

(c) Jeremy Owuor is valuing Delta Railways. During the last five years (year ended 31 March 2015 to year ended 31 March 2019), the company has paid dividends per share (DPS) of Sh.5.50, Sh.6.50, Sh.7.00, Sh.8.00 and Sh.9.00 respectively. These dividends suggest an average annual growth rate in DPS of just above 13%. Jeremy has decided to use a three-stage dividend discount model (DDM) with a linearly declining growth rate in Stage 2. He considers Delta Railways to be an average growth company, and estimates stage 1 (the growth stage) to be 6 years and stage 2 (the transition stage) to be 10 years. He estimates the growth rate to be 14% in stage 1 and 10% in stage 2. His estimated required return on equity is 16%.

Required:

The current value of Delta Railways share. (8 marks)

(Total: 20 marks)

QUESTION THREE

(a) You are presented with the following two scenarios about two companies. Alpha Ltd. and Beta Ltd. The real rate of return on shares for both companies is 3% per annum.

Scenario 1:

Suppose both Alpha Ltd. and Beta Ltd. can pass through 75% of cost increase. Cost inflation is 6% for Alpha Ltd. but only 2% for Beta Ltd.

Required:

(i) Estimate the Justified price to earnings (P/E) ratio for each company and interpret the results. (3 marks)

Scenario 2:

Suppose both Alpha Ltd. and Beta Ltd. face 6% annual inflation. Alpha Ltd. can pass through 90% of cost increases, but Beta Ltd. can pass through only 70%.

Required:

(ii) Estimate the justified P/E ratio for each company and interpret the results. (3 marks)

(b) Naheshon Marwa is a junior financial analyst at Cleverinvest, a fund management company specialising in equity investment. His supervisor requested him to perform a couple of valuation tasks on some private companies.

Required:

Advise Naheshon on two factors that he should consider when selecting the approach to value a private company. (4 marks)

(c) Linus Wambua owns 10% of Applex Limited shares while the remaining 90% is held by Kelvin Mukuna who is the Chief Executive Officer of the company. Kelvin is interested in selling Applex Limited to a third party. He advises Linus that if Applex Limited is not sold, he has no reason to purchase his 10% interest.

Additional information:

1. Valuation discounts assuming imminent sale of Applex Limited.
   - Lack of control discount 0%.
   - Lack of marketability discounts 5%.
2. Valuation discount assuming continued operation as a private company:
   - Lack of control discount: incorporated through use of reported earnings rather than normalised earnings.
   - Lack of marketability discount 25%.
3. Indicated value of equity operations:
   - In sale scenario Sh.9,600,000,000.
   - In stay-private scenario No., Sh.8,000,000,000

Required:

(i) Discuss the relevance of valuation discount assuming imminent sale of Applex Limited. (2 marks)

(ii) Explain which estimate of equity value should be used and calculate the value of Linus equity interest in Applex Limited assuming sale is likely. (3 marks)

(iii) Evaluate relevance of valuation discount assuming Applex Limited continues as a private company. (2 marks)

(iv) Assuming Applex Limited continues as a private company, explain which estimate of equity value should be used and calculate the value of Linus equity interest. (3 marks)

(Total: 20 marks)

QUESTION FOUR

(a) An equity analyst at SmartInvest Asset Management Firm prepares a market forecast for his firm which uses the Grinold-Kroner Model to forecast the expected rate of return on equities for the next 10 years. He uses the data provided below to prepare his forecast:

Factor	**10 years forecast (annualised)**
Dividend yield	1.80%
Dividend growth rate	4.00%
Changes in price to earnings (P/E) multiple	0.50%
Inflation rate	1.20%
Change in number of shares outstanding	-0.30%
Real total earnings growth rate	2.50%

Required:

Determine the following sources of return for equities according to the Grinold-Kroner Model, using the analyst's forecasts:

(i) Expected nominal earnings growth return. (2 marks)

(ii) Expected repricing return. (2 marks)

(iii) Expected income return. (2 marks)

(b) The following data relate to a firm listed on the Naxsi Securities Exchange (NSE):

1. The firm will earn Sh.1.00 per share in perpetuity.
2. The firm pays all earnings as dividends.
3. Book value per share (BVPS) is Sh.6.00.
4. The required rate of return on equity is 10%.

Required:

(i) The value of the company's shares using the dividend discount model (DDM). (2 marks)

(ii) The value of the share using the residual income valuation model. (2 marks)

(c) Amlex Limited has just paid an annual dividend of Sh.0.8 per share for the very recently closed financial year. Earnings per share (EPS) for the previous year had been Sh.1.00.

Additional information:
1. The expected market rate of return is 7%.
2. The risk-free rate is 2%.
3. The current ex-dividend market price per share (MPS) is Sh.20.80.
4. The company's shares have a beta of 1.2.

Required:

(i) The market implied dividend growth rate (g_{IMPL}) for Amlex Limited using the constant dividend growth model. (3 marks)

(ii) The implied dividend growth rate assuming that the company will just be able to retain its average past years' return on equity (ROE) of 10% while maintaining its current payout ratio. (3 marks)

(iii) The value of Amlex Limited's share assuming a sustainable growth rate, g, of 2.5%. (2 marks)

(iv) Advise an investor on whether to buy the company's shares based on your results in (c) (iii) above. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Describe two instances when the following equity valuation measures are appropriate:

(i) Dividends. (2 marks)

(ii) Free cash flows (FCFs). (2 marks)

(iii) Residual income. (2 marks)

(b) James Koech, a Certified Investment and Financial Analyst, (CIFA), is considering using economic value added (EVA) and market value added (MVA) to measure the performance of Sukari Limited. He has gathered the following information for the year ended 31 December 2018:

1. Adjusted net operating profit before tax for the year 2018 is Sh.142,857,143.
2. Total capital is Sh.700 million (no debt).
3. Closing market price per share (MPS) is Sh.26.
4. Sukari Limited has 84 million outstanding ordinary shares.
5. Total cost of equity is 14%.
6. Corporation tax rate is 30%.

Required:

(i) EVA for the year ended 31 December 2018. (3 marks)

(ii) MVA for the year ended 31 December 2018. (3 marks)

(c) Mwi Ltd. expects earnings of Sh.1.25 per share next year out of which Sh.0.50 will be paid out as dividends. Earnings and dividends are expected to grow at a constant rate each year afterwards. Mwi Ltd.'s shares currently trade at Sh.20 per share.

The firm's cost of capital is 10%.

Required:

(i) Return on equity (ROE) for the company. (4 marks)

(ii) Justifying your answer, explain whether Mwi Ltd. is a growth company. (2 marks)

(d) According to the Elliot Wave Theory, cycles that are repetitive and quite predictable could be observed in share price movement.

In light of the above statement, highlight two types of wave movements as postulated by Ralph Nelson Elliot. (2 marks)

(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,n} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

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CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 29 November 2018. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Explain the following terms as used in equity markets:

(i) Board lot. (1 mark)

(ii) Close price. (1 mark)

(iii) Internet trading. (1 mark)

(iv) Thin market. (1 mark)

(b) Discuss five stages of an industry life cycle. (5 marks)

(c) Summarise three responsibilities of a financial analyst in the equity valuation process. (3 marks)

(d) Equimax Holdings Limited's current revenue stands at Sh.20 million. The company's future performance will be tracked relative to sales.

Sales growth and net profit margin are projected per year as shown in the following table:

Year	**1**	**2**	**3**	**4**	**5**	**6**
Sales growth rate (%)	30	25	20	15	10	5
Net profit margin (%)	8.0	7.5	7.0	6.0	5.5	5.0

Additional information:

1. Fixed capital investment net of depreciation is projected to be 30% of the sales increase in each year.
2. Working capital requirements are 7.0% of the projected shilling increase in sales in each year.
3. Debt will finance 40% of the net fixed capital investment and working capital investment.
4. The company has a 12% required rate of return on equity.
5. The firm has one million ordinary shares outstanding.

Required:

The value of equity for Equimax Holdings Limited using the two stage free cash flow to equity (FCFE) model. (Assume long-term growth rate of 5%). (8 marks)

(Total: 20 marks)

QUESTION TWO

(a) Examine three types of technical analysis indicators. (6 marks)

(b) GCC Limited paid an annual dividend of Sh.1.25 per share yesterday and maintained its historic annual growth rate of 7%. You plan to purchase GCC Limited's shares today because you believe that the dividend growth rate will increase to 8% for the next three years and the company's market price per share will be Sh.40.00 at the end of year 3.

Required:

(i) The price that you would be willing to pay for the company's shares assuming that you required a 12% rate of return. (4 marks)

(ii) The maximum price that you would be willing to pay for GCC Limited's share assuming that the 8% growth rate would be maintained indefinitely and that you require a 12% rate of return. (2 marks)

(iii) The price of the share at the end of year 3 assuming that the growth rate of 8% is maintained indefinitely and a 12% rate of return is expected. (2 marks)

(c) An equity analyst has gathered the following information about ABC Ltd's shares:

Current market price per share (MPS)	Sh.22.56
Current annual dividend per share (DPS)	Sh.1.60
Annual dividend growth rate for years 1 – 4	9%
Annual dividend growth rate for year 5 onwards	4%
Required rate of return	12%

Required:

Determine the percentage by which the intrinsic value exceeds the market price per share. (6 marks)

(Total: 20 marks)

QUESTION THREE

(a) Venus Limited's share is currently trading at Sh.95 at the securities exchange and its book value per share was Sh.100 at the end of last year. The research department at a leading investment bank has published an investment opinion on Venus Limited's share forecasting a return on equity (ROE) of 10% and dividend payout ratio of 30% into perpetuity.

Additional information:

1. The risk-free rate is 3%.
2. The share market risk premium is 7%.
3. The company's estimated beta is 1.1.

Required:

(i) Based on the forecasts from the bank's research department, calculate the expected rate of return on Venus Limited's shares at the current share price. (3 marks)

(ii) Determine whether Venus Limited's shares are trading at a discount or at a premium assuming that the capital asset pricing model (CAPM) holds. (2 marks)

(b) Fredrick Mugendi, an equity analyst, is valuing Bora Limited. He has made the following assumptions about the company:

1. Book value per share (BVPS) is estimated at Sh.9.62 on 31 December 2017.
2. Earnings per share (EPS) will be 22% of the beginning BVPS for the next eight years.
3. Cash dividends paid will be 30% of EPS.
4. At the end of the eight-year period, the market price per share (MPS) will be three times the BVPS.
5. The required rate of return is 8.3%.

Required:

Estimate the value per share of Bora Limited using the residual income model. (8 marks)

(c) Benson Ireri, a financial analyst at Wema Financial Services intends to use the cash flow return on investment (CFROI) measure to value Heavy Machinery Ltd.

He has gathered the following data:

Gross cash investment	Sh.2,925.863 million
Gross annual cash flow	Sh.427.156 million
Non-depreciated assets	Sh.522.968 million
Asset life	18 years

Required:

(i) Calculate the CFROI for Heavy Machinery Ltd. (4 marks)

(ii) Discuss three reasons why the CFROI approach is attractive in the equity valuation process. (3 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Highlight three advantages of the free cash flow model in the equity valuation process. (3 marks)

(b) Uwezo Limited uses bonds, preference shares and ordinary shares as its sources of financing. The market value of each of these sources and their respective before-tax required rates of return are provided below:

	Market value Sh."million"	**Required return (%)**
Bonds	400	8
Preference shares	100	8
Ordinary shares	500	12

Additional information:

1.	Income available to shareholders	Sh.110 million
2.	Preference dividends	Sh.8 million
3.	Depreciation	Sh.40 million
4.	Investment in fixed capital	Sh.70 million
5.	Investment in working capital	Sh.20 million
6.	Net borrowing	Sh.25 million
7.	Corporation tax rate	30%
8.	Stable growth rate of free cash flow to firm (FCFF)	4.0%
9.	Stable growth rate of free cash flow to equity (FCFE)	5.0%

Required:

(i) Weighted average cost of capital (WACC). (1 mark)

(ii) The forecasted value of free cash flow to the firm (FCFF). (3 marks)

(iii) The total value of the firm and the value of equity based on forecasted FCFF obtained in (b) (ii) above. (4 marks)

(iv) The forecasted value of free cash flow to equity (FCFE). (2 marks)

(v) The value of equity based on forecasted FCFE obtained in (b) (iv) above. (2 marks)

(c) Brenda Akinyi, an equity analyst at Soi Capital is analysing the following market data relating to Binstar Limited:

1.	Current market price per share (MPS)	Sh.80
2.	Trailing annual earnings per share (EPS)	Sh.4.75
3.	Dividend growth rate	10%
4.	Risk-free rate	10.5%
5.	Equity risk premium	6.5%
6.	Beta versus Binstar Limited Index	0.89
7.	Trailing annual dividend per share (DPS)	Sh.2.50

Required:

(i) Justified trailing price-to-earnings (P/E) ratio using the Gordon growth model. (2 marks)

(ii) Justified leading price-to-earnings (P/E) ratio using the Gordon growth model. (2 marks)

(iii) Determine whether the company is overvalued or undervalued based on your results in (c) (i) and (c) (ii) above. (1 mark)

(Total: 20 marks)

QUESTION FIVE

(a) Pizo Limited is a large firm operating in an industry where its sales and costs are subject to price inflation. Martin Wambua, a financial analyst, has been tasked with forecasting the company's costs.

Required:

Assess three courses of action that Martin Wambua should consider in his analysis. (3 marks)

(b) An analyst gathered the following data for Waka Limited:

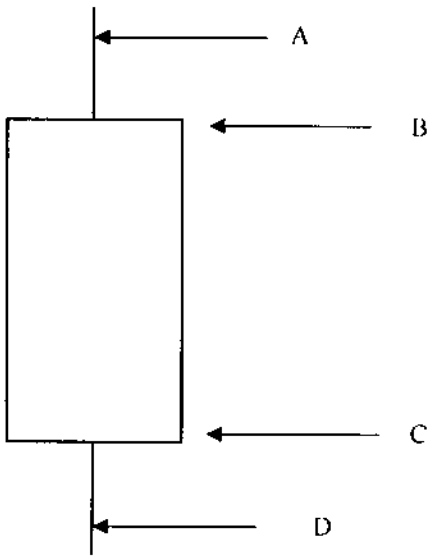
Recent share price	Sh.22.50
Shares outstanding	40 million
Market value of debt	Sh.137 million
Cash and marketable securities	Sh.62.3 million
Investments	Sh.327 million
Net income	Sh.137.5 million
Interest expense	Sh.6.9 million
Depreciation and amortisation	Sh.10.4 million
Taxes	Sh.95.9 million

Required:

(i) Calculate Waka Limited's enterprise value to earnings before interest, tax, depreciation and amortisation (EBITDA). (3 marks)

(ii) Examine two limitations of enterprise value to EBITDA. (2 marks)

(c) The following diagram relates to a candlestick chart used by technical analysts in assessing market movement:



Required:

(i) Identify points A, B, C and D above. (2 marks)

(ii) Explain three benefits of candlestick charts in technical analysis. (3 marks)

(d) Examine three characteristics of a well-functioning financial system in your country. (3 marks)

(e) Company analysis takes place after the analyst has gained an understanding of the company's external environment and includes answering questions about how the company will respond to the threats and opportunities presented by the external environment.

In light of the above statement, describe two competitive strategies that a company should use in order to respond to the threats and opportunities presented by the external environment as postulated by Michael Porter. (4 marks)

(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,n} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

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CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 24 May 2018. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Explain the role of the following participants of your country's securities exchange:

(i) Market markers. (1 mark)

(ii) Commission brokers. (1 mark)

(iii) Floor brokers. (1 mark)

(iv) Registered traders. (1 mark)

(b) Shangilia Limited's share is currently trading at Sh.25 at the securities exchange. The estimated earnings per share (EPS) is Sh.1.875; the dividend payout ratio is 35%, and it is estimated that the price to earnings (P/E) ratio in one year's time will be 15.

Required:
The expected rate of return from the company's share in the next one year. (3 marks)

(c) Tarino Limited paid a dividend per share (DPS) of Sh.1 yesterday. It is expected that the dividend will grow at a rate of 10% per annum for the first 4 years, 8% per annum for the next 10 years and thereafter grow at a rate of 5% per annum perpetually. The investor's expected rate of return is 12%.

Required:
The value of Tarino Limited's share today. (6 marks)

(d) Discuss three contrary opinion rules in relation to technical analysis. (3 marks)

(e) Jack Jester, an inexperienced and unqualified person working in a financial analyst's office claims to have a superior method of picking undervalued shares. He claims that the best way to find the value of a share is to divide earnings before interest, tax, depreciation and amortisation (EBITDA) by the risk-free rate of a bond and is urging your client to invest in Whole Foods Ltd.'s share. Jack Jester argues that Whole Foods Ltd.'s EBITDA of Sh.1,580 million divided by the long-term government bond coupon rate of 7% gives a total value of Sh.22,571.4 million. With 318 million shares outstanding, the market value per share using this method is Sh.70.98. The shares of Whole Foods Ltd.'s market price per share (MPS) is Sh.36.50.

Required:
Argue four cases against the valuation approach used by Jack Jester. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) In an industry, the largest two firms have a market share of 20% each while six other firms have a market share of 10% each.

Required:

(i) The five firms concentration ratio. (1 mark)

(ii) The Herfindahl – Hirschman Index (HHI) for the five firms. (2 marks)

(iii) Interpret the results obtained in (a) (ii) above. (1 mark)

(iv) Examine two limitations of using HHI to assess the competitiveness of a market. (2 marks)

(b) Mohamed Komora, an equity analyst at Wealth Investment and Consultancy Services Limited is preparing a report on his home country manufacturing firm in the beverage industry. He has gathered the information given below:

Ratios for Beverage Industry Index and Broad Stock market Index

Year	2012	2013	2014	2015	2016	2017
Return on equity						
Beverage industry index (%)	12.5	12.0	15.4	19.6	21.6	21.6
Market index	10.2	12.4	14.6	19.9	20.4	21.2
Average price to earnings (P/E) ratio						
Beverage industry index	28.5 times	23.2 times	19.6 times	18.7 times	18.5 times	16.2 times
Market index	10.2	12.4	14.6	19.9	18.1	19.1
Dividend pay-out ratio						
Beverage industry index (%)	8.8	8.0	12.1	12.1	14.3	17.1
Market index	39.2	40.1	38.6	43.7	41.8	39.1
Average dividend yield						
Beverage industry index (%)	0.3	0.3	0.6	0.7	0.8	1.0
Market index	3.8	3.2	2.6	2.2	2.3	2.1

Required:

(i) Using the above information, determine the phase of industry life cycle in which the beverage industry is. (2 marks)

(ii) Citing four reasons, justify your answer in (b) (i) above. (4 marks)

(c) Caroline Anyango, a Certified Investment and Financial Analyst (CIFA) has been provided with the following information relating to two private companies for analysis:

Company A:

Working capital	Sh.400,000
Non-current assets	Sh.1,600,000
Normalised earnings	Sh.225,000
Required return on working capital	5%
Required return on non-current assets	12%
Growth rate of residual income	3%
Discount rate for intangible assets	18%

Company B:

Risk-free rate	1.00%
Equity risk premium	6.00%
Beta	1.50
Small stock premium	4.00%
Company-specific risk premium	1.50%
Industry risk premium	1.20%

Required:

(i) Using the excess earnings method, determine the value of company A. (4 marks)

(ii) Estimate the required rate of return for company B using the expanded capital asset pricing model (CAPM). (2 marks)

(iii) Calculate the required rate of return for company B using the built up approach. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Summarise four reasons why financial analysts prefer to use price to book (P/B) value as a valuation measure in equity analysis. (4 marks)

(b) Sahala Limited is sensitive to the economic cycle. Job Chege, an equity analyst at Blue Chip Capital postulates that the six years ending 2017 reflect a business cycle for the company. He has collected the following data about the company:

Year	2012	2013	2014	2015	2016	2017
Adjusted earnings per share (EPS) (Sh.)	1.30	2.65	5.50	4.30	3.25	1.00
Return on equity (ROE) (%)	0.04	0.13	0.22	0.18	0.12	0.03
Book value per share (BVPS) (Sh.)						32

The market price per share (MPS) of Sahala Limited is Sh.30.

Required:

(i) Normalised EPS for Sahala Limited. (2 marks)

(ii) Price to earnings (P/E) ratio based on average ROE method. (2 marks)

(c) Suggest three measures that equity managers could undertake to increase cash flow return on investment (CFROI). (3 marks)

(d) XYZ Limited has invested Sh.100 million capital in assets.

The following information is provided:

1. The firm's after-tax operating income on assets is Sh.15 million. This value is expected to be sustained in the future.
2. The company's cost of capital is 10% per annum and is projected to remain constant in the foreseeable future.
3. The firm is expected to make investments of Sh.10 million at the beginning of each of the next five years.
4. All assets and investments are expected to have infinite life. Thus, the assets in place and the investment made in the first five years will have a return of 15% per annum in perpetuity, with no growth.
5. After year five, the company will continue to make investment which will grow at a rate 5% per annum. The new investment is expected to have a return on capital of 10% which will also be the cost of capital.

Required:

(i) The value of the firm using the economic value added (EVA) approach. (5 marks)

(ii) The value of the firm using the market value added (MVA) approach. (2 marks)

(iii) Comment on your results in (d) (i) above. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) In relation to dividend discount model (DDM):

(i) Describe one strength of the two stage DDM in comparison to the constant growth DDM. (2 marks)

(ii) Explain one weakness common in all DDMs. (2 marks)

(b) Kithaka Lenayapa is an analyst at a leading investment bank and is responsible for the following four companies namely; A, B, C and D. All the four companies operate in diverse sectors of the domestic economy. He has gathered the following information regarding the companies:

Company	A	B	C	D
Rate of return on equity (ROE)	0.20	0.12	0.15	0.10
Required rate of return	0.15	0.10	0.12	0.08
Dividend payout ratio (%)	60	50	40	45
Free cash flow to equity (FCFE)	1.25	1.50	1.40	2.00
Profit margin (%)	10	12	8	15

Required:

(i) Justified price to book (P/B) ratio for company A. (2 marks)

(ii) Justified price to sales (P/S) ratio for company B. (2 marks)

(iii) Justified forward price to earnings (P/E) ratio for company C. (2 marks)

(iv) Justified price to cash flow (P/CF) ratio for company D. (2 marks)

(c) Rhino Limited has been unprofitable and has not been paying dividend on its ordinary shares. An analyst decides to value the company using his forecasts on free cash flow to equity (FCFE) in 2018.

He gathers the following information:

1. The company has 17 million shares outstanding.
2. Sales will be Sh.5.5 million in 2019, increasing at a rate of 28% annually for the next four years (through 2023).
3. Net income will be 32% of sales.
4. Investment in fixed assets will be 35% of sales, investment in working capital will be 6% of sales, depreciation will be 9% of sales.
5. 20% of the investment in assets will be financed with debt.
6. Interest expense will be only 2% of sales.
7. The tax rate will be 10%. The company has a beta of 2.1, the risk-free rate is 6.4% and the equity risk premium is 5.0%.
8. At the end of year 2023, the analyst projects that Rhino Limited will sell for 18 times earnings.

Required:
The value of one ordinary share of Rhino Limited. (8 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Highlight four advantages of convertible preference shares. (4 marks)

(b) You have recently joined Gold Invest, an asset management firm specialised in equity investments, as a junior analyst. Eric Kibet, the chief investment officer (CIO) at the firm has a business deal of valuing Horizon Limited and has tasked you to undertake the assignment.

You make the following assumptions about the company:

1. Book value per share (BVPS) is estimated at Sh.9.62 on 31 December 2017.
2. Earnings per share (EPS) will be 22% of the beginning book value per share for the next 8 years.
3. Cash dividends per share paid will be 30% of earnings per share (EPS).
4. At the end of the 8-year period, the market price per share (MPS) will be three times that of the book value per share.
5. The required rate of return is 8.30%.

Required:
Estimate the value per share of Horizon Limited using the residual income model. (8 marks)

(c) If asked on the value driver with the greatest impact on multiples, analysts and investors would likely answer "growth". This is explicitly true, but the impact of growth depends on its source and nature. There are several sources of growth and each will have a different effect on value creation and thus share prices.

Required:
With respect to the above statement, explain the four primary sources of growth. (4 marks)

(d) The market price per share of Dominion Limited is Sh.35. Martin Wambua has Sh.1,000,000 to invest. He borrows an additional Sh.1,000,000 from Rafiki Stock Brokers Ltd. and invests Sh.2,000,000 in Dominion Limited shares.

Required:
The price at which a margin call will first occur assuming a maintenance margin of 30%. (4 marks)

(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,n} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

KASNEB

CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 25 May 2017. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Differentiate between a "low-cost strategy" and "product differentiation strategy" as used in company analysis. (4 marks)

(b) Discuss four external factors that could affect an industry's sales and profitability. (8 marks)

(c) (i) Outline three adjustments that could be made to the financial statements to improve the accuracy of the residual income model. (3 marks)

(ii) The following information shows the expected earnings per share (EPS) and dividend per share (DPS) for Phamtex Ltd. for three consecutive years:

Year	**1**	**2**	**3**
EPS (Sh.)	2.00	2.50	4.00
DPS (Sh.)	1.00	1.25	12.25

Additional information:

1. It is expected that the last dividend will be a liquidating dividend.
2. Phamtex Ltd. will cease its operations after the end of year 3.
3. The current book value per share is Sh.6.00.
4. The estimated required rate of return on equity is 10 percent.

Required:

The intrinsic value of Phamtex Ltd.'s share using the residual income model. (5 marks)

(Total: 20 marks)

QUESTION TWO

(a) Explain the following terms as used in equity investments analysis:

(i) Defensive shares. (1 mark)

(ii) Growth shares. (1 mark)

(iii) Top-down economic analysis. (1 mark)

(iv) Bottom-up economic analysis. (1 mark)

(b) Biostar Ltd. uses bonds, preferred shares and ordinary shares as a source of its finance. The current market value of each of these sources of financing and the required rates of return before tax for each of the sources of financing are as given below:

	Market value Sh. "million"	**Required rate of return (%)**
Bonds	400	8.0
Preferred shares	100	8.0
Ordinary shares	500	12.0
Total	**1,000**	

Additional information:

1. The net income available to ordinary shareholders is Sh.110 million.
2. Interest expenses amount to Sh.32 million.
3. Depreciation is Sh.40 million.
4. Investment in fixed capital is Sh.70 million.
5. Investment in working capital is Sh.20 million.

6. Net borrowing is Sh.25 million.
7. Corporation tax rate is 30%.
8. Stable growth rate of free cash flow to the firm (FCFF) is 4%.
9. Stable growth rate of free cash flow to equity (FCFE) is 5%.

Required:

(i) The firm's weighted average cost of capital (WACC). (2 marks)

(ii) The current value of free cash flow to the firm (FCFF). (3 marks)

(iii) The total value of the firm. (2 marks)

(iv) The value of the firm's equity. (1 mark)

(v) The current value of free cash flow to equity (FCFE). (2 marks)

(vi) The value of equity based on the forecasted free cash flow to equity obtained in (b) (v) above. (2 marks)

(c) (i) Babito Limited pays an annual dividend of Sh.3 per share. The company is expected to continue paying this dividend with no future growth in dividends. Investors require a 9% rate of return on investment (ROI). The current risk-free rate is 4%.

Required:
The current value of Babito Limited's share. (2 marks)

(ii) ABC Limited has just paid a dividend of Sh.2 per share. The required rate of return is 12%. The share is currently trading at Sh.35 per share at the securities exchange.

Required:
The growth rate using the Gordon's growth model. (2 marks)
(Total: 20 marks)

QUESTION THREE

(a) Propose three stock specific factors that could affect the value of private companies. (6 marks)

(b) (i) The following information relates to Fadhili Limited for the year ended 31 December 2016:

- Earnings before interest and tax (EBIT) is Sh.2.5 million.
- Corporation tax rate is 30%.
- Weighted average cost of capital (WACC) is at a rate of 11%.
- Total debt is Sh.10 million.
- Total equity is Sh.10 million.

Required:
The company's economic value added (EVA) for the year ended 31 December 2016. (3 marks)

(ii) Highlight two limitations of economic value added (EVA) obtained in (b) (i) above. (2 marks)

(c) Dave and Sons Ltd.'s shares are currently trading at Sh.38.50 per share. The trailing twelve months (TTM) earnings per share (EPS) and dividend per share (DPS) of the company is Sh.1.36 and Sh.0.91 respectively. The return on equity (ROE) is 27%, the profit margin on sales is 10.9%. The treasury bond rate is 4.9%, the equity risk premium is 5.5% and Dave and Sons Ltd.'s beta is 1.2. Both dividend and earnings growth rate are 9%.

Required:
Compute the following:

(i) Justified price to earnings (P/E) ratio. (3 marks)

(ii) Justified price to book (P/B) ratio. (3 marks)

(iii) Justified price to sales (P/S) ratio. (3 marks)
(Total: 20 marks)

QUESTION FOUR

(a) Examine three advantages and three disadvantages of using price to earnings (P/E) multiple in equity valuation. (6 marks)

(b) Diana Kamau, an equity analyst is researching on the valuation of Futures Technologies Ltd. as at the beginning of November 2016. On 8 November 2016, Futures Technologies Ltd.'s shares closed the day at a price of Sh.25.72 per share. The company experienced a severe cyclical contraction in consumer electronics division in the year 2016 resulting in a loss of Sh.1.94 per share which prompted Diana Kamau to normalise earnings. Diana believes that the period between the year 2010 to the year 2015 reasonably captures average profitability over a business cycle. Data on earnings per share (EPS), book value per share (BVPS) and return on equity (ROE) are as follows:

Year	2016	2015	2014	2013	2012	2011	2010
EPS	(1.94)	2.11	1.15	0.87	1.16	0.55	1.14
BVPS	13.87	16.62	9.97	11.68	6.57	6.43	6.32
ROE	NM	0.129	0.104	0.072	0.168	0.083	0.179

Where:

NM	=	Not meaningful
EPS	=	Earnings per share
BVPS	=	Book value per share
ROE	=	Return on investment

Required:

(i) Normal EPS for the company based on the historical average EPS. (1 mark)

(ii) Price to earnings (P/E) ratio based on the estimated normal EPS in (b) (i) above. (1 mark)

(iii) Normal EPS for the company based on the average ROE method. (1 mark)

(iv) P/E based on the normal EPS obtained in (b) (iii) above. (1 mark)

(v) Explain the source of the difference in the normal EPS calculated under the average ROE method and the historical average EPS method. Contrast the impact of the difference on the estimated normal P/E ratio. (2 marks)

(c) Moses Agina is considering valuing AGZ Ltd. using the H-Model approach. The relevant inputs for valuation are as follows:

1. Current dividend per share is Sh.1.
2. The dividend growth rate is 29.28% declining linearly over a 16-year period to a final and perpetual growth rate of 7.26%.
3. The risk-free rate is 5.34%.
4. The market risk premium is 5.32%.
5. The beta estimate is 1.37.

Required:

(i) The required rate of return for the company. (2 marks)

(ii) The per share value estimate of the company using the H-model. (6 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Describe the following terms in relation to equity markets:

(i) Quote-driven market. (1 mark)

(ii) Electronic crossing networks. (1 mark)

(iii) Brokered markets. (1 mark)

(b) Summarise four services that could be provided by securities brokers in your country. (4 marks)

(c) The following information relates to Quadrant Limited Securities trades in a given week in the month of April 2017:

- On Tuesday, the share price of Quadrant Limited closes the day at Sh.20 per share.
- On Wednesday morning before the market opens, the equity manager decides to buy Quadrant Limited's shares and submits a limit order for 1,000 shares at Sh.19.95. The price does not fall to Sh.19.95 during the day, so the order expires unfulfilled. The share closes the day at Sh.20.05.

- On Thursday, the order is revised to a limit of Sh.20.06. The order is partially filled that day as 800 shares are bought at Sh.20.06. The commission is Sh.18. The share closes at Sh.20.09 and the order for the remaining 200 shares is cancelled.

Required:

(i) The gain or loss on the paper portfolio. (2 marks)

(ii) The gain or loss on the real portfolio. (2 marks)

(iii) Implementation shortfall. (2 marks)

(d) Johnson Simiyu, an investment consultant has been approached by the management of Zee Ltd., a private company, to assist in valuation of Zee Ltd. The firm has an annual sales of Sh.200 million. Johnson Simiyu assumes for the next twelve months that Zee Ltd.'s revenue will increase by the long-term annual growth rate of 3%. He also makes the following assumptions:

1. Gross profit margin will be 45%.
2. Depreciation will be 2% of revenues.
3. Selling, general and administration expenses are 24% of revenues.
4. Capital expenditure will be 125% of depreciation to support the current levels of revenues.
5. Additional capital expenditure of 15% of incremental revenues will be needed to fund future growth.
6. Working capital investment equals 8% of incremental revenues.
7. Marginal tax rate is 30%.

Required:

The free cash flow to the firm (FCFF). (7 marks)

(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,n} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

KASNEB

CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 24 November 2016. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Describe the following types of orders which could be made while trading in equity securities at the securities exchange of your country:

(i) Market order. (1 mark)

(ii) Limit order. (1 mark)

(iii) Sell-stop order. (1 mark)

(iv) Stop-limit order. (1 mark)

(v) Fill or Kill (FOK) order. (1 mark)

(b) Consider an order-driven system that allows hidden orders. The following four sell orders on a particular stock are currently in the system's limit order book:

Order Number	Time of arrival (HH:MM:SS)	Limit price (Sh.)	Special instructions (if any)
W	9:42:01	20.33	None
X	9:42:08	20.29	Hidden order
Y	9:43:04	20.29	None
Z	9:43:49	20.29	None

Where: HH – Hours
MM – Minutes
SS – Seconds

Required:
Citing appropriate reasons, determine which of these orders would have precedence over others based on the commonly used order precedence hierarchy. (3 marks)

(c) Philip Kisero purchased 1,000 shares of Kilimo Limited at a price of Sh.32 per share. The shares were bought on 75 percent margin. One month later, Philip Kisero had to pay interest on the amount borrowed at the rate of 2 percent per month. At that time, Philip Kisero received a dividend of Sh.0.50 per share. Immediately after that, he sold the shares at a price of Sh.28 per share. He paid a commission of Sh.500 on the purchase and a commission of Sh.500 on the sale of the shares.

Required:
The rate of return on this investment for the one-month period. (5 marks)

(d) An analyst has gathered the following information about Surex Limited's shares trading at the securities exchange:

1.	Current market price per share	Sh.22.56
2.	Current annual dividend per share (DPS)	Sh.1.60
3.	Annual dividend growth rate for years 1 – 4	9%
4.	Annual dividend growth rate for years 5 to perpetuity	4%
5.	Required rate of return	12%

Required:
Using dividend discount model, determine whether the shares of the company are undervalued, fairly valued or overvalued. (7 marks)

(Total: 20 marks)

QUESTION TWO

(a) Highlight five characteristics of private equity that make it attractive as an investment vehicle for high net worth investors in your country. (5 marks)

(b) John Odhiambo, an investment analyst at Coblar Capital Investment Limited has gathered the following information relating to a private company that he intends to analyse:

1.	Risk-free rate	1.00%
2.	Beta of the company	1.50%
3.	Equity risk premium	6.00%
4.	Small stock premium	4.00%
5.	Company-specific risk premium	1.50%
6.	Industry risk premium	1.20%

Required:
The required rate of return of the private company using:

(i) Capital asset pricing model (CAPM). (1 mark)

(ii) Expanded CAPM. (2 marks)

(iii) Build-up approach. (2 marks)

(c) (i) Explain four strengths of residual income valuation model that is used in determining the value of shares. (4 marks)

(ii) The following information relates to Fuji Limited, a company quoted at ISDAQ stock exchange:

1.	Current book value per share	Sh.12.90
2.	Current market price per share	Sh.32.41
3.	Expected long-term return on equity (ROE)	10%
4.	Expected growth rate per year	8%

Assume that the cost of equity is 9%.

Required:
The intrinsic value of the company's share using the residual income model. (3 marks)

(d) Explain the following terms in relation to equity securities valuation:

(i) Blue Chip stocks. (1 marks

(ii) Income stocks. (1 mark)

(iii) Cyclical stocks. (1 mark)

(Total: 20 marks)

QUESTION THREE

(a) Evaluate four advantages of fundamental analysis. (4 marks)

(b) The following information relates to Pepino Limited, a global food retailer specialising in hypermarkets and supermarkets:

1.	Current market price per share (MPS)	Sh.56.94
2.	Dividend growth rate	8.18%
3.	Risk-free rate	5.34%
4.	Equity risk premium	5.32%
5.	Equity beta	0.83
6.	Current dividend per share (DPS)	Sh.0.575
7.	Earnings per share (EPS)	Sh.1.837

Required:

(i) Justified trailing and leading price earnings (P/E) ratio based on the Gordon growth model. (4 marks)

(ii) Based on the justified trailing P/E ratio and actual P/E ratio computed in (b) (i) above, determine whether the firm is fairly valued, overvalued, or undervalued. (2 marks)

(c) Momentum Enterprises Limited has free cash flow to the firm (FCFF) of Sh.700 million and free cash flow to equity (FCFE) of Sh.620 million. The company's before-tax cost of debt is 5.7% and its required rate of return for equity is 11.8%. The company expects a target capital structure consisting of 20% debt financing and 80% equity financing.

The tax rate is 30% and FCFF is expected to grow forever at a rate of 5.0% per annum. The company has an outstanding debt with a market value of Sh.2.2 billion and has 200 million outstanding ordinary shares.

Required:

(i) The weighted average cost of capital (WACC) of the company. (2 marks)

(ii) The value of Momentum Enterprise Limited's equity using the FCFF Valuation approach. (3 marks)

(iii) The value per share using FCFF approach. (2 marks)

(d) Examine three limitations of Gordon growth model (GGM). (3 marks)

(Total: 20 marks)

QUESTION FOUR

(a) In the context of industry analysis, discuss four stages of the industry life cycle. (8 marks)

(b) Simon Mwenda, a financial analyst from Fincap capital has analysed that Jimliza Holdings has after-tax operating cash flows of Sh.90 million, non-current assets of Sh.650 million and non-cash working capital of Sh.100 million. The non-current assets are five years old and the inflation rate during the last five years has been 2%.

The remaining useful life for the assets is 10 years.

Required:

The company's cash flow return on investment (CFROI). (5 marks)

(c) Explain the term "sustainable growth rate". (2 marks)

(d) An investment analyst has gathered the following information regarding two companies; company A and company B:

Company	Return on assets (%)	Dividend Payout ratio (%)	Equity Multiplier
A	12	75	1.20
B	12	50	1.65

Required:

(i) The sustainable growth rate for each company. (4 marks)

(ii) Identify the factors that could cause the difference in the sustainable growth rates between the two companies. (1 mark)

(Total: 20 marks)

QUESTION FIVE

(a) The model selected by a financial analyst has a significance effect on equity valuation.

In relation to the above statement, highlight the broad criteria that could be used in selecting equity valuation model. (3 marks)

(b) (i) Explain the term "technical analysis" as used in equity valuation. (1 mark)

(ii) Discuss three principles underlying technical analysis. (6 marks)

(c) Hills Ltd's current share price is Sh.49.86. It also has a price-to-book (P/B) value of 3.57 and book value per share of Sh.13.97. Assume that the single stage growth model is appropriate for valuing the company. The firm's beta is 0.80, the risk-free rate is 5.0%, and the equity risk premium is 5.50%.

Required:

(i) If the growth rate is 6.0% and the return on equity (ROE) is 20.0%, determine the justified price-to-book (P/B) value for the company. (2 marks)

(ii) If the growth rate is 6.0%, determine the ROE required to yield the company's current P/B value. (2 marks)

(iii) If the ROE is 20.0%, determine the growth rate that is required to have the company's current P/B value. (2 marks)

(d) Rehema Mwatate, a CIFA graduate, is using economic value added (EVA) and market value added (MVA) to measure the performance of Minet Ltd.

Additional information:

1. Adjusted net operating profit after tax (NOPAT) is Sh.100 million.
2. Total capital is Sh.700 million (no debt).
3. Closing market price per share is Sh.26.
4. Total shares outstanding is 84 million.
5. The cost of equity is 14%.

Required:

Calculate the following for Minet Ltd.:

(i) Economic value added (EVA). (2 marks)

(ii) Market value added (MVA). (2 marks)

(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001	.	.
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001	.	.	.	.
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001	.	.	.	.	.	.

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,n} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

KASNEB

CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 26 May 2016. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Distinguish between the following types of equities returns:

(i) "Required rate of return" and "expected rate of return". (2 marks)

(ii) "Holding period return" and "realised return". (2 marks)

(b) Examine four factors that should be considered by individual and corporate investors while deciding whether to invest in foreign equity securities. (4 marks)

(c) Explain how Michael Porter's five competitive forces could affect the financial forecast of a company. (5 marks)

(d) Joshua Chitema, an equity and investments analyst for an investment bank is reviewing BTP Ltd., a small cap firm whose shares trade thinly on the over the counter (OTC) market. He compiles the data presented below and estimates the forward looking equity risk premium using the Gordon growth model. To the risk premium computed, he adds 1.50% to account for the additional small firm risk premium associated with BTP Ltd. The following data is provided relating to the Gordon growth model:

• Current price level of the market index	1,480.00
• Current year's dividend on the market index	Sh.31.25
• Year ahead forecasted dividend on the market index	Sh.33.60
• Long term earnings growth rate for the market index	6.00%
• Current long-term government bond yield	4.00%
• Current short-term government bond yield	2.75%

Joshua shows his computations to the firm's Chief Investment Officer (CIO) who suggests that the macroeconomic model with supply side analysis using the Ibbotson-Chen Model provides a better estimate for BTP Ltd.'s risk premium. The CIO suggests that BTP Ltd. commands a 0.75% risk premium for its thin trading in addition to the small firm risk premium that Joshua has already considered. The relevant data is presented below:

Expected growth rate in real earnings per share (EPS)	3.00%
Expected growth rate in price to earnings (P/E) ratio	1.50%
Expected income component	2.50%
Expected Treasury Inflation Protected Securities (TIPS) yield	2.15%
Expected inflation	1.81%

Required:

(i) The risk premium for BTP Ltd. share using the Gordon growth model. (3 marks)

(ii) The risk premium for BTP Ltd. share using the macroeconomic model factoring in the relevant adjustment. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Highlight three roles that an investment and finance professional might play in the equity valuation process.(3 marks)

(b) The following information relates to Mimo Ltd:

1. Net profit margin is 22%.
2. Sales in year zero are Sh.15 million.
3. Fixed capital investment in year zero is Sh.4 million.
4. Depreciation in year zero is Sh.5 million.
5. Working capital investment as a percentage of sales is 8.5 %.
6. Tax rate is 30%.
7. Interest expense on Sh.20 million par value debt in year zero is 11.5%.
8. Weighted average cost of capital (WACC) during the high growth phase is 20%.
9. Weighted average cost of capital (WACC) during the mature phase is 16%.
10. Net income, fixed capital investment, depreciation, interest expense and sales are expected to grow at a rate of 12% for the next 5 years and then stabilise at a longer term constant growth rate of 6%.

Required:

(i) The value of Mimo Ltd. using free cash flow to the firm (FCFF) approach. (8 marks)

(ii) Describe two sources of error in the application of the free cash flow model when valuing equity securities. (2 marks)

(c) A newly employed CIFA graduate has been provided with the following data relating to Teen Ltd. for the year ended 31 December 2015:

- Total invested capital Sh.10.5 million
- Debt to equity ratio 0.6
- Cost of equity 8%
- Before tax cost of debt 5%
- Tax rate 30%
- Earnings before interest and taxes Sh.1.3 million.

Note: Research and development expenditure amounting to Sh.270.000 has been deducted to arrive at the earnings before interest and taxes (EBIT).

Required:

(i) The company's residual income. (3 marks)

(ii) The company's economic value added (EVA). (4 marks)

(Total: 20 marks)

QUESTION THREE

(a) Evaluate three investment situations in which an investment analyst could appropriately use price-to-book (P/B) ratio in valuation. (3 marks)

(b) Salim Hasan, an equity analyst at Beta Capital, has gathered the following data regarding Patels Limited which is quoted at the securities exchange:

- Current market price per share (MPS) Sh.60
- Current year earnings per share (EPS) Sh.5
- Current year dividend per share (DPS) Sh.2.25
- Required rate of return on equity 10%
- Dividend growth rate 5.5%

Required:

(i) The justified trailing price-to-earnings (P/E) ratio. (2 marks)

(ii) The justified leading price-to-earnings (P/E) ratio. (2 marks)

(iii) Determine whether the company is currently under-valued, fairly-valued or over-valued. (1 mark)

(iv) Summarise three weaknesses of price-to-earnings (P/E) ratio. (3 marks)

(c) Benson and Benson Limited (BBL) is expected to grow at the rate of 30% for the next five years. After that, competition is expected to lower BBL's growth rate to a constant growth rate of 7% per annum indefinitely. The market risk premium is 6% and the risk free rate is 5%. BBL's beta is 1.5 and the company just paid a dividend of Sh.2.50.

Required:
The current value of BBL's share. (7 marks)

(d) Differentiate between "growth relative to gross domestic product (GDP) approach" and "market growth and market share approach" as used in industry and company analysis. (2 marks)

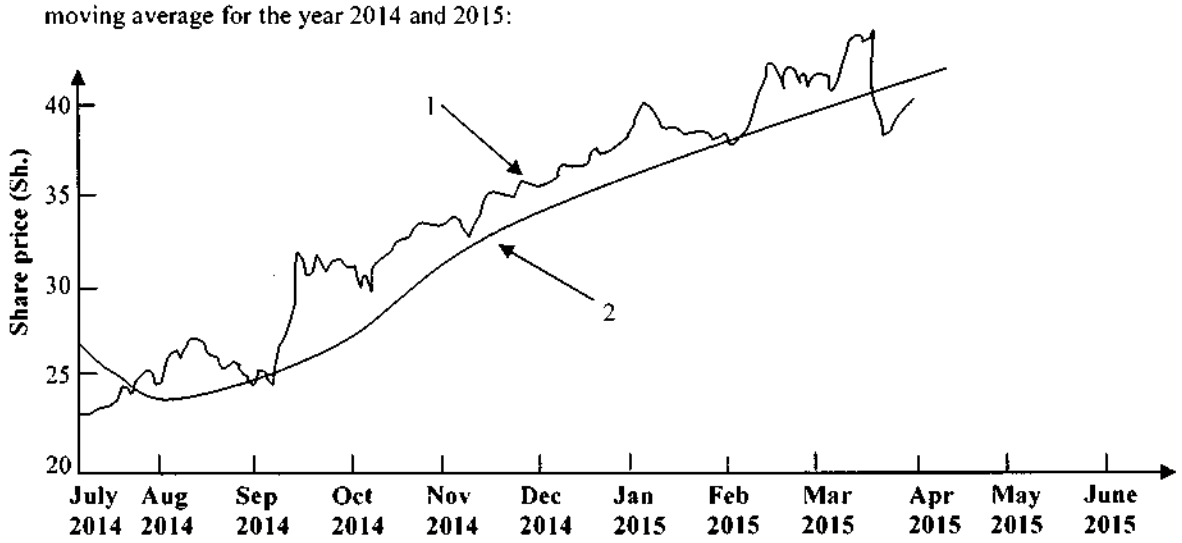
(Total: 20 marks)

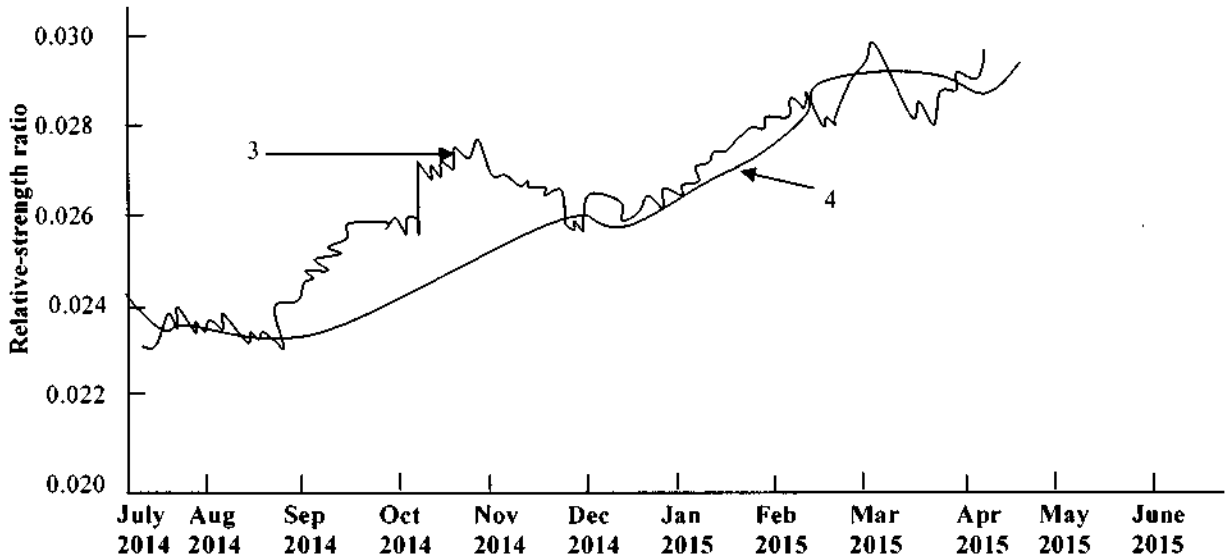
QUESTION FOUR

(a) (i) Examine four principles of Dow theory in relation to technical analysis. (4 marks)

(ii) Explain the reasoning behind "support level" and "resistance level" in relation to technical analysis. (4 marks)

(iii) The exhibit below relates to Fairmall Limited, a company quoted at the securities exchange with a 50-day Moving Average and Relative Strength compared to Standard and Poor (S&P) industrials with 50-day moving average for the year 2014 and 2015:





Required:
Interpret the chart output lines labelled 1 to 4 in (a)(iii) above. (4 marks)

(b) Kendagor Ondigo, an equities analyst at Fiduciary Capital, is analysing Fast Technologies Limited which deals with computer software. The following are the sales data for the existing software and the new software which was launched in the year 2015 and which is expected to catch the attention of the market:

	2015 Sh.million		2015 Sh.million
Existing software:		**New software:**	
Individual sales	2,640	Individual sales	45
Corporate sales	400	Corporate sales	0
	3,040		45

The equities analyst intends to forecast the year 2016 sales using the following assumptions:

1. Individual sales of the new software will increase by 375% in the year 2016, but the new software will not be adopted by corporate customers.
2. Sales of existing software to corporate customers will remain static.
3. Sales of existing software to individuals will shrink by 25% as a result of the new software.

Required:
The total estimated revenue from the software business in the year 2016. (4 marks)

(c) Evaluate four factors that could affect an industry on a temporary basis but might not determine the industry profitability and structure in the long run. (4 marks)
(Total: 20 marks)

QUESTION FIVE

(a) The following information relates to two manufacturing firms, Hapco Limited and Texlex Limited, and the Standard and Poors' (S&P) industrials average:

	Hapco Limited	Texlex Limited	S & P Industrials average
Price to earnings (P/E) ratio	30	27.00	18.00
Expected annual growth rate	0.18	0.15	0.07
Dividend yield	0.00	0.01	0.02

Required:

(i) The growth duration of each company share relative to the S & P industrials average. (3 marks)

(ii) The growth duration of Hapco Limited relative to Texlex Limited. (2 marks)

(iii) Comment on your investment decision based on the growth duration obtain in (a)(i) and (a)(ii) above. (2 marks)

(b) Compare and contrast public company valuation and private company valuation. (3 marks)

(c) The following information is relevant for valuation of Panha Corporation:

- Working capital balance Sh.50,000,000
- Fair value of fixed assets Sh.75,000,000
- Book value of fixed assets Sh.60,000,000
- Normalised earnings of firm Sh.25,000,000
- Required return on working capital 10%
- Required return on intangible assets 12%
- Required return on fixed assets 8%
- Weighted average cost of capital 10%
- Long-term growth rate of residual income 6%

Required:
Using the excess earnings method, determine the following:

(i) The value of Panha Corporation's intangible assets. (3 marks)

(ii) The market value of invested capital. (2 marks)

(d) Highlight five steps of the equity valuation process. (5 marks)
(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,n} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

KASNEB

CIFA PART II SECTION 4

EQUITY INVESTMENTS ANALYSIS

THURSDAY: 26 November 2015. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Evaluate four elements that the financial analyst should consider when performing an industry analysis of a given company. (8 marks)

(b) Pebbley Limited has a return on equity (ROE) of 6.4%. Its projected earnings per share (EPS) and dividend per share (DPS) are Sh.8 and Sh.3 respectively. The discount rate is assumed to be 8%.

Required:

(i) Retention ratio. (2 marks)
(ii) Sustainable growth rate. (2 marks)
(iii) The value of the company's share. (2 marks)

(c) Justify three reasons that could make companies in the same industry to have different price earnings (P/E) ratios. (6 marks)

(Total: 20 marks)

QUESTION TWO

(a) (i) Among the most familiar and widely used valuation tools in equity valuation are price multiples. Justify why price multiples are used in equity valuation. (2 marks)

(ii) Zawadi Designers Limited's shares are selling for Sh.25 per share. Earnings for the last 12 months were Sh.1 per share. The average trailing price earnings (P/E) ratio for firms in Zawadi Designers Limited's industry is 32 times.

Required:

Using the method of comparables, determine whether Zawadi Designers Limited's share is overvalued or undervalued. (2 marks)

(b) Highlight two advantages of using the price-to-cash flow (P/CF) ratio as an equity valuation tool. (2 marks)

(c) The following data was gathered by Ezekiel Rono, an equity analyst who researches for Redline Company:

1.	Dividend payout ratio	=	75%
2.	Return on equity (ROE)	=	18%
3.	Earnings per share (EPS)	=	Sh.5.50
4.	Sales per share	=	Sh.350
5.	Expected earnings/dividends/sales growth	=	4.5%
6.	Shareholders required rate of return	=	15%

Required:

The firm's justified price-to-sales (P/S) ratio multiple. (2 marks)

(d) The following information is provided:

Company	Book value of equity 2014 Sh. "million"	Sales 2014 Sh. "million"	Shares outstanding 2014 Sh. "million"	Price Sh.
Mavuno Limited	39,900	64,746	12,324	62.74
Ndovu Limited	122,040	64,374	21,542	51.26

Peer Group	Mean Price-to-book (P/B)	Median Price-to-book (P/B)	Mean Price-to-sale (P/S) Sales Sh. "million"	Median Price-to-sale (P/S) Sales Sh. "million"
Pharmaceuticals	11.244	8.50	17.416	9.06
Computer applications software	8.20	4.28	6.84	2.88

Mavuno Limited belongs to the pharmaceuticals group and Ndovu Limited belongs to the computer applications software group.

Required:

(i) The current price-to-book (P/B) ratio for each company. (4 marks)

(ii) The current price-to-sales (P/S) ratio for each company. (4 marks)

(iii) Determine whether the share is overvalued, fairly valued or undervalued for each company based on the results obtained in (d) (i) and (ii) above. (4 marks)

(Total: 20 marks)

QUESTION THREE

(a) Distinguish between a "firm's free cash flow" and a "free cash flow to equity". (4 marks)

(b) The following information is available for Mapambo Limited:

Capital expenditure	Sh.20 million
Corporate tax rate	30%
Debt repayment	Sh.23 million
Depreciation charge	Sh.10 million

Income statement:

	Sh. "million"
Sales	650
Less: Cost of sales	(438)
	212
Operating expenses	(107.5)
	104.5
Less: Interest expenses	(8)
Earnings before tax	96.5
Less: Tax	(28.95)
Net income	67.55

Required:

(i) Free cash flow to equity. (4 marks)

(ii) Free cash flow to the firm. (4 marks)

(c) Summarise four advantages and four challenges of technical analysis. (8 marks)

(Total: 20 marks)

QUESTION FOUR

(a) The following information relates to Wageni Ltd.:

1. The company reported before tax operating income of Sh.21 million for the year ended 31 December 2014. This was after charging Sh.4 million for development and launch cost of a new product that is expected to generate profits for 4 years.
2. The company has a risk adjusted weighted average cost of capital (WACC) of 12%.
3. The company is paying interest at a rate of 9% per annum on a substantial long-term loan. The interest is not charged as expense in the operating income in note 1 above.
4. The company's non-current assets value is Sh.50 million.
5. The net current assets have a value of Sh.22 million.
6. The replacement cost of the non-current assets is estimated to be Sh.64 million.
7. Corporate tax rate is 30%.

Required:

(i) The company's economic value added (EVA). (6 marks)

(ii) The company's residual income (RI). (4 marks)

(iii) Comment on the results obtained in (a) (i) and (ii) above. (2 marks)

(b) The following information relates to Platinum Limited, a private firm:

1.	Working capital balance	= Sh.4,000,000
2.	Fair value of fixed assets	= Sh.11,000,000
3.	Book value of fixed assets	= Sh.8,000,000
4.	Normalised earnings of firm	= Sh.2,000,000
5.	Required rate of return on working capital	= 5 per cent
6.	Required rate of return on fixed assets	= 8 per cent
7.	Required rate of return on intangible assets	= 15 per cent
8.	Weighted average cost of capital	= 10 per cent
9.	Long-term growth rate of residual income	= 5 per cent

Required:
Using the excess earnings method (EEM), determine:
(i) The value of intangible assets for Platinum Limited. (4 marks)
(ii) The market value of invested capital. (2 marks)

(c) Describe two steps of the top-down approach of equity valuation. (2 marks)
(Total: 20 marks)

QUESTION FIVE
(a) An investment analyst plays a critical role in collecting, organising and communicating corporate information and to some extent recommending appropriate investment action based on sound analysis.

In relation to the above statement, describe six features of an effective research report. (6 marks)

(b) The following information relates to Golden Star Limited, a company quoted at the PAQUA Securities Exchange:

1. The current market price per share is Sh.28.27.
2. The most recent quarterly dividend per share is Sh.0.2.
3. Over the coming year, two more quarterly dividends of Sh.0.20 are expected, followed by two quarterly dividends of Sh.0.22 per share.
4. The company has a required rate of return on equity of 9.5%.
5. The target price per share is Sh.32 over the one year period.

Required:
(i) One-year expected return of the company. (3 marks)
(ii) The target price if the company is fairly valued. Ignore returns from reinvesting the quarterly dividends. (3 marks)

(c) (i) The following information relates to Zelion Limited:

1. Current market price per share Sh.36.
2. Last dividend paid Sh.2.40.
3. Required rate of return 12%.
4. The dividends are expected to grow at a constant rate in the foreseeable future.

Required:
The expected share price 5 years from now. (4 marks)

(ii) Discuss two strengths of the two stage dividend discount model (DDM) compared to the constant growth dividend discount model.
(4 marks)
(Total: 20 marks)

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Present Value of 1 Received at the End of n Periods:

$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001	.	.
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001	.	.	.	.
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001	.	.	.	.	.	.

* The factor is zero to four decimal places

Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIF_{r,1} = \sum_{t=1}^{n} \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250