CERTIFIED PUBLIC ACCOUNTANTS (CPA)

ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 21 April 2026. Morning Paper. **Time Allowed: 3 hours.**

This paper consists of five (5) questions. 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** common capital budgeting pitfalls and briefly illustrate how each may distort investment decision-making. (4 marks)

(b) Ramara Innovations Ltd. is considering the launch of a new fintech payment platform. The project will be undertaken in three stages, as set out below:

Stage 1: Research and development (Year 0)
An initial investment of Sh.150 million is required immediately.
- Probability of technical success: 70%
- If Stage 1 is unsuccessful, the project will be abandoned immediately with no salvage value

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Stage 2: Pilot testing (End of Year 1)
If Stage 1 is successful, a further Sh.250 million will be invested at the end of Year 1 to undertake pilot testing.
- Probability of commercial success: 80%
- If Stage 2 is unsuccessful, the project will be abandoned and the related assets will be sold for Sh.100 million at the end of Year 1

Stage 3: Full commercial launch (Years 3 to 7)
If Stage 2 is successful, the project will proceed to full commercial launch. No additional investment will be required at Year 2, and the project is expected to generate annual after-tax cash inflows from Years 3 to 7 as follows:
- Strong economy (probability 0.6): Sh.220 million per year
- Weak economy (probability 0.4): Sh.160 million per year

Assume that the economy outcome is revealed at the start of operations and remains unchanged throughout the project life. The economy-state probabilities apply only if the project reaches Stage 3.

Additional information:
1. The general rate of inflation is 4% per annum.
2. The annual cash inflows given above are stated in real terms.
3. The risk-free rate is 7% per annum.
4. The expected market return is 15% per annum.
5. The project beta is 1.3.
6. The company pays corporate tax at 30%.
7. Assume that the risk-free rate and expected market return are nominal rates.
8. For discounting purposes, use the real discount rate derived from the capital asset pricing model(CAPM).

Required:

(i) Determine the appropriate nominal discount rate for the project using the Capital Asset Pricing Model (CAPM) and hence calculate the real discount rate to be used in appraisal. (4 marks)

(ii) Construct a decision tree for the project and compute the expected net present value (ENPV) of the project. (8 marks)

(iii) Advise whether Ramara Innovations Ltd. should undertake the project, giving reasons for your answer. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Highlight **FOUR** differences between a "finance lease" and an "operating lease" from the perspective of the lessee. (4 marks)

(b) Peak Limited is considering acquiring a piece of equipment costing Sh.200,000,000. The equipment has an economic life of 6 years and an estimated salvage value of Sh.20,000,000 at the end of year 6. The company uses the straight-line method of depreciation.

The equipment may be acquired under either of the following options:

Option 1: Borrowing and buying

The equipment would be purchased using a bank loan carrying interest at the rate of 14% per annum. The loan would be repaid in six equal annual instalments of Sh.51,427,100, payable at the end of each year.

Option 2: Leasing

The equipment would be leased for 6 years at an annual lease rental of Sh.40,000,000, payable in advance at the beginning of each year. Under the lease agreement, all maintenance costs will be borne by the lessor.

Additional information:

1. The corporate tax rate is 30%.
2. The company uses the after-tax cost of debt as the appropriate discount rate.
3. Tax savings on interest, depreciation and lease rentals are assumed to arise at the end of the year in which they occur.
4. The salvage value may be treated as an after-tax cash inflow at the end of year 6.
5. Ignore maintenance costs under the borrowing-and-buying option unless otherwise stated.

Required:

(i) Calculate the present value of cash outflows under the borrowing-and-buying option. (5 marks)

(ii) Calculate the present value of cash outflows under the leasing option. (4 marks)

(iii) Advise management on the most suitable acquisition method. (1 mark)

(c) Belaviu Manufacturing Ltd. is evaluating its capital structure to determine the optimal level of leverage. The company is currently financed entirely by equity.

The following information is available:

1. Risk-free rate is 7%
2. Expected market return is 15%
3. Asset beta (β_a) is 0.90
4. Corporate tax rate is 30%

The company is considering introducing debt into its capital structure. The proposed debt to equity ratio (D/E) is 0.50.

Additional information:

1. The cost of debt before tax is 10% per annum.
2. The company intends to maintain the proposed capital structure permanently.
3. Assume debt beta is zero.

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Required:

(i) Using the Hamada model, determine the equity beta after introducing debt. (2 marks)

(ii) Using the Capital Asset Pricing Model (CAPM), determine the cost of equity after the change in capital structure. (2 marks)

(iii) Determine the weighted average cost of capital (WACC) after introducing debt. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Summarise **FOUR** reasons why mergers and acquisitions may fail despite positive valuation results. (4 marks)

(b) A developing country experiencing a balance of payments deficit approaches the International Monetary Fund (IMF) for financial assistance. Examine **FOUR** roles that the IMF may play in assisting the country. (4 marks)

(c) Bamuda Holdings Ltd. intends to acquire Mawimbi Ltd. through a share exchange arrangement.

The following information relates to the two companies:

	Bamuda Holdings Ltd.	**Mawimbi Ltd.**
Earnings after tax (Sh. million)	200	60
Number of ordinary shares (million)	40	15
Market price per share (Sh.)	75	40
Price/earnings (P/E) ratio	15	10

Additional information:

1. Bamuda Holdings Ltd.'s weighted average cost of capital (WACC) is 12%.
2. The acquisition will be financed through a share exchange.
3. The exchange ratio is 1 Bamuda Holdings Ltd. share for every 2 Mawimbi Ltd. shares acquired.
4. Expected synergy benefits after tax are as follows:
   - Year 1: Sh.30 million
   - Year 2: Sh.50 million
   - Year 3: Sh.70 million, growing at 5% per annum thereafter
5. The appropriate discount rate for synergy cash flows is 14%.
6. Integration costs of Sh.40 million will be incurred immediately.
7. The post-acquisition P/E ratio of Bamuda Holdings Ltd. is expected to fall to 13.
8. For the purpose of earnings per share (EPS) and post-merger market price calculations, use Year 1 synergy benefits.

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Required:

(i) Determine the standalone market value of Mawimbi Ltd. using its earnings and P/E ratio. (2 marks)

(ii) Calculate the present value of synergy benefits and hence determine the total value of Mawimbi Ltd. to Bamuda Holdings Ltd., after taking account of integration costs. (5 marks)

(iii) Calculate the number of new shares to be issued by Bamuda Holdings Ltd.; and the post-acquisition earnings per share (EPS) before synergy and after incorporating Year 1 synergy benefits. (2 marks)

(iv) Estimate the post-merger market price per share and state whether the acquisition is expected to create or destroy shareholder value. (3 marks)

(Total: 20 marks)

QUESTION FOUR

(a) The financial sector has experienced significant changes due to the digitisation of financial services. Explain **THREE** impacts of digitisation on financial transactions in modern economies. (3 marks)

(b) Simba Exporters Ltd., a Kenyan-based company expects to receive 4 million United States Dollars (USD) in six months' time from Faraz Limited, in United States of America (USA).

Additional information:

1. Spot rate: Sh.130/USD.
2. Six-month forward rate: Sh.135/USD.
3. Kenya borrowing rate: 12% per annum.
4. Kenya deposit rate: 10% per annum.
5. United States of America (USA) borrowing rate: 6% per annum.
6. USA deposit rate: 4% per annum.

Required:

(i) Using a forward hedge, determine the Shilling receipts. (3 marks)

(ii) Using a money market hedge, determine the Shilling receipts. (4 marks)

(iii) Advise Simba Exporters Ltd. on the most appropriate hedging strategy, giving a reason. (1 mark)

(c) High-Yield Fund Managers Ltd. is evaluating a potential investment in a European put option for the ordinary shares of Zidi Ltd., a company listed on the Najira Securities Exchange (NSE). The following data relates to Zidi Ltd. and the option contract:

1. The current market price per ordinary share is Sh. 45.
2. The exercise price of the option is Sh. 50.
3. The time to expiration is 6 months.
4. The risk-free rate of return is 10% per annum, compounded continuously.
5. The volatility of the share's return is 25% per annum.

Required:

(i) Using the Black-Scholes option pricing model (BSOPM), estimate the value of the corresponding European call option. (4 marks)

(ii) Using the results obtained in (c) (i) above and the Put-Call Parity relationship, estimate the value of the European put option. (2 marks)

(iii) In the context of the derivatives market, describe **THREE** circumstances under which an investor would prefer to buy a put option rather than selling the underlying asset in the spot market. (3 marks)

NOTE: Formulae for Black-Scholes Option Pricing Model (BSOPM) and Put-Call Parity:

$$C = S_0 N(d_1) - Ke^{-rT} N(d_2)$$

$$d_1: \frac{\ln(S_0/K) + (r + 0.5\sigma^2)T}{\sigma\sqrt{T}}$$

$$d_2: d_1 - \sigma\sqrt{T}$$

Put-Call Parity: $P = C + Ke^{-rT} - S_0$

(Total: 20 marks)

QUESTION FIVE

(a) Outline **THREE** factors that complicate the financial management in multinational corporations. (3 marks)

(b) An investment analyst is constructing a portfolio consisting of three shares listed on the NYM Securities Exchange with the following details:

Asset	Expected return (%)	Standard deviation (%)	Weight	Beta
X	22.0	25.0	0.40	1.50
Y	15.0	18.0	0.35	0.80
Z	18.5	20.0	0.25	1.10

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Additional information:

1. Correlation coefficients between the assets are: XY 0.60; XZ 0.40; YZ 0.50.
2. Market return is 14%.
3. Risk-free rate is 8%.
4. Market standard deviation is15%.

Required:

(i) Calculate the expected return of the portfolio. (2 marks)

(ii) Determine the standard deviation of the portfolio. (3 marks)

(iii) Decompose the total risk of Asset X into systematic and unsystematic components. (2 marks)

(iv) Determine the required return of the portfolio using the capital asset pricing model (CAPM). (1 mark)

(v) Assess whether the portfolio is underpriced or overpriced. (2 marks)

(c) Ubuntu Real Estate Ltd., a real estate investment firm based in the United Kingdom (UK) is evaluating a project in Kenya. The project requires an initial investment of Sh.6,000 million payables immediately.

The project is expected to generate the following annual net cash inflows in Kenyan shillings (Sh. million)**:**

Year	**1**	**2**	**3**	**4**	**5**
Cash flows (Sh. million)	800	950	1,100	1,250	1,400

Additional information:

1. The project will have a terminal value of Sh.5,500 million at the end of Year 5.
2. The current spot exchange rate is Sh.170/£1.
3. The annual interest rate in Kenya is 8%.
4. The annual interest rate in the UK is 5%.
5. Ubuntu Real Estate Ltd.'s UK cost of capital is 14% per annum.
6. Withholding tax of 10% is payable on all cash remittances from Kenya to the UK, including the terminal value.
7. Assume that all annual cash inflows and the terminal value are remitted to the UK at the end of each year.
8. Future spot exchange rates should be estimated using the International Fisher Effect based on the interest rates given above.

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Required:

(i) Using the International Fisher Effect, determine the expected spot exchange rate after one year. (3 marks)

(ii) Using the home currency approach, compute the Net Present Value (NPV) of the Kenyan project in pounds Sterling's. (4 marks)

(Total: 20 marks)

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CERTIFIED PUBLIC ACCOUNTANTS (CPA)

ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 2 December 2025. Morning Paper. **Time Allowed: 3 hours.**

This paper consists of five (5) questions. 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) Describe **THREE** characteristics of real options as used in capital budgeting. (6 marks)

(b) Evaluate **THREE** investment characteristics of real estate investment trusts (REITS). (6 marks)

(c) Web Limited is negotiating the purchase of a new piece of construction equipment for its current operations. The following information is provided:

1. The equipment would replace an existing equipment which has a current market value of Sh.2,200,000. The old equipment will be sold if the new one is bought.
2. Purchase of the new equipment would not affect revenues but the before tax operating costs could be reduced by Sh.1,000,000 per annum for five years. The savings would occur at the end of each year.
3. The old equipment is now three years old. It is expected to last for another five years and it is expected to have a resale value of Sh.500,000 at the end of those five years. It was purchased for Sh.4,000,000 and is being depreciated on a straight line basis.
4. The new equipment will also be depreciated on a straight line basis over a period of five years. Web Limited expects to sell the equipment for Sh.1,000,000 at the end of the five years.
5. Corporation tax rate is 30%.
6. Web Limited has profitable ongoing operations.
7. The appropriate discounting rate is 14%.

Required:

Determine the price that Web Limited should offer for the new equipment. (8 marks)

(Total: 20 marks)

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QUESTION TWO

(a) Explain the following terms as used in international financial management:

(i) Purchasing power parity. (1 mark)

(ii) Interest rate parity theory. (1 mark)

(iii) The Fisher effect. (1 mark)

(iv) Arbitrage operations. (1 mark)

(b) Haraka Company Limited has the following four short term portfolio of investments made from the accumulated retained earnings over the years:

Company	Number of shares	Beta equity coefficient	Market price per share (Sh.)	Dividend yield in 2024 (%)	Expected return on equity in 2025 (%)
W	120,000	1.2	42.9	6.1	9.5
X	160,000	2.3	29.2	3.4	15.5
Y	200,000	0.85	21.7	5.7	12.5
Z	250,000	1.28	31.4	3.3	7.3

Additional information:
1. The current market return is 19% per annum.
2. The risk free rate is 12% per annum.

Required:

(i) Calculate the risk of the company's short term investment portfolio relative to that of the market. (4 marks)

(ii) Recommend, with reasons, whether Haraka Company Limited should change the composition of its portfolio. (4 marks)

(c) Zigma Limited is a mutual fund investment company and has invested in the following three schemes:

Scheme	Dividends distributed (Sh."million")	Capital appreciation (Sh."million")	Opening net asset value (Sh."million")	Beta
X	17.5	29.7	320	1.3
Y	0	35.3	271.5	0.90
Z	13	19.9	235	1.4

Additional information:
1. The treasury bill rate, which is considered risk free, is 7.84%.
2. The market portfolio is 13%.

Required:

(i) Compute Jensen's alpha of each of the schemes. (6 marks)

(ii) Recommended to Zigma Limited the scheme(s) to continue to invest in based on the scheme's performance. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Summarise **FOUR** advantages of raising funds in the international capital markets as opposed to relying solely on domestic capital markets. (4 marks)

(b) A bond with a five year to maturity has a current value of Sh.462.05, coupon rate of 8% per annum and a current market yield of 10% per annum.

The bond will be redeemed at par value of Sh.500.

Required:

The Macaulay duration of the bond. (5 marks)

(c) Maridadi Limited, a garment manufacturing firm, is considering a strategic restructuring by diversifying into the electronics business. The anticipated return from the new venture is 18%. To guide its decision, the company intends to apply the Capital Asset Pricing Model (CAPM).

Three potential electronics companies; A Ltd., B Ltd. and C Ltd. have been identified as possible acquisition targets. The following information relates to these firms:

- A Ltd.: Equity beta of 1.5; capital structure consists of 50% debt and 50% equity.
- B Ltd.: Equity beta of 1.4; has recently undertaken an unrelated project representing 20% of its total value, with an asset beta of 1.4. The company is financed by 40% debt and 60% equity.
- C Ltd.: Equity beta of 1.05; capital structure consists of 35% debt and 65% equity.

Additional information:
1. Corporation tax rate is 30%.
2. Maridadi Limited's debt to equity ratio is 0.70 : 0.30.
3. The expected market return is 15%.
4. Risk-free rate is 12%.

Required:

Using appropriate computations, advise Maridadi Limited on whether it should proceed with the proposed restructuring into the electronics business. (11 marks)

(Total: 20 marks)

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QUESTION FOUR

(a) Foreign Direct Investment (FDI) plays a critical role in a country's balance of payments and can drive economic growth by bringing in capital, technology and skills.

Required:
Discuss **FOUR** factors that encourage the growth of FDI in a country. (4 marks)

(b) Baobab Limited shares has a market value of Sh.28 per share with a standard deviation of 40%. The risk free rate is 5% compounded continuously.

Required:
Using Black-Scholes Option Pricing Model (BSOPM), determine the value of the call option on Baobab Limited shares expiring in nine months with an exercise price of Sh.30.

(6 marks)

Note: The formula for BSOPM is given as follows:

$$C = S_oN(d_1) - Ke^{-rt} N(d_2)$$

$$d_1 = \frac{\ln (S_o/K) + (r + \frac{1}{2}\delta^2) T}{\delta\sqrt{T}}$$

$$d_2 = d_1 - \delta\sqrt{T}$$

Where:
S_o = Current share price
K = Exercise (strike price)
T = Time to expiry
R = Risk free rate
δ = Volatility (standard deviation)

(c) The following data relate to two companies, Sigma Ltd. and Delta Ltd., which belong to the same risk class:

	Sigma Ltd.	**Delta Ltd.**
Number of ordinary shares	80,000,000	120,000,000
Market price per share (MPS)	Sh.20	Sh.12
Profit before interest and tax (EBIT)	Sh.16,000,000	Sh.16,000,000
8% debentures (market value)	Sh.50,000,000	Sh.0

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All profits after debenture interest are distributed as dividends.

Required:

(i) Using suitable computations, demonstrate how under Modigliani and Miller (MM) approach (without taxes) an investor holding 10% of Sigma Ltd. will be better off by switching his holding to Delta Ltd. (8 marks)

(ii) Explain when according to Modigliani and Miller (without taxes), the process described in (c) (i) above would come to an end. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Examine **FOUR** potential threats of using digital financial services in your country. (4 marks)

(b) Haz Millers Ltd. is at an advanced stage of acquiring Baraka Wheat Growing Company Limited. The projected post-merger information for the next five years of Baraka Wheat Growing Company is provided below:

	2026	**2027**	**2028**	**2029**	**2030**
	Sh.	**Sh.**	**Sh.**	**Sh.**	**Sh.**
Turnover	2,000,000	2,500,000	2,750,000	2,920,000	3,040,000
Cost of sales	(800,000)	(1,000,000)	(1,100,000)	(1,168,000)	(1,216,000)
Gross profit	1,200,000	1,500,000	1,650,000	1,752,000	1,824,000
Operating expenses	(400,000)	(500,000)	(550,000)	(584,000)	(608,000)
Profit before interest and taxes	800,000	1,000,000	1,100,000	1,168,000	1,216,000
Interest expense	(80,000)	(100,000)	(110,000)	(116,000)	(121,600)
Profit before taxes	720,000	900,000	990,000	1,051,200	1,094,400

Additional information:

1. After the fifth-year, cash flows available to Haz Millers Ltd. from Baraka Wheat Growing Company will grow by 15% per annum to infinite period.
2. An amount of Sh.125,000 will be retained annually by Baraka Wheat Growing Company for expansion.
3. The cost of capital is provided at 16%.
4. The corporation tax rate is 30%.

Required:

(i) Determine the annual cash flows after considering the terminal value(s). (4 marks)

(ii) With appropriate justification, advise Haz Millers Ltd. the maximum amount to pay to acquire Baraka Wheat Growing Company. (4 marks)

(c) Zipron Limited is a United Kingdom (UK) based company which has the following expected transactions:

One month	:	Expected receipt of $720,000
One month	:	Expected payment of $420,000
Three months	:	Expected receipts of $900,000

The finance manager has collected the following information:

Spot rate ($ per £)	:	1.7820 ± 0.0002
One month forward rate ($ per £)	:	1.7829 ± 0.0003
Three month forward rate ($ per £)	:	1.7846 + 0.0004

Money market rates for Zipron Limited:

	Borrowing	**Deposits**
One year sterling interest rates	4.9%	4.6%
One year dollar interest rate	5.4%	5.1%

Assume that its now 1 October 2025.

Required:

(i) Calculate the expected sterling receipts in one and in three months using the forward market. (4 marks)

(ii) Calculate the expected sterling receipts in three months using a money market hedge and recommend whether a forward market hedge or a money market hedge should be used. (4 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 19 August 2025. 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 **FOUR** reasons for soft capital rationing in a firm. (4 marks)

(b) Ushindi Ltd. is considering the following projects:

Project	Initial outlay Sh."million"	Annual revenue Sh."million"	Annual fixed costs Sh."million"	Project life (Years)
A	100	200	50	3
B	300	300	100	5
C	150	180	60	4
D	120	170	80	10
E	180	80	20	15

Additional information:

1. Variable costs are 40% of annual revenue.
2. Each project is divisible.
3. Projects D and E are mutually exclusive.
4. Cash flows are confined within the lifetime of each project.
5. Cost of capital is 10%.
6. Ignore taxation and depreciation.
7. The company has a capital limitation of Sh.400 million for investment.
8. All cash flows occur at anniversary dates.

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Required:

(i) Optional allocation of the available capital to the projects. (8 marks)

(ii) Maximum resultant Net Present Value (NPV) from the optimal allocation. (4 marks)

(c) Describe **FOUR** advantages Eurobond market offer over a domestic bond market that makes it an attractive way for companies to raise capital. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Modigliani and Miller contended that in a perfect capital market, the value of a company depended simply on its income stream and the degree of business risk attached to this regardless of the way in which its income was split between the owners and lenders.

Required:

With reference to the above statement, explain **FIVE** assumptions of Modigliani and Miller hypothesis. (5 marks)

(b) Securitisation has become an important tool in modern financial markets, enabling financial institutions to transform illiquid assets into tradeable assets.

Required:

In relation to the above statement, evaluate **FIVE** advantages of securitisation as a vehicle of financing real estate development in your country. (5 marks)

(c) Prime Actual Investors Limited have the following portfolio of four risky assets and have deposited in a risk free asset. The table shows portfolio weightings and the current asset returns together with their beta coefficients:

Asset	Weightings (%)	Current return (%)	Beta
A	30	18	1.8
B	15	20	2.2
C	20	16	1.5
D	35	10	1.2
Risk free asset	30	8	0

The overall return on the market portfolio of risky assets is 12% and this is expected to continue for the foreseeable future.

Required:

(i) Compute the current return on the portfolio. (2 marks)

(ii) Ascertain the beta value of the portfolio. (1 mark)

(iii) Identify out of the four risky assets, the one(s) that are inefficient/efficient and super-efficient. (3 marks)

(iv) Based on the findings in (c) (iii) above, state the predictions that you would make regarding future asset values and their rates of return. (2 marks)

(v) Compute the equilibrium return on this portfolio assuming the weightings remain unchanged. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Explain **FOUR** factors leading to differences in cost of capital of domestic firms and multinational corporations (MNCs). (4 marks)

(b) Discuss **FOUR** challenges facing developing countries in establishing and operating derivatives market. (4 marks)

(c) Suppose the Pound Sterling is bid at US dollars 1.9822 in New York, USA and the Euro is offered at US dollars 1.3517 in Frankfurt, Germany. At the same time Manchester Banks in United Kingdom are offering the Pound Sterling at 1.4582 Euros.

Required:

Show the steps an astute trader would follow to earn riskless profits through a triangular arbitrage.

Assume that the trader begins in New York with US dollars 1,050,000. (6 marks)

(d) Reno Limited is engaged in plastics manufacture. It is now considering a new investment that would involve diversification into chemical manufacturing, where the business risk is very different from the plastic manufacturing industry.

Research has produced the following information about three companies currently engaged in chemicals manufacturing, in the same part of the industry that Reno Limited is planning to invest.

Company	Equity beta	Financed by:
X	1.33	40% equity capital, 60% debt capital
Y	0.78	75% equity capital, 25% debt capital
Z	0.725	80% equity capital, 20% debt capital

Additional information:

1. Reno Limited is financed by 60% equity capital and 40% debt capital and would intend to maintain this same capital structure if the new capital investment is undertaken.
2. The risk free rate of return is 5% and the return on the market portfolio is 9%.
3. The corporation tax is at the rate of 30%.
4. Assume that the debt capital of Reno Limited and companies X, Y and Z is risk free.

Required:

(i) Calculate a suitable cost of equity for the proposed investment by Reno Limited in chemicals manufacturing. (4 marks)

(ii) Suggest a weighted average cost of capital (WACC) that should be used to carryout an investment appraisal (Net Present Value calculation) of the proposed project. (2 marks)

(Total: 20 marks)

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QUESTION FOUR

(a) Assess **THREE** ways in which block chain technology as an emerging issue in finance could contribute to financial inclusion in your country. (6 marks)

(b) KK Ltd. and JP Ltd. are companies operating in the same line of business. In the recent past, KK Ltd. has experienced very stiff competition from JP Ltd. such that KK Ltd., is considering acquiring JP Ltd. in order to consolidate its market share.

The following financial data is available about the two firms:

	KK Ltd.	**JP Ltd.**
Annual sales (Sh."million")	1,200	300
Net income (Sh."million")	450	60
Outstanding number of ordinary shares (million)	150	30
Earnings per share (Sh.)	3.0	2.0
Market price per share (Sh.)	60	30

Both companies are in the 30% income tax bracket

Required:

(i) Maximum exchange ratio that KK Ltd. should agree to if it expects no dilution in its post acquisition earnings per share (EPS). (3 marks)

(ii) KK Ltd.'s post acquisition EPS assuming the companies agree an offer price of Sh.45. (3 marks)

(iii) KK Ltd.'s post acquisition EPS assuming that for every 600 ordinary shares of JP Ltd.'s are exchanged for 10 units of 10% debentures of Sh.1,000 par value each. (3 marks)

(iv) The operating profit, Earnings Before Interest and Tax (EBIT) at point of indifference between earnings of the firm under the financing plans in (b) (ii) and (b) (iii) above. (3 marks)

(v) The EPS at the point of indifference between earnings of the firm under the financing plans in (b) (ii) and (b) (iii) above. (2 marks)

(Total: 20 marks)

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QUESTION FIVE

(a) The following statement of financial position and statement of profit or loss relate to Tola Ltd. for the year ended 31 December 2024:

Tola Ltd.
Statement of financial position as at 31 December 2024:

Assets:	**Sh."000"**	**Liabilities and equity**	**Sh."000"**
Cash	40,000	Accounts payable	500,000
Receivables	300,000	Notes payable	100,000
Inventories	400,000	Total current liabilities	600,000
Total current assets	740,000	Mortgage	400,000
Land and buildings	100,000	Debentures	600,000
Plant (Net book value)	500,000	Total long term liabilities	1,000,000
Equipment (Net book value)	800,000	Preference share capital (10,000 shares)	100,000
Total fixed assets	1,400,000	Ordinary share capital (50,000 shares)	100,000
		Paid in capital	200,000
		Retained earnings	140,000
		Total shareholders equity	540,000
Total assets	2,140,000	Total liabilities and equity	2,140,000

Tola Ltd.
Statement of profit or loss for the year ended 31 December 2024:

	Sh."000"
Sales	600,000
Cost of goods sold	(350,000)
Selling and administration expenses	(100,000)
Earnings before interest and taxes (EBIT)	150,000
Interest	(110,000)
Earnings before tax (EBT)	40,000
Corporation taxes at 30%	(12,000)
Net income	28,000

The company's ordinary shares are currently priced at Sh.4 per share.

Required:

(i) Using the Springate Model, assess the financial health of the company. (6 marks)

(ii) Other than the Springate Model, evaluate **TWO** other models of predicting corporate failure. (4 marks)

Note: The Springate model takes the following form:

$Z = 1.03A + 3.07B + 0.66C + 0.4D$

Where;

$A = \frac{\text{Net working capital}}{\text{Total assets}}$

$B = \frac{\text{Operating profit}}{\text{Total assets}}$

$C = \frac{\text{Net profit before tax}}{\text{Current liabilities}}$

$D = \frac{\text{Sales}}{\text{Total assets}}$

(b) Mark Otieno who trades in shares at the Securities Exchange in the spot market follows the rule "When prices are rising - Buy; when prices are falling - Sell". He ensures that his portfolio is intact at the end of every three months. He has a basic understanding that buy equates to call option and sell equates to put option. For a three-month period, he carried out trade in five listed companies as follows:

Company	**Spot price Sh.**	**Three months expected price**	**Exercise price Sh.**
Safariland	445	Increase by 20%	470
Absaland	415	Increase by 15%	450
CICD	395	Decrease by 10%	370
Jubila	380	Increase by 5%	390
KCIQ	405	Decrease by 15%	395

Additional information:

1. Assume that Mark Otieno only deals with 100 shares at a time.
2. Assume that Mark Otieno exercises his option.

Required:

(i) Compute the price of the shares and indicate the option chosen in each of the five companies. (3 marks)

(ii) Using appropriate computations, determine the gain or loss in each of the tradings in the above companies after three months. (7 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

WEDNESDAY: 23 April 2025. 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) Describe **SIX** roles of the World Trade Organisation (WTO) in the international financial system. (6 marks)

(b) As the finance manager of Popo Ltd., the Board has approached you to evaluate the proposed acquisition of new machinery. The purchase price of the machinery is Sh.100 million. It will cost another Sh.20 million to modify it for special use. The machine will be sold after 5 years for Sh.40 million and it will require an increase in net operating working capital (NOWC) of Sh.8 million.

Additional information:

1. The purchase of the new machine will not have any effect on revenues but it is expected to save the company Sh.45 million per year before tax operating costs mainly labour.
2. The corporate tax rate is 30%.
3. The company uses the straight line method of depreciation.
4. The project cost of capital is 12%.

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Required:

(i) Using the net present value (NPV) method, evaluate whether the machinery should be purchased. (5 marks)

(ii) Assume the Board suggests that you conduct a scenario analysis for this project because of the uncertainties of cost savings, salvage value and net operating working capital. After an extensive analysis, you come up with the following probabilities and the values for the scenario analysis:

Scenario	Probability	Before tax savings Sh."million"	Salvage value Sh."million"	Net operating working capital (NOWC) Sh."million"
Worst case	0.30	36	32	6.4
Base case	0.40	45	40	8.0
Best case	0.30	54	48	9.6

Required:

The project's expected net present values (ENPV). (6 marks)

(iii) Analyse **THREE** common pitfalls that could arise in estimating cash flows in capital budgeting. (3 marks)

(Total: 20 marks)

QUESTION TWO

(a) Discuss the following theories of capital structure:

(i) Pecking order theory. (2 marks)

(ii) Static trade off theory. (2 marks)

(iii) Agency effect theory. (2 marks)

(b) A financial manager has the following bond portfolio:

Bond	Price (Sh.)	Yield (%)	Par amount owed (Sh."million")	Duration
A	120	10	4	3.86
B	85.50	10	5	8.05
C	130.50	10	3	9.17

The three bonds are option-free.

Required:

(i) The bond portfolio duration. (6 marks)

(ii) Interpret the result obtained in (b) (i) above. (1 mark)

(c) Solomon Wasike took a mortgage product to acquire a family house with the following characteristics:

1. Mortgage loan amount was Sh.10,000,000.
2. Annual interest rate is at 8% per annum.
3. The loan is for a one year term.
4. Solomon pays an extra Sh.200,000 per month.

Required:

(i) Calculate the monthly payment for a fixed mortgage of this type. (2 marks)

(ii) Prepare the mortgage amortisation schedule for Solomon Wasike. (5 marks)

(Total: 20 marks)

QUESTION THREE

(a) Explain **FOUR** advantages of over-the-counter agreements in relation to the operations of the derivatives markets. (4 marks)

(b) In relation to corporate reorganisation and restructuring, examine **SIX** financial restructuring strategies available to a firm. (6 marks)

(c) Huge Ltd. is considering acquisition of Tiny Ltd. through a share exchange arrangement. Under the terms of acquisition, Huge Ltd. will offer two of its ordinary shares in exchange for every three ordinary shares in Tiny Ltd.

The summarised financial information relating to the two companies for the year ended 31 December 2024 are as shown below:

	Huge Ltd.	Tiny Ltd.
Profit after tax (Sh.)	225 million	45 million
Number of ordinary shares	37.5 million	12 million
Earnings per share (Sh.)	7.20	4.50
Market price per share (Sh.)	93.60	40.50
Price earnings (P/E) ratio	13 times	9.00 times

Required:

(i) The earnings per share (EPS) of the combined company after acquisition. (3 marks)

(ii) Assume the price earnings ratio after acquisition falls to 12 times, determine the premium received by the shareholders of Tiny Ltd. (Use the combined company's new share price). (3 marks)

(iii) Assume that the price earnings (P/E) ratio after acquisition falls to 12 times, justify whether acquisition would be beneficial to the shareholders of Huge Ltd. (4 marks)

(Total: 20 marks)

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QUESTION FOUR

(a) Explain **FOUR** differences between "portfolio theory" and "arbitrage pricing theory". (4 marks)

(b) The table below gives the end of year levels of the price of an ordinary share in Tausi Ltd. and a representative stock exchange index:

Year	Tausi Ltd. share price (Sh.)	Stock Exchange Index
2019	75	752
2020	78	815.5
2021	81	875
2022	79	840
2023	85	900
2024	76.5	795

Additional information:

1. The risk free rate is 5% per year.
2. The expected return from equities is 8% per year.

Required:

(i) The beta coefficient of Tausi Ltd.'s ordinary shares. (6 marks)

(ii) The required rate of return of Tausi Ltd.'s ordinary shares. (2 marks)

(iii) Assume that the expected rate of return of Tausi Ltd. is 10%. Establish whether Tausi Ltd. share is undervalued or overvalued. (2 marks)

(c) Hakika business solutions is a newly established firm based in Kenya and is a subsidiary of United Kingdom (UK) based company, Quick Solutions Ltd. The foreign country is Kenya while the home country is United Kingdom (UK). The projected cash flows in Ksh. from 2025 to 2029 are shown below:

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Year	**2025**	**2026**	**2027**	**2028**	**2029**
	KSh. "000"	**KSh. "000"**	**KSh. "000"**	**KSh. "000"**	**KSh. "000"**
Cash inflows	2,000	2,200	2,420	2,662	2,928
Less: Variable cash outflows	(600)	(660)	(726)	(799)	(878)
Less: Fixed cash outflows	(200)	(200)	(200)	(200)	(200)
Less: Depreciation	(1,000)	(1,000)	1,000	1,000	1,000
Cash flows before corporate tax	200	340	494	663	850
Less: 33% corporate tax	(66)	(112)	(163)	(219)	(280)
Add: Depreciation	1,000	1,000	1,000	1,000	1,000
After tax corporate tax flows	1,134	1,228	1,331	1,444	1,569
Less: 10% withholding tax on dividend	(113)	(123)	(133)	(144)	(157)
Net cash to be repatriated	1,021	1,105	1,198	1,300	1,412

Additional information:

1. The exchange rate of KSh/GBP is KSh 170 to 1GBP.
2. The difference in the interest rates between Kenya shillings (KSh) and Great Britain Pound (GBP) is provided by the following formula:

$$F_t = S_0 \times \left[\frac{1+r_d}{1+r_f}\right]^t$$

Where:
F_t is the forward exchange rate at time "t"
S_o is the spot exchange rate
r_d is the nominal interest rate in domestic currency
r_f is the nominal interest rate in foreign currency

3. The expected interest rates for Kenya and United Kingdom are given as 6% and 4% respectively.
4. Quick Solutions Ltd. spent Ksh 6 billion to set up the business in Kenya. A UK business conglomerate has agreed to buy the business for Ksh.10 billion in 5 years.
5. The UK cost of capital is 15%.

Required:
Compute the Net Present Value (NPV) of the project using home currency approach and comment on your findings. (6 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Jawabu Ltd. is a 100% equity financed company. The company is considering undertaking a major diversification in the consumer electronics industry. Its current equity Beta is 1.2, while the average equity Beta (β) of electronics industry is 1.6.

Gearing in the electronics industry averages 30% debt and 70% equity. Corporate debt is considered risk free.

Additional information:
1. Expected return on the market is 25%.
2. The risk-free rate of return is 10%.
3. The corporation tax rate is 30% per annum.

Required:
Using suitable discount rate for the new investment, determine the weighted average cost of capital (WACC) assuming Jawabu Ltd. were to be financed in each of the following ways:

(i) By 20% debt and 80% equity. (3 marks)

(ii) By 30% debt and 70% equity. (3 marks)

(b) Viruga Ltd. is an unlevered firm. The firm expects to generate earnings before interest and tax (EBIT) of Sh.20 million each year in perpetuity. The firm's current market value is Sh.120 million and pays corporation tax at the rate of 30%. The management of the firm is considering the use of debt financing. The firm's financial analyst has estimated that the present value of any future financial distress cost is Sh.80 million and that the probability of financial distress would increase with leverage according to the following schedule:

Value of debt Sh."million"	Probability of financial distress	Pre-tax cost of debt (%)
25	0.000	7
50	0.0125	8
75	0.0250	9
100	0.0625	10
125	0.1250	11
150	0.3125	12
200	0.750	13

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Required:
(i) The current cost of equity and weighted average cost of capital (WACC) of the firm. (2 marks)

(ii) The firm's optimal level of debt financing using the "Pure" Modigliani and Miller with corporate tax model. (6 marks)

(iii) The firm's optimal level of debt financing using Modigliani and Miller with corporate taxes and financial distress. (6 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 3 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) Summarise **FIVE** benefits of restructuring in the public sector. (5 marks)

(b) Highlight **FOUR** key European Union achievements and tangible benefits in the context of international financial systems. (4 marks)

(c) The directors of Jasiri Ltd. wishes to identify the optimum replacement cycle that will minimise the cost of operating its fleet of vehicles.

The relevant data is as follows:

Age of vehicles (years)	**0**	**1**	**2**	**3**	**4**
	Sh.“000”	**Sh.“000”**	**Sh.“000”**	**Sh.“000”**	**Sh.“000”**
Replacement cost	7,000	-	-	-	-
Annual operating and maintenance cost		500	750	1,000	2,000
Residual value at the end of the year		4,750	3,500	3,000	2,250

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Additional information:

1. The company’s cost of capital is 10%.
2. Ignore taxation.

Required:

Using the annual equivalent cost (AEC) technique, advise Jasiri Ltd. on the best time to replace the vehicles. (11 marks)

(Total: 20 marks)

QUESTION TWO

(a) Describe **FOUR** assumptions of the capital asset pricing model (CAPM). (4 marks)

(b) Peter Mwangangi, an investor at the securities exchange intends to construct a minimum variance portfolio comprising the shares of two companies; Simba Ltd. and Nyati Ltd. The projected returns on the shares of the two companies under three different states of the economy are as follows:

State of economy	**Probability**	**Simba Ltd. (%)**	**Nyati Ltd. (%)**
Boom	0.30	18	10
Normal	0.45	16	14
Recession	0.25	9	16

Required:

(i) The weights of the two company’s shares in the minimum variance portfolio. (4 marks)

(ii) The expected return for the minimum variance portfolio. (2 marks)

(iii) The standard deviation for the minimum variance portfolio. (2 marks)

(c) Jamla Ltd. is considering undertaking a financial reconstruction during which it would repurchase its outstanding ordinary shares using debt. This will raise its debt to equity ratio to 1.80. The following information was available for the company:

1. Existing debt to equity ratio is 1.20.
2. The asset beta is 0.60.
3. The risk-free rate of return is 6%.
4. The return of market portfolio is 12%.
5. Debt finance is considered to be risk free.
6. The corporate tax rate is 30%.

Required:

(i) The firm's levered equity beta before and after the financial reconstruction. (2 marks)

(ii) The firm's cost of equity before and after the financial reconstruction using the capital asset pricing model (CAPM). (2 marks)

(iii) The firm's weighted average cost of capital (WACC) before and after the financial reconstruction. (4 marks)

(Total: 20 marks)

QUESTION THREE

(a) Examine **THREE** instruments that could be used in financing real estate. (6 marks)

(b) The following extract of statement of financial position of Varma Ltd. shows the capital structure of the company as at 31 March 2024 which the management of the company considers optimal:

	Sh."000"
Ordinary share capital (Par value Sh.375)	187,500
Reserves	364,500
Shareholder's equity	552,000
Long-term liability:	
14% debenture stock (Par value Sh.1,500)	355,500
Capital employed	907,500

Additional information:

1. The company's earnings before interest and tax (EBIT) averages Sh.150,000,000 per annum. These earnings are expected to be maintained in the foreseeable future.
2. The ordinary shares are currently trading at Sh.800 per share.
3. The market price of the debenture is Sh.1,575 per debenture.
4. The corporate tax rate for the company is 30% per annum.

Required:

Using the net income approach (incorporating taxes), calculate the company's:

(i) Cost of equity. (4 marks)

(ii) After tax cost of debt (market weighted). (4 marks)

(iii) Weighted average cost of capital (WACC). (4 marks)

(c) Outline **TWO** assumptions of the net income approach used in determining the capital structure of a firm. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Assess **THREE** differences between "exchange traded options (ETO)" and "over the counter (OTC)" options in relation to derivatives markets. (6 marks)

(b) Financial Technology (FinTech) startups have had a profound and disruptive impact on traditional banking and payment systems in the global context. This disruption has been driven by several key factors.

In relation to the above statement, explain **FOUR** key factors that Financial Technology (FinTech) startups may have contributed to disruption on traditional banking and payment systems in the global context. (4 marks)

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(c) ABA Ltd. has a 20-year, 14% debenture worth Sh.250 million which has been in operation for the last 10 years. ABA Ltd. still has in its books issue costs amounting to Sh.900,000 being half the total amount originally capitalised. This debenture can be paid off at any time but the financiers will charge a penalty amounting to 9% of face value.

The directors of the company are considering replacing this debenture with a new 10-year, 12% debenture with a face value of Sh.250 million. The issue costs will amount to 10% of gross proceeds. The company is in the 30% tax bracket and there will be interest overlap for 3 months.

Required:

(i) The net cash investment that will be required to replace the existing debenture. (4 marks)

(ii) The annual cash benefits to be derived from refinancing the current debenture. (4 marks)

(iii) Using the Net Present Value (NPV) method, advise ABA Ltd. on whether or not to refund the existing debenture. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Discuss **FOUR** potential pitfalls that a merger analyst should consider when reviewing acquisition transactions. (8 marks)

(b) Kopa Ltd., a United Kingdom (UK) firm sold goods on credit to Belfast Ltd., a firm in the United States of America (USA). This firm expects to receive United States Dollars (USD) 365,000 in six months' time from now. The firm is considering various choices in order to hedge the transactions exposure and has collected the following data:

The following exchange rates are provided:

Spot rate USD($)/UK(£):	1.5617 – 1.5773
Six months forward rate (USD($)/UK(£):	1.5510 – 1.5625

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The money market annual rates are as follows:

	Borrowing (%)	**Deposit** (%)
United States Dollars ($)	12	9
Sterling pounds (£)	14	11

Foreign currency option prices in cents per sterling pound for a contract size of £12,500 in six months are as follows:

Exercise price	**Call option** (six months)	**Put option** (six months)
USD($) 1.70/1 UK(£)	3.7	9.6

Required:

Using appropriate computations, advise Kopa Ltd. on the most suitable hedging strategy to use among the following:

(i) Forward market hedge. (3 marks)

(ii) Money market hedge. (5 marks)

(iii) Currency options. (4 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 20 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) In relation to real estate finance, highlight **FOUR** differences between a "residential property" and a "commercial property". (4 marks)

(b) A company is considering two mutually exclusive projects namely; project A and project B. The company uses the certainty equivalent approach to evaluate capital projects. The estimated cash flows and certainty equivalents for each project are as follows:

Year	Project A		Project B	
	Cash flows Sh."000"	Certainty equivalents Sh."000"	Cash flows Sh."000"	Certainty equivalents Sh."000"
0	(45,000)	1.00	(60,000)	1.00
1	22,500	0.85	37,500	0.80
2	22,500	0.80	30,000	0.70
3	15,000	0.75	22,500	0.60
4	15,000	0.60	15,000	0.50

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The risk free rate is 5%.

Required:

Advise the company on which project to undertake using the certainty equivalent method. (6 marks)

(c) Mavuno Bora Ltd. is an agro-based company incorporated in Kenya. The company intends to invest in a capital project which will be based in Cape Town, South Africa.

Additional information:

1. The project will commence on 1 January 2025 with the initial capital of 5 million South Africa Rands (ZAR) which will be used in acquiring agricultural machinery with an estimated useful life of 5 years with a zero salvage value. The straight line method of depreciation will be applied.
2. To enable the firm pay land rates and other working capital requirements, an additional 2.5 million ZAR will be required and it is expected that this amount will be recouped in full at the end of the project's useful life.
3. Annual sales revenue from the project are estimated as follows:

Year	Revenue (ZAR)	Fixed costs (ZAR)
2025	2,600,000	600,000
2026	3,500,000	780,000
2027	5,000,000	905,000
2028	4,200,000	880,000
2029	2,800,000	450,000

4. Variable operating costs are expected to be 20% of the sales and are assumed to accrue evenly.
5. The exchange rates between the Kenya Shilling and the South Africa Rand are as follows:

	ZAR/KES
1 January 2025	8.00
31 December 2025	8.50
31 December 2026	9.00
31 December 2027	9.50
31 December 2028	10.00
31 December 2029	10.30

6. All the cash flows are expected to occur at the year end.

7. The cost of capital for both South Africa and Kenya is assumed to be 12% per annum.
8. Assume that the corporation tax rate in South Africa is 30% and no further taxation will be levied in Kenya.

Required:

(i) The net present value (NPV) of the project in Kenya Shillings (KSh.). (8 marks)

(ii) Based on your results in (c) (i) above, advise the management of Mavuno Bora Ltd. on appropriate course of action. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Examine **THREE** methods that could be used by multinational corporations to finance international trade. (6 marks)

(b) Kiwanda Ltd., an all equity financed company is contemplating setting up a manufacturing plant overseas.

The expected pay-off from the project would depend on the future state of the economy that might prevail as shown below:

State of economy	Probability	Forecasted rate of return (%)
A	0.20	10
B	0.30	15
C	0.40	7
D	0.10	12

Additional information:

1. The company's portfolio of existing activities are expected to generate an overall return of 18% with a standard deviation of 5%.
2. The correlation coefficient of returns of the new project and existing portfolio of activities is 0.60 while its correlation with the market portfolio is 0.24.
3. The forecasted rate of return of the market portfolio and their probability of occurrence in different states of nature are given as follows:

State of economy	Probability	Forecasted rate of return (%)
1	0.20	20
2	0.30	15
3	0.40	10
4	0.10	5

4. The risk free rate of return is 8%.

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Required:

(i) Compute the covariance of returns of the new project and existing portfolio returns. (4 marks)

(ii) Advise the management of Kiwanda Ltd. on whether to accept the proposed project using the capital market line (CML) analysis. (5 marks)

(iii) Determine whether the project is acceptable using the Capital Asset Pricing Model (CAPM). (5 marks)

(Total: 20 marks)

QUESTION THREE

(a) Highlight **FOUR** reasons why firms make bond refinancing decisions. (4 marks)

(b) Palm Limited has Sh.12.5 billion of equity capital and Sh.2.5 billion of debt capital, all at current market value. The cost of equity is 14% and the cost of debt is 8%. The company is planning to raise Sh.2.5 billion by issuing new ordinary shares. It will use the money to redeem all the debt capital.

Required:

Using the Modigliani and Miller (MM) proposition, determine the cost of equity of the company after the debt has been redeemed. Assume that there is no corporate tax if the company issues new equity. (4 marks)

(c) Jaribu Ltd. is considering acquiring Upendo Ltd. Selected financial data for the two companies is provided:

	Jaribu Ltd.	Upendo Ltd.
Annual sales (Sh.million)	1,500	180
Net income (Sh.million)	120	15
Ordinary shares outstanding (million)	30	6
Earnings per share (EPS) (Sh.)	8	5
Market price per share (Sh.)	88	40

Both companies are in the 30% tax bracket.

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Required:

(i) The maximum exchange ratio that Jaribu Ltd. should agree to if it expects no dilution in earnings per share (EPS). (3 marks)

(ii) Post merger EPS of Jaribu Ltd. and Upendo Ltd. if the two companies settle on a price of Sh.48.40 per share. (4 marks)

(iii) Jaribu Ltd.'s EPS if Upendo Ltd.'s shareholders accept one (1) 12% convertible preference share with a par value of Sh.100 for every 5 ordinary shares they own. (3 marks)

(iv) Explain the term "bootstrapping earnings" as used in mergers and acquisition. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Summarise **FOUR** financial difficulties a company may experience during financial distress. (4 marks)

(b) Kilop Ltd. is considering a financial restructuring plan that involves converting a portion of its debt into equity. Currently, the company has 1 million ordinary shares outstanding with a current market value of Sh.20 per share. The total debt to be converted into equity amounts to Sh.5 million.

Required:

Assuming the conversion is successful, evaluate the impact of financial restructuring on the share price of Kilop Ltd. (6 marks)

(c) The finance director of Dambo Ltd. wishes to find the company's optimal capital structure. The cost of debt varies according to the company's credit rating, which itself depends, amongst other factors, the level of gearing of the company as shown below:

Percentage (%) of debt (Debt/Debt + Equity)	Likely credit rating	Pre-tax cost of debt (%)
10	AAA	6.5
20	AA	7.1
30	A	7.8
40	BBB	8.5
50	BB	10
60	B	12
70	C	15

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Additional information:

1. The company's ungeared equity beta (asset beta) is 0.85.
2. The risk free rate is 6% per annum.
3. The market return is 14% per annum.
4. The corporate tax rate is 30%.

Required:

(i) The optimal weighted average cost of capital (WACC) for the company. (9 marks)

(ii) Interpret your results in (c) (i) above. (1 mark)

Hint: Formula for computing equity beta

$$\beta_e = \beta_a \left(\frac{E + D(1 - t)}{E} \right)$$

Where: βe = Equity beta
βa = Asset beta
D = Debt
E = Equity
t = Corporate tax rate

(Total: 20 marks)

QUESTION FIVE

(a) Discuss **THREE** types of crowdfunding. (6 marks)

(b) Ujezi Ltd., a property development company, has gained planning permission for the development of a housing complex at Mua Greens Estate which will be developed over a three-year period.

The resulting property sales less building costs have an expected net present value of Sh.4,000,000 with a cost of capital of 10% per annum. Ujezi Ltd. has an option to acquire land in Mua Greens Estate at an agreed price of Sh.24,000,000 which must be exercised within the next two years.

Immediate building of the housing complex would be risky as the project has a volatility attaching to its net present value of 25%.

One source of risk is the potential for development of Mua Greens Estate as a regional commercial centre for the large number of firms leaving the capital, because of high rents and local business taxes. Within the next two years, an announcement by the government will be made about the development of transport links into Mua Greens Estate from the outlying areas including the area where Ujezi Ltd. hold the land option.

The risk free rate of interest is 5% per annum.

Required:

(i) Estimate the value of the option to delay the start of the project for two years using the Black Scholes Option Pricing Model (BSOPM) and comment on your findings.

Assume that the government will make its announcement about the potential transport link at the end of the two years. (10 marks)

(ii) On the basis of valuation of the option to delay, estimate the overall value of the project, giving a concise rationale for the valuation method used. (2 marks)

(iii) Explain **TWO** other types of real options that may be present relating to the Mua Greens Estate housing development. (2 marks)

Hint:

Value of call option: $Ps\ (Nd_1) - Pe\ (Nd_2).\ e^{-rf_T}$

Where: $d_1 = \dfrac{\ln\left(Ps/Pe\right) + (rf + 0.5\sigma^2)T}{\sigma\sqrt{T}}$

$d_2 = d_1 - \sigma\sqrt{T}$

Ps = Underlying price
Pe = Strike price
σ = Volatility
rf = Continuity compounded risk-free interest rate
T = Time to expiration

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 23 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) Summarise **FOUR** causes of hard capital rationing as used in capital budgeting. (4 marks)

(b) Outline **FOUR** limitations of Treynor's measure of portfolio performance. (4 marks)

(c) Kangaro Youth Sports Ltd. wishes to design a new sports bicycle. The company will have to invest Sh.100 million at the beginning of the first year for the design and model testing of the new bicycle.

The firm's managers believe that there is an 80% probability that this phase will be successful and the project will continue.

If Phase 1 is not successful, the project will be abandoned with zero salvage value.

The next phase, if undertaken, would consist of making the molds and producing twenty prototype bicycles. This would cost Sh.400 million at the end of the first year. If this phase is successful, the firm would go into full scale production. If the phase is not successful, the molds and prototypes could be sold for Sh.150 million. The managers estimate that the probability that the bicycles will pass the test is 90% and that Phase 3 will be undertaken.

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Phase 3 consists of changing over current production line to produce the new design. This would cost Sh.1,100 million in year 2.

If the economy is strong at this point, the net value of cash flows would be Sh.3,500 million, while if the economy is weak the net value of cash inflows would be Sh.2,600 million. Both net values of cash inflows will be realised at the end of year 3 and both states of the economy are equally likely.

The company's cost of capital is 13%.

Required:

(i) Using a decision tree, determine the project's expected net present value (ENPV). (5 marks)

(ii) Calculate the project's standard deviation of expected net present value and comment on the result. (4 marks)

(iii) Using the normal probability distribution, compute the probability that the project's net present value will be at least Sh.80 million. (3 marks)

(Total: 20 marks)

QUESTION TWO

(a) Two assets, A and B are known to lie on the security market line (SML). Asset A has a beta of 0.5 and a risk premium of 4%. Asset B has an expected rate of return of 20% and a beta of 1.75.

You are considering the following securities which are available in the market:

Security	Expected return (%)	Beta
A	20	2.00
B	14	0.75
C	15	1.25
D	12	–0.25
E	31	3.25

Required:

(i) Determine the risk free rate of return. (2 marks)

(ii) Calculate the required rate of return of each security. (4 marks)

(iii) Identify which security is undervalued, overvalued or correctly valued. (2 marks)

(b) Cosmos Operators Ltd. have an optimal capital structure given as follows:

	Sh."000"
Ordinary share capital (Sh.20 par value each)	80,000
Reserves	20,000
16% debt (Sh.100 par value each)	40,000
10% preference share capital (Sh.30 per value each)	60,000
	200,000

Additional information:

1. The firm is considering raising Sh.20 million for an expansion programme of which Sh.2,000,000 is expected to be raised from internal sources.
2. New ordinary shares will be issued at Sh.35 each. A floatation cost of Sh.5 per share issued will be incurred.
3. The firm's most recent earnings per share (EPS) is Sh.3. The firm adopts 50% pay out ratio as its dividend policy. Dividends are expected to grow at a rate of 5% each year in a perpetuity.
4. New 10% irredeemable debentures will be issued at Sh.110 each. A floatation cost of Sh.10 per debenture will be incurred.
5. New 10% irredeemable preference shares will be issued at Sh.40 each.
6. Corporation tax rate is 30%.

Required:

(i) The retained earnings break point. (2 marks)

(ii) The number of new ordinary shares to be issued to raise the desired external equity. (2 marks)

(iii) The weighted marginal cost of capital (WMCC) in each of the intervals between the breakpoints. (8 marks)

(Total: 20 marks)

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QUESTION THREE

(a) Explain the following option trading strategies:

(i) Bull spread. (2 marks)

(ii) Bear spread. (2 marks)

(iii) Covered call. (2 marks)

(b) Duet Ltd. is considering a takeover bid for Small Ltd., another company in the same industry. Small Ltd. is expected to have earnings next year of Sh.129,000,000.

If Duet Ltd. acquires Small Ltd., the expected results from Small Ltd. will be as follows:

	Year after acquisition		
Year	**Year 1**	**Year 2**	**Year 3**
	Sh."000"	**Sh."000"**	**Sh."000"**
Sales	300,000	420,000	480,000
Cash costs/expenses	180,000	240,000	270,000
Capital allowances	30,000	45,000	60,000
Interest charges	15,000	15,000	15,000
Cash flows to replace assets and finance growth	37,500	45,000	52,500

Additional information:

1. From year 4 onwards, it is expected that the annual cash flows from Small Ltd. will increase by 4% each year in perpetuity.
2. Tax is payable at the rate of 30%. Tax is paid in the same year it falls due.
3. If Duet Ltd. acquires Small Ltd., it estimates that gearing after the acquisition will be 35% (measured as the value of its debt capital as proportion of total equity plus debt).
4. The cost of debt is 7.4% before tax. Duet Ltd. has an equity beta of 1.60.
5. The risk free rate of return is 6% and the return on the market portfolio is 11%.

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Required:

(i) The offer price for Small Ltd. assuming Duet Ltd. chooses to value Small Ltd. on a forward price earnings (P/E) multiple of 8 times. (2 marks)

(ii) The cost of capital of Duet Ltd. (4 marks)

(iii) Determine the offer price for Small Ltd. using discounted free cash flow (DCF) valuation method. (8 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Explain **FOUR** advantages of real estate investments. (4 marks)

(b) Jacob Ouma, a financial analyst, gathered the following financial information from the banking industry in Kenya. The interest rate on a one year Kenyan bank is 16%.

The interest rate on a one year foreign bank deposit is 22%.

Required:

(i) Compute the percentage change in the value of the foreign currency according to International Fisher Effect. (3 marks)

(ii) Given a spot rate of Tsh1 = Ksh. 6.06, calculate the forward rate of Tsh after one year. (2 marks)

(c) The following are the financial statements of Bobi Ltd. for the year ended 31 December 2023:

Bobi Limited
Statement of profit or loss for the year ended 31 December 2023:

	Sh."000"
Revenue	60,000
Cost of sales	(35,000)
Gross profit	25,000
Operating expenses	(10,000)
Operating profit	15,000
Finance cost	(11,000)
Earnings before tax	4,000
Income tax expense	(1,200)
Profit for the year	2,800

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Bobi Limited
Statement of financial position as at 31 December 2023:

	Sh. "000"	**Sh."000"**
Net tangible assets		126,000
Intangible assets		42,000
		168,000
Current assets:		
Inventory	48,000	
Trade receivables	36,000	
Bank balance	4,800	88,800
		256,800
Financed by:		
Equities and liabilities:		
Equity:		
480,000 preference shares (Sh.25 each)		12,000
500,000 ordinary shares (Sh.24 each)		12,000
Share premium		24,000
Retained earnings		16,800
		64,800
Non-current liabilities:		
Mortgage (20 years)	48,000	
8% debentures	72,000	120,000
Total equity and reserve		184,800
Current liabilities:		
Trade payables	12,000	
Notes payable	60,000	72,000
Total liabilities and equity		256,800

Additional information:

1. The Z-score is to be calculated using the following formula:
   $Z\text{-score} = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$

   Where:
   X_1 = Working capital/Total assets
   X_2 = Retained earnings/Total assets
   X_3 = Earnings before interest and tax/Total assets
   X_4 = Market value of equity/Book value of debt
   X_5 = Sales/Total assets
2. The current market price per share is Sh.42.

Required:

(i) The Z-score of Bobi Ltd. for the year ended 31 December 2023. (6 marks)

(ii) Interpret the meaning of Z-score obtained in (c) (i) above. (2 marks)

(iii) Outline **THREE** limitations of Z-score model. (3 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Discuss **THREE** factors that distinguish between the cost of capital of a multinational corporation and the cost of capital of a domestic firm. (6 marks)

(b) In relation to financial risk management, explain **FOUR** advantages of plain vanilla currency swaps with monthly delivery compared with a strip of forward contracts. (4 marks)

(c) Kawaida Ltd. has Sh.3,000,000 in equity capital and Sh.1,000,000 in debt capital (at market values). The beta value of the equity is 1.126 and the beta of the debt capital is 0.

The risk free cost of capital is 5% and the market portfolio return is 11%.

The tax rate is 30%.

Required:

(i) Calculate the current weighted average cost of capital (WACC). (3 marks)

(ii) Compute the asset beta for the company and explain what this means. (3 marks)

(iii) Calculate the equity beta, the cost of equity and the WACC would be if the company consisted of 60% equity and 40% debt. (4 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 5 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) The management of Kapricon Ltd. are in the process of estimating utile and establishing the categories of investors. The management has approached CPA Samuel Okeyo, a financial management consultant and provided him with the following cases:

Case 1: There is 0.50 chance of receiving Sh.30 million and 0.50 chance of receiving Sh.100 million. The investor is willing to pay a maximum of Sh.60 million.

Case 2: There is 0.40 chance of receiving Sh.55 million and 0.60 chance of receiving Sh.100 million. The investor is willing to pay a maximum of Sh.82 million.

Case 3: There is 0.30 chance of receiving Sh.30 million and 0.70 chance of receiving Sh.60 million. The investor is willing to pay a maximum of Sh.45 million.

Assume that utile values of 0 and 1 are assigned to a pair of wealth representing the two extremes Sh.0 and Sh.100 million respectively.

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Required:

(i) Using the expected monetary value (EMV) technique, determine the category of investor in case 1, case 2 and case 3 above. (6 marks)

(ii) Compute the utile value for case 1, case 2 and case 3 respectively. (3 marks)

(b) In a study carried out by a financial analyst, the earnings before interest and tax (EBIT) of Papa Ltd. and Kaka Ltd. was found to be Sh.10 million.

Papa Ltd. is fully equity financed while Kaka Ltd. is financed partly using equity and debt. The capital structures of both firms are given as follows:

	Papa Ltd. Sh."million"	**Kaka Ltd. Sh."million"**
Equity (market value)	100	70
5% debt (trading at par)	-	50

Additional information:

1. Both firms adopt a 100% pay out ratio as their dividend policy.
2. The cost of equity of Papa Ltd. is 10%.

Required:

Using Modigliani and Miller's proposition in the absence of taxes:

(i) Determine the cost of equity of Kaka Ltd. (3 marks)

(ii) Comment on the equilibrium position on the value of both firms and hence show that the capital structure decision will have no effect on both value of the firms and their weighted average cost of (WACC). (4 marks)

(iii) Calculate the arbitrage profit (if any) for a shareholder holding 10% of the shares of Kaka Ltd. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Economic and Monetary Union (EMU) was formulated by European leaders. On 1 January 1999, the new European currency, the Euro, came into being. From that date, there was to be no change in the exchange rates of the member countries.

Euro notes and coins were introduced into circulation on 1 January 2002. Dual circulation of the Euro and the legacy currencies of each country continued for a short period of time. Thereafter, participating countries have only used Euro notes and coins.

Required:

In regards to the above statements, explain **SIX** arguments in favour of Economic and Monetary Union (EMU). (6 marks)

(b) Daniel Wekesa, an investment specialist has been entrusted with Sh.5,000,000 by an investment club and instructed to invest the money optimally over a 1-year period.

Part of the instructions are given as follows:

1. The funds be invested in one or more of the three specified projects and in the money market.
2. The three projects are not divisible and cannot be postponed.
3. The investment club requires a return of 14% per annum.
4. The following details relate to the projects and money market:

	Initial cash outlay Sh. "000"	**Forecasted rate of return (%)**	**Expected standard deviation of return (%)**
Project 1(P_1)	3,000	16	8
Project 2(P_2)	2,000	15	6
Project 3 (P_3)	2,000	22	10
Money market (MM)	3,000	12	4

5. The correlation coefficients of returns of the above combination of projects are as follows:

Between projects	**Between projects and market portfolio (MP)**	**Between projects and money market (MM)**	**Between money market (MM) and market portfolio (MP)**
P_1 and P_2 = 0.90	P_1 and MP = 0.80	P_1 and MM = 0.30	MM and MP = 0.40
P_1 and P_3 = 0.50	P_2 and MP = 0.10	P_2 and MM = 0.75	
P_2 and P_3 = 0.20	P_3 and MP = 0.65	P_3 and MM = 0.15	

Additional information:

1. The risk free rate of return is 12%.
2. Expected return of the market portfolio is a weighted average return. Given below are forecasted rate of returns from a market portfolio and their probability of occurrence in different states of nature:

State of nature	**Probability**	**Forecasted rate of return (%)**
Recession	0.30	10
Average	0.40	15
Boom	0.30	20

Required:

Evaluate how Daniel Wekesa should invest the Sh.5 million using:

(i) Capital market line (CML) analysis in portfolio theory. (7 marks)

(ii) Capital asset pricing model (CAPM). (7 marks)

(Total: 20 marks)

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QUESTION THREE

(a) Highlight **SIX** economic and financial justifications advanced for mergers and acquisitions. (6 marks)

(b) Kubwa Ltd. is considering acquisition of Ndogo Ltd., a firm in an unrelated line of business in order to diversify their risks.

Selected financial data for both firms are provided as follows:

	Kubwa Ltd.	**Ndogo Ltd.**
Sales (Sh.million)	100	50
Cost of sales (Sh.million)	30	10
Operating costs (Sh.million)	10	5
Finance cost (Sh.million)	5	2
Number of issued shares (million)	10	7
Market price per share (Sh.)	40	20

Additional information:

1. Kubwa Ltd. is considering financing the acquisition of Ndogo Ltd. using a share for share exchange or share debenture exchange.
2. Corporation tax rate applicable is 30%.

Required:

(i) Non-diluting maximum exchange ratio. (3 marks)

(ii) The post acquisition earning per share (EPS) assuming an offer price is set at Sh.30 per share. (2 marks)

(iii) The post acquisition EPS assuming 1,000 ordinary shares are exchanged for 10 units of 15% debenture with par value of Sh.100 each. (3 marks)

(iv) Considering your results in (b) (ii) above and (b) (iii) above, advise on the best financing plan. (1 mark)

(c) A bond with a five year to maturity has a current value of Sh.92.41, a coupon rate of 8% per annum and a current market yield of 10% per annum.

The bond will be redeemed at a par value of Sh.100.

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Required:

Using the Macaulay duration method, compute the bond's duration. (5 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Discuss **FOUR** real estate financing options available to real estate investors in your country. (8 marks)

(b) Highspeed Electronics Ltd. has taken delivery of 50,000 electronic devices from an American company. The seller is in a strong bargaining position and has priced the devices in American dollars at $ 12.00 each.

Highspeed Electronics Ltd. has been granted three months credit. Assume that interest rates in America are 3% per quarter. Highspeed Electronics Ltd. has all its money held up in its operations but it could borrow in United States dollars at an interest rate of 3% per quarter if necessary.

Additional information:

1. The following foreign exchange rates are applicable:

United State Dollar (US$)/Kenya Shilling (KES)	
Spot rate	0.013
Three month forward rate	0.0154

2. A three month dollar call option for US $ 600,000 is available at a premium of US $ 15,000.

Required:

Determine the amount payable by Highspeed Electronics Ltd. using the following hedging strategies:

(i) Forward contract. (2 marks)

(ii) Leading. (2 marks)

(iii) Money market hedge. (2 marks)

(iv) Use of options. (2 marks)

(v) Distinguish between a "currency option" and a "currency swap". (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Explain the following terms as used in behavioural finance:

(i) Market paradox. (2 marks)

(ii) Herd mentality bias. (2 marks)

(iii) Loss aversion bias. (2 marks)

(b) One of the most notable qualitative model of predicting corporate failure is Argenti's A model score. Argenti suggested that the failure process follows a predictable sequence.

Required:
Examine the **THREE** failure sequence processes as predicted by Argenti's model score. (6 marks)

(c) The current share price of Nonop Ltd. is Sh.7.00.

Additional information:
1. The continuously compounded risk free rate of interest is 8% per annum.
2. The variance of the rate of return on the share has been 12% per annum.

Required:
Using the Black-Scholes option pricing model, estimate the value of a European call option on the shares of the company that has an exercise price of Sh.6.60 and has 3 months to run before it expires.

Note: The Black-Scholes formula is given as follows:

$$P_c = P_S N(d_1) - Xe^{-rT}N(d_2)$$

Where:

N(d)	=	Cumulative distribution function
d_1	=	$\frac{\ln\left[\frac{Ps}{x}\right] + rT}{\delta\sqrt{T}} + 0.5\delta T$
d_2	=	$d_1 - \delta\sqrt{T}$
P_s	=	Share price
e	=	The exponential constant 2.7183
X	=	Exercise price of option
r	=	Annual (continuously compounded) risk free rate of return
T	=	Time of expiry of option in years
δ	=	Share price volatility, the standard deviation of the rate of return on shares.
$N(d_x)$	=	Delta, the probability that a deviation of loss than dx will occur in a normal distribution with a mean of zero and a standard deviation of one
l_n	=	Natural log

(8 marks)
(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 22 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) Over the years, the World Bank has evolved from a single institution to a group of five unique and collaborative institutions known collectively as the World Bank or the World Bank Group.

Required:
In relation to the above statement, describe **FIVE** functions of the World Bank. (5 marks)

(b) Analyse **FIVE** differences between portfolio theory and capital asset pricing model (CAPM). (5 marks)

(c) Simon Kobia, an investor is evaluating six portfolios with the following characteristics:

Portfolio	Expected return of the portfolio (%)	Standard deviation of the portfolio (%)
1	19	8
2	25	12
3	16	6
4	32	16
5	22.5	10
6	8	2

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The expected return of the market portfolio is 12% with an accompanying standard deviation of 4% while the risk free rate of interest is 5%.

Required:

(i) Using capital market line (CML), advise the investor on which portfolio(s) is inefficient, efficient or superefficient. (6 marks)

(ii) In case of inefficient and superefficient portfolio(s) in (c) (i) above, compute the standard deviation that the portfolio should have for efficiency to be achieved with the given expected return. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Explain the following terms as used in mergers and acquisitions:

(i) Poison pill. (2 marks)

(ii) Staggered board of directors. (2 marks)

(iii) Golden parachutes. (2 marks)

(b) Tobin Ltd. is appraising an investment project which has a cost of Sh.20 million payable in full at the start of the first year of operation. The project life is expected to be four years. Forecast sales, volumes, selling prices, variable costs and fixed costs are as follows:

Year	1	2	3	4
Sales (units per year)	300,000	410,000	525,000	220,000
Selling price per unit (Sh.)	125	130	140	120
Variable cost per unit (Sh.)	71	71	71	71
Annual fixed cost (Sh."000")	3,000	3,100	3,200	3,000

Additional information:

1. Selling price and cost information are in current price terms before applying selling price inflation of 5% per year, variable cost inflation of 3.5% per year and fixed cost inflation of 6% per year.
2. Tobin Ltd. pays annual corporation tax of 30%, with the tax liability being settled in the year in which it arises.
3. The company can claim tax allowable depreciation on the full initial investment of Sh.20 million on a 25% straight line basis.
4. The company's investment project is expected to have zero residual value at the end of four years.
5. Tobin Ltd. has a nominal after tax cost of capital of 12% and a real after tax cost of capital of 8%.
6. The general rate of inflation is expected to be 3.7% per year for the foreseeable future.

Required:

The nominal net present value (NPV) of Tobin Ltd.'s investment project. (8 marks)

(c) James Kamau had Ksh. 3,600,000 to invest and is considering the foreign exchange market (forex market). The following information relates to two forex bureaus:

	Forex Bureau X		**Forex Bureau Y**	
	Bid/buy	**Ask/sell**	**Bid/buy**	**Ask/sell**
	Ksh.	Ksh.	Ksh.	Ksh.
Tsh. quote	0.08	0.09	0.10	0.11

The two forex bureaus are in the same location.

Required:

(i) Calculate the locational arbitrage gain for James Kamau with Ksh. 3,600,000 to invest, if any. (4 marks)

(ii) Explain the scenario that is necessary for locational arbitrage to exist. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Discuss **THREE** challenges that organisations face while adopting blockchain technology in their operations. (6 marks)

(b) The following information relates to an office complex:

	Sh."000"
Gross potential rental income	1,050,000
Insurance and taxes	78,000
Utilities	54,000
Repairs and maintenance	69,000
Depreciation	120,000
Interest on proposed financing	54,000

Additional information:

1. Vacancy and collection losses are estimated at 6%.
2. Recently, two buildings have been sold in the same locality:
   - The first building had a net operating income of Sh.1,500,000 and was sold for Sh.12 million.
   - The second building had a net operating income of Sh.675,000 and was sold for Sh.4.8 million.

Required:

(i) The net operating income (NOI) for the office complex. (4 marks)

(ii) The appraised price of the office complex using the income approach. (4 marks)

(c) You are provided with the following information on put and call options on a stock:

Call price, C_o =Sh.6.64
Put price, P_o = Sh.2.75
Exercise price, X = Sh.30
Days to option expiration = 219 days
Current stock price, S_o = Sh.33.19
Number of days in a year = 365 days
Risk free rate is 5%

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Required:
Using put-call parity, calculate prices of the following:

(i) Synthetic call option. (2 marks)

(ii) Synthetic put option. (2 marks)

(iii) Synthetic bond. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Kobe Ltd. is about to replace its existing delivery vehicle with a new design of a vehicle that offers greater fuel economy. The company estimates that replacing the existing vehicle will save running costs of Sh.200,000 per year. There are two financing options available:

Option 1: Borrowing funds and purchasing the vehicle
The vehicle could be purchased for Sh.3,400,000 using a bank loan with an after tax cost of borrowing of 4% per year. The vehicle would have a useful life of four years and would have a residual value of Sh.1,400,000 at the end of that period. Straight line tax allowable depreciation is available on the vehicle. The vehicle would be subject to a special tax of Sh.60,000 at the end of each year of operation. The tax expenses are corporation tax deductible.

Option 2: Leasing the vehicle
The vehicle could be leased for a period of four years for a payment of Sh.600,000 per year, payable at the start of each year. The lessor will pay the special tax. Lease payments are a corporation tax deductible expense.

The firm after tax weighted average cost of capital is 8%. The company pays corporation tax at a rate of 30% one year in arrears.

Required:

(i) Advise Kobe Ltd. on whether it should lease or borrow to finance the new vehicle. (8 marks)

(ii) Examine **THREE** reasons other than possible after tax cost advantages why Kobe Ltd. may choose to lease rather than buy the new delivery vehicle. (3 marks)

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(b) The statement of financial position of two companies, Aco Ltd. and Bero Ltd. as at 31 December 2022 are shown below:

	Aco Ltd. Sh."000"	**Bero Ltd. Sh."000"**
Ordinary share capital (Sh.10 par value)	10,000	5,000
Preference share capital	2,000	-
Share premium account	-	200
Profit and loss account balance	3,800	400
10% debentures	1,500	500
	17,300	6,100
Non-current assets	12,200	3,500
Net current assets	5,100	2,600
	17,300	6,100

Additional information:

1. Aco Ltd. is proposing to acquire Bero Ltd. by means of an issue of its own ordinary shares in exchange for the ordinary shares of Bero Ltd.
2. The management of the two companies have availed the following information to assist in the takeover:

	Aco Ltd.	**Bero Ltd.**
Maintainable annual profits after tax attributable to equity holders	Sh.2,400,000	Sh.1,500,000
Current market price per ordinary share	Sh.24	Sh.27
Current earnings per share (EPS)	Sh.2.4	Sh.3.0

3. The corporation tax rate is 30%.

Required:
Using the following valuation basis and assuming no synergy effects accrue from the takeover, determine the total number of shares the directors of Aco Ltd. will have to offer to the shareholders of Bero Ltd:

(i) Net asset value basis. (2 marks)

(ii) Earnings per share basis. (2 marks)

(iii) Market value basis. (2 marks)

(iv) Present value of future earnings basis. (3 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Assess **THREE** indicators of an organisation restructuring. (6 marks)

(b) Mapato Ltd. has the following capital structure which it considers optimal:

Debentures	25%
Preference share capital	15%
Ordinary share capital	60%
	100%

Additional information:

1. Mapato Ltd.'s expected profit after tax for the year ended 30 June 2023 was Sh.34,285,714. Mapato Ltd. has an established dividend pay-out ratio of 30%. The tax rate for the company is 30% and investors expect earnings and dividends to grow at a constant rate of 9% per annum in the future.
2. The company paid a dividend of Sh.3.6 per share in the year ended 30 June 2023. The company's shares currently sells at Sh.60 per share.
3. The company can obtain new capital as follows:

Ordinary shares: New ordinary share capital can be issued at a floatation cost of 10%.

Preference share capital: New preference share capital can be issued to the public at Sh.100 per share.
The floatation cost is Sh.5 per share and a dividend of Sh.11 per share.

Debentures: Debentures can be issued at an interest rate of 12% per annum.

4. Assume that the cost of capital is constant beyond the retained earnings breakpoint.
5. Mapato Ltd. has the following investment opportunities:

Project	Cost (Sh.)	Internal rate of return (IRR)
A	10,000,000	17.4%
B	20,000,000	16.0%
C	10,000,000	14.2%
D	20,000,000	13.7%
E	10,000,000	12.0%

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Required:

(i) Calculate the break point in the marginal cost of capital (MCC) schedule. (2 marks)

(ii) Determine the cost of each capital structure component. (4 marks)

(iii) Calculate the weighted average cost of capital (WACC) in the intervals between the break points in the marginal cost of capital (MCC) schedule. (4 marks)

(iv) Using the marginal cost of capital schedule, identify the projects that the company should accept and why. (4 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 25 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) (i) Explain the term "static trade off theory of capital structure". (2 marks)

(ii) Selected financial information for Tembo Ltd. is shown below:

• Yield to maturity on debt	8%
• Market value of debt	Sh.100 million
• Number of ordinary shares	10 million
• Market price per ordinary share	Sh.30
• Cost of capital if all equity financed	10.3%
• Marginal tax rate	30%

Additional information:

1. Johnson Njogu, a financial analyst expects that an increase in Tembo Ltd's financial leverage will increase its costs of debt and equity.
2. Based on an examination of similar companies in Tembo Ltd. industry, Johnson Njogu estimates that the company's cost of debt and cost of equity at various debt to total capital ratios are as shown below:

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Estimates of Tembo Ltd. before tax costs of debt and equity:

Debt to total capital ratio (%)	Cost of debt (%)	Cost of equity (%)
20	7.7	12.5
30	8.4	13.0
40	9.3	14.0
50	10.4	16.0

Required

Determine the debt to total capital ratio that would minimise Tembo Ltd.'s weighted average cost of capital (WACC). (5 marks)

(b) Adept Consultants is a research firm that provides market related data for use by market participants. Michael Aloo is a financial manager at Adept Consultants tasked with estimating stock beta.

Required:

Explain **THREE** practical considerations that Adept Consultants should take when forecasting beta of an asset. (3 marks)

(c) XYZ Limited is considering six investment projects with the following details:

Project	Initial outlay Sh. "000"	Net present value Sh. "000"
1	1,000	390
2	750	325
3	1,125	590
4	1,850	840
5	1,300	635
6	1,500	

Additional information:

1. Project 6 is expected to generate the following annual cash flows:

Year	1	2	3	4
	Sh. "000"	Sh. "000"	Sh. "000"	Sh. "000"
Sales	725	765	885	612
Cost	145	168	202	94

   Project 6 cash flows are exclusive of inflation at the rate of 4% per year for sales income and 5% per year for costs.
2. The cost of capital is 10%.
3. Due to management reluctance to raise additional finance, the capital for investment is currently restricted to Sh.5,000,000.
4. Project 1, 3, 5 and 6 are all independent but project 2 and 4 are mutually exclusive.
5. All of the above projects are divisible and none can be delayed or repeated.

Required:

(i) The net present value (NPV) for project 6. (3 marks)

(ii) The optimum investment combination given the capital constraint. (6 marks)

(iii) The resulting net present value (NPV) in (c) (ii) above. (1 mark)

(Total: 20 marks)

QUESTION TWO

(a) (i) Differentiate between "white knight" and "white squire" in relation to mergers and acquisitions. (4 marks)

(ii) Felix Bodo has collected the following information relating to the pro-forma financial statements of ABC Ltd., a company that is a target of its competitors.

Pro forma statement of profit or loss:

	Year				
	2022	2023	2024	2025	2026
	Sh."000"	Sh."000"	Sh."000"	Sh."000"	Sh."000"
Revenue	15,752	17,327	19,060	20,966	23,023
Cost of goods sold	8,664	9,530	10,483	11,531	12,685
Gross profit	7,088	7,797	8,577	9,435	10,378
Selling, general expenses	2,363	2,599	2,859	3,145	3,459
Depreciation	551	606	667	734	807
Earning before interest and taxes	4,174	4,592	5,051	5,556	6,112
Net interest expense	642	616	583	543	495
Earning before taxes	3,532	3,976	4,468	5,013	5,617
Income tax	1,236	1,392	1,564	1,755	1,966
Net income	2,296	2,584	2,904	3,258	3,651

Selected pro forma statement of financial position:

	Year				
	2022	2023	2024	2025	2026
	Sh."000"	Sh."000"	Sh."000"	Sh."000"	Sh."000"
Change in deferred income tax	19	21	23	26	28

Selected pro forma cash flow statement:

	Year				
	2022	2023	2024	2025	2026
	Sh."000"	Sh."000"	Sh."000"	Sh."000"	Sh."000"
Change in networking capital	455	551	607	667	734
Capital expenditures	1,461	1,709	1,880	2,068	2,275

Additional information:

1. ABC Ltd. has a corporate tax rate of 30%.
2. The weighted average cost of capital is 10%.
3. The terminal growth rate is 6%.

Required:

Determine using the discounted free cash flow analysis the value of ABC Ltd. (10 marks)

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(b) Consider a two-period binomial model in which a share currently trades at a price of Sh.65. The share price can go up 20% or down 17% each period. The risk free rate is 5%.

Required:
The price of a put option expiring in two periods with an exercise price of Sh.60. (6 marks)

(Total: 20 marks)

QUESTION THREE

(a) In regards to restructuring in the public sector, the ministry of finance or an equivalent body can use performance results to motivate agencies to improve performance.

Required:
Examine **THREE** broad categories of potential mechanisms available to the Ministry of Finance to motivate performance including the rewards and sanctions in each category line. (6 marks)

(b) One of the instruments of real estate financing is mortgages.

Highlight **FOUR** methods by which the interest on a mortgage may be charged. (4 marks)

(c) You have been appointed as a finance manager of Mamba Ltd. After evaluating the investment portfolio of the company, you have divided the market into four portfolios following two dimensions; value/growth and small/large.

The weight of each portfolio in the index is given below:

Portfolio	**Weight (%)**	**Sensitivity to factor 1 (Market beta)**	**Sensitivity to factor 2 (Price/book)**	**Sensitivity to factor 3 Average capitalisation**
Small value	10	0.87	0.83	2
Small growth	10	0.97	0.33	2
Large value	30	0.92	5	20
Large growth	50	1.12	6	22
Risk premium		8%	–3%	0.40%

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The risk free rate is 3%.

Required:

(i) Using the arbitrage pricing theory (APT), determine the portfolio that has the highest expected return. (4 marks)

(ii) The portfolio that would maximise your return if you decide to use capital asset pricing model (CAPM). (4 marks)

(iii) In order to diversify his perceived risk, a competitor wants to combine the small value and large growth portfolios. The new portfolio should have an overall sensitivity to factor 1 (market beta) of 1.

Determine the proportion to be invested in the small value and large growth. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Explain **THREE** differences between "futures contracts" and "forward contracts". (6 marks)

(b) Pine Ltd. is considering an investment in one of two corporate bonds namely A and B. Both bonds have a par value of Sh.1,000 and pay coupon interest on an annual basis.

The market price of bond A is Sh.1,079.60 with a coupon rate of 6% and is due to be redeemed at par in five years. Bond B is about to be issued with a coupon rate of 4% and will also be redeemable at par in five years.

Additional information:

1. Both bonds are expected to have the same gross redemption yield (yield to maturity).
2. The yield to maturity of a company bond is determined by its credit rating.

Pine Ltd. considers duration of the bond to be a key factor when making decisions on which bond to invest in.

Required:

(i) The Macaulay duration for bond A and bond B. (10 marks)

(ii) Discuss **TWO** limitations of duration as a measure of a bond price to changes in interest rates. (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Globalisation has resulted in several organisations engaging in corporate alliances and the establishment of trading blocks. The advent of e-commerce has enabled companies to greatly expand their market.

Required:

Elaborate on **FOUR** factors that complicate financial management in multinational firms. (8 marks)

(b) Explain **THREE** divestment strategies available to a company undertaking restructuring. (6 marks)

(c) A group of companies controlled from the United States has subsidiaries in the United Kingdom (UK), South Africa (SA) and France (FR).

As at 30 November 2022, intercompany indebtness were as follows:

Debtors	Creditors	Amount	Currency
UK	SA	1,236,000	SA Rand
UK	FR	494,400	Euro
FR	SA	824,000	SA Rand
SA	UK	76,220	Sterling Pound
SA	FR	386,250	Euro

Additional information:

1. It is the company's policy to net off inter-company balances to the greatest extent possible.
2. The central treasury is to use the following exchange rates for netting off purposes:

   US$ = SA Rand 6.4323/£0.7140/Euro 6.1740

Required:

Calculate the net payment to be made between the subsidiaries after netting of inter-company balances. (6 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 6 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) (i) Explain the term "real option" as used in capital investment appraisal. (2 marks)

(ii) Evaluate **THREE** types of real options. (6 marks)

(b) The management of College Publishers Ltd. has estimated the following initial cash outlays and net cash flows and probabilities for a new printing process in each case scenario:

Year	Worst case Sh."000"	Most probable case Sh."000"	Best case Sh."000"
0	(100,000)	(100,000)	(100,000)
1	20,000	30,000	40,000
2	20,000	30,000	40,000
3	20,000	30,000	40,000
4	20,000	30,000	40,000
5	20,000	30,000	40,000
5*	5,000	20,000	30,000
Probability	0.20	0.60	0.20

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Year 0 is the initial cost of the new printing process, years 1 – 5 are the operating net cash flows and year 5* is the estimated salvage value. The firm's cost of capital for a project of average risk is 13% per annum.

Required:

(i) Assuming that the above project has an average risk, compute the expected net present value (ENPV) of the project. (4 marks)

(ii) A sensitivity analysis of the salvage value if this variable changes from the base case value by ± (plus or minus) 80%. (4 marks)

(iii) Assume that all cash flows are positive perfectly correlated and that there are only three possible cash flow scenarios over time namely; worst case, most probable case and best case with probabilities of 0.2, 0.6 and 0.2 respectively.

Determine the project's standard deviation of the net present value (NPV). (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) The modern portfolio theory (MPT) is a practical method for selecting investments in order to maximise their overall returns within an acceptable level of risk.

Required:

Outline **FIVE** assumptions of modern portfolio theory (MPT). (5 marks)

(b) The following information is provided on the market, risk free rate and two stocks A and B:

	Expected return %	Correlation with market	Standard deviation %
Treasury bill rate	4	0.00	0.00
S & P 500 index	11	1.00	15.00
Stock A	14	0.70	25.00
Stock B	9	0.40	20.00

Required:

(i) Draw the capital market line (CML). (3 marks)

(ii) Calculate the betas of Stock A and Stock B. (2 marks)

(iii) Calculate the Alphas (α) of the Stock A and Stock B. (2 marks)

(iv) Plot the Stocks A and Stock B relative to the CML and comment. (3 marks)

(c) Describe five forms of debt financing in regards to real estate. (5 marks)

(Total: 20 marks)

QUESTION THREE

(a) Two firms, A Ltd. and B Ltd. operate in the same industry. The two firms are similar in all aspects except for their capital structures.

The following additional information is available:

1. A Ltd. is financed using Sh.100 million worth of ordinary shares.
2. B Ltd. is financed using Sh.50 million in ordinary shares and Sh.50 million 7% debentures.
3. The earnings before interest and tax (EBIT) are Sh.10 million for both firms. These earnings are expected to remain constant indefinitely.
4. The cost of equity in A Ltd. is 10%.
5. The corporate tax rate is 30%.

Required:

Using the Modigliani and Miller (MM) model, determine the following:

(i) The market value of A Ltd. and B Ltd. (4 marks)

(ii) The weighted average cost of capital (WACC) of A Ltd. and B. Ltd. (4 marks)

(b) Rema Limited, a United Kingdom (UK) based firm bought goods from a United States (US) supplier and must pay US Dollars 4,000,000 in three months time.

The company is considering three choices in order to hedge the transaction exposure and has collected the following information:

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Annual interest rates and exchange rates currently available:

	US Dollar		**Sterling Pound (£)**	
	Deposit rate	**Borrowing rate**	**Deposit rate**	**Borrowing rate**
	%	**%**	**%**	**%**
1 month	6	9.25	9.75	13.00
3 months	6	9.75	10.00	13.25

	$/£ Exchange rate ($ = £1)
Spot	1.8625 – 1.8635
1 month forward	1.8565 – 1.8577
3 months forward	1.8445 – 1.8460

Required:

Determine the amount payable using the following methods:

(i) Forward exchange contracts. (4 marks)

(ii) Money market borrowing or lending. (4 marks)

(iii) Making a leading payment. (2 marks)

(c) Advise on the cheapest method based on your results in (b) (i) – (b) (iii) above. (2 marks)

(Total: 20 marks)

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QUESTION FOUR

(a) Examine **FOUR** stages that a company might go through during restructuring. (4 marks)

(b) The Altman formula for prediction of bankruptcy is given as follows:

$Z\text{-score} = 1.2X_1 + 1.4X_2 + 3.3X_3 + 1X_4 + 0.6X_5$

Where:

X1 = Working capital/Total assets.
X2 = Retained earnings/Total assets
X3 = Earnings before interest and tax/Total assets
X4 = Sales/Total assets
X5 = Market value of equity/Book value of debt

You are provided with the following information in respect of three listed companies:

	Working capital	**Retained Earnings**	**Earnings before interest and tax**	**Market value of equity**	**Total assets**	**Liabilities**	**Sales**
	Sh."000"	**Sh."000"**	**Sh."000"**	**Sh."000"**	**Sh."000"**	**Sh."000"**	**Sh."000"**
A Ltd.	4,000	60,000	10,000	20,000	200,000	120,000	200,000
B Ltd.	2,000	20,000	0	5,000	100,000	80,000	120,000
C Ltd.	6,000	20,000	–30,000	48,000	800,000	740,000	900,000

Required

(i) The Z-score for each of the three companies. (6 marks)

(ii) Comment on your results in (b) (i) above. (2 marks)

(c) Kilop Ltd. has decided to instal a new milling machine.

Additional information:

1. The machine costs Sh.28,000,000 and it would have a useful life of five years with a trade in value of Sh.5,600,000 at the end of year five.
2. The company has two options:

   Option A
   Purchase the machine for cash using a bank facility. The current rate of interest is 15% before tax.

   Option B
   Lease the machine under an agreement which would entail payment of Sh.6,720,000 at the end of each year for the next five years.
3. The corporate rate of tax is 30%.
4. Capital allowance is given at the rate of 100% in year one if the machine is purchased.
5. Tax is payable one year in arrears.

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Required:

Advise Kilop Ltd. whether to lease or buy the machine. (8 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Explain **FIVE** limitations of financial derivatives used in financial risk management. (5 marks)

(b) The International Monetary Fund (IMF) has implemented many reforms in recent years designed to strengthen its cooperative nature and improve its ability to serve its membership.

In context of the above statement, propose **FOUR** main reforms that have been designed by IMF in recent years. (4 marks)

(c) Alpha Ltd. and Beta Ltd. are companies operating in the same line of business. In the recent past, Alpha Ltd. has experienced very stiff competition from Beta Ltd. such that Alpha Ltd. is considering acquiring Beta Ltd. in order to consolidate its market share.

The following financial data is available about the two firms:

	Alpha Ltd.	**Beta Ltd.**
Annual sales (Sh.million)	400	100
Net income (Sh.million)	150	20
Outstanding number of ordinary shares (millions)	50	10
Earnings per share (Sh.)	3.0	2.0
Market price per share (Sh.)	30	15

Both companies are in the 30% income tax bracket.

Required:

(i) Maximum exchange ratio that Alpha Ltd. should agree to if it expects no dilution in its post acquisition Earning Per Share (EPS). (2 marks)

(ii) Alpha Ltd.'s post acquisition earning per share if the companies agree on an offer price of Sh.40. (2 marks)

(iii) Alpha Ltd.'s post acquisition earning per share if for every 200 ordinary shares of Beta Ltd.'s are exchanged for 5 units of 10% debenture of Sh.500 per value each. (3 marks)

(iv) Combined operating profit (EBIT) and post acquisition earning per share at point of indifference between earnings of the firm under the financing plans in (c) (ii) and (c) (iii) above. (4 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

TUESDAY: 2 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) A project requires an initial investment of Sh.500,000. It is expected to generate cash inflows of Sh.200,000 per annum for the next 5 years.

Additional information:

1. The firm is indifferent between a certain amount of Sh.181,347 at the end of the first year and the expected amount of Sh.200,000.
2. The risk free rate of return is 5% per annum.

Required:

(i) The net present value (NPV) of the project incorporating certainty equivalent coefficient (CEC).(5 marks)

(ii) Advise the management on whether the project is worthwhile. (1 mark)

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(b) An investor has decided to invest Sh.2,000,000 in the shares of two companies namely Dela Ltd. and Alpha Ltd. The projections of returns from the shares of the two companies along with their associated probabilities are as follows:

Probability	**Returns %**	
	Dela Ltd.	**Alpha Ltd.**
0.20	6	8
0.25	7	5
0.25	–3.5	14
0.30	14	–1

Required:

(i) Determine the proportion of each of the above shares required to formulate a minimum risk portfolio. (8 marks)

(ii) The amount (in shillings) that should be invested in each share using the proportions determined in (b) (i) above. (2 marks)

(c) Describe four factors that could significantly impact on the price of cryptocurrencies. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Libe Ltd. debt-equity ratio, by market value is 2:5. The corporate debt, which is assumed to yield a return similar to treasury bills have a rate of 10% before tax.

The beta value of the company's equity is currently 1.1. The average returns on stock market equity are 15%.

The company is now proposing to invest in a project which would involve diversification into a new industry.

The following information is available relating to this industry:

1. Average beta coefficient of equity capital is 1.60.
2. Average debt-equity ratio in the industry is 1:2 (by market value).
3. The corporation rate of tax is 30%.

Required:

Determine the suitable cost of capital to apply to the project. (6 marks)

(b) Rona Hotel Ltd. is currently evaluating a proposal to take over Duet Restaurant Ltd. The Board of directors of Rona Ltd. is in the process of making a proposal for acquisition of Duet Restaurant Ltd. but first needs to place a value on the company.

Rona Ltd. has gathered the following financial data:

Rona Hotel Ltd.:

1. Weighted average cost of capital 12%
2. Price to earnings (P/E) ratio 12 times
3. Shareholders required rate of return 15%

Duet Restaurant Ltd.:

1. Current dividend payment per share (DPS) Sh.2.7
2. Past five years dividend payment:

Year	**2017**	**2018**	**2019**	**2020**	**2021**
Dividend per share (DPS) (Sh.)	1.5	1.7	1.8	2.1	2.3

3. The current Earnings Per Share (EPS) is Sh.3.7
4. The number of issued ordinary shares are 5 million shares.

Additional information:

1. It is estimated that the shareholders of Duet Restaurant Ltd. require a rate of return of 10% higher than that of Rona Ltd. owing to the higher level of risk associated with Duet Restaurant Ltd.'s operations.
2. Rona Restaurant Ltd. estimates that the free cash flows from Duet Restaurant Ltd. at the end of the first year will be Sh.2.5 million and these will grow at an annual rate of 5% for the first 4 years after which the growth rate will revert to the historical earnings/dividend growth rate in perpetuity.
3. Rona Ltd. expects to raise Sh.5 million at the end of year 2 by selling off hotels of Duet Ltd. that are surplus of its needs.

Required:
Estimate values of Duet Restaurant Ltd. using the following valuation approaches:

(i) Price/earnings ratio model. (2 marks)

(ii) Dividend growth model. (3 marks)

(iii) Discounted free cash flow basis. (5 marks)

(c) Discuss Modigliani and Miller's proposition in a real estate finance context clearly stating the assumptions of the theory. (4 marks)

(Total: 20 marks)

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QUESTION THREE

(a) Evaluate five benefits of a currency swap. (5 marks)

(b) A United States (US) company buys goods worth 1,440,000 Euros (€) from a German company payable in 30 days. The US company wants to hedge against the Euro (€) strengthening against the United States dollar ($).

The following exchange rates are provided:

Current spot rate: $/€ 0.9215 – 0.9221
Futures exchange rate: $/€ 0.9245.

The standard size of a 3 month € futures contract is €125,000. In 30 days time, the spot rate is 0.9345 – 0.9351 $/€ and closing futures price will be 0.9367 $/€.

Required:
Determine the net outcome of the futures currency hedge. (5 marks)

(c) Bezo Construction Company Ltd. made a Sh.20 million bond issue 5 years ago when interest rates were substantially high. The interest rates have now fallen and the firm wishes to retire this old debt and replace it with a new and cheaper one. Given below are details about the two bond issue:

Old Bond: The outstanding Sh.20 million bond has a nominal value of Sh.1,000 and a coupon rate of 20%. They were issued 5 years ago with a 25-year maturity. They were initially sold at 5% discount to attract investors and the firm incurred a floatation cost of Sh.450,000. The bond is callable at Sh.1,150 per unit.

New Bond: The new bond issue of Sh.20 million would have Sh.1,000 nominal value per unit and 18% coupon rate. They would have a 20-year maturity and will be sold at 10% discount to attract investors. Floatation cost on the new bond are estimated at Sh.550,000.

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Assume two months overlapping period and corporation tax rate of 30%.

Required:

(i) Determine the incremental initial cash outlay required to issue the new bond. (4 marks)

(ii) Calculate the annual cash flow saving (if any), expected from the bond refinancing. (3 marks)

(iii) Determine the net present value (NPV) of the bond refinancing and hence advise the company accordingly. (3 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Assess four circumstances under which a company would consider reorganising its operations rather than liquidating. (4 marks)

(b) In relation to corporate restructuring and reorganisation, discuss the potential advantages for a company undertaking the divestment of one of its division by means of:

(i) A sell off. (2 marks)

(ii) A demerger. (2 marks)

(iii) A divestment. (2 marks)

(c) Ngao Ltd. is considering investing in two capital investment projects; X and Y. The projects cash flows are provided as shown below:

	Project	
Year	**X**	**Y**
	Cash flow Sh.“000”	**Cash flow Sh.“000”**
0	(40,000)	(80,000)
1	(80,000)	(40,000)
2	(120,000)	-
3	400,000	240,000

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The funds available for investment in both projects are restricted as follows:

Year	**Amount Sh.“000”**
0	100,000
1	80,000
2	60,000

Additional information:

1. None of the projects will delay, that is, both investments will start in year 0.
2. The funds not utilised in one year shall not be available for investment in the subsequent years.
3. Both projects are divisible, that is, a project can be undertaken in part or in whole.
4. The cost of capital is 13%.

Required:

(i) Formulate a linear programming model to solve the problem. (4 marks)

(ii) Using the graphical approach, solve the linear programming model and hence determine the proportion of each project to be undertaken to maximise net present value (NPV). (6 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Summarise four objectives of the International Monetary Fund (IMF). (4 marks)

(b) Discuss four advantages of Foreign Direct Investment (FDI). (8 marks)

(c) The following information relates to the performance of three portfolios; A, B and C during the year ended 30 June 2022:

Portfolio	**Average return (%)**	**Standard deviation (%)**	**Covariance of portfolio return with market returns**
A	17.55	30	0.0088
B	13.26	34	0.0750
C	9.34	28	0.0021

Additional information:

1. The market return and the risk-free rate averaged 14% and 7% respectively during the year ended 30 June 2022.
2. The standard deviation of the market is 10%.

Required:

Evaluate the performance of the three portfolios using:

(i) Sharpe's performance measure. (4 marks)

(ii) Treynor's performance measure. (4 marks)

(Total: 20 marks)

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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

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) Treetop Limited is considering an investment project in the tourism industry worth Sh.48 million which will be a diversification from the mainstream activities.

The Sh.48 million project cost will be financed as follows: Sh.10 million using internal funds; Sh.20 million using a rights issue and Sh.18 million with long-term loans.

The investment is expected to generate pretax net cash inflows of approximately Sh.14 million per year for a period of 10 years. The residual value at the end of the 10 year period will be Sh.15 million after taxes. As the investment is in an area where the government wishes to develop, a subsidised loan of Sh.8 million out of the total Sh.18 million is available. This will cost 2% below the company's normal cost of long-term debt finance which is 8%.

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Additional information:

1. The company's equity beta is 0.85 and its financial gearing is 60% equity and 40% debt by value.
2. The average equity beta in the tourism industry is 1.2, and average gearing is 50% equity and 50% debt by market value.
3. The risk free rate is 5.5% per annum.
4. The market return is 12% per annum.
5. Issue costs are estimated to be 1% of debt financing (excluding the subsidised loan) and 4% for equity financing. These costs are not tax allowable.
6. The corporate tax rate is 30%.

Required:

(i) The adjusted present value (APV) of the proposed investment project. (9 marks)

(ii) Propose three circumstances under which the APV may be preferred to the net present value (NPV) approach as a method of evaluating a capital investment project. (3 marks)

(b) Dansof Limited is a juice processing firm which is solely equity financed. The company's board of directors are considering diversifying their operations by entering into the soda processing industry.

Additional information:

1. The current unlevered equity beta is 1.4 for Dansoft Limited and 1.5 for the soda processing industry respectively.
2. The gearing in the soda processing industry is on average 40%. Hence, the capital structure comprises 40% debt and 60% equity.
3. The return on market portfolio is 15%.
4. The risk free rate of return is 12%.
5. Debt finance is considered to be risk free.
6. The Hamada Model should be used to determine the levered equity beta.
7. The cost of equity will be determined using the capital asset pricing model (CAPM).
8. Corporation tax rate is 30%.

Required:
Recommend the suitable discounting rate for the new investment if the directors were to finance the new project as follows:

(i) 20% debt and 80% equity. (4 marks)

(ii) 50% debt and 50% equity. (4 marks)

Hamada Model
$\beta L = \beta U[1 + (1 - T)(D/E)]$

Where:
- βL = Levered beta
- βU = Unlevered beta
- T = Tax rate
- D/E = Debt to equity ratio

(Total: 20 marks)

QUESTION TWO

(a) Examine three practical weaknesses of the arbitrage pricing model (APM) as used in portfolio theory. (3 marks)

(b) Albert Onchiri, a finance manager at Wema Limited, is considering investing in shares of Safari Airways, a company quoted at the securities exchange.

The returns on the securities exchange index and Safari Airways shares are shown below for the five possible states of the economy that might prevail next year:

Economic condition	Probability	Market return (%)	Safari Airways return (%)
Rapid expansion	0.15	25	13
Moderate expansion	0.35	20	10
No growth	0.25	15	8
Moderate contraction	0.15	10	4
Serious contraction	0.10	4	2

Required:

(i) The expected return of Safari Airways shares. (2 marks)

(ii) The correlation between the returns on the securities exchange with the return on Safari Airways shares. (6 marks)

(iii) Comment on the result obtained in (b) (ii) above. (2 marks)

(iv) Albert Onchiri is thinking of undertaking an alternative investment but similar to that of Safari Airways's shares. If the risk free rate of return is 10%, determine the minimum required rate of return of this investment. (3 marks)

(c) Explain the following terms as used in corporate restructuring and reorganisation:

(i) Leveraged buyout (LBO). (2 marks)

(ii) Argenti's A Score Model. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Modigliani and Miller (MM) suggested that "real world considerations, primarily institutional constraints on high leverage, would prevent firms from approaching 100% debt levels".

Required:
Giving reasons, explain whether you agree with the above statement. (4 marks)

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(b) An unlevered firm operates in a perfect market and has a net operating profit (EBIT) of Sh.4,000,000. The required rate of return on assets of firms in this industry is 16%.

Assume that the firm issues Sh.10,000,000 worth of debt with a required rate of return of 14.5% and uses the proceeds to repurchase outstanding shares.

There are no corporate or personal taxes.

Required:

(i) The market value and required rate of return of this firm's shares before the repurchase transaction according to MM proposition I. (2 marks)

(ii) The market value and required rate of return of this firm's remaining shares after the repurchase transaction according to MM proposition II. (4 marks)

(c) Summarise four disadvantages of using futures contracts as financial instruments. (4 marks)

(d) The current market price per ordinary share of Kanga Ltd. is Sh.58. A call option exists on the company's shares with an exercise price of Sh.52 and with six months to maturity.

The option can only be exercised on maturity, that is, it is a European option.

The risk free rate of return is 6% and the variance of the rate of return on the shares is 15%.

Required:

Using the Black-Scholes option pricing model, estimate the value of the call option. (6 marks)

Black - Scholes Option Pricing Formula:

$$\text{Value of call} = S\,N(d_1) - K\,e^{-rt}\,N(d_2)$$

Where:

$$d_1 = \frac{\ln\left[\frac{S}{K}\right] + (r + \frac{\sigma^2}{2})\,t}{\sigma\sqrt{t}}$$

$$d_2 = d_1 - \sigma\sqrt{t}$$

S = Current value of the underlying asset
K = Strike price of the option
t = Life to expiration of the option
r = Riskless interest rate corresponding to the life of the option.
δ = Standard deviation of the underlying asset's return

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(Total: 20 marks)

QUESTION FOUR

(a) There are a number of different types of finance which can facilitate the trading of goods and services both globally and domestically.

The trade finance industry also supports and accommodates transactions that facilitate international payments, mitigate currency risk and exposure and both debt and equity financing.

Required:

In relation to the above statement, describe five types of trade finance. (5 marks)

(b) Propose three reasons why residential real estate investment trusts (REITs) are not popular with investors. (6 marks)

(c) Highlight four advantages of big data analytics in the financial sector or project finance. (4 marks)

(d) Viwanda Manufacturers Ltd.'s current earnings per share (EPS) is Sh.5.0. The company has an asset beta of 0.90 and adopts a 40% dividend payout ratio as its dividend policy. The risk-free rate of return is 5% and the equity market risk premium is 10%.

The management of Viwanda Manufactuers Ltd. intend to undertake a financial reconstruction which will result in a debt to equity ratio change from 0.15 to 0.30. Debt is considered to be risk free.
Corporation tax applicable is 30%.

Required:
Show the impact of the financial reconstruction on the weighted average of cost capital (WACC) of the firm.
(5 marks)
(Total: 20 marks)

QUESTION FIVE

(a) Songo Ltd. has decided to acquire Twiga Ltd.

The financial data for the two companies are given as follows:

	Songo Ltd.	**Twiga Ltd.**
Net sales (Sh."million")	350	45
Profit after tax (Sh."million")	28.13	3.75
Number of issued shares ("million")	7.5	1.5
Earnings per share (EPS) (Sh.)	3.75	2.5
Dividend per share (DPS) (Sh.)	1.3	0.6
Total market capitalisation (Sh."million")	420	45

Required:

(i) Pre-acquisition market price per share (MPS) of the combined firm. (2 marks)

(ii) Post acquisition earnings per share (EPS) if Twiga Ltd.'s shareholders are offered a share of Sh.30 on a share-for-share exchange. (4 marks)

(iii) If the Price-Earnings ratio of Songo Ltd. drops to 12 times after the acquisition, determine the firm's post acquisition market price per share. (2 marks)

(iv) Formulate a suitable criteria that should guide Songo Ltd. in determining whether to acquire Twiga Ltd. or not. (4 marks)

(b) Popo Ltd. is considering a project requiring an initial cash outlay of Sh.150 million. The project's life is five years after which there would be no expected salvage value. The possible incremental after tax cash inflows and associated probabilities of occurrence are as follows:

Probability	**Year 1 Net cash inflows Sh."million"**	**Conditional probability**	**Year 2 – 5 Net cash flows Sh."million"**
		0.20	40
0.50	40	0.60	50
		0.20	60
		0.10	55
0.50	45	0.70	60
		0.20	65

The company's required rate of return for this investment is 12%.

Required:

(i) Using decision tree analysis, compute the Expected Net Present Value (ENPV) of the project. (4 marks)

(ii) Compute the standard deviation of the Expected Net Present Value in (b) (i) above. (4 marks)
(Total: 20 marks)

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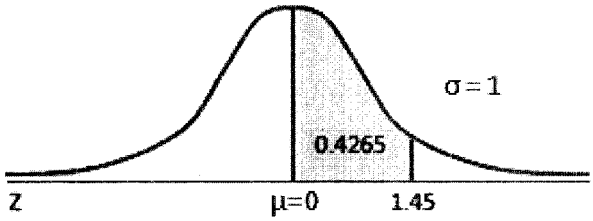
Areas Under the One-Tailed Standard Normal Curve

This table provides the area between the mean and some Z score.
For example, when Z score = 1.45 the area = 0.4265.



Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998
3.5	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998
3.6	0.4998	0.4998	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.7	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.8	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.9	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000

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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	0.6598	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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CPA ADVANCED LEVEL

ADVANCED FINANCIAL MANAGEMENT

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) Summarise four assumptions of Modigliani and Miller (MM) hypothesis. (4 marks)

(b) Zeka Ltd. has a cost of equity of 20%. The company currently has in issue 500,000 shares outstanding and selling on the Securities Exchange at Sh.200 each. The firm's earnings per share (EPS) at the end of the current year is estimated at Sh.15 and it intends to maintain a constant dividend payout ratio of 60%.
The company's expected net income is Sh.6 million and the available investment proposals are estimated to require Sh.12 million.

Required:
Using Modigliani and Miller's proposition on dividend irrelevance, show that the payment or non-payment of dividend does not affect the current value of the firm. (10 marks)

(c) XYZ Limited's share is currently selling at Sh.10. The share price will increase by 5% or reduce by 5% six months from now. The risk free rate of return is 6% and the strike price is Sh.10. The option will be exercised after six months.

Required:
Using the risk neutral approach, determine the value of a put option at the initial node of the binomial tree. (6 marks)
(Total: 20 marks)

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QUESTION TWO

(a) Imelda Nasimiyu holds the following portfolio of four risky assets and a deposit in a risk free asset:

Asset	Portfolio weight (%)	Current return (%)	Beta
A	20	12	1.5
B	10	18	2.0
C	15	14	1.2
D	25	8	0.9
Risk free asset	30	5	0

The overall return on the market portfolio of risky assets is 11%.

Required;

(i) Determine the assets that are inefficient, efficient or super efficient using the capital asset pricing model (CAPM). (6 marks)

(ii) Highlight four weaknesses of using CAPM in (a) (i) above. (4 marks)

(b) Kubwa Ltd. is considering acquiring Ndogo Ltd. The selected financial data for the two companies is as follows:

	Kubwa Ltd.	Ndogo Ltd.
Annual sales (Sh.million)	500	150
Net income (Sh.million)	40	5
Number of ordinary shares (millions)	10	2.5
Earnings per share (Sh.)	4.0	2.0
Market price per share (Sh.)	30	10

Both companies are in the 30% tax bracket.

Required:

(i) Kubwa Ltd.'s post acquisition earnings per share (EPS) assuming the two companies settle on an offer price of Sh.20 on a share for share exchange. (3 marks)

(ii) Kubwa Ltd.'s post acquisition earnings per share (EPS) assuming Ndogo Ltd.'s shareholders accept one 10% debenture (par value of Sh.1,000 each) for every 50 ordinary shares held. (3 marks)

(iii) The level of combined operating profit (EBIT) that Kubwa Ltd. will be indifferent between financing options in (b) (i) and (b) (ii) above. (4 marks)

(Total: 20 marks)

QUESTION THREE

(a) Different companies have varied aims and timings for undertaking corporate restructuring. However, the single common objective in every restructuring exercise is to minimise the disadvantages and maximise on the advantages.

Comment on the above statement highlighting five reasons for undertaking corporate restructuring. (5 marks)

(b) Distinguish between the following terms in relation to corporate restructuring and reorganisation:

(i) "Demerger" and "spin-off". (2 marks)

(ii) "Management buyout" and "management buy-in". (2 marks)

(iii) "Unbundling" and "capital re-organisation". (2 marks)

(c) The following data relates to Kaban Ltd., a company that operates in the manufacturing sector for the year ended 31 December 2020:

	Sh. "000"
Sales	25,678
Total assets	49,579
Total liabilities	5,044
Retained earnings	1,770
Net working capital	(1,777)
Earnings before interest and taxes	2,605
Market value of equity	10,098
Book value of total liabilities	5,044

The company is currently paying interest on a long term debt instrument amounting to Sh.905,000 per year and that the company's total liabilities is constituted in the ratio of 2:5 between current and non-current components.

Required:

Using the Springate model, assess the financial health of the company. (9 marks)

Note: The Springate model takes the following form:

$Z = 1.03A + 3.07B + 0.66C + 0.4D$

Where:

$A = \frac{\text{Net working capital}}{\text{Total assets}}$

$B = \frac{\text{Operating profit}}{\text{Total assets}}$

$C = \frac{\text{Net profit before taxes}}{\text{Current liabilities}}$

$D = \frac{\text{Sales}}{\text{Total assets}}$

(Total: 20 marks)

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QUESTION FOUR

(a) Discuss four defense tactics available to target companies facing hostile takeover by predators. (4 marks)

(b) Explain three differences between traditional finance and behavioural finance. (6 marks)

(c) Jaram Ltd., a United Kingdom (UK) based firm bought goods on credit worth 365,000 United States Dollars (USD) from a firm in the United States of America (USA) payable in six months time from now. The company is considering various choices in order to hedge the transactions exposure and has collected the following data:

Exchange rate (US$/1£):

Spot rate	1.3648 – 1.3722
Six months forward rate	1.3515 – 1.3655

The annual money market rates are given as follows:

	Borrowing rate (%)	Deposit rate (%)
US Dollars ($)	12	9
Sterling Pounds (£)	14	11

The foreign currency option prices (cents per Sterling Pound) for a contract size of £15,000 are as follows:

Exercise price	6-month call option	6-month put option
$1.40	4.7	9.5

Required:

Determine the amount payable using:

(i) Forward market cover. (2 marks)

(ii) Money market cover. (4 marks)

(iii) Currency options. (4 marks)

(Total: 20 marks)

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QUESTION FIVE

(a) An investor is considering introducing new classic pens into the market. The firm is contemplating investing in purchase of a new plant costing Sh.250 million. The plant has a useful life of five years and is to be depreciated to zero on a straight line basis.

Due to market uncertainties, selling price per unit, unit variable cost and annual sales volume of the new classic pens have been estimated stochastically as follows:

Unit selling price		Unit variable cost		Annual sales volume	
Value Sh.	Probability	Value Sh.	Probability	Volume	Probability
25	0.30	10	0.20	4.5 million	0.30
35	0.50	15	0.40	6 million	0.40
45	0.20	30	0.40	7.5 million	0.30

The firm will incur annual fixed operating costs excluding depreciation of Sh.20 million. The company's cost of capital is 10% and corporation tax rate applicable is 30%.

Required:

(i) The expected net present value (NPV) of the project. (4 marks)

(ii) Simulate the net present value (NPV) using the following random numbers:

(752560 658055 957530 869950 544025) and hence determine the expected Net Present Value of the project. (10 marks)

(iii) Determine the probability that the product will be a success. (1 mark)

(b) Due to restrictions in the capital markets, Rahim Ltd.'s financial manager is able to provide only Sh.900 million for investments in the next financial year.

An analysis of the project's allowable for investment during the next financial year shows the following expected net present values (ENPV) for each project:

Project	Initial investment Sh. (millions)	Net present value Sh. (millions)
P	300	120
Q	300	90
R	600	150
S	300	30
T	150	12

Project Q and R are mutually exclusive.

Required:
Advise the management on the project(s) to undertake. (5 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	0.6598	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	-	-	-	-

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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	6.5418	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

CPA ADVANCED LEVEL

PILOT PAPER

ADVANCED FINANCIAL MANAGEMENT

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) GLD Building Group is contemplating a takeover of Diarim Enterprise Ltd., a manufacturer of earthmoving equipment.

The following information is available about the two companies.

	GLD	Diarim
Number of shares in issue	6,000,000	4,000,000
Dividend per share	Sh.0.30	Sh.0.09
Price per price	Sh.8.91	Sh.3.20

Additional information.

1. The cost of equity capital for both firms is 10%.
2. From a level of Sh.0.06 per share 6 years ago, GLD's dividends has grown to the current level of Sh. 0.09 per share.
3. GLD'S management is confident that managerial synergies arising as a result of proposed takeover will enable them to increase Diarim Ltd's past dividends growth rate by a further 1%.
4. The merger will involve transactions cost of Sh.500000.

Required:

Based on the approximate dividend growth rate, estimate the post-acquisition value of Diarims Ltd. using the dividend growth model, and evaluate the value gain arising as a result of the takeover. (7 marks)

(b) (i) Discuss the main economic and financial justification advanced for mergers and acquisitions. (4 marks)

(ii) According to evidence, to what extent do the shareholders of the companies tend to benefit from such an activity? (2 marks)

(iii) According to the evidence, to what extent do the managers of companies tend to benefit from such activity? (2 marks)

(iv) Explain what are referred to as "managerial" motives for mergers and acquisitions (M&A). (5 marks)

(Total: 20 marks)

QUESTION TWO

Arkard, an investment specialist has been entrusted with Sh.10 million by a collective investment scheme (unit trust) and instructed to invest the money optimally over a two-year period.

Parts of the instruction are that:

1. The funds be invested in one or more of four specified projects and the money market.
2. The four projects are not divisible and cannot be postponed.
3. The unit requires a return of 24% over the two years. The following are details of the investment in the projects and the money market.

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	Initial Cost	Return over two years	Expected Standard deviation of returns over the two years
	Sh."000"	**%**	**%**
Project 1(p1)	6,000	22	7
Project 2(p2)	4,000	26	9
Project 3(p3)	6,000	28	15
Project 4(p4)	6,000	34	13
Money market (MM)	1,000 (minimum)	18	5

The correlation coefficients of returns over the two years are as follows:

Between Projects	Between projects &market portfolio (MP)	Between projects and the money market (mm)	Between money market and market portfolio
P1&p2=0.70	p1&mp=0.68	p1&mm=0.40	MM&MP=0.4
P2&p3=0.0	p2&mp=0.65	p2&mm=0.45	
P1&p3=0.62	p3&mp=0.75	p3&mm=0.55	
P1&p4=0.56	p4&mp=0.88		
P2&p4=0.57			
P3&p4=0			

Over the two year period, the risk free rate is estimated to be 16%, the market portfolio return is 27% and the variance of the return on the market 100%.

By analyzing the two assets portfolios:

(a) Use the mean variance dominance rule to evaluate how Arkard should invest the Sh.10 million. (8 marks)

(b) Determine the betas and required rates of return for the portfolios then use the capital assets pricing model to evaluate how Arkard should invest the Sh.10 million. (8 marks)

(c) Examine four criticisms of the Modigliani and Miller (MM) hypothesis without taxes. (4 marks)

(Total: 20 marks)

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QUESTION THREE

An investor is considering introducing a new product code named super pad into the market. This would involve purchasing a plant costing Sh.300 million.

Additional information:

1. The plant has a useful life of five years and is to be depreciated on a straight line basis.
2. The salvage value is nil.
3. Due to market uncertainties, the sale price, variable cost and sales volume of the super pad have been estimated stochastically as follows:

Selling price		**Variable Cost**		**Sales Volume**	
Value	**Probability**	**Value**	**Probability**	**Value**	**Probability**
Sh.		**Sh.**		**units**	
30	0.20	10	0.20	4 million	0.20
40	0.60	20	0.50	6 million	0.50
50	0.20	30	0.30	8 million	0.30

4. The company's cost of capital is 12% and the corporate tax rate is 30%.

Required:

(a) The expected net present value (NPV) of the new product using expected values for each variable. (4 marks)

(b) The expected NPV by performing ten runs using the following random numbers for each variable.

Selling price:	76	64	02	53	16	16	55	54	23	36
Variable cost:	20	82	74	08	01	69	36	35	52	99
Sales volume:	55	50	29	58	51	14	86	24	39	47

Required:
Determine the expected NPV as simulated. (10 marks)

(c) The probability that this product will be a success. (1 mark)

(d) Discuss the advantage (merits) and disadvantages (limitations) of simulation analysis. (5 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Unbundling is the process of selling off incidental non-core businesses to release funds, to reduce gearing in order to allow management to concentrate on their chosen core business.

In relation to corporate restructuring and reorganization, briefly explain the following forms of unbundling:

(i) Management buyout (MBO). (2 marks)

(ii) Management buy in (MBI). (2 marks)

(iii) Spin off or demerger. (2 marks)

(iv) Sell off or divestment. (2 marks)

(b) Rhinox LTD is planning to invest in an expansion plan. The company has estimated Sh.20 million as the initial investment for the expansion.

The plan is expected to generate Sh.5 million annual after tax cash inflow for the next 5 years. Cost of capital is 10%.

Required:

(i) The NPV of the project. (2 marks)

(i) The value of the call option to delay if the risk free rate of return is 7% and standard deviation of returns is 30%.

(6 marks)

(c) In relation to financial risk management, briefly explain four advantages of financial derivatives. (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Alpha will receive US dollars 400,000 in 3 month's time. The company treasurer has determined the following:

Spot rate	Dollars 1.8250-Dollars 1.8361
3 months forward	Dollars 1.8338-Dollars 1.8452

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Money market rates	Borrowing	Deposit
US Dollars	5.1%	4.2%
Sterling	5.75%	4.5%

The money market rates are annual rates.

Required:

Determine whether a forward contract hedge or a money market hedge should be undertaken. (8 marks)

(b) Explain four advantages of investing in Real Estate Investment Trusts. (8 marks)

(c) Explain the meaning of the term crypto currency and give an example. (4 marks)

(Total: 20 marks)

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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) Modern portfolio theory applies advanced mathematical models to determine the correlation between risk and return of investments. While it is commonly used, it does have some potential drawbacks.

In relation to the above statement, examine six shortcomings of the modern portfolio theory. (6 marks)

(b) Softex Limited is contemplating building a 3 - asset portfolio comprising assets of firms A, B and C.

The company wishes to invest Sh.5 million in the shares of these firms. Given below are the number of shares and the current market prices per share for each company:

Company	Number of shares	Current market price per share Sh.
A	50,000	50
B	32,500	40
C	40,000	30

The forecasted market price for each share after one year and their probability of occurrence in different states of nature are given as follows:

State of nature	Probability	Forecasted share price after 1 year (Sh.) Company		
		A	B	C
Boom	0.30	60	50	36
Normal	0.40	55	46	34
Recession	0.30	48	35	27

Additional information:

The correlation coefficient of the returns of the assets are given as follows:

A and B	=	+0.98
A and C	=	+0.76
B and C	=	+1

Required:

(i) The expected portfolio return. (4 marks)

(ii) Using the mathematical model, compute the portfolio risk. (6 marks)

(c) Explain four reasons why derivative instruments have continued to become more popular in financial markets. (4 marks)

(Total: 20 marks)

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QUESTION TWO

(a) Your country is considering establishing a mortgage refinancing company to support an affordable housing project for its citizens. The company's mandate will be to provide secure, long-term finance to primary mortgage lenders who will then advance the same to individual borrowers.

Required:
In the context of the above statement:

(i) Identify three types of primary mortgage lenders that are likely to benefit from the mortgage refinancing facility in your country. (3 marks)

(ii) Summarise three objectives of a mortgage refinancing company in an economy. (3 marks)

(iii) Highlight three minimum requirements that one must fulfil in order to qualify for a mortgage in real estate financing. (3 marks)

(b) Mamba Ltd.'s existing debt to equity ratio is 0.5 and its asset beta is 0.40. The company decides to undergo a financial reconstruction during which it would repurchase its outstanding shares using borrowed debt. This will change its debt to equity ratio to 0.90.

Additional information:

1. The risk-free rate is 6%.
2. The return of the market portfolio is 14%.
3. The firm adopts a 60% payout ratio and expects to generate earnings per share (EPS) of Sh.6.0 in the current financial year.
4. The firm generates a net income of Sh.12 million and equity capital is Sh.96 million.
5. Corporation tax rate applicable is 30%.

Required:

(i) The firm's levered equity beta before and after the financial reconstruction. (3 marks)

(ii) The firm's cost of equity before and after the financial reconstruction using the capital asset pricing model (CAPM). (3 marks)

(iii) Analyse the impact of the financial reconstruction on the firm's share price. (5 marks)

(Total: 20 marks)

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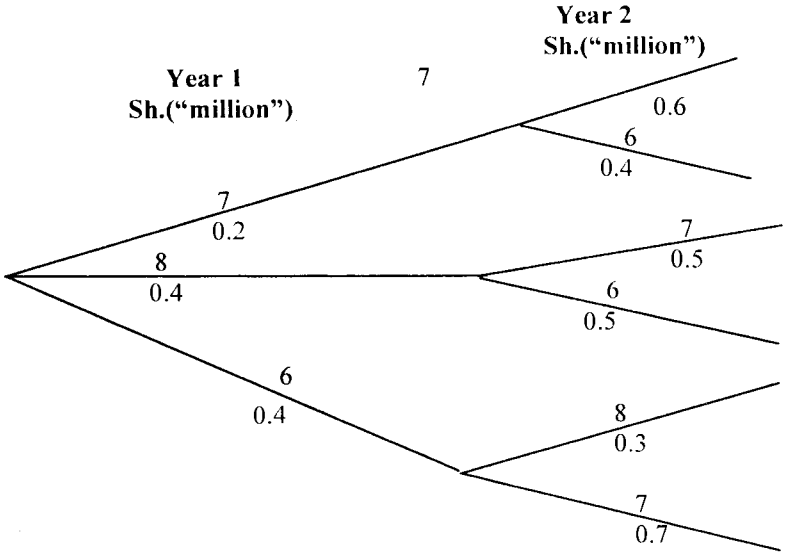
QUESTION THREE

(a) XYZ Ltd. is considering buying a new machine for its manufacturing processes at a cost of Sh.10 million. The machine is expected to have a useful life of 2 years with no salvage value. The future net cash flows to be generated in each year are uncertain. The estimated cash flows and probability of their occurrence are given as follows:



Additional information:

1. The possibility of abandonment exists after 1 year.
2. The abandonment value is estimated at Sh.8 million.
3. The cost of capital is 13%.

Required:

(i) Expected net present value of the project. Ignore the abandonment option. (4 marks)

(ii) Using suitable computations, justify whether abandonment of the project is a viable option. (4 marks)

(iii) Determine the expected net present value (ENPV) of the project assuming it is advantageous to abandon the project after 1 year. Comment on the financial implications to the firm. (3 marks)

(b) Zeltex Limited intends to acquire a mainframe computer for processing and storage of its data. The computer is expected to cost Sh.800,000. The finance director has made two proposals for acquiring the computer.

Proposal 1: Leasing option

Lease the computer for 5 years before the new model is introduced. The lease payments constitute Sh.150,000 per annum for 5 years. Repair and maintenance costs incurred are estimated at Sh.100,000 per annum for 5 years. The firm can choose to exercise the option to buy the computer for Sh.100,000 after 5 years.

Proposal 2: Purchase option

The firm can borrow Sh.800,000 from a commercial bank at an interest rate of 16% per annum to finance the purchase of the asset. The interest on the loan is payable on a reducing balance basis.

The salvage value of the asset is estimated to be Sh.150,000 after 5 years. Depreciation is on a reducing balance basis. Corporate tax rate is 30%. Service and maintenance cost would amount to Sh.80,000 per annum.

Required:

(i) An evaluation of both Option 1 and Option 2. (8 marks)

(ii) Advise the company on whether it should buy or lease the asset. (1 mark)

(Total: 20 marks)

QUESTION FOUR

(a) In relation to international debt instruments:

(i) Explain the meaning of the term "Eurobond". (2 marks)

(ii) Discuss four benefits of Eurobond financing. (4 marks)

(b) Dinosoft Limited's capital structure, which it considers optimal, is given as follows:

	Sh."million"
Debenture capital	25
Reserves	15
Ordinary share capital	45
Preference share capital	15
	100

Additional information:

1. The firm's historical earnings per share (EPS) and dividend per share (DPS) over the last five years are given as follows:

Year to 31 December	**EPS**	**DPS**
	Sh.	**Sh.**
2016	6.5	3.00
2017	6.8	3.10
2018	7.0	3.30
2019	7.5	3.50
2020	8	3.60

2. The company's ordinary shares currently sell at Sh.50 per share at the Securities Exchange. New ordinary shares will be sold at this price.

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3. The company's expected net income for the year ending 31 December 2020 is Sh.40,000,000. Dinosoft Limited adopts a constant payout ratio of 40% as its dividend policy.
4. The company can raise additional capital as follows to finance acceptable investment projects:

Equity capital: Utilise all available retained earnings for the year ended 31 December 2020. Any extra external equity will be raised through issue of new ordinary shares at a floatation cost of 10% of the issue price.

Preference share capital: New preference shares will be issued at 11% coupon rate. The par value of each share is Sh.100. New preference shares will be issued at par subject to a floatation cost of Sh.5 per share

Debentures: New debentures can be sold at a coupon rate of 13%. The debentures will be issued at par.

5. Corporation tax rate is 30%.

Required:

(i) Calculate the breakpoint in the marginal cost of capital schedule. (2 marks)

(ii) The weighted marginal cost of capital (WMCC) in each of the intervals between the breakpoints. (6 marks)

(iii) Dinosoft Limited has the following potential investment opportunities.

Project	Initial cash outlay Sh.	Internal rate of return (%)
V	10,000,000	16
W	20,000,000	14
X	10,000,000	11
Y	20,000,000	10
Z	10,000,000	8

Required:

Using the investment opportunities schedule, advise on which project(s) to accept and hence determine the firm's optimal capital budget. (6 marks)

(Total: 20 marks)

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QUESTION FIVE

(a) The number of hostile takeovers relative to friendly or uncontested takeovers is small. However, drama surrounds them and they usually capture the interest of the press and the public.

In light of the above statement, examine four legal measures that could be applied to counter mergers and acquisitions. (4 marks)

(b) Propose four types of financial synergies that could arise as a result of a merger. (4 marks)

(c) Duncan Kipchumba, the director of Wote Ltd. met Lewis Khaminwa, the director of Toa Limited during a conference in Kisumu City. They had some discussion about their two companies. After flying back to Nairobi, Duncan Kipchumba proposed to his board of directors the acquisition of Toa Ltd.

During his presentation to the Board, he stated that "as a result of this takeover, we will diversify our operations and earnings per share will rise by 13% bringing great benefits to our shareholders".

No bid has yet been made and Wote Limited currently owns 2% of Toa Ltd. A bid would be based on an exchange of shares between the two companies which would be one Wote Ltd. share for every six Toa Ltd. shares.

Financial data for the two companies include the following:

	Wote Ltd. Sh.("million")	**Toa Ltd. Sh.("million")**
Turnover	56.0	42.0
Profit before tax	12.0	10.0
Profit attributable to ordinary shareholders	7.8	6.5
Dividends payable	3.2	3.4
	4.6	3.1
Issued ordinary share capital (Sh."million")	20	15
Market price per share (MPS) (Sh.)	3.20	0.45
Par value per share (Sh.)	0.50	0.10

Required:

(i) The pre-merger price to earnings (P/E) ratio for both companies. (4 marks)

(ii) Post merger earnings per share (EPS). (3 marks)

(iii) Explain whether you agree with Duncan Kipchumba when he says that the takeover would bring great benefits to ordinary shareholders. Support your answer with relevant calculations. (2 marks)

(iv) The post-acquisition price of a share of Wote Ltd. assuming the bid is successful. (3 marks)

(Total: 20 marks)

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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) Citing four reasons, argue the case why firms undertake capital rationing decisions in your country. (4 marks)

(b) You have been appointed by Biosoft Limited to review three investment project proposals. The investment funds are limited to Sh.8.000,000 in the current financial year. Details of the three possible investment projects, none of which can be delayed are given below:

Project 1: An investment of Sh.3,000,000 in workstation assessments. Each assessment would be on an individual employee basis and would lead to a saving in labour costs from increased efficiency and reduced absenteeism. In money terms, the savings in labour costs are expected to be as follows:

Year	1	2	3	4	5
Cash Flow (Sh. "000")	850	900	950	1,000	950

Project 2: An investment of Sh.4,500,000 in individual workstations for staff that is expected to reduce administration costs by Sh.1,408.000 per annum in money terms for the next five years.

Project 3: An investment of Sh.4,500,000 in new ticket machines. A net cash savings of Sh.1,200,000 per annum is expected in current money terms and is projected to increase by 3.6% per annum due to inflation during the five years life of the machines.

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The money cost of capital for Biosoft Limited is 12%.

Required:

Advise the company on the project(s) to invest the available funds and calculate the resultant net present value (NPV) assuming:

(i) The three projects are divisible. (7 marks)

(ii) None of the projects is divisible. (3 marks)

(c) Dafina Limited is an export - import firm based in Kenya.

On 1 August 2020, the company exported tea to the United States of America (USA) on a 3-month credit amounting to US$10,000,000.

Additional information:

1. The rates in the forex and money market were as follows:

	Ksh/1US$
1 August 2020	105
1 December 2020	101
	Interest rates (per annum)
Kenya	18%
USA	12%

2. The customer will settle the amount on 1 December 2020.

Required:

(i) Using the interest rate parity, determine the expected 3-months forward exchange rate as at 1 December 2020. (2 marks)

(ii) Using suitable computations, advise Dafina Limited on the better hedging strategy between a forward market and money market hedge. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) In this era of globalisation, the functions of finance executives of multinational corporations (MNCs) have become complex.

Propose five factors that the Chief Finance Officer (CFO) of a MNC should consider in making international financial management decisions. (5 marks)

(b) The arbitrage pricing theory (APT) and the capital asset pricing model (CAPM) have received much attention from practitioners and academicians for their use in asset pricing and valuation.

Required:

Explain the difference between APT and the CAPM with respect to:

(i) Investor utility functions. (2 marks)

(ii) Distribution of returns. (2 marks)

(iii) The market portfolio. (2 marks)

(c) Zachary Mosomi, an investor holds the following portfolio of four risky assets and a deposit in a risk-free asset.

He has provided the information below:

Asset	Weighting (%)	Current return (%)	Beta
A	20	12	1.5
B	10	18	2.0
C	15	14	1.2
D	25	8	0.9
Risk-free asset	30	5	0

The overall return on the market portfolio of risky assets is 11%.

Required:

(i) Portfolio return and beta. (2 marks)

(ii) Using the results in (i) above, deduce the type of investor Zachary is. (1 mark)

(iii) Using suitable computations, determine the assets that are inefficient, efficient or super efficient. (4 marks)

(iv) Calculate the equilibrium return for the portfolio. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) (i) Explain the meaning of the term "unbundling" as used in corporate restructuring and reorganisation. (2 marks)

(ii) Describe four forms of unbundling a firm. (4 marks)

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(b) Bamboo Ltd. is currently an unlevered firm. The firm is expected to generate a constant operating profit (EBIT) of Sh.20 million per annum in perpetuity. The firm's current market value is Sh.80 million.

The management is considering undertaking an expansion activity by use of debt financing. The firm's financial analysts have estimated that the present value of any future financial distress cost is Sh.8 million. However, the probability of distress would increase with leverage according to the following schedule:

Value of debt Sh. "million"	Probability of financial distress (%)	Pre-tax cost of debt (%)
2.5	0.00	4
5.0	1.25	6
7.5	2.5	10
10	6.25	15
12.5	12.50	18
15	31.25	20
20	75	22

Corporation tax rate applicable is 30%.

Required:

(i) The current cost of equity and weighted average cost of capital (WACC) of the firm. (2 marks)

(ii) Using the "pure" Modigliani and Miller (MM) with tax model, determine the optimal level of debt. (4 marks)

(iii) Evaluate the firm's optimal capital structure when financial distress costs are included. (8 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Evaluate five defensive tactics available to a firm threatened by a hostile takeover in the industry. (5 marks)

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(b) Apco Limited is considering to acquire Alpha Limited. The following are the financial data for the two companies:

	Apco Limited	Alpha Limited
Net sales (Sh.)	350,000	45,000
Profit after tax (Sh.)	18,130	3,750
Number of outstanding ordinary shares	7,500	1,500
Earnings per share (EPS)	3.75	2.50
Dividend per share (DPS)	1.30	0.60
Total market capitalization (Sh.)	420,000	45,000

Required:

(i) Determine the pre-merger market value per share for both companies. (2 marks)

(ii) Determine the post merger EPS, market price per share (MPS) and price earnings (P/E) ratio. (3 marks)

(iii) Compare Apco Limited's EPS assuming Alpha Limited's shareholders are offered Sh.100,000, 5% convertible debenture for each share held in Alpha Limited.

Assume a corporate tax rate of 30%. (2 marks)

(c) Makazi Ltd.'s current earnings per share is Sh.6.0. The firm has in issue 50 million ordinary shares which have a par value of Sh.20 each. The firm's total revenue and capital reserves amounts to Sh.500 million.

The company has an asset beta of 0.9 and a retention ratio of 60%.

The management of Makazi Ltd. intends to undertake a financial reconstruction which will result in a debt-equity ratio change from 0.45 to 0.2.

Additional information:

1. The risk free rate of return is 8%.
2. Expected rate of return of a market portfolio is 18%.
3. Corporation tax rate is 30%.
4. The firm's return on equity before and after the financial reconstruction will remain unchanged.

Required:
Evaluate the impact of the financial reconstruction on the firm's share price. (8 marks)
(Total: 20 marks)

QUESTION FIVE

(a) Discuss four circumstances in which a decision could be made to liquidate a failing company rather than attempt to carry out a reconstruction. (4 marks)

(b) Examine four advantages of investing in real estate. (4 marks)

(c) Zedtech Ltd. wishes to design a new product so as to catch the interest of their target market which is currently very competitive.

The company will have to invest Sh.100,000 at the beginning of the first year (year 0) for the design and model testing of the new product.

The company's marketing manager believes that there is an 80% chance that this phase will be successful and the project will continue. If phase 1 is not successful, the project will be abandoned with zero salvage value.

The next phase, if undertaken would consist of making the moulds and producing ten prototype products at a cost of Sh.500,000 at the end of the first year. If the products test well, the company would go into full scale production. If they do not, the moulds and prototypes will all be sold for Sh.400,000. The manager estimates that there is a 90% probability that the products will pass testing and phase 3 will be undertaken.

Phase 3 consists of changing over the firm's current production line so as to be able to produce the new products. This will cost Sh.1,000,000 at the end of year 2. If the economic conditions are favourable at this juncture, the net value of the firm's cash flows are estimated to be Sh.3,500,000, while if the economic conditions are unfavourable the net cash inflows are estimated at Sh.2,500,000. Both net cash flows are expected at the end of year 3, and the two states of economy are equally likely.

The firm's opportunity cost of capital is 11%.

Required:

(i) Construct a decision tree to depict payoffs, and hence determine the expected net present value (NPV) of the project. (6 marks)

(ii) The project's expected standard deviation and coefficient of variation. (5 marks)

(iii) Assuming the firm's average project had a coefficient of variation of between 1.0 and 2.0, explain whether the project would be of high, low or average risk. (1 mark)
(Total: 20 marks)

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(b)

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	-	-	-	-

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(a)

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

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(b)

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

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

(c)

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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) Discuss four reasons for restructuring and reorganising an organisation. (8 marks)

(b) Professor Edward Altman's model for prediction of bankruptcy is given as follows:

$Z - score = 1.2x_1 + 1.4x_2 + 3.3x_3 + 0.6x_4 + 0.999x_5$

x_1, x_2, x_3, x_4 and x_5 are the financial ratios which according to Prof. Altman have the discriminating power.

Where:
x_1 = Networking capital/Total assets
x_2 = Retained earnings/Total assets
x_3 = Operating profit (EBIT)/Total assets
x_4 = Market value of equity shares/Book value of debt including preference share capital
x_5 = Sales/Total assets

Given below are summarised financial statements of Alpha Limited for the year ended 31 December 2019:

Alpha Limited
Income statement for year ended 31 December 2019

	Sh."000"
Sales	400,000
Cost of sales	(300,000)
Gross earnings	100,000
Operating expenses	(60,000)
Operating profit	40,000
Financing cost: Interest	(10,000)
Profit before tax	30,000
Corporation tax @ 30%	(9,000)
Profit after tax	21,000
Ordinary dividend proposed and paid	(11,000)
Retained profit for the year	10,000

Alpha Limited
Statement of financial position as at 31 December 2019

	Sh."000"
Assets:	
Non-current assets	300,000
Current assets	100,000
Total assets	400,000
Financed by:	
Ordinary share capital (Sh.10 each)	100,000
Retained profit	120,000
Share premium	40,000
Equity capital	260,000

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	Sh."000"
Total current liabilities	20,000
12% preference share capital	40,000
10% debenture capital	80,000
Total equity and liabilities	400,000

In this model, a Z – score of 2.7 or more indicates no signs of failure and a Z – score of 1.8 or less indicates there are signs of failure. The firm's ordinary shares are currently trading at Sh.15 each.

Required:

(i) The Z – score for Alpha Limited. (5 marks)

(ii) Comment on the results obtained in (b) (i) above. (1 mark)

(c) Chanzu Ltd. is considering a project which would cost Sh.5,000,000 now. The annual benefits for four years, would be a fixed income of Sh.2,500,000 per annum plus other savings of Sh.500,000 in year 1, rising by 5% each year because of inflation. Running costs will be Sh.1,000,000 in the first year but would increase at a rate of 10% each year because of inflating labour costs.

The general rate of inflation is expected to be 7.5% per annum and the firm's required nominal rate of return is 16%.

Required:

(i) Advise the management of Chanzu Limited on whether to undertake the project. (4 marks)

(ii) Comment on the impact of inflation in (c) (i) above. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) The following information relates to two mutual funds operating in your country:

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	Omega Mutual fund	Beta Mutual fund
Realised return	13%	18%
Beta	1.0	2.0
Standard deviation	19%	15%

Additional information:

1. The return on the market index is 12%.
2. The risk free rate is 8%.

Required:

For each of the above mutual funds, compute the following performance index scores:

(i) Jensen's alpha. (2 marks)

(ii) Treynor's alpha. (2 marks)

(iii) Sharpe index for the funds and the market. (3 marks)

(b) The estimated factor sensitivities of Diamond Ltd. to Fama-French factors and the Pastor-Stambaugh model factors and the risk premium associated with those factors are given in the table below:

	Factor sensitivity	Risk premium (%)
Market factor	1.05	5.00
Size factor	–0.65	2.50
Value factor	–0.20	4.50
Liquidity factor	0.20	4.50

The treasury bill rate is 5%

Required:

(i) The required rate using the Fama-French model. (3 marks)

(ii) The required rate of return using the Pastor-Stambaugh model (PSM). (3 marks)

(c) You have recently been hired as a financial manager at Panblock Limited, a locally incorporated company that deals in imported building materials from the United States of America (USA). As the person in charge of negotiating the exchange rates, you have noted the following indicative exchange rates and interest rates:

3-months forward exchange rates	105 KES/USD
Spot exchange rate	100 KES/USD
3-months interest rate in Kenya	8% per annum
3-months interest rate in USA	5.8% per annum

Assume that Panblock Limited can borrow as much as KES 1,000,000.

Required:

(i) Determine whether the interest rate parity (IRP) is currently holding. (2 marks)

(ii) Demonstrate how you could undertake a covered interest arbitrage assuming that IRP is not holding. (4 marks)

(iii) Determine the arbitrage profit. (1 mark)

(Total: 20 marks)

QUESTION THREE

(a) Explain the difference between the following terms as applied in mortgage and financial markets:

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

(ii) "Fixed-rate mortgage" and "adjustable-rate mortgage". (2 marks)

(iii) "Lien" and "recourse". (2 marks)

(b) The shareholders of Mali Investment Holdings have for the last two years managed to save an accumulated fund of Sh.15 million available for investment. A financial analyst they hired to appraise some possible projects they can invest in, has availed the following information:

Project	Initial cash outlay Sh."000"	Expected return (%)	Standard deviation (%)
P	9,000	12	2.5
Q	7,000	21	1.8
R	6,000	16	2.3
S	8,000	14	1.6

The co-variances between various projects contribution are as follows:

Project pairing	Covariance
PQ	– 3.1
PR	1.3
PS	– 4.1
QR	1.5
QS	1.7
RS	2.7

Additional information:

1. The management is planning to invest by pairing the projects.
2. The maximum capital that can be invested is the accumulated fund as shown above.
3. Any paired project is mutually exclusive and none of the projects is divisible.

Required:

(i) For each possible project pair combination, calculate the expected return, correlation coefficient and standard deviation. (12 marks)

(ii) Advise the shareholders of Mali Investment Holdings on the optimal project pair based on the mean variance criterion. (2 marks)

(Total: 20 marks)

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QUESTION FOUR

(a) Explain the following terms as used in the context of international parity conditions:

(i) Interest rate parity. (2 marks)

(ii) Purchasing power parity. (2 marks)

(iii) International Fisher effect. (2 marks)

(b) An investor has acquired a call option whose exercise price is Sh.100. The option's premium is Sh.5 per option.

The following are the possible market prices (in shillings) of the option:

114 112 110 108 106 105 104 102 100 98 96 94

Required:

(i) Determine the options value based on each of the above market prices. (3 marks)

(ii) Determine the profit or loss associated with the option on the basis of each of the possible market prices. (3 marks)

(iii) Represent the information in (b) (ii) above in a diagram where the x – axis represents market price and y – axis represents profit or loss for the option buyer. (3 marks)

(iv) Interpret the graph in (b) (iii) above. (1 mark)

(c) Describe four types of real options available to the management while making strategic capital budgeting decisions of a firm. (4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Explain six reasons why mergers and acquisition deals fail despite good planning. (6 marks)

(b) Zeltex Ltd. is an unlevered firm. The firm expects to generate operating profit (EBIT) of Sh.20 million each year to perpetuity.

The firm's current market value is Sh.80 million and pays corporation tax at the rate of 30%. The management of the firm is considering the use of debt financing. The firm's financial analysts have estimated that the present value of any future financial distress costs is Sh.8 million and that the probability of financial distress would increase with leverage according to the following schedule:

Value of debt (Sh.m)	Probability of financial distress	Pre-tax cost of debt (%)
2.5	0.00	6
5.0	0.0125	7.5
7.5	0.025	9
10	0.0625	10
12.5	0.125	11.5
15	0.3125	12.5
20	0.75	14

Additional information:

1. The firm's ungeared asset beta is 0.60.
2. The risk free rate of return is 8%.
3. Expected return of the market portfolio is 15%.
4. The cost of equity of a levered firm shall be captured using capital asset pricing model (CAPM).
5. The Hamada model shall be applied to capture the levered equity Beta.

Required:

(i) The current cost of equity and weighted average cost of capital (WACC). (2 marks)

(ii) The firm's optimal level of debt using the "pure" Modigliani and Miller with corporation tax model. (4 marks)

(iii) The firm's optimal weighted average cost of capital (WACC) and hence its optimal capital structure proportions. (8 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	0.6598	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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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) Citing four reasons, argue the case why firms undertake capital rationing decisions in your country. (4 marks)

(b) You have been appointed by Biosoft Limited to review three investment project proposals. The investment funds are limited to Sh.8.000,000 in the current financial year. Details of the three possible investment projects, none of which can be delayed are given below:

Project 1: An investment of Sh.3,000,000 in workstation assessments. Each assessment would be on an individual employee basis and would lead to a saving in labour costs from increased efficiency and reduced absenteeism. In money terms, the savings in labour costs are expected to be as follows:

Year	1	2	3	4	5
Cash Flow (Sh. "000")	850	900	950	1,000	950

Project 2: An investment of Sh.4,500,000 in individual workstations for staff that is expected to reduce administration costs by Sh.1,408.000 per annum in money terms for the next five years.

Project 3: An investment of Sh.4,500,000 in new ticket machines. A net cash savings of Sh.1,200,000 per annum is expected in current money terms and is projected to increase by 3.6% per annum due to inflation during the five years life of the machines.

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The money cost of capital for Biosoft Limited is 12%.

Required:

Advise the company on the project(s) to invest the available funds and calculate the resultant net present value (NPV) assuming:

(i) The three projects are divisible. (7 marks)

(ii) None of the projects is divisible. (3 marks)

(c) Dafina Limited is an export - import firm based in Kenya.

On 1 August 2020, the company exported tea to the United States of America (USA) on a 3-month credit amounting to US$10,000,000.

Additional information:

1. The rates in the forex and money market were as follows:

	Ksh/1US$
1 August 2020	105
1 December 2020	101
	Interest rates (per annum)
Kenya	18%
USA	12%

2. The customer will settle the amount on 1 December 2020.

Required:

(i) Using the interest rate parity, determine the expected 3-months forward exchange rate as at 1 December 2020. (2 marks)

(ii) Using suitable computations, advise Dafina Limited on the better hedging strategy between a forward market and money market hedge. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) In this era of globalisation, the functions of finance executives of multinational corporations (MNCs) have become complex.

Propose five factors that the Chief Finance Officer (CFO) of a MNC should consider in making international financial management decisions. (5 marks)

(b) The arbitrage pricing theory (APT) and the capital asset pricing model (CAPM) have received much attention from practitioners and academicians for their use in asset pricing and valuation.

Required:

Explain the difference between APT and the CAPM with respect to:

(i) Investor utility functions. (2 marks)

(ii) Distribution of returns. (2 marks)

(iii) The market portfolio. (2 marks)

(c) Zachary Mosomi, an investor holds the following portfolio of four risky assets and a deposit in a risk-free asset.

He has provided the information below:

Asset	Weighting (%)	Current return (%)	Beta
A	20	12	1.5
B	10	18	2.0
C	15	14	1.2
D	25	8	0.9
Risk-free asset	30	5	0

The overall return on the market portfolio of risky assets is 11%.

Required:

(i) Portfolio return and beta. (2 marks)

(ii) Using the results in (i) above, deduce the type of investor Zachary is. (1 mark)

(iii) Using suitable computations, determine the assets that are inefficient, efficient or super efficient. (4 marks)

(iv) Calculate the equilibrium return for the portfolio. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) (i) Explain the meaning of the term "unbundling" as used in corporate restructuring and reorganisation. (2 marks)

(ii) Describe four forms of unbundling a firm. (4 marks)

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(b) Bamboo Ltd. is currently an unlevered firm. The firm is expected to generate a constant operating profit (EBIT) of Sh.20 million per annum in perpetuity. The firm's current market value is Sh.80 million.

The management is considering undertaking an expansion activity by use of debt financing. The firm's financial analysts have estimated that the present value of any future financial distress cost is Sh.8 million. However, the probability of distress would increase with leverage according to the following schedule:

Value of debt Sh. "million"	Probability of financial distress (%)	Pre-tax cost of debt (%)
2.5	0.00	4
5.0	1.25	6
7.5	2.5	10
10	6.25	15
12.5	12.50	18
15	31.25	20
20	75	22

Corporation tax rate applicable is 30%.

Required:

(i) The current cost of equity and weighted average cost of capital (WACC) of the firm. (2 marks)

(ii) Using the "pure" Modigliani and Miller (MM) with tax model, determine the optimal level of debt. (4 marks)

(iii) Evaluate the firm's optimal capital structure when financial distress costs are included. (8 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Evaluate five defensive tactics available to a firm threatened by a hostile takeover in the industry. (5 marks)

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(b) Apco Limited is considering to acquire Alpha Limited. The following are the financial data for the two companies:

	Apco Limited	Alpha Limited
Net sales (Sh.)	350,000	45,000
Profit after tax (Sh.)	18,130	3,750
Number of outstanding ordinary shares	7,500	1,500
Earnings per share (EPS)	3.75	2.50
Dividend per share (DPS)	1.30	0.60
Total market capitalization (Sh.)	420,000	45,000

Required:

(i) Determine the pre-merger market value per share for both companies. (2 marks)

(ii) Determine the post merger EPS, market price per share (MPS) and price earnings (P/E) ratio. (3 marks)

(iii) Compare Apco Limited's EPS assuming Alpha Limited's shareholders are offered Sh.100,000, 5% convertible debenture for each share held in Alpha Limited.

Assume a corporate tax rate of 30%. (2 marks)

(c) Makazi Ltd.'s current earnings per share is Sh.6.0. The firm has in issue 50 million ordinary shares which have a par value of Sh.20 each. The firm's total revenue and capital reserves amounts to Sh.500 million.

The company has an asset beta of 0.9 and a retention ratio of 60%.

The management of Makazi Ltd. intends to undertake a financial reconstruction which will result in a debt-equity ratio change from 0.45 to 0.2.

Additional information:

1. The risk free rate of return is 8%.
2. Expected rate of return of a market portfolio is 18%.
3. Corporation tax rate is 30%.
4. The firm's return on equity before and after the financial reconstruction will remain unchanged.

Required:
Evaluate the impact of the financial reconstruction on the firm's share price. (8 marks)
(Total: 20 marks)

QUESTION FIVE

(a) Discuss four circumstances in which a decision could be made to liquidate a failing company rather than attempt to carry out a reconstruction. (4 marks)

(b) Examine four advantages of investing in real estate. (4 marks)

(c) Zedtech Ltd. wishes to design a new product so as to catch the interest of their target market which is currently very competitive.

The company will have to invest Sh.100,000 at the beginning of the first year (year 0) for the design and model testing of the new product.

The company's marketing manager believes that there is an 80% chance that this phase will be successful and the project will continue. If phase 1 is not successful, the project will be abandoned with zero salvage value.

The next phase, if undertaken would consist of making the moulds and producing ten prototype products at a cost of Sh.500,000 at the end of the first year. If the products test well, the company would go into full scale production. If they do not, the moulds and prototypes will all be sold for Sh.400,000. The manager estimates that there is a 90% probability that the products will pass testing and phase 3 will be undertaken.

Phase 3 consists of changing over the firm's current production line so as to be able to produce the new products. This will cost Sh.1,000,000 at the end of year 2. If the economic conditions are favourable at this juncture, the net value of the firm's cash flows are estimated to be Sh.3,500,000, while if the economic conditions are unfavourable the net cash inflows are estimated at Sh.2,500,000. Both net cash flows are expected at the end of year 3, and the two states of economy are equally likely.

The firm's opportunity cost of capital is 11%.

Required:

(i) Construct a decision tree to depict payoffs, and hence determine the expected net present value (NPV) of the project. (6 marks)

(ii) The project's expected standard deviation and coefficient of variation. (5 marks)

(iii) Assuming the firm's average project had a coefficient of variation of between 1.0 and 2.0, explain whether the project would be of high, low or average risk. (1 mark)
(Total: 20 marks)

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(b)

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	-	-	-	-

QUE

(a)

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

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(b)

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

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

(c)

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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) (i) Distinguish between "insolvency" and "bankruptcy" as used in business restructuring. (2 marks)

(ii) Highlight four causes of business failure. (4 marks)

(b) Sunny Technologies Ltd. is considering investing Sh.50 million in a new machine to manufacture computer micro chips with an expected useful life of 5 years and no salvage value. It is expected that 20 million units of micro chips will be sold each year at Sh.3.00 per unit. Variable production costs are expected to be Sh.1.65 per unit, while incremental fixed costs will be Sh.10 million per annum.

The cost of capital is 12%.

Required:
Evaluate the sensitivity of the project's net present value (NPV) to the following changes:

(i) Sales volume. (3 marks)

(ii) Sales price. (3 marks)

(iii) Variable costs. (3 marks)

(c) Further analysis of the company in (b) above suggests that sales volumes could depend on expected economic state as follows:

Economic state	**Poor**	**Normal**	**Good**
Probability	0.30	0.60	0.10
Annual sales volume (units)	17,500,000	20,000,000	22,500,000

Required
The expected net present value (NPV) of the project using scenario analysis. (5 marks)

(Total: 20 marks)

QUESTION TWO

(a) Kanga Limited is considering the design of a new conveyor system. The management must choose among the following three alternative courses of action:

Option 1
The firm could sell the design outright to another corporation with payments over 2 years.

Option 2
The firm could license the design to another manufacturer for a period of 5 years which is likely to be the product life cycle of the conveyor system.

Option 3
The company could manufacture and market the system itself. This alternative will result in 6 years of cash inflows.

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Cash flows associated with each alternative are as shown below:

Alternative	**Sell**	**License**	**Manufacture**
Initial investment, I_o (Sh.)	400,000	400 000	900,000
Year		**Cash inflows (Sh.)**	
1	400,000	500,000	400,000
2	500,000	200,000	500,000
3	-	160,000	400,000
4	-	120,000	400,000
5	-	80,000	400,000
6	-	-	400,000

The company has a cost of capital of 12%.

Required:
Advise Kanga Limited on the best alternative based on:

(i) Net present value (NPV) approach. (3 marks)

(ii) Annualised net present value (ANPV) approach. (3 marks)

(iii) Compare and contrast your results obtained in (a) (i) and (ii) above. (2 marks)

(b) The finance director of Babito Ltd. wishes to determine the company's optimal capital structure. The cost of debt varies according to the level of gearing of the company as follows:

Percentage debt (%)	**Pre-tax cost of debt (%)**
10	6.5
20	7.1
30	7.8
40	8.5
50	10
60	12
70	15

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Additional information:
1. The company's ungeared equity beta is 0.85.
2. The risk-free interest rate is 6%.
3. The market return is 14%.
4. Corporate tax rate is 30%.

Required:
Advise the company on the optimal weighted average cost of capital (WACC). (12 marks)
(Total: 20 marks)

QUESTION THREE

(a) Summarise five functions of the International Monetary Fund (IMF). (5 marks)

(b) Duncan Kipchumba has an investment capital of Sh.1,000,000. He wishes to invest the fund in two securities, X and Y in the following proportion; Sh.200,000 in security X and Sh.800,000 in security Y.

The return on these two securities depend on the state of the economy, as shown below:

State of economy	**Probability**	**Returns on security X**	**Returns on security Y**
Boom	0.40	18%	24%
Normal	0.50	14%	22%
Recession	0.10	12%	21%

Required:
(i) The expected return on the portfolio. (3 marks)

(ii) The correlation coefficient between security X and security Y. (4 marks)

(iii) The portfolio risk. (2 marks)

(iv) The reduction in risk due to portfolio diversification. (2 marks)

(c) Job Ochieng, an investor, believes that there are three important factors that determine the expected return for a particular common stock. Job uses the following factor betas and factor risk premiums:

Factor	Factor beta	Factor risk premium
1	0.70	2.5%
2	1.20	5.0%
3	– 0.10	6.0%

The risk-free rate is 5%.

Required:

(i) The expected return for the stock using the arbitrage pricing theory (APT) model. (2 marks)

(ii) Explain two differences between capital asset pricing model (CAPM) and arbitrage pricing theory (APT) model. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Distinguish between the following terms as used in the context of derivatives market:

(i) "Currency option" and "currency swap". (2 marks)

(ii) "Interest rate swap" and "interest rate collar". (2 marks)

(iii) "Hedgers" and speculators". (2 marks)

(b) Property A and property B are categorised under the real estate category. Property A is all equity financed while property B is financed partly using debt and partly by equity finance.

Both properties generated operating profit (EBIT) of Sh.41,245,900 annually. This is expected to remain constant each year in perpetuity. Unlike property A which is wholly equity financed, property B is financed partly by equity and partly by 10% debt of Sh.215,000,000.

The cost of equity is 12% for both properties and there are no corporation taxes. Each unit of debt is trading at par.

Required:

The current value of each property using the Net Income (NI) approach. (4 marks)

(c) Smoothdrive Ltd., a motor vehicle assembly company issued a 10 year, 16%, Sh.100 million par value bond five years ago. The bond was issued at 2% discount and issuing costs amounted to Sh.2 million.

Due to the decline in Treasury bill rates in the recent past, interest rates in the money market have been falling presenting favourable opportunities for refinancing. A financial analyst engaged by the company to assess the possibility of refinancing the debt reports that a new Sh.100 million par value, 12%, 5-year bond could be issued by the company. Issuing costs for the new bond will be 5% of the par value and a discount of 3% will have to be given to attract investors.

The old bond can be redeemed at 10% premium and in addition, two months interest penalty will have to be paid on redemption. All bond issue expenses (including the interest penalty) are amortised on a straight-line basis over the life of the bond and are allowable for corporate tax purposes.

The applicable corporate tax rate is 40% and the after tax cost of debt to the company is approximately 7%.

Required:

(i) The initial investment required to issue the new bond. (4 marks)

(ii) Annual cash flow savings (if any) expected from the bond refinancing decision. (4 marks)

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(iii) The net present value (NPV) of the refinancing decision. (1 mark)

(iv) Advise the company on whether to refinance the bond based on your results in (c) (iii) above. (1 mark)

(Total: 20 marks)

QUESTION FIVE

(a) Briefly describe the following types of mergers:

(i) Horizontal. (1 mark)

(ii) Vertical. (1 mark)

(iii) Congeneric. (1 mark)

(iv) Conglomerate. (1 mark)

(b) A Ltd. and B Ltd. are companies operating in the same line of business. In the past few years, A Ltd. has experienced stiff competition from B Ltd. to an extent that A Ltd. is now contemplating acquiring B Ltd. in order to consolidate its market share.

The following financial data is available about the two companies:

	A Ltd.	**B Ltd.**
Annual sales (Sh. million)	400	60
Net income (Sh. million)	40	9
Ordinary shares outstanding (million)	10	3
Earnings per share (EPS)	Sh.4.0	Sh.3.0
Market price per share (MPS)	Sh.60	Sh.30

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Both companies are in the 30% income tax bracket.

Required:

(i) The maximum exchange ratio that A Ltd. should agree to assuming that it does not expect dilution in its post acquisition earnings per share (EPS). (2 marks)

(ii) The total premium the shareholders of B Ltd. would agree to receive at the exchange ratio in (b) (i) above. (2 marks)

(iii) A Ltd.'s post acquisition earnings per share (EPS) assuming that the two companies agree on an offer price of Sh.30. (2 marks)

(iv) A Ltd.'s post acquisition earnings per share (EPS) assuming that for every 100 ordinary shares of B Ltd., the shareholders are offered two, 12 % debentures of Sh.500 par value. (3 marks)

(c) Twiga Limited has 500,000 ordinary shares trading at Sh.150 each in the Securities Exchange.

Additional information:

1. The dividend payable in one year period is Sh.3 per share.
2. An investment opportunity worth Sh.25 million is to be undertaken. The profit to be earned is Sh.15 million.
3. The cost of capital for the company is 10%.

Required:

Using Modigliani and Miller approach, show that the payment of dividends does not affect the value of the firm. (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:

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

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

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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) Discuss four applications of the capital asset pricing model (CAPM). (8 marks)

(b) Dzikunze Manufacturing Limited is considering to raise an extra Sh.10 million in order to finance an expansion programme.

The company's current capital structure is given as follows:

	Sh. "000"
Ordinary share capital (Sh.20 par value)	50,000
Reserves	20,000
14% debenture capital	20,000
10% preference share capital	10,000
	100,000

Additional information:

1. The company is considering raising the funds using two alternative financing options namely:

   Option I:

   To raise all the funds through the issue of new ordinary shares at par.

   Option II:

   To raise half of the funds through the issue of new ordinary shares at par and the balance through the issue of new 12% debentures at par.

2. The corporation tax rate is 30%.

Required:

(i) Earnings before interest and tax (EBIT) at the point of indifference in company's earnings for each financing option. (8 marks)

(ii) Earnings per share (EPS) at the point of indifference in (b) (i) above. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) The Unclaimed Financial Assets Authority (UFAA) was created under the Unclaimed Financial Assets Act, No.40 of 2011 to administer unclaimed financial assets.

Required:

With reference to the above statement, summarise six specific roles of the Unclaimed Financial Assets Authority or equivalent authority in your country. (6 marks)

(b) ABC Ltd. is a company listed in the local securities exchange. The company is foreseeing a growth rate of 12% per annum in the next two years. The growth rate is likely to be 10% per annum for the third and fourth year, then it will stabilise at 8% per annum in perpetuity.

The latest dividend to be paid was Sh.1.50 per share.

The required rate of return is 16%.

Required:

The intrinsic value of the share. (4 marks)

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(c) Umoja Group of companies belongs to a risk class of which the appropriate capitalisation rate is 10%.

The company currently has in issue 200,000 ordinary shares selling at Sh.50 each. The company is contemplating the declaration of dividend at the rate of Sh.3 per share at the end of the current financial year which has just begun.

Required:
Using Modigliani and Miller proposition on dividend irrelevance, determine:

(i) The price of the ordinary shares at the end of the year, assuming a dividend is not declared. (2 marks)

(ii) The price of the ordinary shares at the end of the year, assuming a dividend is declared. (2 marks)

(iii) Assuming that the company generates a net income of Sh.2,000,000 and makes new investments of Sh.4,000,000 during the period.

Show that under the Modigliani and Miller's assumption, payment or non-payment of dividends has no effect on the company's value. (6 marks)

(Total: 20 marks)

QUESTION THREE

(a) Discuss four types of risks associated with investment in real estate investment trust (REITs) securities. (8 marks)

(b) Zomolo Limited is a firm operating in the manufacturing industry. The firm's current capital structure is given as follows:

	Sh. "000"
Ordinary share capital (Sh.10 par value)	80,000
Reserves	20,000
10% irredeemable debenture capital (Sh.100 par value)	30,000
8% preference share capital (Sh.20 par value)	20,000
	150,000

Additional information:

1. The current market price per share (MPS) of the firm's ordinary shares is Sh. 34.80 cum-dividend.
2. The firm adopts a 60% dividend payout ratio.
3. The most recent earnings per share (EPS) of the firm is Sh.8.00.
4. The historical dividend per share (DPS) over the last four years are given as follows:

Year	**Dividend per share (DPS) (Sh.)**
2015	4.00
2016	4.20
2017	4.50
2018	4.80

5. The firm's management is contemplating to invest in a project which would cost Sh.40 million. The project is expected to generate Sh.9 million each year in perpetuity.
6. The project has an estimated beta of 1.50.
7. The return from a well diversified market portfolio is 18%.
8. The debentures are considered to be risk-free and are valued at par.
9. The existing 8% irredeemable preference shares are currently trading at Sh.25 each.
10. The corporation tax rate is 30%.

Required:

(i) The firm's return on equity (ROE) using Gordon's growth approximation method. (3 marks)

(ii) The firm's existing weighted average cost of capital (WACC). (6 marks)

(iii) The project's risk adjusted discounting rate (RADR). (3 marks)

(Total: 20 marks)

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QUESTION FOUR

(a) Kadzenga Limited is a Kenyan company with a substantial proportion of its trade with companies in the United States (US). Kadzenga Ltd. invoiced a US firm 60,000 United States Dollars (USD) receivable 3 months from now.

Additional information:

1. The borrowing rate is 3% above the bank base rate while the investing rate is 2% below the bank base rate. These rates apply both in Kenya and the United States.
2. The bank base rates in Kenya and the US are 15% and 10% per annum respectively.
3. The exchange rates in the forex market between the Kenya Shilling (Ksh) and the United States Dollar (USD) are as follows:

	Ksh/1 US ($)
Spot exchange rate:	103-105
One month forward rate:	102-103
3-months forward rate:	101-102

Required:

Calculate the amount to be received by Kadzenga Limited using:

(i) Forward contract hedge. (2 marks)

(ii) Money market hedge. (6 marks)

(iii) Using the results obtained in (a) (i) and (a) (ii) above, advise the management of Kadzenga Limited on the best hedging strategy. (2 marks)

(b) Ziani Limited, an unlevered firm has in issue 10 million ordinary shares that are currently selling at the securities exchange for Sh.20 each.

Additional information:

1. The firm's most recent earnings per share (EPS) is Sh.4.0 and adopts a 100% dividend payout.
2. It is expected that the firm's future dividends in each year will remain constant in perpetuity.
3. The firm is considering to issue 12% new debentures to raise Sh.50 million in order to finance an expansion programme. This will effectively change the status of the firm from unlevered to a levered firm.
4. The firm pays corporation tax at the rate of 30%.

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Required:

Using Modigliani and Miller's propositions, determine:

(i) The cost of equity before and after issue of the long-term debt. (3 marks)

(ii) The weighted average cost of capital (WACC) before and after issue of the debt. (3 marks)

(iii) The current market value of the firm before and after issue of the debt. (2 marks)

(iv) Advise the management of Ziani Limited on whether to change its capital structure. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Jeza Tours and Travel is a private limited company in the tourism industry. In order to improve customer service and provide the management with timely and quality information, the company is contemplating to purchase 8 micro-computers at a cost of Sh.100,000 each.

Installation cost for all the computers will amount to Sh.80,000. It is estimated that once installed, the computers will increase the company's earnings before depreciation and tax from Sh.12,000,000 to Sh.12,500,000 annually.

The computers are expected to last for 10 years after which they will be obsolete with no resale value.

The Operations Manager proposes that the computers will be useful for 15 years with no resale value.

The Marketing Manager, on the other hand argues that the company needs the computers for only 5 years, after which they can be disposed of at Sh. 50,000 each.

The probability distribution of the useful life of the computers is given as follows:

Probability	Useful life of computers (years)
0.20	5
0.50	10
0.30	15

The company is in the 30% tax bracket.

The company's cost of capital is 24% and uses the straight-line method of depreciation.

Required:

(i) The expected net present value of the project. (4 marks)

(ii) The standard deviation of the expected net present value. (3 marks)

(iii) If the net present value (NPV) of the project is less than Sh.200,000, the firm will be exposed to a financial distress.
Determine the probability that the firm will avoid financial distress. (Assume normal distribution).
(3 marks)

(b) Excellent Ltd. is considering acquiring Best Ltd. a firm in the same industry in order to consolidate its market share. Best Ltd. has been less profitable, so it has paid an average of only 20% in taxes during the last several years. In addition, it has used little debt having a debt ratio of 25%. If the acquisition would be implemented, Excellent Ltd. could operate Best Ltd. as a separate, wholly owned subsidiary. This will increase Excellent Ltd.'s gearing ratio to 40%.

The following is a forecasted financial data for Best Ltd. over the next five years:

Year	1	2	3	4	5
	Sh. "million"	Sh. "million"	Sh. "million"	Sh. "million"	Sh. "million"
Net sales	50	60	75	70	65
Operating costs	5	10	15	15	12
Selling and administration costs	10	10	8	9	11
Acceptable investment project costs	0.5	0.70	1.60	1.20	0.20

Additional information:

1. The risk-free rate of return is 8% and debt is considered to be risk-free.
2. Expected return of the market portfolio is 13%.
3. The firm's levered equity beta after acquisition is estimated at 0.80.
4. After 5 years, the net cash flows of Best Ltd. shall increase at a constant rate of 6% per annum in perpetuity.
5. Corporation tax rate is 30%.
6. The firm's gross profit margin is 40%.
7. Best Ltd. incurs fixed financing cost of Sh.2 million per annum.
8. The firm's equity shares and bonds are currently trading at par.

Required:

Determine the maximum price payable to acquire Best Ltd. using the discounted free cash flow basis. (10 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

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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

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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) In the context of corporate restructuring and reorganisation, differentiate between the following terms:

(i) "Leveraged buy-out" and "management buy-out" (2 marks)

(ii) "Divestiture" and "spin-off" (2 marks)

(iii) "Unbundling" and "sell-off". (2 marks)

(b) Mavueni Limited is considering undertaking a financial reconstruction during which it would repurchase its outstanding ordinary shares using debt. This will raise its debt to equity ratio to 1.20. The following information was available for the company:

1. Existing debt to equity ratio is 0.80.
2. The asset beta (ungeared beta of equity) is 0.30.
3. The risk-free rate of return is 8%.
4. The return of market portfolio is 14%.
5. The company adopts 50% payout ratio as its dividend policy.
6. The company expects to generate earnings per share (EPS) of Sh.6.
7. Debt finance is considered to be risk-free.
8. The corporate tax rate is 30%.

Required:
Evaluate the impact of financial reconstruction on Mavueni Ltd.'s weighted average cost of capital (WACC). (8 marks)

(c) The following data relate to the probability distributions and returns of securities A and B:

Probability (P_i)	**Security returns (%)**	
	Security A	**Security B**
0.10	–5	10
0.25	10	15
0.40	15	10
0.25	20	0

Required:
The proportion of each security to be invested in the portfolio in order to attain a zero portfolio risk. (6 marks)
(Total: 20 marks)

QUESTION TWO

(a) Discuss three practical challenges that could be encountered when making capital investment decisions. (6 marks)

(b) Galanema Ltd. is considering to introduce new cheap plastic rulers into the market. This will involve investing in a new plant at a cost of Sh.280 million.

The plant is expected to have a useful life of 5 years at the end of which salvage value will be nil. The firm's policy is to depreciate all of its fixed assets on a straight line basis.

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Due to market uncertainties, the unit selling price, unit variable cost and annual sales volume of the new plastic rulers have been estimated stochastically as follows:

Unit selling price		Unit variable cost		Annual sales volume	
Value (Sh.)	Probability	Value (Sh.)	Probability	Value (Sh."million")	Probability
35	0.30	15	0.20	4	0.10
30	0.40	10	0.50	7	0.60
50	0.30	25	0.30	9	0.30

Additional information:

1. The firm expects to incur fixed operating costs excluding depreciation of Sh.30 million in each year.
2. The company's cost of capital is 17%.
3. The corporate tax rate is 30%.

Required:

(i) The expected net present value (NPV) of the new product. (6 marks)

(ii) Simulate the net present values (NPV) using the following random numbers:

(802560 638351 057530 150353 603785 553525 245239 369948 160252 857015) and compute the expected net present value of the project. (8 marks)

(Total: 20 marks)

QUESTION THREE

(a) The following are summarised financial statements of Dzikunze Limited as at 31 December 2015 to 31 December 2017:

Income statement for the year ended 31 December:

	2015 Sh."000"	2016 Sh."000"	2017 Sh."000"
Turnover	90,000	100,000	120,000
Operating profit	15,000	20,000	25,000
Interest	(2,000)	(4,000)	(5,000)
Profit before tax	13,000	16,000	20,000
Taxation (30%)	(3,900)	(4,800)	(6,000)
Profit after tax	9,100	11,200	14,000
Proposed dividends	(2,100)	(2,500)	(3,000)
Retained profit	7,000	8,700	11,000

Statement of financial position as at 31 December 2017:

	Sh."000"
Non-current assets	60,000
Current assets	40,000
	100,000
Financed by:	
Ordinary share capital (Sh.20 par value)	30,000
Reserves	20,000
10% long term debentures (Sh.100 par value)	30,000
Short-term debts	20,000
	100,000

Additional information:

1. Stock market analysts expect post-tax earnings and dividends to grow at the rate of 25% per annum for the next three years. Thereafter, the annual growth rate will revert to the company's growth rate and remain constant in each year to perpetuity.
2. Dzikunze Ltd.'s overall beta is 0.80 and the beta of equity is 0.75.
3. The risk-free rate of return is 12%.
4. The market rate of return is 28%.
5. The current market price of ordinary share is Sh.67.70 cum-dividend.
6. The debenture price is Sh.89.50 ex-interest.
7. The corporation tax rate is 30%.

Required:

(i) Evaluate whether Dzikunze Ltd.'s share is currently overvalued or undervalued by the market forces. (8 marks)

(ii) Advise a prospective investor whether to buy the ordinary shares of Dzikunze Limited. (2 marks)

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(b) Chigiri Investment Limited is a company based in Kenya. The company exported goods on credit to a firm in the United States of America (USA). The company expects to receive US$ 800,000 in one year's time.

The current spot exchange rate is 1US$ = KES.60.

However, Chigiri Investment Limited created a probability distribution for the forward spot rate in one year as follows:

Probability	**Forward spot rate KES/1 US $**
0.20	61
0.50	63
0.30	67

Additional information:

1. One year put options on the US$ are available with an exercise price of KES.63 and a premium of KES. 4 per US$.
2. One year call options are available on the US$ with an exercise price of KES.60 and a premium of KES 3 per US$.
3. The future spot rate is estimated in a year's time to be KES. 62 per 1US$.
4. The following are the money market annual rates:

	Kenya Annual rates (%)	**USA Annual rates (%)**
Borrowing	18	12
Deposit	9	6

Required:

(i) Determine whether a forward market hedge, money market hedge or currency option hedge would be the most appropriate hedging strategy for the company. (9 marks)

(ii) Advise a prospective investor, the most appropriate hedging strategy if no hedging takes place. (1 mark)

(Total: 20 marks)

QUESTION FOUR

(a) A financial analyst is interested in using the Black-Scholes Model (BSM) to value call options on the stock.

The following information is available:

1. The price of the stock is Sh.35.
2. The strike price is Sh.30.
3. The option matures in 9 months.
4. The volatility of returns of the stock is 0.30.
5. The risk-free rate is 10%.

Required:

The value of a call option using the Black-Scholes Model. (4 marks)

(b) The following information relate to two securities, namely A and B and the market portfolio for the year 2018:

Probability	**Forecasted rate of returns (%)**		
	Security A	**Security B**	**Market portfolio**
0.20	15	12	16
0.50	10	15	12
0.30	8	10	7

The treasury bills yield rate is expected to be 8%.

Required:

(i) The Beta coefficient of securities A and B. (4 marks)

(ii) Using capital asset pricing model (CAPM), determine the minimum required rate of returns for securities A and B. (2 marks)

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(c) Chilulu Industries Limited is considering acquisition of Roka Corporation Ltd. in a share for share exchange. The financial data for the two companies are given below:

	Chilulu Ltd. (Sh.)	Roka Ltd. (Sh.)
Sales (millions)	500	100
Net earnings (millions)	30	12
Ordinary shares outstanding (millions)	6	2
Ordinary share market price, per share (MPS)	50	40
Dividend per share (DPS)	2	1.50

Additional information:

1. Chilulu Limited is not willing to incur an initial dilution in its earnings per share (EPS).
2. Chilulu Limited will have to offer a minimum of 25% of Roka Ltd.'s current share market price.

Required:

(i) The relevant offer price range. (4 marks)

(ii) If Roka Ltd.'s shareholders accept an offer by Chilulu Ltd. of Sh.40 per share in a share for share exchange. Determine the post-merger earnings per share (EPS). (4 marks)

(iii) Using the results obtained in (c) (ii) above and assuming that Chilulu Ltd.'s price-earning (P/E) ratio will remain unchanged after the merger, determine the post acquisition market price of a share of Chilulu Limited. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Analyse three assumptions of the income approach of valuing real estates business in your country. (6 marks)

(b) A large manufacturing firm based in Kenya is tendering for an order in South Africa. The tender conditions state that payment will be made in South African Rands (ZAR) in 24 months' time from now. The company is unsure of what price to tender. The company's marginal cost of production at the time of tendering is estimated to be Kenya shillings (KES) 2,000,000 and a 20% mark-up is applicable for the company.

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Exchange rates:
KES/1 ZAR

Spot rate: 8.025 – 8.125

Additional information:

1. No forward rate exists for 24 months' time.
2. Market information between Kenya and South Africa:

	South Africa	Kenya
Annual inflation rates	6%	8%
Annual interest rates available to the manufacturing firm:		
Borrowing rate	12%	18%
Investment rate	8%	6%

Required:

Using the purchasing power parity model, recommend the tender price to be used. (7 marks)

(c) Embakasi Investment Ltd. contemplates to determine its optimal capital structure which currently consists of only debt and common equity.

The company does not use preference shares in its capital structure and does not plan to do so in the near future.

In order to estimate how much its debt would cost at different debt levels, the company's financial controller has consulted with investment banks and the following information was obtained:

Debt to equity ratio	Bond rating	Before tax cost of debt (%)
0.00	A	0
0.25	BBB	8.5
0.60	BB	10
1.70	C	14
2.50	D	16

Additional information:

1. The company uses the capital asset pricing model (CAPM) to estimate the cost of capital.
2. The risk-free rate of return is 5%.
3. The market risk premium is 8%.
4. The corporate tax rate is 30%.
5. The company uses the Hamada model to determine its levered equity Beta.
6. The asset Beta (unlevered equity Beta) is 1.20.

Required:

(i) The optimal capital structure of Embakasi Investment Ltd. (6 marks)

(ii) The optimal weighted average cost of capital (WACC) of Embakasi Investment Ltd. (1 mark)

(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

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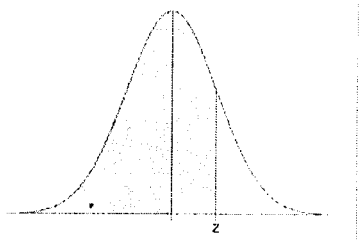
Present Value of an Annuity of 1 Per Period for n Periods:

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

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

Standard Normal Cumulative Probability Table



Cumulative probabilities for POSITIVE z-values are shown in the following table:

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

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kasneb

CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) The objectives of a corporate governance system are to eliminate or mitigate conflicts of interest among stakeholders, particularly between managers and shareholders, and to ensure that the assets of the company are used efficiently and productively in the best interest of the investors and other stakeholders.

Required:
In the context of the above statement, discuss four core attributes of an effective corporate governance system. (4 marks)

(b) In relation to investment appraisal, evaluate four limitations of sensitivity analysis. (4 marks)

(c) Tabby Ltd. has a potential investment opportunity for which the initial cash outlay and future cash flows are uncertain. The analysis carried out provided the following probability estimates:

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Probability estimates			
Cash outlay		Annual cash inflows	
Probability	**Amount Sh."000"**	**Probability**	**Amount Sh."000"**
0.40	250,000	0.20	45,000
0.25	280,000		
		0.40	50,000
0.25	300,000		
0.10	305,000	0.40	60,000

Additional information:
1. The cost of capital is 10%.
2. Life of the project is expected to be 10 years.
3. The salvage value is zero.

Required:

(i) Construct a decision tree for the investment to show pay offs, probabilities and net present value (NPV) for each alternative. (6 marks)

(ii) The expected NPV of the project. (3 marks)

(iii) If the NPV of the project is less than Sh.5 million, Tabby Ltd. would be exposed to a hostile takeover.
Compute the probability that Tabby Ltd. will avoid a hostile takeover.
(Assume a normal distribution and that the variance of the NPV is Sh.1,861.47 million). (3 marks)

(Total: 20 marks)

QUESTION TWO

(a) The capital asset pricing model (CAPM) is subject to theoretical and practical limitations. Theoretical limitations are inherent in the structure of the model, whereas practical limitations arise in implementing the model.

Required:
Summarise two practical limitations of CAPM. (2 marks)

(b) A portfolio manager creates the following portfolio:

Security	Expected annual return (%)	Expected standard deviation (%)
1	16	20
2	12	20

Required:

(i) The proportion invested in Security 1, if the portfolio of the two securities has an expected return of 15%. (1 mark)

(ii) The expected standard deviation of an equal-weighted portfolio, if the correlation of returns between the two securities is -0.15. (2 marks)

(iii) The expected standard deviation of an equal-weighted portfolio, if the returns of the two securities are uncorrelated. (2 marks)

(c) Kent Investment Fund (KIF) in which you plan to invest has a total capital of Sh.500 million invested in the shares of five companies as follows:

Company	Amount invested in shares Sh."million"	Beta coefficient
Alpha Ltd.	140	0.8
Beta Ltd.	80	1.5
Chatter Ltd.	120	3.0
Dinner Ltd.	100	1.0
Eastern Ltd.	60	2.5

Additional information:

1. The beta coefficient of KIF can be determined as a weighted average of the fund's investment.
2. The current risk-free rate of return is 8%.
3. The market returns have the following estimated probability distribution for the next period:

Probability	Market return (%)
0.1	7
0.2	9
0.4	11
0.2	13
0.1	15

Required:

(i) The estimated equation of the security market line (SML). (3 marks)

(ii) The fund's required rate of return for the next period. (3 marks)

(iii) Suppose Anthony Muli, the Chief Investment Officer (CIO) of KIF receives a proposal to invest in a new company. The investment needed to take a position in the new company's shares is Sh.50 million.

The forecasted rate of return from this investment and the probability of their occurrence in different states of nature, are given as follows:

State of Nature	Probability	Forecasted rate of return (%)
A	0.1	10
B	0.2	15
C	0.4	20
D	0.2	10
E	0.1	15

Using the capital asset pricing model (CAPM), advise Anthony Muli on whether to invest in the new company's shares. (7 marks)

(Total: 20 marks)

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QUESTION THREE

(a) Describe the following pre-offer takeover defensive mechanisms:

(i) Poison pills. (1 mark)

(ii) Golden parachutes. (1 mark)

(iii) Fair price amendments. (1 mark)

(iv) Supermajority voting provisions. (1 mark)

(v) Restricted voting rights. (1 mark)

(b) Explain five factors that Multinational Corporations (MNCs) should consider when making long-term investment decisions. (5 marks)

(c) Nangina Ltd. is considering acquiring Bwiri Ltd. Nangina Ltd. is contemplating financing of the acquisition of Bwiri Ltd. using any of the following options:

Option 1: An ordinary share for ordinary share exchange

Under the terms of acquisition, Nangina Ltd. will offer one of its ordinary shares for every two shares in Bwiri Ltd.

Option 2: Ordinary shares for debentures exchange

Nangina Ltd. expects to offer 2 units of 10% debentures for every 100 ordinary shares in Bwiri Ltd. Each unit of debenture has a par value of Sh.100 each.

The summarised financial information relating to the two companies for the year ended 30 November 2017 was as follows:

	Nangina Ltd.	**Bwiri Ltd.**
Profit after tax (Sh.)	120 million	30 million
Number of shares	20 million	6 million
Earnings per Share (EPS) (Sh.)	6	5
Market price per share (Sh.)	50	25
Price earnings ratio	8.33 times	5 times

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The corporate tax rate is 30%.

Required:

Determine the combined operating profit of the two firms and the post acquisition earnings per share (EPS) at the point of indifference in the firm's earnings under financing options (1) and (2) above. (10 marks)

(Total: 20 marks)

QUESTION FOUR

(a) In relation to derivatives markets and contracts:

(i) Highlight four characteristics that are common to both forward contracts and futures contracts. (4 marks)

(ii) Differentiate between a "straddle" and a "strangle". (2 marks)

(iii) Outline three methods of terminating a swap contract. (3 marks)

(b) Lagdara Ltd., an unlevered firm, operates in the textile industry. The firm's current capital structure is summarised as follows:

	Sh. "000"
Ordinary share capital (Sh.50 par value)	120,000
Share premium	40,000
Retained earnings	80,000
Shareholders' funds	240,000

The firm is considering borrowing 10% debt finance of Sh.40 million in order to finance an expansion programme, making it a levered firm.

Additional information:

1. Annual earnings before interest and tax (EBIT) generated by the firm are Sh.60 million. This is expected to remain constant each year in perpetuity.
2. The firm's ordinary shares are currently trading at a market price per share (MPS) of Sh.200 at the securities exchange.
3. The corporate tax rate applicable is 30%.

Required:

(i) Using the Modigliani-Miller (M-M) approach and the information provided above, analyse the financial implications of the change in capital structure of Lagdara Ltd. (9 marks)

(ii) Justifying your answer, advise the management of Lagdara Ltd. on whether to change its capital structure. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Assess five limitations of applying the free cash flow (FCF) approach using the weighted average cost of capital (WACC) as a discount rate when evaluating projects with different risks or debt capacity. (5 marks)

(b) The issue of taxation relating to international trade has become important as business transactions become more complicated. Transfer pricing is one such area which has come under scrutiny by tax authorities all over the world. Transfer pricing has been of great concern to the government as it has made the government lose huge tax revenues.

Required:

In relation to the above statement, summarise three objectives of transfer pricing other than reducing tax liability. (3 marks)

(c) Kikumi Ltd. expects to receive 750.000 Euros from a credit customer in the European Union in 6 months' time. The spot exchange rate is 2.349 Euros (EUR) per United States Dollar (USD) and the 6-month forward rate is 2.412 Euros per USD.

The following commercial interest rates are available to Kikumi Ltd.

	Deposit rate per annum (%)	**Borrowing rate per annum (%)**
EUR	4.0	8.0
USD	2.0	3.5

Kikumi Ltd. does not have any surplus cash to use in hedging the future Euro receipt.

Required:

Evaluate whether the money market hedge or a forward hedge would be preferred. (7 marks)

(d) Kisima Ltd. expects free cash flows of Sh.7.36 million this year and a future growth rate of 4% per annum. Currently, the firm has Sh.30 million in debt outstanding. This leverage will remain fixed during the year but at the end of each year, Kisima Ltd. is expected to increase or decrease its debt to maintain a constant debt/equity ratio.

Kisima Ltd. pays 5% interest on its debt and has an unlevered cost of capital of 12%.

The corporate tax rate is 40%.

Required:

Compute the value of Kisima Ltd. (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

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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

CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) Discuss how corporate governance might impact the dividend policy of a firm. (6 marks)

(b) Viwanda Ltd. is considering purchasing a machine at a cost of Sh.40 million. The company will incur an additional Sh.20 million to modify the machine for special use.

The machine is expected to have a useful life of 3 years and a scrap value of Sh.15 million after 3 years.

This investment will require an increase in net working capital of Sh.2 million at the beginning of its useful life.

The additional investment in working capital will return to normal at the end of the machine's useful life.

The machine's purchase will not affect revenues but it is expected to save the company Sh.25 million each year in before tax operating costs, mainly labour.

The corporation tax rate is 30% and the company's cost of capital is 10%.

Required:

(i) Advise Viwanda Ltd. on whether to buy the machine. (6 marks)

(ii) Suppose the firm's management is unsure about the savings in before tax operating costs. Carry out a sensitivity analysis on this variable assuming that the variable shall vary adversely by 10%. (8 marks)

(Total: 20 marks)

QUESTION TWO

(a) Discuss three reasons why economic value added (EVA) is gaining prominence as an alternative measure of a company's financial performance. (6 marks)

(b) With reference to financial management in the global context, distinguish between the following terms:

(i) A "Eurobond" and a "Euro note". (2 marks)

(ii) An option being "in the money" and "out of the money". (2 marks)

(c) Wekeza Investments has initiated an investment fund called "Faidika" the funds of which will be invested only in stocks and bonds of infrastructure and construction companies.

60% of the fund value is invested in companies engaged in commercial construction services and the other 40% in companies engaged in developing residential properties. The average beta of returns from development of residential properties is 1.9 and that of commercial construction services is 1.4.

The benchmark market return is 11.2% while Treasury bonds carry an interest rate of 4.25%.

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The following information on the net asset values (NAV) per share is provided:

Month	January	February	March	April	May	June
Closing NAV "Sh"	18.60	17.80	18.20	18.00	17.80	16.80
Dividend payout "Sh"	-	0.75	-	-	-	1.20

Month	July	August	September	October	November	December
Closing NAV "Sh"	17.20	17.80	17.90	18.10	18.80	18.50
Dividend payout "Sh"	-	-	-	-	-	-

The opening NAV for January is Sh.17.75.

Required:
Calculate Jensen's alpha relating to "Faidika" and use it to evaluate the fund's performance. (10 marks)
(Total: 20 marks)

QUESTION THREE

(a) Discuss three reasons why acquisitions often fail to enhance shareholder value. (6 marks)

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(b) Mkuki Ltd. is considering making a bid for 100% of the shares of Ngao Ltd., a company in a completely different industry. The bid of Sh.200 million, which is expected to be accepted, will be financed entirely by new debt with a post-tax cost of debt of 7%.

1. **Pre-acquisition information:**

Mkuki Ltd.

The company has debt finance totalling Sh.60 million at a pre-tax rate of 10%.

The company has 50 million equity shares each with a current market value of Sh.22. The equity beta is 1.37.

The post-tax operating cash flows of Mkuki Ltd. are as follows:

Year	1	2	3	4	5
Sh"million"	60.3	63.9	67.8	71.8	76.1

Ngao Ltd.

The company has an equity beta of 2.5 and 65 million equity shares in issue with a total current market value of Sh.156 million.

The company's debt, which will also be taken over by Mkuki Ltd., stands at Sh.12.5 million at a post-tax rate of 7%.

2. **Post-acquisition information:**

Land with a value of Sh.14 million will be sold.

The post-tax operating cash flows of Ngao Ltd's current business will be:

Year	1	2	3	4	5
Sh"million"	15.2	15.8	16.4	17.1	17.8

3. If the acquisition goes ahead, Mkuki Ltd. will experience an improvement in its credit rating and all existing debts will be charged at a post-tax rate of 7%.
4. Cash flows after year 5 will grow at the rate of 1.5% per annum.
5. The risk-free rate is 5.2% and the market risk premium is 3%.
6. The corporate tax rate is 30%.

Required:
Advise whether the acquisition should proceed. (14 marks)
(Total: 20 marks)

QUESTION FOUR

(a) Two CPA graduates have formed a company to write, market and distribute text books and revision manuals. The company's text books and revision manuals have already been piloted and the market prospects are good. All that is lacking is adequate financing to continue the project. A small group of private investors is interested in financing the new company. Two financing proposals are being evaluated.

1. **Financing option one:**

   This is an all equity capital structure. Three million shillings would be raised by selling ordinary shares at Sh.40 per share.

2. **Financing option two:**

   This will involve the use of financial leverage.

   One million shillings would be raised by selling corporate bonds with an effective interest rate of 14 per cent per annum. The remaining Sh. 2 million would be raised by selling ordinary shares at Sh.40 per share. The use of financial leverage is considered to be a permanent part of the firm's capital so no fixed maturity date is needed for the analysis.

3. The corporation tax rate appropriate for this analysis is 30%.

Required:

(i) Find the operating profit (EBIT) indifference level associated with the two financing plans. (4 marks)

(ii) Construct an EPS-EBIT graph for the two financing plans. (4 marks)

(iii) Determine the range of operating profit (EBIT) within which each financing plan above would be recommended. (2 marks)

(b) The following data relate to two companies; Alpha Ltd. and Beta Ltd. which belong to the same risk class.

	Alpha Ltd.	**Beta Ltd.**
Number of ordinary shares outstanding	90,000,000	150,000,000
Market price per share	Sh.18	Sh.10
6% debentures (market value)	Sh.60,000,000	-
Profit before interest and tax	Sh.18,000,000	Sh.18,000,000

All profits after debenture interest are distributed as dividends.

Required:

(i) Using suitable calculations, demonstrate how under the Modigliani and Miller approach (without taxes), an investor holding 10 per cent of Alpha Ltd's shares will be better off in switching his holding to Beta Ltd. (8 marks)

(ii) Explain when, according to Modigliani and Miller (without taxes), the process described in (b) (i) above would come to an end. (2 marks)
(Total: 20 marks)

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QUESTION FIVE

(a) In relation to financial management in a global context, explain how the following theories could be used to forecast exchange rates:

(i) Interest rate parity. (4 marks)

(ii) Purchasing power parity. (4 marks)

(b) Jacques Ltd. is a company based in France where the Euro (€) is widely used. The company has recently imported raw materials from the USA and has been invoiced for US Dollars ($) 240,000 payable in 3 months' time.

In addition, the company has exported finished goods to the USA and Australia. The customer in the USA has been invoiced for US Dollars ($) 69,000 payable in 3 months' time and the Australian customer has been invoiced for Australian dollars (ASD) 395,000 payable in 4 months' time.

The current spot and forward exchange rates are given as follows:

US Dollars ($) / 1 Euro (€)	
Spot rate	0.9830 – 0.9850
3 months' forward	0.9520 – 0.9525

Euro (€) / 1 ASD	
Spot rate	1.8890 – 1.8920
4 months' forward	1.9510 – 1.9540

The current money market interest rates per annum are given as follows:

	Lending	**Borrowing**
USA	10%	12%
Australia	14%	16%
France	11.5%	13%

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Required:
Show how the company can hedge its foreign exchange exposure using:

(i) Forward market cover. (6 marks)

(ii) Money market cover. (6 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:

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

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

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KASNEB

CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) Explain two ways in which increased investment in corporate social responsibility (CSR) activities might enhance the value of a firm. (4 marks)

(b) Kenzel Ltd. has the following capital structure which it considers optimal under both the present and forecasted conditions:

Source of capital	%
Long-term debt	45
Equity capital	55
Total	**100**

The management of Kenzel Ltd. forecasts the after-tax earnings for the forthcoming year at Sh.2.5 million. The company has been paying 60 per cent of its earnings as dividend and this payment ratio is expected to continue into the foreseeable future. The company's present loan commitment will allow it to incur additional leverage according to the schedule presented below:

Loan amount (Sh.)	Interest rate on incremental debt
0 - 500,000	9%
500,000 - 900,000	11%
900,000 and above	13%

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The company's corporate tax rate is 30%. The current market price of the equity shares of the company is Sh.22. The last dividend on equity shares was paid at Sh.2.20 per share and the expected growth rate is 5%. New equity shares can be sold at a floatation cost of 10% of the issue price.

Kenzel Ltd. has the following investment opportunities for the coming year:

Project	Cash outlay	Annual net cash flow	Project life (years)	Internal rate of return
	Sh.	Sh.		%
A	675,000	155,401	8	?
B	900,000	268,484	5	15
C	375,000	161,524	3	?
D	562,500	185,194	4	12
E	750,000	127,351	10	11

Required:

(i) The amounts in shillings at which breaks in the marginal cost of capital (MCC) schedule occur. (3 marks)

(ii) The weighted marginal cost of capital (WMCC) in each of the intervals between the breaks in the MCC schedule. (6 marks)

(iii) The internal rate of return (IRR) for project A and project C. (4 marks)

(iv) Using the investment opportunities schedule (IOS), advise on which project(s) should be accepted. (3 marks)

(Total: 20 marks)

QUESTION TWO

(a) Analyse three factors that might be responsible for financial distress in a firm. (6 marks)

(b) The following information relates to the performance of six portfolios over a seven-year period:

Portfolio	Average annual returns (%)	Standard deviation of the average annual returns (%)	Correlation with market returns
P	18.6	27.0	0.81
Q	14.8	18.0	0.65
R	15.1	8.0	0.98
S	22.0	21.2	0.75
T	-9.0	4.0	0.45
U	26.5	19.3	0.63
Market return	12.0	12.0	
Risk-free rate	9.0		

Required:

Rank the performance of the above portfolios using:

(i) Sharpe's method. (4 marks)

(ii) Treynor's method. (6 marks)

(c) Compare the rankings using the two methods in (b) above and explain two reasons behind the differences. (4 marks)

(Total: 20 marks)

QUESTION THREE

(a) Examine four strategies that a company could adopt to defend itself against a hostile takeover. (8 marks)

(b) The following data relate to two companies namely; V Ltd. and J Ltd. operating in the same line of business.

Financial data as at 30 April 2017:

	V Ltd.	J Ltd.
Market value of debt (Sh."billion")	6.60	11.60
Market value of equity (Sh."billion")	19.80	13.40
Number of shares in issue ("million")	680.00	880.00
Share options outstanding ("million")	50.80	-
Exercise price per option (Sh. per share)	22.00	-
Corporate tax rate	30%	30%
Equity beta	1.85	0.95
Default risk premium	1.6%	3.0%
Net operating profit after tax and net re-investment (Sh."million")	900.00	410.00
Current earnings per share (Sh. per share)	1.19	0.44

Additional information:

1. The global equity risk premium is 4% and the most appropriate risk-free rate derived from government securities is 3%.
2. The share options held by the employees were exercisable subject to the employees working for the company for the next three years.
3. The company has an annual employee attrition rate of 5% as employees leave and out of those remaining, 20% are expected not to have achieved the standard of performance required to exercise the options.
4. The options have a time value of Sh.7.31.
5. J Ltd. operates a defined benefit pension scheme which, at its current actuarial valuation, shows a deficit of Sh.860 million.
6. V. Ltd. which has managed to sustain a 5% growth rate in earnings per annum, is considering a debt-financed acquisition of J Ltd. In addition, V Ltd. believes that J Ltd. could register a growth rate of 4% per annum under its current management.

Required:

(i) The weighted average cost of capital (WACC) of both J Ltd. and V Ltd. (4 marks)

(ii) The current value of both J Ltd. and V Ltd. (8 marks)

(Total: 20 marks)

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QUESTION FOUR

(a) Explain three functions of the African Development Bank. (6 marks)

(b) Biashara Ltd. is an import-export company based in Kenya. On 1 January 2017, the company exported coffee worth US $140,000 to the United States (US) of America on a five-month credit.

Additional information:

1. The exchange rates in the forex markets were (are expected to be) as follows:

	KSh/1 US$
1 January 2017	100
31 May 2017	102

2. The lending and borrowing rates in the two countries are as follows:

	Annual lending rate	Annual borrowing rate
Kenya	18%	19%
USA	14%	15%

3. The importer will settle the outstanding amount on 31 May 2017.

Required:

(i) Using the interest rate parity relationship, compute the expected 5-month forward exchange rate as at 31 May 2017. (4 marks)

(ii) Advise Biashara Ltd. on which is the better hedging strategy between a forward contract and a money market hedge. (10 marks)

(Total: 20 marks)

QUESTION FIVE

(a) A Ltd. is considering acquiring B Ltd. The selected financial data for the two companies are as follows:

	A Ltd.	B Ltd.
Annual sales (Sh."million")	600	120
Net income (Sh."million")	35	3
Ordinary shares outstanding ("millions")	10	2
Earnings per share (EPS) - Sh.	3.5	1.5
Market price per share (MPS) - Sh.	40	15

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Both companies are in the 30% tax bracket.

Required:

(i) The maximum exchange ratio that A Ltd. should agree to if it expects no dilution in earnings per share. (2 marks)

(ii) Total premium that the shareholders of B Ltd. would receive at the exchange ratio calculated in (a) (i) above. (2 marks)

(iii) A Ltd.'s post acquisition earnings per share, if the two companies settle on a price of Sh.20 per share. (2 marks)

(iv) A Ltd.'s post-acquisition earnings per share if every 50 ordinary shares of B Ltd. were exchanged for one 8% debenture of a par value of Sh.1,000 each. (2 marks)

(b) Chuma Ltd. operates a machine which has the following maintenance costs and resale values over its four-year life. The purchase price of the machine is Sh.25,000,000.

	Year 1 Sh."000"	Year 2 Sh."000"	Year 3 Sh."000"	Year 4 Sh."000"
Maintenance costs	7,500	11,000	12,500	15,000
Resale value (end of year)	15,000	10,000	7,500	2,500

The company's cost of capital is 10%.

Required:

Advise the management of Chuma Ltd. on how frequently the machine should be replaced. (12 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:

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

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

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KASNEB

CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) Summarise three assumptions of the Grossman-Hart Model (1986). (6 marks)

(b) SKB Ltd. is considering a proposal to manufacture a new drug named "Millenium". The drug will be manufactured using a machine which will cost Sh.13 million.

The cash flows and drug life relating to "Millenium" have been estimated as stochastic exogenous variables with the following distributions:

Annual after tax cash flow (Sh."000")	Probability	Drug life in years	Probability
1,000	0.02	3	0.05
1,500	0.03	4	0.10
2,000	0.15	5	0.30
2,500	0.15	6	0.25
3,000	0.30	7	0.15
3,500	0.20	8	0.10
4,000	0.15	9	0.03
		10	0.02

The minimum required rate of return from this investment is 16%.

The company has approached you as a financial management expert to perform an analysis of the above project.

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Required:

(i) Using the following random numbers, perform 10 simulation runs of the net present value (NPV) of this project.

5397	6699	3081	1909	3167	8170	3875
4883	9033	5852				

(12 marks)

(ii) Determine the expected net present value (NPV) of the project. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Explain three challenges likely to be encountered in the application of the capital asset pricing model (CAPM). (6 marks)

(b) Moses Mapesa is in the process of evaluating investments in two companies whose percentage returns in the last 10 years are as shown below:

Year / Company and percentage return	1	2	3	4	5	6	7	8	9	10
FS Ltd. (%)	37	24	-7	6	18	32	-5	21	18	6
SN Ltd. (%)	32	29	-12	1	15	30	0	18	27	10

Required:

(i) Correlation coefficient of the companies' returns. (6 marks)

(ii) Portfolio risk assuming equal weighting. (2 marks)

(c) Mary Chege has been investing in the shares of various companies quoted on the securities exchange. Currently, she holds a portfolio of shares in four companies; W, X, Y and Z.

The following information has been provided:

Company	Number of shares held	Equity beta	Market price per share (Sh.)	Expected return on equity
W	10,000	1.12	130	18%
X	15,000	0.89	100	23%
Y	15,000	0.70	90	11%
Z	10,000	1.60	160	17%

The current market return is 14% per annum and the Treasury Bill's yield is 9% per annum.

Required:

(i) The risk of Mary Chege's portfolio relative to that of the market. (4 marks)

(ii) Determine whether Mary Chege should change the composition of her portfolio. (2 marks)

(Total: 20 marks)

QUESTION THREE

(a) Explain three assumptions of the traditional theories of capital structure. (6 marks)

(b) Majuu Ltd. is just about to commence operations as an international trading company. The firm will have a book value of assets of Sh.320 million and it expects to earn 16% return on these assets before interest and taxes. However, because of certain tax arrangements with foreign governments, the company will not pay any taxes.

It is known that the capitalisation rate for an all equity firm in this business is 12%. The company can borrow debt finance at the rate of 7% per annum. The management is in the process of deciding how to raise the required Sh.10 million debt finance. Assume that the Modigliani and Miller (MM) assumptions apply.

Required:

Using the MM model without taxes, determine:

(i) The current value of the unlevered firm. (2 marks)

(ii) The current value of a levered firm if it uses Sh. 10 million of 7% debt. (2 marks)

(iii) The weighted average cost of capital (WACC) of a levered firm at a debt level of 7%, Sh.10 million. (3 marks)

(c) Assuming that the company in (b) above now pays taxes at the rate of 30%, compute the following in a Modigliani and Miller (MM) world:

(i) The current value of the firm if it uses no debt. (2 marks)

(ii) The current value of the firm if it uses the debt level of 7%, Sh.10 million. (2 marks)

(iii) The weighted average cost of capital (WACC) at 7% debt level of Sh.10 million. (3 marks)

(Total: 20 marks)

QUESTION FOUR

(a) In relation to corporate restructuring and re-organisation, distinguish between the following terms:

(i) "Boot strapping" and "management buyout". (2 marks)

(ii) "Sell off" and "spin off". (2 marks)

(b) Kubwa Ltd., a supermarket chain, is proposing to take-over Small Ltd., a smaller firm in the same industry. In its bid, Kubwa Ltd. has offered four of its shares for every three shares of Small Ltd.

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The following are the latest summarised accounts of the two companies:

Statements of financial position

	Kubwa Ltd.		Small Ltd.
Non-current assets:	**Sh."million"**	**Sh."million"**	**Sh."million"**
Land	966		84.6
Other non-current assets	300		34
	1,266		118.6
Current assets:			
Inventory	656	102.8	
Accounts receivable	24	12.6	
Cash	88	10.6	
	768	126.0	
Current liabilities:			
Trade payables	894	92.2	
Other accruals	68	8	
	962	100.2	
Net current assets	(194)		25.8
Long-term liabilities:			
14% loan stock	400	-	-
Floating rate loans	228	35	
	(628)		(35)
Total net assets	444		109.4
Shareholders' funds:			
Ordinary share capital	150		40
Reserves	294		69.4
Total shareholders' funds	444		109.4

Income statement

	Kubwa Ltd.	Small Ltd.
	Sh."million"	**Sh."million"**
Turnover	2,260	362
Earnings before interest and tax	230	28
Interest	(80)	(4)
Profit before tax	150	24
Taxation	(50)	(8)
Earnings available to shareholders	100	16
Dividends	(48)	(10)
Retained earnings	52	6

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Additional information:

1. The par value of the shares of Kubwa Ltd. is Sh.0.50 while the par value of Small Ltd's shares is Sh.1.00.
2. The current share price of Kubwa Ltd. is Sh.4.64 while that of Small Ltd. is Sh.5.90. The current loan stock price of Small Ltd. is Sh. 125.
3. Recent annual growth trends are as follows:

	Kubwa Ltd.	Small Ltd.
Dividends	7%	8%
Earnings per share	7%	10%

4. The following will take place after the acquisition:
   - Surplus warehousing facilities will be sold for Sh.13.6 million.
   - Sh. 18 million will be paid out for redundancy of employees.
   - There will be savings of Sh.5.4 million from wages every year for at least five years.
5. Kubwa Ltd. has an estimated cost of equity of 14.5% and a weighted average cost of capital of 12%.
6. Small Ltd. has an estimated cost of equity of 13%.

Required:

(i) Evaluate whether the bid is likely to be viewed favourably by the shareholders of both Kubwa Ltd. and Small Ltd. (10 marks)

(ii) Discuss three factors that are likely to influence the views of the shareholders in the analysis in (b) (i) above. (6 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Explain how currency swaps could be used to hedge against the foreign exchange operating exposure of a firm. (4 marks)

(b) International Bank expects that the Mexican Peso (MXP) will depreciate against the US dollar (USD) from its spot rate of $0.15 to $0.14 in ten days. The following interbank lending and borrowing rates exist:

	Annual lending rate	**Annual borrowing rate**
US dollars (USD)	8.0%	8.3%
Mexican Peso (MXP)	8.5%	8.7%

Assume that International Bank has a borrowing capacity of either 10 million USD or 70 million MXP in the interbank market, depending on which currency it wants to borrow. Further, assume that one year has 360 days.

Required:

(i) Demonstrate how International Bank could capitalise on its expectations without using deposited funds. (5 marks)

(ii) Estimate the profits that could be generated from the strategy adopted in (b) (i) above. (1 mark)

(c) Assume all the information provided in (b) above with this exception: International Bank expects the MXP to appreciate from its present spot rate of $0.15 to $0.17 in 30 days.

Required:

(i) Demonstrate how International Bank could capitalise on its expectations without using deposited funds. (5 marks)

(ii) Estimate the profits that could be generated from the strategy adopted in (c) (i) above. (1 mark)

(d) Highlight two shortcomings of the Black-Scholes option pricing 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

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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

CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) In the context of appraisal of capital investments under conditions of uncertainty, explain four limitations of utility analysis. (8 marks)

(b) Planet Ltd. is considering undertaking a 20-year project which requires an initial investment of Sh.250 million in a real estate partnership and whose present value (PV) of expected cash flows is Sh.254 million. Planet Ltd. has the option to abandon the project any time in the next five years for Sh.150 million. The variance in the present value (PV) of the cash flows is 0.09 and the 5-year risk-free rate is 7%.

Required:

(i) The net present value (NPV) of the project including the option to abandon the project. (10 marks)

(ii) Comment on the results of your analysis in (b)(i) above. (2 marks)

Note:

1. The Black-Scholes Option Pricing Model

$$C = P_a N(d_1) - P_e N(d_2)e^{-rt}$$

Where:

$$d_1 = \frac{\ln\left[\frac{P_a}{P_e}\right] + (r + 0.5s^2)t}{s\sqrt{t}}$$

$$d_2 = d_1 - s\sqrt{t}$$

2. The Put-Call Parity Relationship

$$P = C - P_a + P_e e^{-rt}$$

(Total: 20 marks)

QUESTION TWO

(a) Biashara Ltd. wishes to invest in stocks M and N in two different industries. The following information relates to the two stocks:

	Stock M	Stock N
Expected return (%)	18	16
Standard deviation (%)	8	6
Beta coefficient	1.80	1.50
Amount of money invested (Sh.)	1,200,000	800,000

Required:

(i) The expected portfolio return. (4 marks)

(ii) Explain the effect on the portfolio risk if the returns of stocks M and N were perfectly positively correlated. Include suitable calculations. (6 marks)

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(b) Mapeni Ltd's investment fund comprises four major projects. The details of the projects are as follows:

Project	Market value of the fund (%)	Expected return (%)	Standard deviation (%)	Coefficient of correlation with the market
1	28	10	15	0.55
2	17	18	20	0.75
3	31	15	14	0.84
4	24	13	18	0.62

The risk-free rate is 5% and the market return is 14%. The standard deviation of the market return is 13%.

Required:

(i) The beta coefficient of the investment fund. (4 marks)

(ii) By comparing the expected return and the required return, advise whether Mapeni Ltd. should change the composition of its portfolio. (6 marks)

(Total: 20 marks)

QUESTION THREE

On 1 January 2016, Mavuno Limited was in the process of raising funds to undertake four investment projects. These projects required a total of Sh.30 million.

Given below are details relating to the four investment projects:

Project	Required initial investment Sh. "million"	Internal rate of return (%)
A	8	26
B	7	16
C	9	20
D	6	22

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Additional information:

1. The company had Sh.9 million available from retained earnings as at 1 January 2016. Any extra equity finance would have to be sourced through an issue of new ordinary shares.
2. The market price per ordinary share on 1 January 2016 was Sh.25.60 ex-dividend. Information on earnings per share (EPS) and dividend per share (DPS) over the last 6 years is as follows:

Year ended 31 December	2010	2011	2012	2013	2014	2015
EPS (Sh.)	4.5	4.8	4.9	5.2	5.5	6.0
DPS (Sh.)	2.5	2.8	2.9	3.0	3.2	3.5

3. Issue of new ordinary shares would attract a floatation cost of Sh.4.60 per share.
4. 9% irredeemable debentures (par value of Sh.1,000 each) could be sold with net proceeds of 95% due to a discount on issue of 2% and a floatation cost of Sh.30 per debenture. The maximum amount available from the issue of the 9% irredeemable debenture would be Sh.4 million after which debt could only be obtained at 12% interest with net proceeds of 90% of par value.
5. 10% preference shares can be issued at a par value of Sh.80.
6. The company's capital structure, which is considered optimal, is as follows:

	%
Equity capital	45
Preference share capital	30
Debenture capital	25
	100

7. The corporate tax rate applicable is 30%.
8. The company has to exhaust internally generated funds before raising extra funds from external sources.

Required:

(a) The levels of total new financing at which breaks occur in the weighted marginal cost of capital (WMCC) curve. (2 marks)

(b) The weighted marginal cost of capital (WMCC) for each of the 3 ranges of levels of total financing as determined in (a) above. (10 marks)

(c) (i) Advise Mavuno Limited on the project(s) to undertake assuming that the projects are divisible. (6 marks)

(ii) Determine the optimal capital budget. (2 marks)

(Total: 20 marks)

QUESTION FOUR

(a) With reference to corporate valuation, describe the importance of enterprise value (EV). (6 marks)

(b) Huge Ltd. intends to take over Tiny Ltd., another company in the same industry. Tiny Ltd. is expected to post earnings of Sh.86 million next year.

If Huge Ltd. acquires Tiny Ltd., the expected results of Tiny Ltd., for the next three years will be as follows:

	Year after acquisition		
	Year 1	**Year 2**	**Year 3**
	Sh. "000"	**Sh. "000"**	**Sh. "000"**
Sales	200,000	280,000	320,000
Cash costs/expenses	120,000	160,000	180,000
Capital allowance	20,000	30,000	40,000
Interest charges	10,000	10,000	10,000
Cash to replace assets and finance growth	25,000	30,000	35,000

From year 4 onwards, it is expected that the annual cash flows from Tiny Ltd. will increase by 4% each year into perpetuity.

Tax is payable at the rate of 30% and this tax is paid in the same year the profits to which it relates are earned.

If Huge Ltd. acquires Tiny Ltd., it estimates that the gearing after the acquisition will be 35% measured as the value of debt as a proportion of the total equity and debt. After the acquisition of Tiny Ltd., Huge Ltd. would have a cost of debt of 7.4% before tax and a beta of 1.60.

The risk-free rate is 6% and the return on the market portfolio is 11%.

Required:

(i) The offer price for Tiny Ltd., if Huge Ltd. were to value Tiny Ltd. on a forward price earnings (P/E) multiple of 8.0 times. (2 marks)

(ii) The weighted average cost of capital (WACC) for Huge Ltd. after the acquisition of Tiny Ltd. (2 marks)

(iii) The offer price for Tiny Ltd. using a discounted cash flow (DCF) based valuation. (10 marks)

(Total: 20 marks)

QUESTION FIVE

(a) Discuss four techniques that a company might use to hedge against the foreign exchange risk involved in foreign trade. (8 marks)

(b) Jasper Ltd. is a company based in Nairobi, Kenya which does business with companies based in Tanzania. From such trade, Jasper Ltd. expects the following cash flows in the next six months, in the currencies specified:

Payments due in 3 months	:	Ksh.116,000
Receipts due in 3 months	:	Tsh.1,970,000
Payments due in 6 months	:	Tsh.4,470,000
Receipts due in 6 months	:	Tsh.1,540,000

The exchange rates in the Nairobi market are as follows:

	Tsh/Ksh
Spot	17.106 – 17.140
Three months forward	0.82 – 0.77 cents premium
Six months forward	1.39 – 1.34 cents premium

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	Interest rates	
	Borrowing	**Lending**
Ksh.	12.5%	9.5%
Tsh.	9%	6%

Required:
The net Kenya shilling receipts/payments that Jasper Ltd. might expect for both its three month and six month transactions if the company hedges foreign exchange risk on the:

(i) Forward foreign exchange market. (6 marks)

(ii) Money market. (6 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:

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

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

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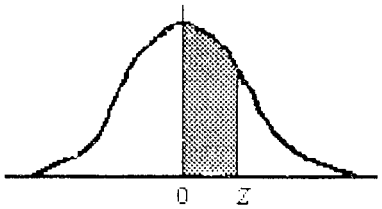
NORMAL CURVE

AREAS
under the
STANDARD
NORMAL CURVE
from 0 to z



z	0	1	2	3	4	5	6	7	8	9
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0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0754
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.201	.2051	.2088	.2123	.2157	.2190	.2224
0.6	.2258	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2612	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2996	.3023	.3051	.3078	.3106	3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.5	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998
3.6	.4998	.4998	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999
3.7	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999
3.8	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999
3.9	.5000	.5000	.5000	.5000	.5000	.5000	.5000	.5000	.5000	.5000

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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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) In the context of financial management, explain what is meant by "stakeholder theory". (6 marks)

(b) A company is considering whether to purchase equipment to increase its production and sales volumes. The equipment costs Sh.500,000,000 and has a useful life of three years after which it can be sold as scrap for Sh.80,000,000. For each of the three years of usage, the equipment is expected to increase both sales revenue and operating costs by Sh.600,000,000 and Sh.390,000,000 respectively. The company's cost of capital is 10%.

Required:

Compute the percentage change required in each of the following factors for the project to be rejected:

(i) Initial cost of the equipment. (4 marks)
(ii) Scrap value of the equipment. (2 marks)
(iii) Sales revenue. (4 marks)

(c) Evaluate four advantages of employing organic growth strategies. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) In most cases, the assumption is that investors are risk-averse, that is, they like returns and dislike risk.

With reference to the above statement, explain why it is argued that only systematic risk and not total risk is important. (4 marks)

(b) In the context of portfolio theory, explain the meaning of "beta coefficient". (2 marks)

(c) The following data have been provided with respect to three shares traded on the Nairobi Securities Exchange (NSE):

	Share A	Share B	Share C
Risk-free rate of return	12%	12%	12%
Beta coefficient	1.340	1.000	0.750
Return on the NSE index	0.185	0.185	0.185

Required:

(i) Interpret the beta coefficients of shares A, B and C. (3 marks)
(ii) Using the capital asset pricing model (CAPM), compute the expected return on shares A, B and C. (3 marks)

(d) The following information relates to portfolios P and N:

	Portfolio P	Portfolio N
Average return	35%	28%
Beta	1.25	1.00
Standard deviation	42%	30%
Non-systematic risk	18%	10%

Assume that the risk free rate is 6% and the average market return is 15%.

Required:

(i) Sharpe's performance measure for portfolios P and N. (2 marks)
(ii) Treynor's performance measure for portfolios P and N. (2 marks)
(iii) Jensen's performance measure for portfolios P and N. (2 marks)
(iv) The appraisal ratio for portfolios P and N. (2 marks)

(Total: 20 marks)

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QUESTION THREE

(a) Comment on the assertion that capital structure is strongly influenced by managerial behaviour. (4 marks)

(b) The finance director of Nyuki Ltd. wishes to estimate what impact the introduction of debt finance is likely to have on the company's overall cost of capital. The company is currently financed by equity only.

Nyuki Ltd.- Summarised capital structure

	Sh."000"
Ordinary shares (Sh.2.5 par value)	5,000
Reserves	11,000
	16,000

The company's current share price is Sh.4.20 and up to Sh.4 million of fixed rate five-year debt could be raised at an interest rate of 10% per year. The corporate tax rate is 30%.

Nyuki Ltd.'s current earnings before interest and tax are Sh.2.5 million. These earnings are not expected to change significantly for the foreseeable future.

The company is considering raising either Sh.2 million in debt finance or Sh.4 million in debt finance. In either case, the debt finance will be used to repurchase ordinary shares.

Required:

Using Modigliani and Miller's model in a world with corporate tax, estimate the impact on Nyuki Ltd.'s weighte average cost of capital of raising:

(i) Sh.2 million in debt finance. (6 marks)

(ii) Sh.4 million in debt finance. (6 marks)

(c) Comment on the accuracy of the estimates produced in (b) (i) and (ii) above. (4 marks)

(Total: 20 marks)

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QUESTION FOUR

(a) (i) Define the term "free cash flow to equity". (2 marks)

(ii) Explain how free cash flow to equity could be used for valuation. (4 marks)

(b) Discuss two advantages and two disadvantages of economic value added (EVA). (4 marks)

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

Statement of profit or loss extracts for the year:

	2013 Sh."million"	2014 Sh."million"
Revenue	326	380
Pre-tax accounting profit	67	84
Taxation	23	29
Profit after tax	44	55
Dividends	15	18
Retained earnings	29	37

Statement of financial position extracts for the year:

	2013 Sh."million"	2014 Sh."million"
Non-current assets	120	156
Net current assets	130	160
	250	316
Financed by:		
Shareholders' funds	195	236
Medium and long-term bank loans	55	80
	250	316

Additional information:

1. Jasho Ltd. had non-capitalised leases valued at Sh.10 million in each year from 2012 to 2014.
2. Capital employed as per the year 2012 financial statements was Sh.223 million.
3. The pre-tax cost of debt was estimated to be 9% in year 2013 and 10% in year 2014.
4. Jasho Ltd.'s cost of equity was estimated to be 15% in year 2013 and 17% in year 2014.
5. The pre-tax accounting profit is obtained after deducting the economic depreciation of the company's non-current assets. This is also the depreciation used for tax purposes.
6. The target capital structure for Jasho Ltd. is 60% equity and 40% debt.
7. The effective tax rate was 30% in both year 2013 and year 2014.
8. Economic depreciation was Sh.30 million in year 2013 and Sh.35 million in year 2014.
9. Other non-cash expenses were Sh.10 million per year in both 2013 and 2014.
10. Interest expense was Sh.4 million in year 2013 and Sh.6 million in year 2014.

Required:

(i) Stating any assumptions made, estimate the economic value added (EVA) of Jasho Ltd. for both year 2013 and year 2014. (8 marks)

(ii) Comment on the performance of Jasho Ltd. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) The main driver of option valuation is the volatility of returns of the associated asset.

Support the above statement. (4 marks)

(b) Explain how triangular arbitrage ensures that currency values are essentially the same in different markets around the world at any given moment. (4 marks)

(c) Granada Ltd., a UK-based company, imports computer components from the Far East. The trading currency is the Singapore dollar (S$) and the value of the deal is S$28 million. Three month's credit is given. The current spot exchange rate is S$2.8 to one sterling pound (£). Because of recent volatility in the foreign exchange markets, Granada Ltd.'s directors are worried that a rise in the value of the S$ could wipe out the profits on the deal. Three alternative hedging methods have been suggested as follows:

- A forward market hedge.
- A money market hedge.
- An option hedge.

Granada Ltd.'s treasurer has provided the following information:

1. The three-month forward rate is S$2.79:£1.
2. Granada Ltd. can borrow Singapore dollars at 2% interest rate per annum and sterling pounds at 5% per annum.
3. Deposit rates are 1% per annum in Singapore and 3% per annum in the UK.
4. A three-month American call option to buy S$28 million at an exercise rate of S$2.785:£1 could be purchased at a premium of £200,000 on the London OTC option market.

Required:

(i) Indicate which would be a better hedge between the forward market hedge and the money market hedge. (6 marks)

(ii) Evaluate the option hedge if the following spot rates were applicable in three months' time:

- S$2.78:£1.
- S$2.82:£1.

(6 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

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

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

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	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

CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

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

The managers of Kawaida Ltd. are investigating a potential Sh.25,000,000 investment. The investment would be a diversification away from existing mainstream activities into the food manufacturing industry. Sh.6,000,000 of the investment would be financed by internal funds, Sh.10,000,000 by a rights issue and Sh.9,000,000 by long term loans. The investment is expected to generate pretax net cash flows of approximately Sh.5,000,000 per year for a period of ten years. The residual value at the end of year 10 is forecast to be Sh.5,000,000 after tax. As the investment is in an area that the government wishes to develop, a subsidised loan of Sh.4,000,000 out of the total Sh.9,000,000 is available. This will cost 2% below the company's normal cost of long term debt finance which is 8%.

Kawaida Ltd.'s equity beta is 0.85, and its financial gearing is 60% equity and 40% debt by value. The average equity beta in the food manufacturing industry is 1.2 and average gearing 50% equity and 50% debt by market value.

The risk free rate is 5.5% per annum and the market return is 12% per annum.

Issue costs are estimated to be 1% for debt financing (excluding the subsidised loan) and 4% for equity financing. These costs are not tax allowable.

The corporate tax rate is 30%

Required:

(a) Estimate the adjusted present value (APV) of the proposed investment. (15 marks)

(b) Comment upon the circumstances under which APV might be a better method of evaluating a capital investment than net present value (NPV). (5 marks)

(Total: 20 marks)

QUESTION TWO

(a) ABC Ltd., a small manufacturing firm, wishes to acquire a new machine that costs Sh.30,000.

Arrangements can be made to lease or purchase the machine . The firm is in the 40% tax bracket. The firm has gathered the following information about the two alternatives:

Purchase: ABC Ltd. can finance the purchase of the machine with a 10%, 6 year loan requiring annual end of year installments. The machine would be depreciated using the reducing balance method. It would have a salvage value of Sh.6,000 after 5 years. The company would pay Sh.1,200 per year for a service contract that covers all maintenance costs. The firm plans to keep the machine and use it beyond its 5 year recovery period.

Lease: ABC Ltd. would obtain a 5 year lease requiring annual end-of-year-lease payments of Sh.10,000.

The lessor would pay all maintenance costs. Insurance and other costs will be borne by the lessee.

ABC Ltd. would be given the right to exercise its option to purchase the machine for Sh.3,000 at the end of the lease term.

Required:

Advise ABC Ltd. on which alternative to take using suitable computations. (16 marks)

(b) Briefly explain how the arbitrage process may lead to an equilibrium in the financial markets. (4 marks)

(Total: 20 marks)

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QUESTION THREE

(a) Briefly discuss the meaning and importance of the following terms as used in option pricing:

(i) Delta. (2 marks)

(ii) Theta. (2 marks)

(iii) Vega. (2 marks)

(iv) Rho. (2 marks)

(v) Gamma. (2 marks)

(b) Assume that your company has invested in 100,000 shares of Usaidizi Ltd., a manufacturer of light bulbs. You are concerned about the recent volatility in Usaidizi Ltd.'s share price due to the unpredictable weather in Uganda. You wish to protect your company's investments from a possible fall in Usaidizi Ltd. share price until winter in three months time, but do not wish to sell the shares at present.

No dividends are due to be paid by Usaidizi Ltd. during the next three months.

Market data:

- Usaidizi Ltd. current share price: Sh.20
- Call option exercise price: Sh.22
- Time to expiry: 3 months
- Volatility of Usaidizi Ltd. shares 50% (standard deviation per year)

Assume that option contracts are for the purchase or sale of units of 1,000 shares.

Required:

(i) Devise a delta hedger that is expected to protect investment against changes in the share price until the weather changes. Delta may be estimated using $N(d_1)$. (8 marks)

(ii) Comment on whether such a hedge is likely to be totally successful. (2 marks)

(Total: 20 marks)

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QUESTION FOUR

Omena Ltd. is a firm in the manufacturing industry. The management of this company are considering purchasing a new machine at a cost of Sh.125 million. This investment is expected to reduce manufacturing costs by Sh.45 million annually. The firm will need to increase its net operating working capital by Sh.12.5 million when the machine is installed, but the required operating working capital will return to the original level when the machine is sold after 5 years.

Omena Ltd. will use the straight line method to depreciate the machines and it expects to sell the machine at the end of 5 years operating life for Sh.11.50 million. The company pays corporation taxes at the rate of 30% and uses 10% cost of capital to evaluate projects of this nature.

Required:

(a) The project's net present value. (3 marks)

(b) The firm's management are unsure about the annual savings in operating costs that will occur with the new machines acquisition. Management believes that these savings may deviate from their base case value (Sh.45 million) by as much as a plus or minus 10%.

Determine the net present value of the project under both situations and comment on the sensitivity of this variable. (5 marks)

(c) Suppose the firm's chief finance officer suggest that the firm does a scenario analysis for this project because of the concerns raised about data assumptions, particularly the annual operating cost saving, the salvage value and the net operating working capital (NOWC) requirement. After an extensive analysis, she arrives with the following probabilities and values for the scenario analysis:

Scenario	Probability	Annual operating cost saving Sh."000"	Salvage value Sh."000"	NOWC Sh."000"
Worst case	0.4	36,000	9,000	15,000
Base case	0.4	45,000	11,500	12,500
Best case	0.2	54,000	14,000	10,000

Determine the project's expected net present value (ENPV), standard deviation and its coefficient of variation. (7 marks)

(d) If net present value of this project is less than Sh.5 million, this company will be exposed to a hostile takeover. Determine the probability that this company will avoid a hostile takeover (Assume normal distribution). (5 marks)

(Total: 20 marks)

QUESTION FIVE

(a) In relation to corporate restructuring and re-organisation, distinguish between the term "demerger" and "spin off". (3 marks)

(b) ABC Ltd.'s investment fund comprises of four major projects, details of which are as follows:

Stock	Number of shares	Market price per share	Expected return (%)	Standard deviation of return	Correlation with market
A	2,000,000	30	10	15	0.55
B	1,000,000	25	18	20	-0.75
C	2,000,000	20	15	14	0.84
D	3,000,000	25	13	18	-0.62

The risk free rate of return is 5% and the probability distribution of a market portfolio return are given as follows:

Probability	Forecasted return of market %
0.2	15
0.15	10
0.30	15
0.25	20
0.10	25

The variance of return of the market portfolio is 169%.

Required:

(i) Using portfolio theory, evaluate whether this portfolio is super-efficient, efficient or inefficient. (6 marks)

(ii) Using the capital asset pricing model (CAPM), advise whether management of this company should change the composition of their portfolio or not. (6 marks)

(c) State and explain any three conceptual differences between portfolio theory and the capital asset pricing model (CAPM). (5 marks)

(Total: 20 marks)

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